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(101129182 — Homo Digitalis)

Handbook

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HANDBOOK OF "HOMO DIGITALIS" PROJECT'S TRAININGS & STUDY VISITS

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INF

FAKULTÄT FÜR
INFORMATIK

Usage of Digital Humanities Tools for Educational Media

Corpora annotation

Prof. Dr.-Ing. Ernesto William De Luca

Prof. Dr. Francesca Fallucchi

Goals

- Main goal:
  - understanding what Language Engineering is;
  - understanding what corpora annotation is.
- Motivation:
  - usage of Language Resources in different applications;
  - importance of corpora and different levels of annotation.

Outline

- Language Engineering vs. Language Resources
- Data in Linguistics
- Corpora
- Corpora annotation
  - Annotation definition
  - Part-of-Speech tagging
  - Syntactic annotation
  - Semantic annotation
  - Discourse annotation
  - Pragmatic annotation

Outline

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  - Pragmatic annotation

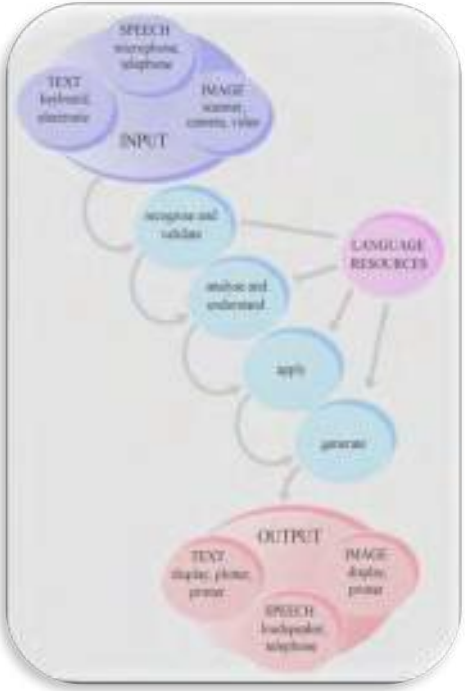
Language

- Language is:
  - the natural means of human communication;
  - the most effective way we have to express ourselves to each other.
- We use language in a host of different ways:
  - to explain complex ideas and concepts;
  - to manage human resources;
  - to negotiate;
  - to persuade;
  - to make our needs known;
  - to express our feelings;
  - to narrate stories;
  - to record our culture for future generations;
  - and to create beauty in poetry and prose.

Language Engineering vs. Language Resources

❖ Language Engineering

involves development and application of software systems that perform tasks concerning the processing of human natural language.



Model of a Language Enabled System

❖ Language Resources

are essential components of language engineering, containing a wide range of linguistic information with different degrees of complexity:

- ***corpora*** to evaluate the performance of systems (Information Retrieval, Machine Learning and Data Mining);
- ***lexical resources*** provide linguistic information about words.

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Data in Linguistics

- Types of Linguistic Data:
  - linguistically data are often classified into “real” and “unreal” data depending on their origin;
  - however, this dichotomy does not fully cover the range of possible sources:
    - naturally occurring data, e.g.:
      - (balanced) reference corpora;
      - specialized corpora for specific subject domains or applications;
    - evoked or induced data, e.g.:
      - dialogue-scenario data;
    - invented or solicited data, e.g.:
      - sample sentences created by linguist;
      - acceptability judgments solicited by linguist;
      - test suites.

Data in Linguistics

- Types of Linguistic Data:
  - the dichotomy *real* and *unreal* does not necessarily coincide with the property of naturalness;
  - linguistic examples are often considered “unnatural”;
  - on the other hand, a large corpus may contain many sentences that are extremely unnatural;
  - naturalness does not solely depend on the origin of the data.

Data in Linguistics

- Parameters for Classification:
  - *language*: Spanish, English, German, Italian;
  - *sublanguage/register*: regional dialect, sociolect, vernacular, professional jargon, toddler speech;
  - *text sort(s)*: newspaper articles, wire news, political speech, control commands;
  - *subject domain:* stock rates, flight reservations;
  - *type of producers*: professional journalist;
  - *mode of production*: spoken, written, signed, morsed;
  - *medium of production*: pencil, PC with MS Word, dictaphone;
  - *conditions of production*: spontaneous, carefully composed, produced under time pressure

Data in Linguistics

- Parameters for Classification:
  - *transmission encoding*: raw ASCII code, HTML, digitized phone signal;
  - *medium of transmission*: telephone, WWW, CB radio;
  - *storage encoding*: raw ASCII code, HTML, AIFF;
  - *medium of storage:* DAT tape, CD ROM, Hard Disk;
  - *mode of presentation*: spoken, written, signed;
  - *medium of presentation*: newspaper, radio, book, TV show, theatre performance;
  - *type of intended recipients*: newspaper reader, booking agent, theatre audience;
  - *number of intended recipients*: point-to-point, multicast, broadcast;
  - *synchronicity of discourse*: synchronous dialogue, asynchronous dialogue;
  - *direction*: one-way, two-way.

Data in Linguistics

- Criteria for Usefulness:
  - in order to be useful, data have to be representative of
    - a certain linguistic phenomenon
    - a certain text sort
    - the expected input to some language technology application
    - the expected output of some language technology application
    - a certain speaker
    - etc.
  - can data be representative of an entire language?

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What is a corpus? Some (authoritative) definitions

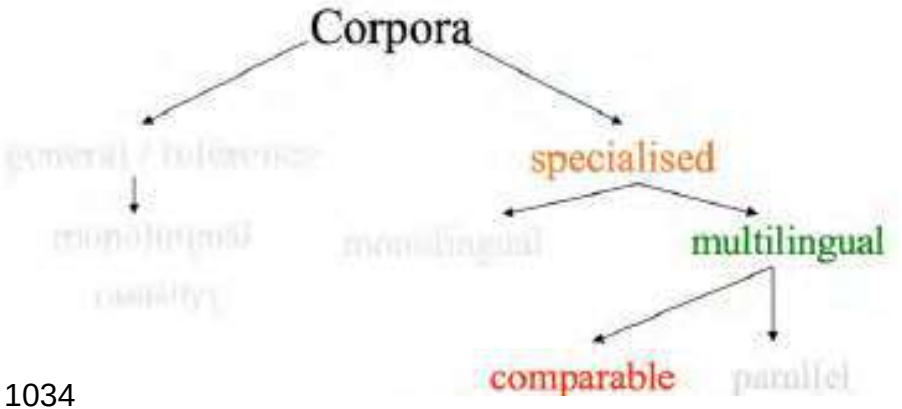
- “a collection of naturally-occurring language text, chosen to characterize a state or variety of a language” (Sinclair, 1991:171)
- “a collection of texts assumed to be representative of a given language, dialect, or other subset of a language, to be used for linguistic analysis” (Francis, 1992:7)
- “a closed set of texts in machine-readable form established for general or specific purposes by previously defined criteria” (Engwall, 1992:167)
- “a finite-sized body of machine-readable text, sampled in order to be maximally representative of the language variety under consideration” (McEnery & Wilson, 1996:23)
- “a collection of (1) machine-readable (2) authentic texts […] which is (3) sampled to be (4) representative of a particular language or language variety” (McEnery et al., 2006:5)

Corpus

- Corpus linguistics
  - is the study of language as expressed in samples (*corpora*) or “real world” texts
  - originally it was done by hand
  - at the moment, corpora are also largely derived by an automated process, which is corrected.
- Corpus definition:
  - a collection of texts with linguistic annotations is known as a *corpus* (pl. *corpora*).

Corpora

- Written language corpora:
  - language resources that sometimes can be simply defined as
    - "a collection of texts"
    - "a special collection of textual material collected according to some criteria"
  - corpora can be used for a variety of NLP tasks and can be subdivided into:
    - parallel;
    - comparable;
    - mono-, bi- and multilingual.



Corpora

- Parallel corpora:
  - collection of texts, each of which is translated into one or more other languages from the original (e.g. EuroParl parallel corpus).
- Comparable corpora:
  - similar texts in more than one language (e.g. ICE corpus, International Corpus of English).
- Mono-, Bi- and Multilingual corpora:
  - available in one / two / more languages (e.g. one-million word Brown Corpus, the Web).

Corpora

- Corpora with semantic annotation (*tagging*):
  - enriched with morphological, syntactic, semantic, discourse or pragmatic annotations as additional linguistic information.
- Web directories:
  - are hierarchical thematic categories and have been automatically associated with word senses;
  - information in the Web not only query-oriented (as in a search engine), but also browsing-oriented (by iterative topic refinement);
  - e.g. Yahoo Directories or the Open Directory Project.

The ChatGPT corpus

You
what does the corpus make up?

ChatGPT
A corpus typically refers to a large and structured set of texts used for linguistic analysis and study. It can consist of various types of texts, such as written documents, transcribed speech, or a combination of both. Corpora can be compiled for different purposes, including studying language patterns, developing natural language processing tools, or conducting linguistic research. The makeup of a corpus depends on its intended use and can vary widely based on factors such as language, genre, time period, and source material.

You
which corpus do you use?

ChatGPT
As an AI developed by OpenAI, I don't have access to a specific corpus in the traditional sense. Instead, I've been trained on a diverse range of internet text, which encompasses a wide variety of sources such as books, articles, websites, and other publicly available written material. This training data is used to enable me to generate responses and provide information across a broad range of topics. While I don't have direct access to any specific corpus, my responses are influenced by the patterns and information present in the data I was trained on.

The ChatGPT corpus

You
which are the types of data in corpus?

ChatGPT
Corpora can include various types of data, depending on the goals of the linguistic analysis or research being conducted. Here are some common types of data found in corpora:

1. **Written Texts**: These include books, articles, essays, newspapers, magazines, websites, social media posts, emails, and other forms of written communication.
2. **Transcribed Speech**: Corpora may also contain transcripts of spoken language, including conversations, interviews, lectures, speeches, radio broadcasts, podcasts, and more.
3. **Multimodal Data**: Some corpora combine written text with other modalities, such as audio, video, images, or metadata. This allows for the analysis of language in different contexts and mediums.
4. **Specialized Corpora**: These are corpora that focus on specific domains or genres, such as legal texts, medical records, academic papers, literary works, historical documents, or technical manuals.
5. **Parallel Corpora**: These corpora contain translations of texts in multiple languages aligned at the sentence or paragraph level, enabling comparative analysis between languages.
6. **Historical Corpora**: These corpora consist of texts from past time periods, allowing researchers to study language change and evolution over time.
7. **Learner Corpora**: These corpora contain texts produced by language learners, often used to analyze language acquisition, errors, and proficiency levels.
8. **Corpora of Controlled Language**: These corpora contain texts written in controlled or constrained language, such as simplified language for accessibility or specific communication purposes.
9. **Annotated Corpora**: These corpora have been manually annotated with linguistic information such as part-of-speech tags, syntactic structures, named entities, sentiment labels, or discourse relations, facilitating more detailed linguistic analysis and training of natural language processing models.

The types of data included in a corpus depend on the objectives of the research or analysis being conducted, as well as the availability and accessibility of the data sources.

You
which are the types of data in your corpus?

ChatGPT
As an AI language model, I don't have direct access to my training data or know where it came from. However, I was trained on a mixture of licensed data, data created by human trainers, and publicly available data. These sources may contain a variety of text types, including but not limited to:

1. Books and literature
2. Articles from various publications
3. Websites
4. Social media posts
5. Conversational data
6. Technical documents
7. Scientific papers
8. Historical texts
9. Encyclopedic content

The training process involves exposing the model to diverse language patterns and concepts so that it can learn to generate responses and perform tasks across a wide range of topics.

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Corpora annotation

- Annotation definition:
  - from Latin *annotationem* (nom. *annotatio*), from *annotatus*, pp. of *annotare* “to add notes to”, from *ad-* “to” + *notare* “to note, mark”;
  - in linguistics, morphological, syntactic, semantic, discourse and pragmatic annotations add information about the linguistic form;
  - other forms of annotation include comments and metadata; these non-transcriptional annotations are also non-linguistic.



Corpora annotation

- Annotation use:
  - perfectly plain: produced by scanning; no information about text (usually, not even edition);
  - marked up for formatting attributes
    (e.g. page breaks, paragraphs, font sizes, italics, etc.);
  - annotated with identifying information
    (e.g. edition date, author, genre, register, etc.)
  - annotated for part of speech, syntactic structure, discourse information, etc.

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Corpora annotation

- Part-of-Speech Tagging
  - Main steps:
    - divide the text into word tokens (*tokenization*);
    - select a *set of tags*;
    - apply *tag set to tokens*.
  - Tokenization:
    - orthographic word – morpho-syntactic unit?
    - Multiwords (e.g. *“in spite of”* label as *in*_PREP31 *spite*_PREP32 *of*_PREP33);
    - mergers (e.g. clitics as in *hasn’t, je t’aime, vendetelo* label as *vendete*_VERB *lo*_PRON);
    - compounds (e.g. *tag set* label as *tagset*_NOUN or *tag*_NOUN *set*_NOUN?).

Corpora annotation

- Part-of-Speech Tagging
  - Choice of tag set:
    - sophisticated, linguistically well grounded set of tags;
    - BUT: not automatically applicable without loss of accuracy;
    - example: *come*
      - present plural indicative, imperative, subjunctive;
        Lancaster corpus: distinguish from to-infinitive, Brown corpus: doesn't distinguish.

Corpora annotation

- Applying tags to words
  - Tagging scheme should include a procedure of how to assign tags to words (both for humans and machines);
  - Need a lexicon: it will say which tags are assignable to which words;
  - Again: ambiguity is a problem.

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Corpora annotation

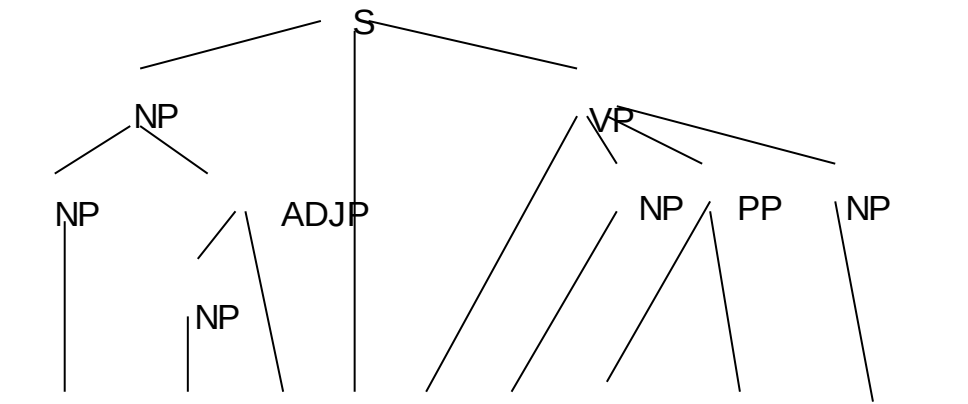
- Syntactic annotation = parsed corpora
- Purposes:
  - training automatic parsers
    (computational linguistics, e.g. probabilistic parsers – inductive training through extraction of frequency counts);
  - extracting information
    (linguistics, e.g. building a lexicon, investigating subcategorization frames, collocations or other linguistic things, describing sublanguages).

Corpora annotation

- Syntactic annotation
  - A parsing scheme needs (cf. PoS tagging):
    - a list of symbols;
    - definitions of symbols;
    - description of how to apply symbols to text.
  - Syntactically annotated corpora: ***tree banks***.
  - Examples of tree banks:
    - Penn Treebank, Nijmegen Treebank, Susanne Corpus, Helsinki Constraint Grammar (ENGCG), Lancaster/IBM SEC Treebank.

Corpora annotation

- Syntactic annotation
  - Parsing:
    - the (automatic) analysis of texts (sentences) in terms of syntactic categories.



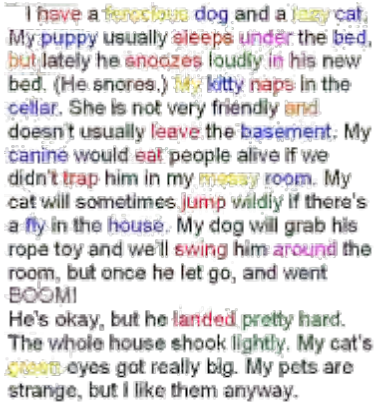
Corpora annotation

- Syntactic annotation
  - *Peen Treebank*
    - *skeleton parsing*: partial parse, leaving out the “hard” things (such as PP-attachment);
    - phrase structure model (Garside et al., 1997, p.42).

```
((S (NP (NP Pierre Vinken)
    ,
   (ADJP (NP 61 years)
      old
    ,))
    will
   (VP join
(NP the board)
(PP as
   (NP a nonexecutive director))
(NP Nov 29)))
.)
```

Corpora annotation

- Syntactic annotation
  - Peen Treebank:
    - available through LDC;
    - size: 3 300 000 words (Feb ‘97);
    - Brown corpus, Wall Street Journal;
    - in the current phase:
      - add function labels (Subj, Obj, etc.);
      - add null constituents or traces (e.g. It’s easy [t] to eat);
      - add indices for coreferences (e.g. Mary[i] saw herself[i] in the mirror);
      - discontinuous constituents;
      - add semantic roles (Agent, Goal, etc.);
    - may get too complex for large-scale reliable analysis...


I have a ferocious dog and a lazy cat. My puppy usually sleeps under the bed, but lately he snoozes loudly in his new bed. (He snores.) My kitty naps in the cellar. She is not very friendly and doesn't usually leave the basement. My canine would eat people alive if we didn't trap him in my messy room. My cat will sometimes jump wildly if there's a fly in the house. My dog will grab his rope toy and we'll swing him around the room, but once he let go, and went BOOM!
He's okay, but he landed pretty hard. The whole house shook lightly. My cat's green eyes got really big. My pets are strange, but I like them anyway.

Corpora annotation

- Syntactic annotation
  - Susanne Corpus:
    - part of the Brown corpus, 128 000 words;
    - result of manual analysis;
    - parsing scheme specified in great detail;
    - available from Oxford Text Archive:
      - sable.ox.ac.uk/ota (http);
      - ota.ox.ac.uk/pub/ota/public (ftp).

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Corpora annotation

- Semantic annotation
  - Problem (1):
    - more than one way of referring to a concept:
      - *text analysis*: choice of expression may reflect ideologies in the text or relationships between participants in conversation, e.g. in doctor-patient interaction, *abdomen --- tummy*;
      - *information retrieval*: historian in fashion seeks information about trousers

        trousers --- slacks, shorts, leggins, breeches → cf. RECALL in IR.

Corpora annotation

- Semantic annotation
  - Problem (2):
    - one single word can refer to different concepts:
      - *information retrieval*: historian in fashion wants to know about boots,

        boot --- may refer to *shoe, computer, kick, car* → cf. PRECISION in IR

Corpora annotation

- Semantic annotation
  - Thus:
    - need to identify related words (Problem 1);
    - need to identify the different senses of a word (Problem 2).
  - Labelling words according to semantic field (*word senses*) so that you can:
    - extract all the related words by querying on the semantic field;
    - extract only those instances of ambiguous words with the specific senses you want by querying on the combination of word and semantic field.

Corpora annotation

- Semantic annotation
  - *Semantic fields*: sense relations and other kinds of relations (e.g. part-of, related-to, etc.)
  - Annotation (cf. PoS tagging):
    - definition of the tagging scheme (labels and their meanings);
    - guidelines for applying the tagging scheme;
    - in semantics: this is not easy and straightforward as for PoS tagging!
    - requirements should:
      - make linguistic/psycholinguistic sense;
      - be able to account for the vocabulary in the corpus exhaustively;
      - be suitable for texts from different periods and register (comprehensiveness);
      - preferably have a hierarchical structure.

Corpora annotation

- Semantic annotation
  - Multiple membership:
    - e.g. *deepened*: colour and change/remain.
  - Multi-word units:
    - e.g. *stubbed out*: encoded as two separate words, but belonging together.
  - One ambitious attempt at a taxonomy of such semantic relations (sense relations, thesaurus-type relations, semantic fields, etc.):
    - WORDNET
    - you can try it online: http://wordnetweb.princeton.edu/perl/webwn

Corpora annotation

- Semantic annotation

WordNet Search - 3.1
- WordNet home page - Glossary - Help

Word to search for: bank Search WordNet

Display Options: (Select option to change) Change

Key: "S:" = Show Synset (semantic) relations, "W:" = Show Word (lexical) relations
Display options for sense: (gloss) "an example sentence"

Noun

- S: (n) **bank** (sloping land (especially the slope beside a body of water)) *"they pulled the canoe up on the bank"; "he sat on the bank of the river and watched the currents"*
- S: (n) depository financial institution, **bank**, banking concern, banking company (a financial institution that accepts deposits and channels the money into lending activities) *"he cashed a check at the bank"; "that bank holds the mortgage on my home"*
- S: (n) **bank** (a long ridge or pile) *"a huge bank of earth"*
- S: (n) **bank** (an arrangement of similar objects in a row or in tiers) *"he operated a bank of switches"*
- S: (n) **bank** (a supply or stock held in reserve for future use (especially in emergencies))
- S: (n) **bank** (the funds held by a gambling house or the dealer in some gambling games) *"he tried to break the bank at Monte Carlo"*
- S: (n) **bank**, cant, camber (a slope in the turn of a road or track; the outside is higher than the inside in order to reduce the effects of centrifugal force)
- S: (n) savings bank, coin bank, money box, **bank** (a container (usually with a slot in the top) for keeping money at home) *"the coin bank was empty"*
- S: (n) **bank**, bank building (a building in which the business of banking transacted) *"the bank is on the corner of Nassau and Witherspoon"*
- S: (n) **bank** (a flight maneuver; aircraft tips laterally about its longitudinal axis (especially in turning)) *"the plane went into a steep bank"*

Verb

- S: (v) **bank** (tip laterally) *"the pilot had to bank the aircraft"*
- S: (v) **bank** (enclose with a bank) *"bank roads"*
- S: (v) **bank** (do business with a bank or keep an account at a bank) *"Where do you bank in this town?"*
- S: (v) **bank** (act as the banker in a game or in gambling)
- S: (v) **bank** (be in the banking business)
- S: (v) deposit, **bank** (put into a bank account) *"She deposits her paycheck every month"*
- S: (v) **bank** (cover with ashes so to control the rate of burning) *"bank a fire"*
- S: (v) count, bet, depend, swear, rely, **bank**, look, calculate, reckon (have faith or confidence in) *"you can count on me to help you any time"; "Look to your friends for support"; "You can bet on that!"; "Depend on your family in*

Corpora annotation

- Semantic annotation
  - How to do it?
    - manually;
    - computer-assisted (need at least a computer-readable lexicon and a disambiguation process – similar to PoS tagging);
    - fully automatic (not really feasible):
      - semantic analysis is even harder than syntactic parsing;
      - no integrated “parse” of meaning possible at the present time.

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Corpora annotation

- Discourse annotation
  - Discourse features: what are they?
  - Typically: cohesion and coherence
    - *cohesion*:
      the means of making a text hang together.
    - *coherence*:
      what makes a text hang together in terms of content;
  - Reference, substitution, ellipsis, conjunctive relations (cause, result, effect, etc.), thematic development.

Corpora annotation

- Discourse annotation
  - Example: anaphoric relations in the IBM/Lancaster corpus (UCREL).
  - What are anaphoric relations? “Links between a proform and an antecedent”



Corpora annotation

- Discourse annotation
  - Anaphoric annotation in UCREL (categories used are based on [1])
  - Example of annotation:
  - *"Feodor Baumenk, a former Nazi death camp guard, has asked the U.S. Supreme Court to allow him to retain his American citizenship. The Hartford Courant said…"*

(1 Feodor Baumenk 1), a former Nazi death camp guard, has asked the U.S Supreme Court to allow <REF=1 him to retain <REF=1 his American citizenship. (2 The Hartford Courant 2) said…

Symbols:

(1), (2)…	= antecedent
<	= anaphoric (> =cataphoric)
REF	= central pronoun

[1] Halliday M.A.K. & R. Hasan, 1976. Cohesion in English. Longman, London

Corpora annotation

- Discourse annotation
  - Few corpora annotated for discourse features
  - How to do it?
    - manually;
    - computer-assisted: either interactive hand annotation, using some kind of specialized editor or automatic annotation with the possibility of hand correction or disambiguation;
    - a tool supporting annotation of anaphora: XANADU in Lancaster.

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- Corpora annotation
  - Annotation definition
  - Part-of-Speech tagging
  - Syntactic annotation
  - Semantic annotation
  - Discourse annotation
  - Pragmatic annotation

Corpora annotation

- Pragmatic annotation
  - Anything beyond sentence and discourse: contexts of situation and culture
  - Examples of things people look at in Pragmatics:
    - *carry-on signals* in conversation [2]: which functions do carry-on signals, such as “well”, “you know”, have in conversation?
    - *speech acts* [3]: speech act types in conversation, such as in doctor-patient interactions.

```
PATIENT:   I have the headaches to the point that I have to vomit (D)
DOCTOR:    Mm-hm (K)
PATIENT:   Then I have to go to bed and I sleep for a while (E)
```

D = Disclosure
K = Acknowledgment
E = Edification

[2] Stenstroem, 1987. Carry-on signals in English conversation. In Corpus Linguistics and Beyond. Amsterdam, Rodopi.
[3] Stiles, 1992. Describing talk: a taxonomy of verbal response models. Beverly Hills, Sage.

Corpora annotation

- Pragmatic annotation
  - How to do it?
    - manually
    - computer-assisted: ?
    - fully-automatic: -
  - *You have to use your imagination!*
  - Examples
    - *Stenstroem*: can be done with a concordance program because it's essentially word-based
    - *Stiles*: would probably have to be done manually (then use a concordance program on the annotated texts?)

Knowledge check

- Possible questions:
  - What are data in linguistics?
  - Which are the resources do you know?
  - What is an annotation?
  - Which types of annotations do you know?


THANK
YOU
GRACIAS
ARIGATO
SHUKURIA
BOLZÏN
MERCI
BÏYAN
SHUKRIA
DANKSCHEEN
TASHAKKUR ATU
YAQHANYELAY
TINGKI
SUKSAMA
EKHMET
MEHRBANI
GRAZIE
MAAKE
KOMAPSUMNIDA
GOZAIMASHITA
EFCHARISTO
JUSPAXAR
PALDIES
SPASIBO
SPÀSSIBO
SNACHALHOYA
NGIN
CHALTU
WAREEJA
MAITEKA
DHANYABAAD
ATTO
AHMA
SPASIBO
DENKUJA
NEHACHALHYA
UNALCHEESH
HATUR
GUI
SIKOMO
EKOJU
MAKETAI
NIMMONCHAR
YUSPAGARAYAM
Han
LAH
SAMCO
HERASTAWHY
GAEJTHO
AGUYJE
FAKAAUE
TAVTAPUCH
MEDAWAGGE
BAHNA

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INF

FAKULTÄT FÜR
INFORMATIK

Usage of Digital Humanities Tools for Educational Media

Digital Transformation Processes in Research

Prof. Dr.-Ing. Ernesto William De Luca

Prof. Dr. Francesca Fallucchi

Goals

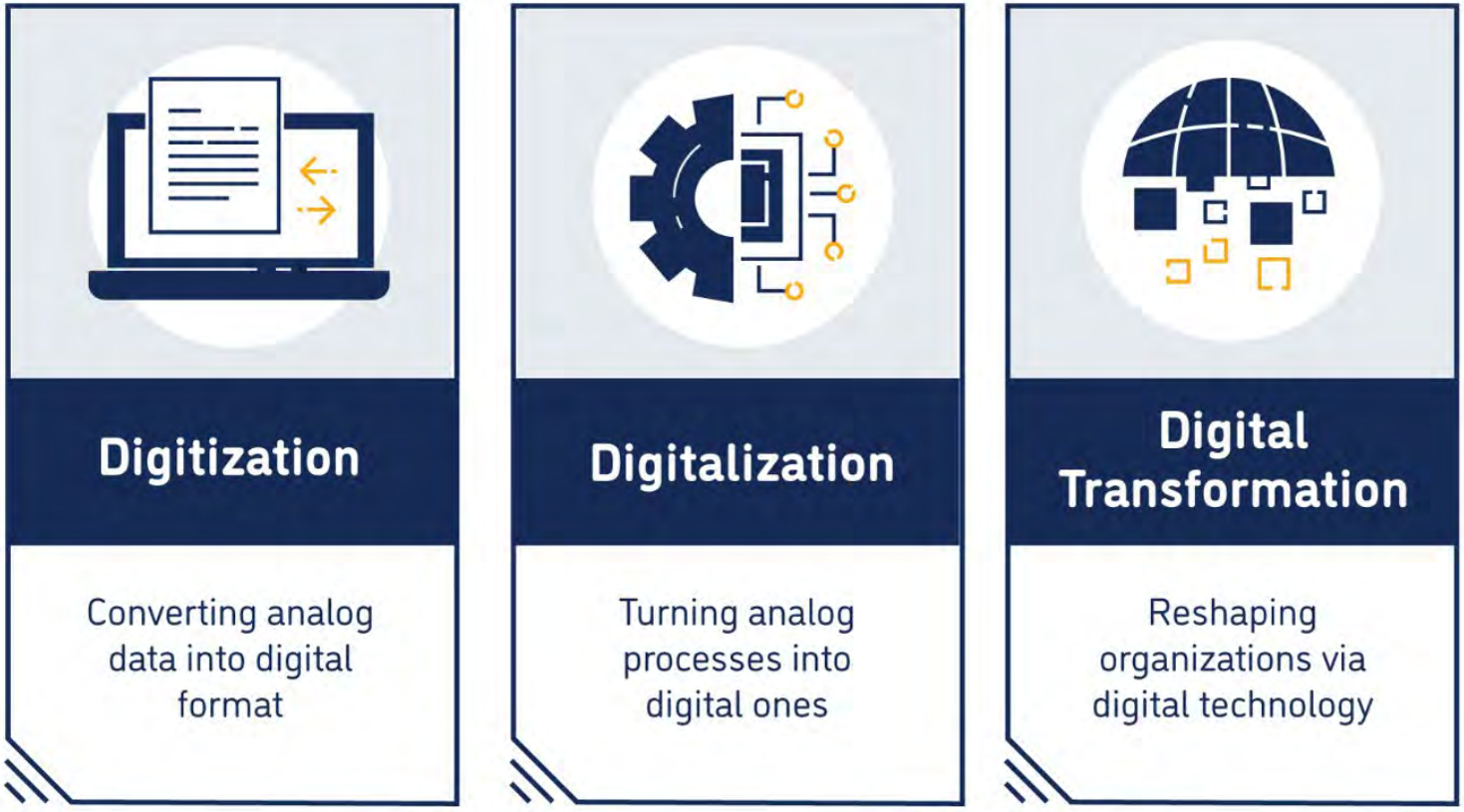
- Main goal
  - Learn the differences between *Digitization, Digitalization* and *Digital Transformation*;
  - Understand how the Digital Age is changing companies and research institutes work processes.

- Motivation
  - Keep up with innovative changes and new terms.

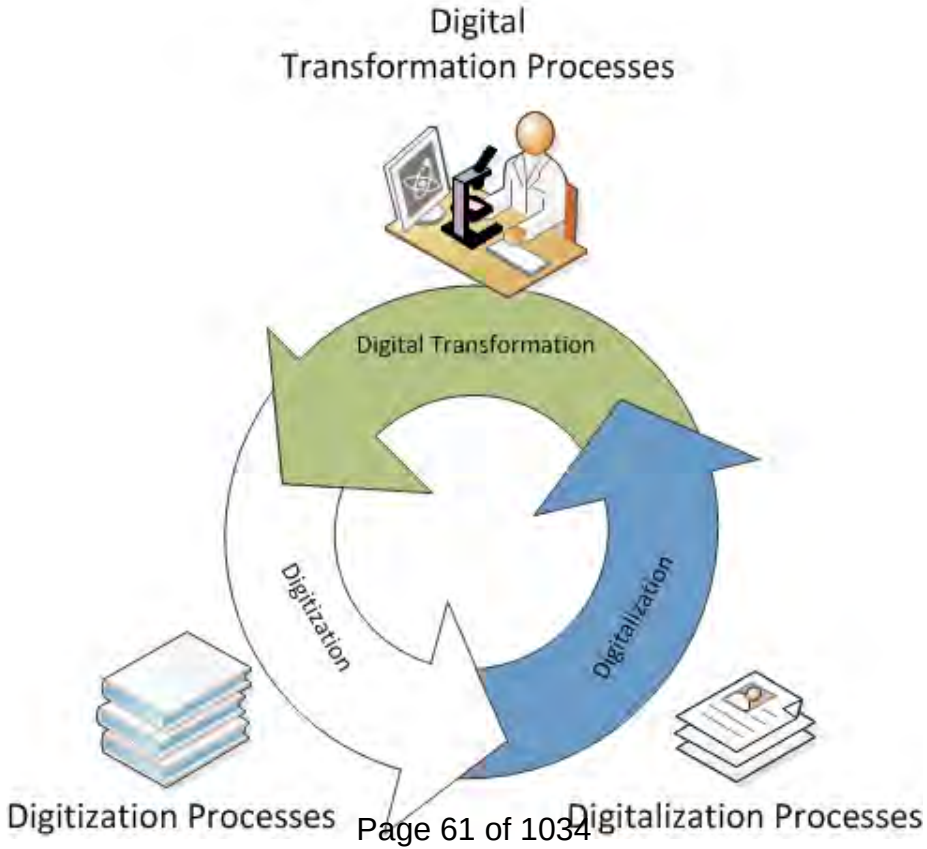
Agenda

- Digitization, Digitalization and Digital Transformation
  - Definitions
  - Mentality (way of thinking)
  - Digital product contents and People
  - Processes
  - Business Models and Research Processes
  - Tools
  - Examples
  - Conclusion

Digitization, Digitalization and Digital Transformation



Digitization, Digitalization and Digital Transformation



Digitization

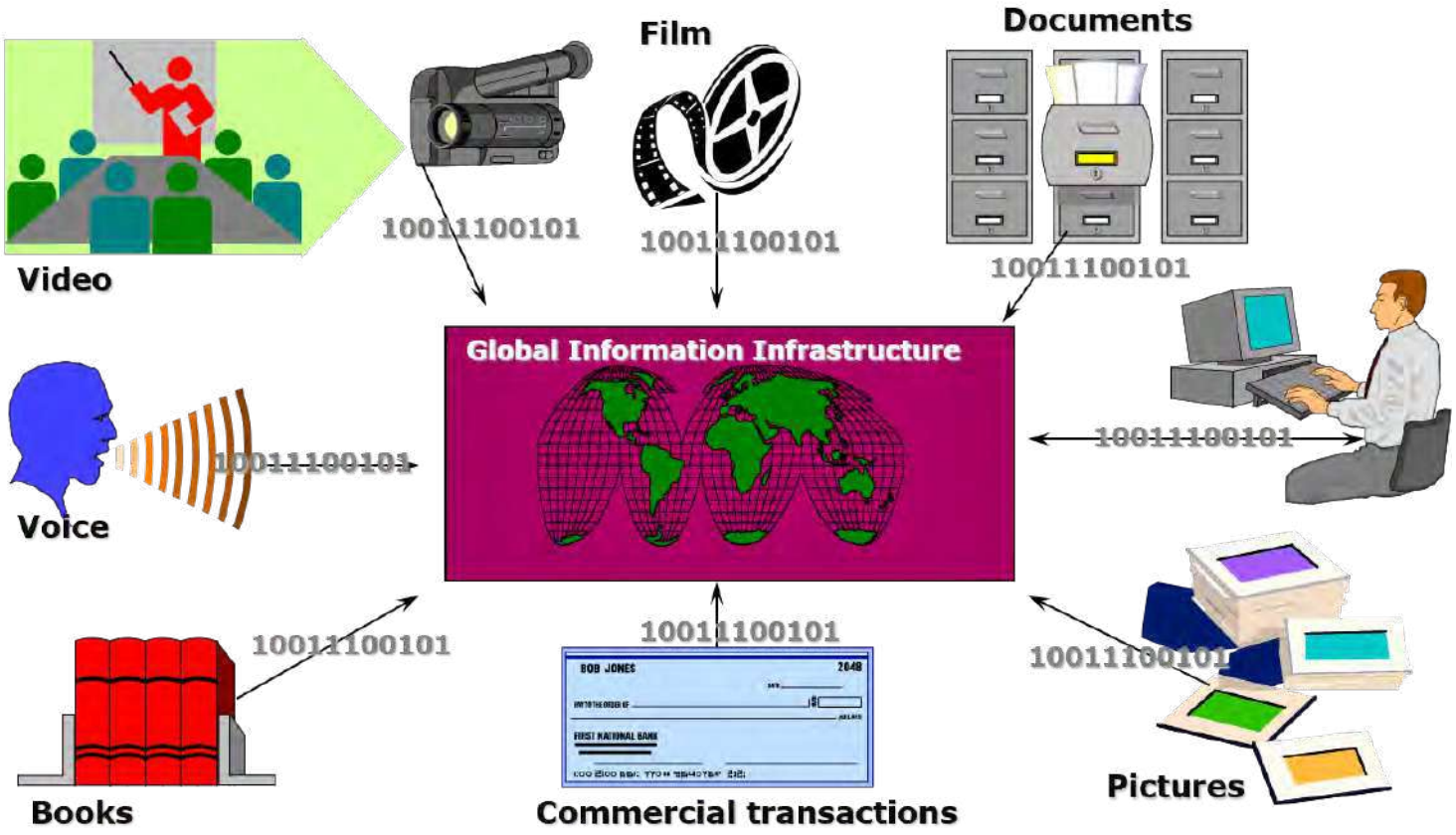
- Definitions

*"**Digitization** is the process of changing from analog to digital form."*
Gartner's IT Glossary

*"**Digitization** is the process of taking analogue information and encoding it so that it can be stored and transmitted via a computer."*

*"**Digitization** refers to the conversion of information like pictures or sounds into ones and zeroes or a digital form that can be stored, processed, and transmitted by computers."*

Digitization



Digitization



Digitalization

- Definitions (1/2)

*"**Digitalization** as the way in which many domains of social life are restructured around digital communication and media infrastructures."*

Brennen

*"**Digitalization** on social life – in other words, how people interact ."*

Brennen and Kreiss

*"**Digitalization** as a tool that turns interactions, communications, business functions and business models into (more) digital ones which often boils down to a mix of digital and physical as in omnichannel customer service, integrated marketing or smart manufacturing with a mix of autonomous, semi-autonomous and manual operations"*

i-scoop.eu

*"**Digitalization** has as primary root the term" digitization", representing the use of digital technologies having in mind to change a business model/products or services."*

Rachinger

Digitalization

- Definitions (2/2)

> *"**Digitalization** is the use of digital technologies to change a business model and provide new revenue and value-producing opportunities; it is the process of moving to a digital business."*
>
> *Gartner*

> *"**Digitalization** is the process of moving to a digital business."*
>
> *Gatner's IT Glossary*

> *"**Digitalization** the process of employing digital technologies and information to transform business operations."*
>
> *Rachinger*

Digitalization

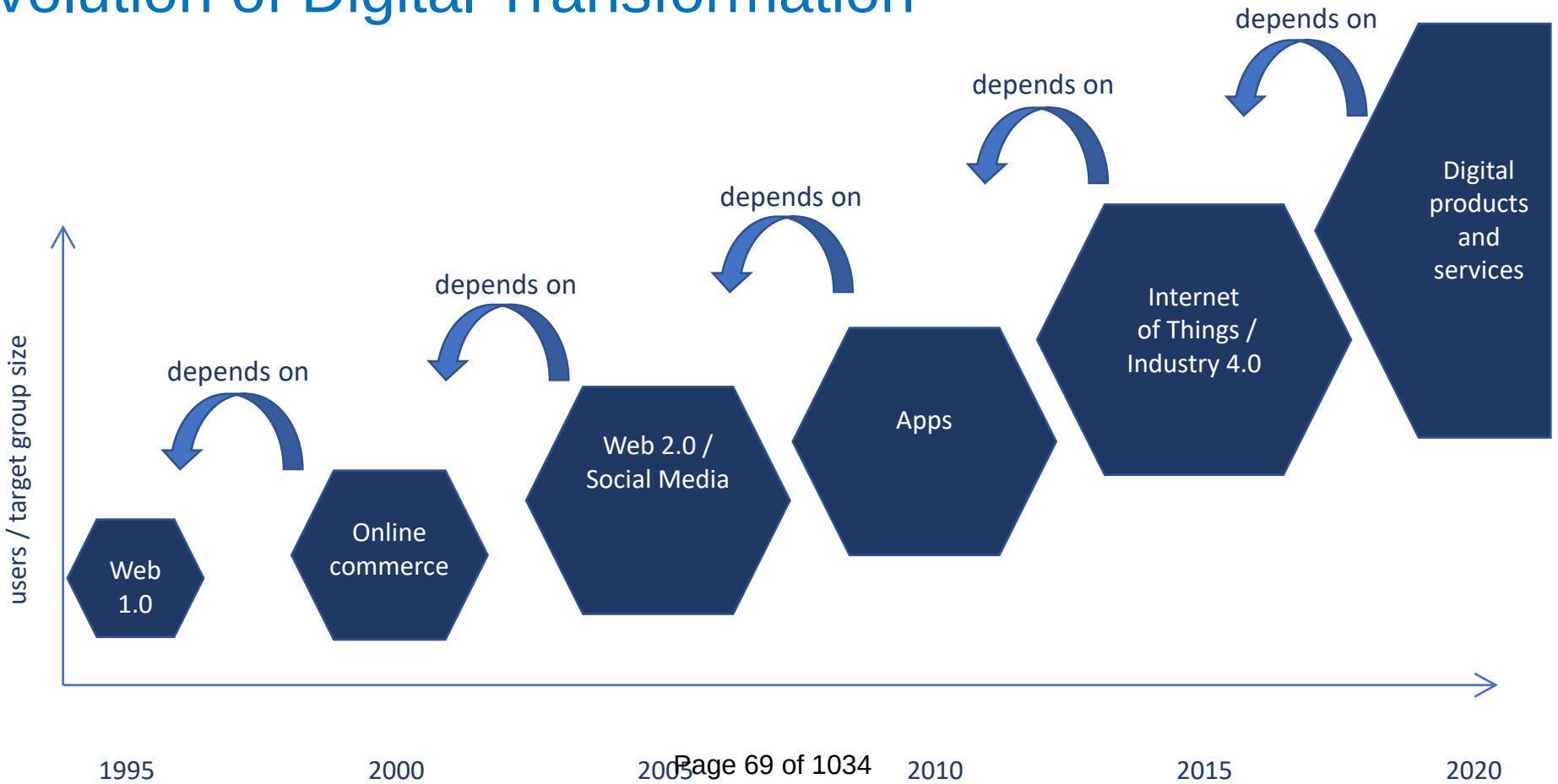
- Digitalization affects people
- Digitalization is transforming the world of work
- The acquisition of digital skills has now become a prerequisite for individual, industrial and regional success
- As organizations implement “digital technologies”, jobs change
- Automation is an important part of the history of processes and improves data transparency and, of course, should help to strengthen top-level decision-making

[*] M. Muro, S. Liu, J. Whiton, and S. Kuikarni, *Digitalization and the American Workforce*, Metropolitan Policy Program by Brookings, Full Report (November 2017)

Digital Transformation

- **Digitization** and **Digitalization** refer to technologies, **Digital Transformation** does not;
- **Digital Transformation** is not simply an integration of digital technologies in every areas of a company;
- **Digital Transformation** includes a wide number of organizational, social, cultural, creative and management innovations leading to fundamental changes in the way companies work and provide value to their customers.

Evolution of Digital Transformation

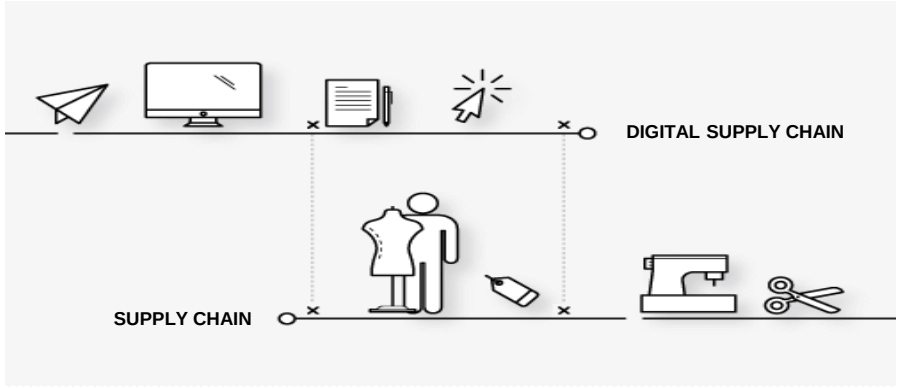


based loosely on MIT Center of Digital Business

Mentality (way of thinking)

START WITH YOUR MAIN GOAL	FACE THE COMMITMENT AND ACCEPT THE ISSUES	FACTS, NOT WORDS	BE TRANSPARENT	THINK BEYOND THE WEB AND THE SOCIAL MEDIA
• Don't start with technologies, think about the result you want to reach and how technology could help you in hit the target	• A new management process affects all the operating areas. Part of the staff will have to go through an ad-hoc training process.	• Talking about innovative ideas is useful…but showing concrete examples is the best way to understand what can fit your company	• Collective wisdom is essential. Be open to your successes as well as to your failures. Share your ideas, your plans and your data.	• An innovative idea can apply to any area, from management to wearable systems. Consider any kind of digital technologies.

Digital product contents



- What does “Digital Transformation” really mean?
  - A **cultural revolution** is needed:
    - “Digital” is not only technology;
    - It’s impossible to realize a real Digital Transformation without starting from **Digital product contents**, because they are what fuels the transformation process;
    - Today, the creation of Digital product (and brand) contents is typically entrusted to the actors involved in the Digital Supply Chain, i.e. all those involved in the design, production and distribution of editorial communication materials for promotional or sales purposes.

People

FIND WHO CAN DRIVE YOU	GET RID OF PEOPLE WHO ALWAYS SAY NO TO YOU	EDUCATE OTHERS	DESTROY THE BARRIERS	FIND A DATA MANAGER
• Look for guidance inside or outside your company. Consider appointing a Project Manager for the Digital Transformation.	• The new generation of technicians is proving that it is possible to have an IT Infrastructure that works. Don't believe anyone who says "it's too complex".	• Be sure that there are other people who believe in the same idea as you and educate who has doubts. Consider the youngest people.	• Spread the digital knowledge in your company educating heterogeneous project teams where insert staff from the technical department.	• Each company should work more effectively based on its own data. Find someone who knows how to give value to them.

Chief Digital Officer (CDO)

- Very often is needed to have a **Chief Digital Officer** in your team, i.e. a person who knows how to manage the *customer journey* through the organization, in order to properly drive the digital transformation.



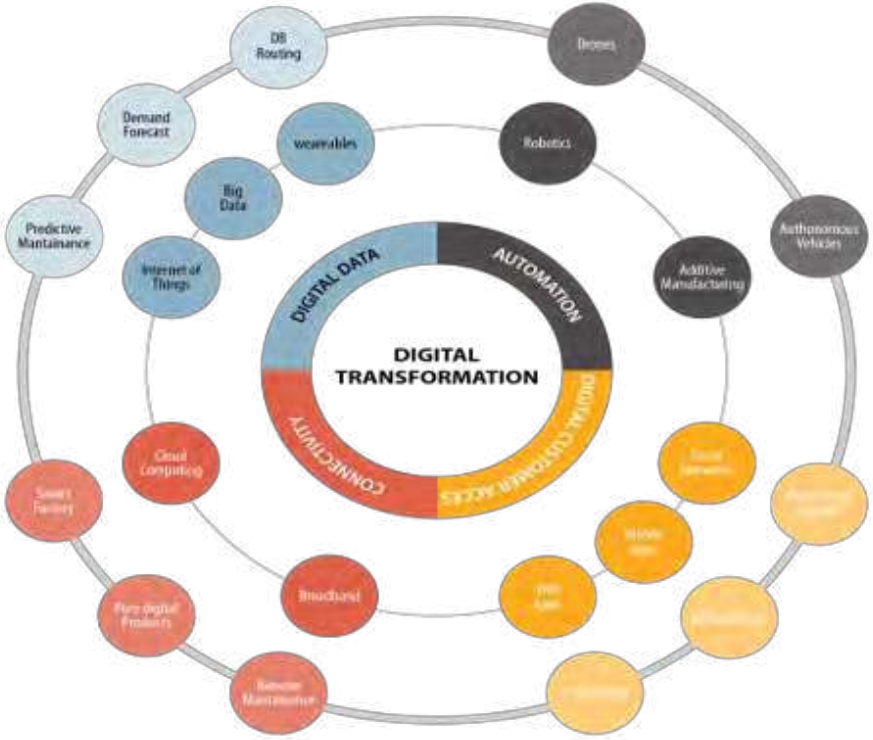
Process

DIVIDI ET IMPERA (DIVIDE AND CONQUER)	FIND WAYS TO INNOVATE	DESIGN WITH THE CUSTOMER	PARTNERSHIPS	IF IT DOES NOT WORK, STOP!
• Focus on one thing at a time and take small steps. Choose a problem and put enough effort into solving it, before you go on.	• Build an intern R&D Lab, or find a partner that helps you to develop future ideas.	• Having a customer-centric approach is fundamental: engage your customers in all your innovation projects .	• Don’t implement systems or products already on the market. Collaborate with companies that are already developing them.	• Don’t work on what is not essential for the project and is not working. If it’s part of the project, but it doesn’t work, give it the right priority.

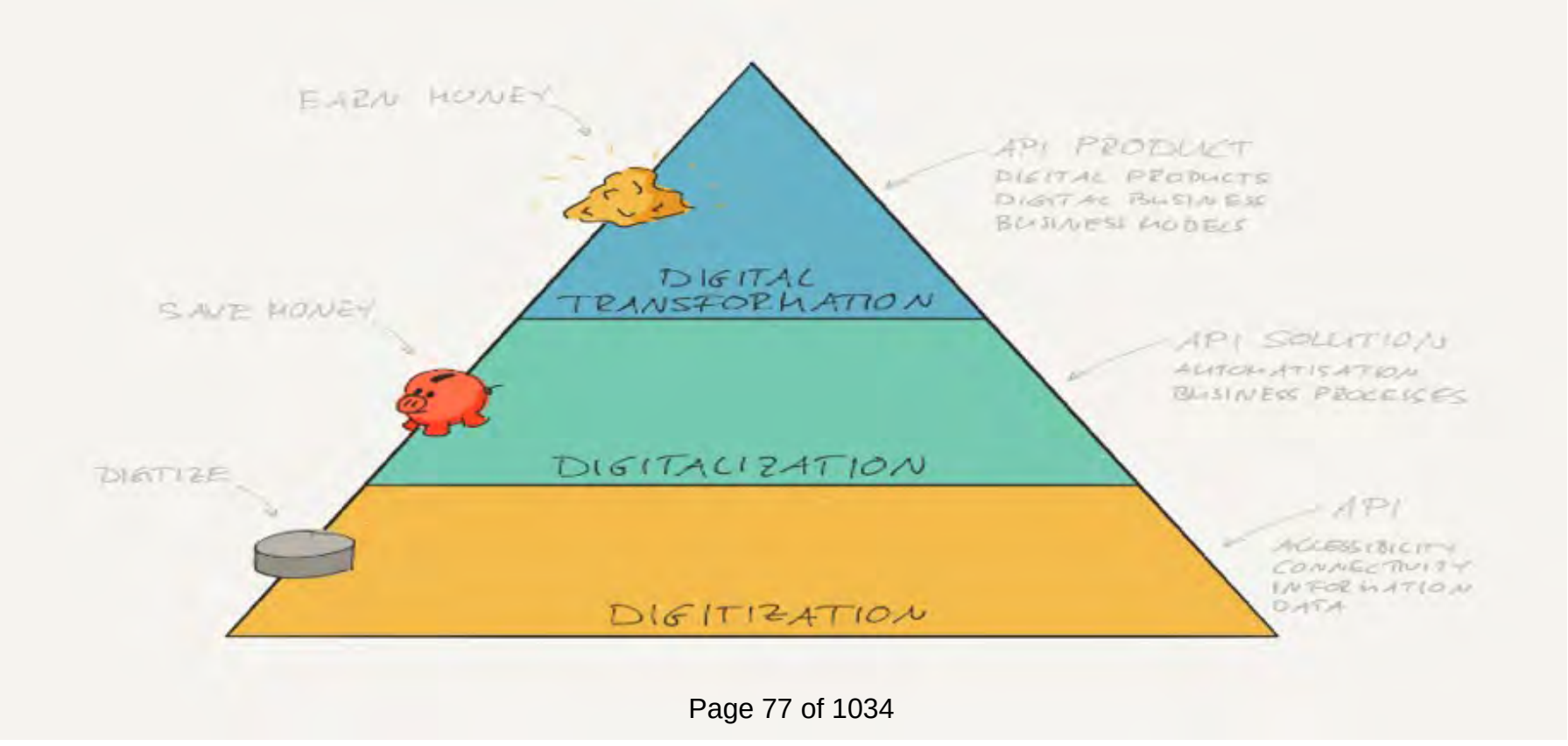
Tools

THE SOLUTIONS ALREADY EXIST	SHARE YOUR RESOURCES	THE ADVANTAGES OF MODULARITY	TRACK YOUR PERFORMANCES	ENSURE IT IS MANTAINABLE
• There is a solution for almost everything you need, from management software usage to business intelligence tools.	• Improve efficiency, scalability, and collaboration. Allow your team to work independently.	• Don’t look for solutions that are good for everyone. Use different tools that communicate each other and put them together.	• Help others to understand and monitor the effects putting a live dashboard at the center of your office.	• Make sure your project can be supported and maintained over time, after being implemented.

Tools


DB Routing
Drones
Demand Forecast
wearables
Robotics
Big Data
Predictive Mantainance
Internet of Things
Additive Manufacturing
DIGITAL DATA
AUTOMATION
DIGITAL TRANSFORMATION
CONNECTIVITY
DIGITAL CUSTOMER ACCESS
Cloud Computing
Broadband

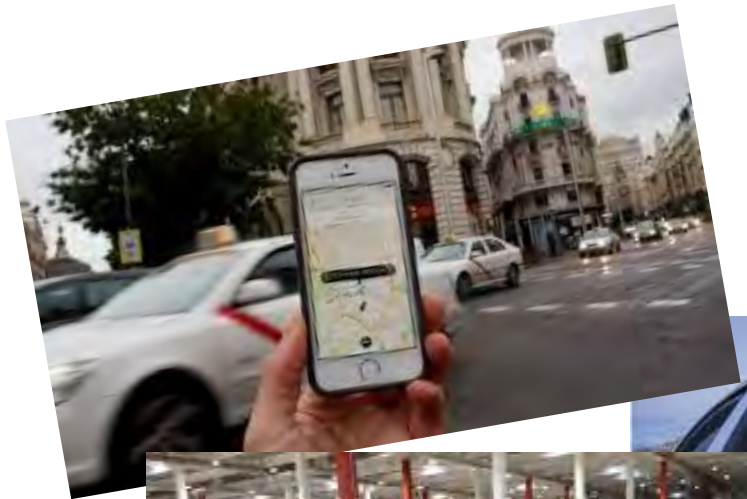
Within APIs


EARN MONEY
API PRODUCT
DIGITAL PRODUCTS
DIGITAL BUSINESS
BUSINESS MODELS
DIGITAL TRANSFORMATION
SAVE MONEY
API SOLUTIONS
AUTOMATISATION
BUSINESS PROCESSES
DIGITALIZATION
DIGITIZE
API
ACCESSIBICITY
CONNECTIVITY
INFORMATION
DATA
DIGITIZATION

Within industries



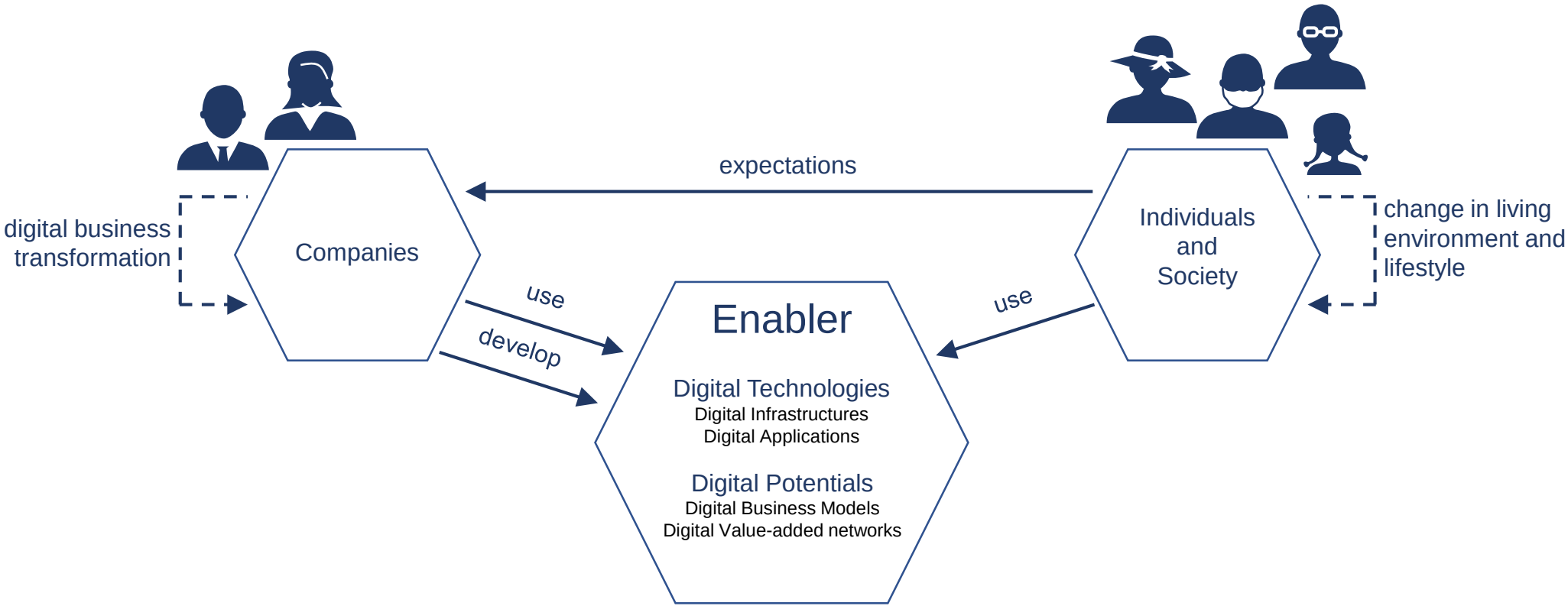
Examples







Digital Transformation in companies

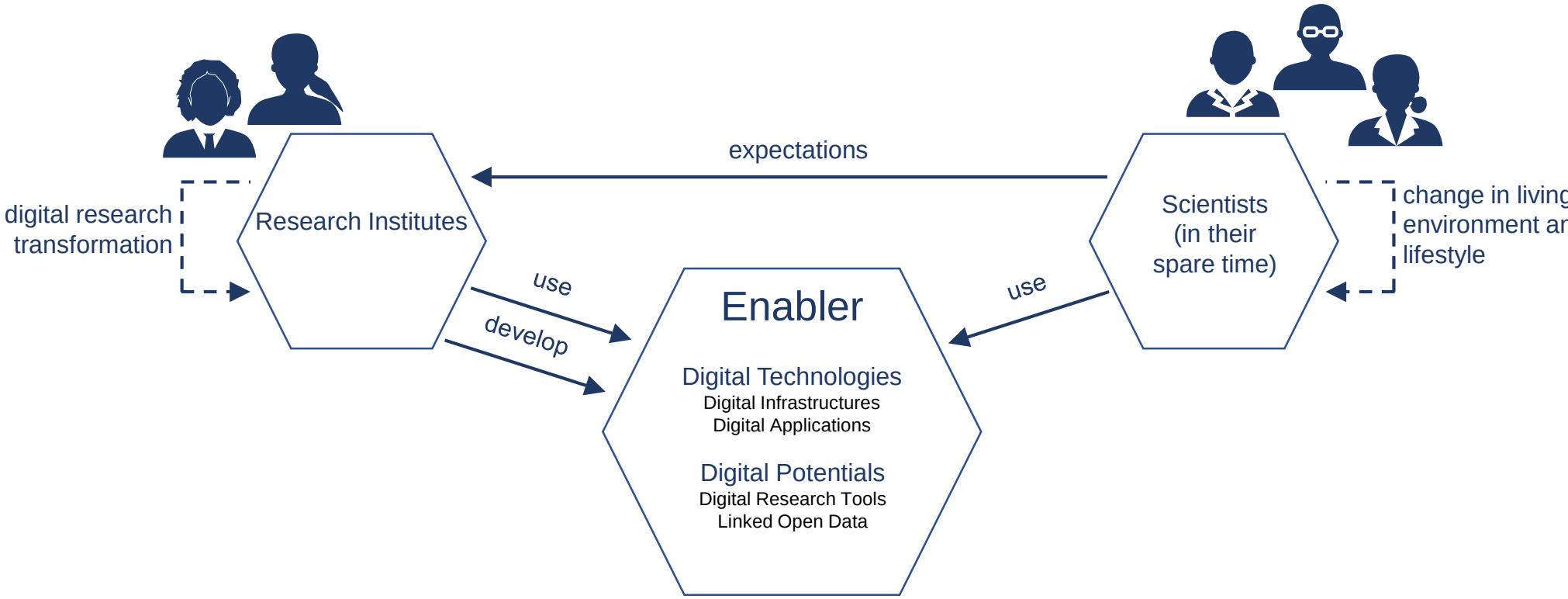


based loosely on Wikipedia „Mitwirkende in der digitalen Transformation“, Dr. rer. nat. Thomas Kofler B.Sc. M.A, CC BY-SA 4.0

Digital Transformation also in research?

- Digital Transformation affects business models of companies as well as scientific work processes.
- Business customers mainly inform themselves digitally, students can graduate without having seen a library from the inside.
- Business models have to adapt, scientific working methods have to adapt as well.
- Internal processes in companies are optimized and automated, research data can be prepared in such a way that it can be reused.
- Digital devices are part of everyday life and customers wondered why they cannot use these advantageous accesses in companies (customer expectations changed). When scientists read an eBook, they might also wonder why they can't use the tablet for scientific work.

Digital Transformation (in research institutes)



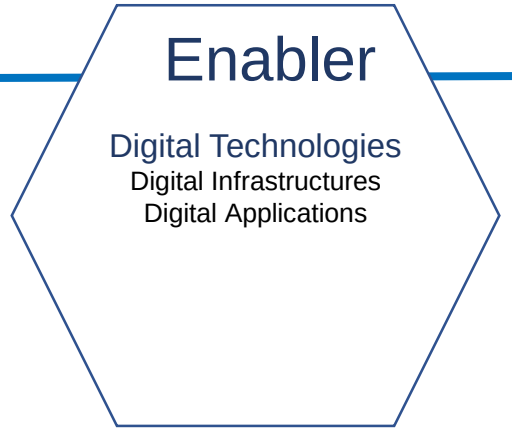
Digital Transformation

- Digital transformation is an ongoing process
  - improved information technology,
  - new digital infrastructures,
  - new digitalised processes,
  - new applications, etc.



- For its success, experts are still needed to be able to make the right decisions.

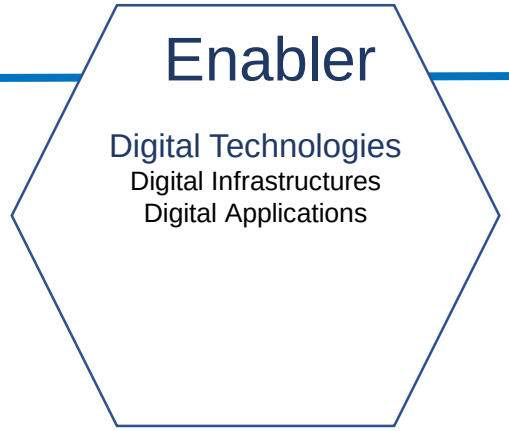
Digital Infrastructures



- Basis of the
  - digital transformation and the
  - digitalization in the knowledge society
- Hardware and software components
  - Networks (WLAN, mobile radio, fibre optics)
  - Computers (servers, routers, switches)
  - Data centers (hosting, storage, cloud computing)

Digital Applications

- Apps on Smartphones
- Web applications



Business Models and Research Processes

Digital Business Models ≠ Traditional Business Models + Digital Technologies

- Companies have traditionally focused on the product
- Now the focus is on solutions and systems for customers

Digital Research Processes ≠ Traditional Research Processes + Digital Technologies

- Research Institutes have traditionally focused on the research query
- Now the focus is on solutions and systems for researchers

Has research slept through the change?

- No, the current status (2017) shows that many companies have only just started the process
- Research also is a big contributor to the enablers of Digital Transformation

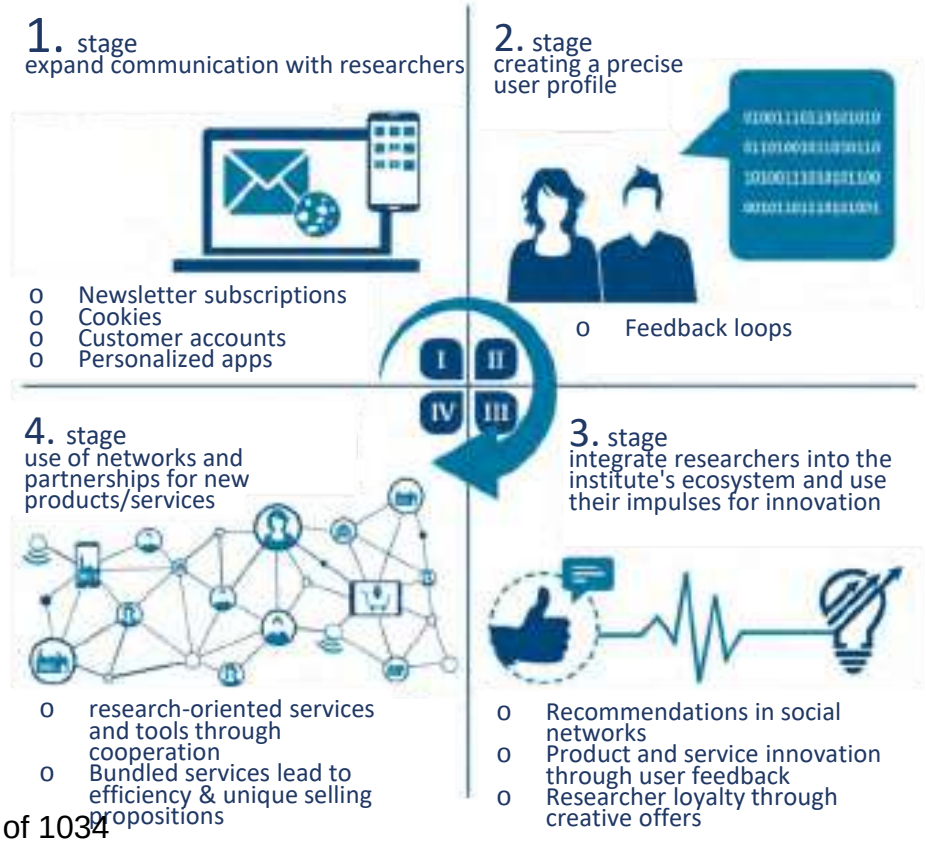


https://www.bmwi.de/Redaktion/DE/Publikationen/Mittelstand/mittelstand-digital-digitale-geschaeftsmodelle.pdf

OTTO VON GUERICKE UNIVERSITÄT MAGDEBURG | INF | FAKULTÄT FÜR INFORMATIK

Development stages for research institutes

- Development stages for research institutes which offer digital tools and services



The Driving Forces (Digital Potentials)

- Innovation
  - Cloud Platforms
  - Internet of Things
  - Robotics
  - Artificial Intelligence
  - Machine Learning
  - 3D-Printing
  - Big Data
  - Data Intelligence
  - Blockchain
- Changes in Business
  - Changes in customer segments (changes in the target group in terms of age, place of residence, income, etc.)
  - Changes in channels (communication or distribution channels etc.)
  - Changes in resources (natural resources, personnel, access to technologies, etc.)
  - Changes in activities (company activities etc.)

The Deceleration Forces

- Humanities researchers
  - are often less familiar with digital technologies. Hence, there are lesser calls to drive the digital research transformation *.
  - are often not familiar with the possibilities coming from the information technologies.
- Cultural barriers

*1 exaggeration for better illustration

Summary

- Digital Transformation: *starting point*

- **Companies** 
  - Traditional business model
  - Analogue processes
  - A lot of paperwork
  - Product is the focus

- **Research institutes** 
  - Traditional research processes
  - Analogue processes
  - A lot of paperwork
  - Research query is the focus

Summary

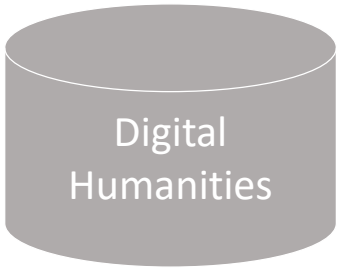
- Digital Transformation: *objective*

- **Companies** 
  - Digital business model
  - Computerized processes
  - Paperless offices
  - Focus on solutions and systems for customers

- **Research institutes** 
  - Digital research processes
  - Digital tools
  - Research data management
  - Focus on solutions and systems for researchers

Digital Humanities

- Digital Humanities (DH) or *e*Humanities



The idea that every phase of the scientific work process can be "improved" in the humanities through the use of IT.

Prof. Dr. phil. Manfred Thaller

What is Digital Humanities?

- "Charting and exploring the interface of computing and the Humanities to ask and answer all kinds of questions about what it means to be Human and how computing can help us to interpret that" ***Julianne Nyhan, UCL & Universitaet Trier, UK***
- "Using computational tools to do the work of the humanities" ***John Unsworth, University of Illinois, USA***
- "Digital Humanities is the integration of sophisticated, empirical techniques utilizing tools and technologies typically associated with practical sciences into the study of traditional humanities questions. It represents a more exploratory and less quantitative approach than social sciences in the use of such tools but it also represents ambitious attempts to model nuanced human wisdom in ways that, like early flying machines, are beautiful, quite impractical and often fail." ***Elijah Meeks, Stanford University, USA***

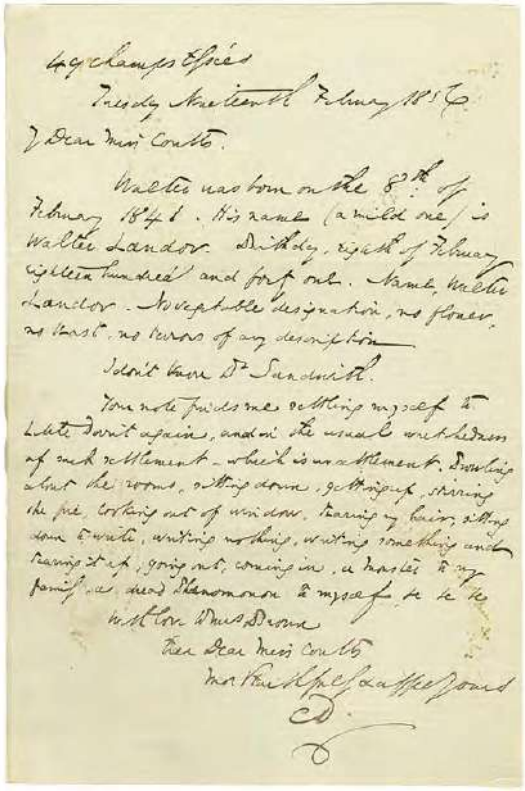
> 260 definitions

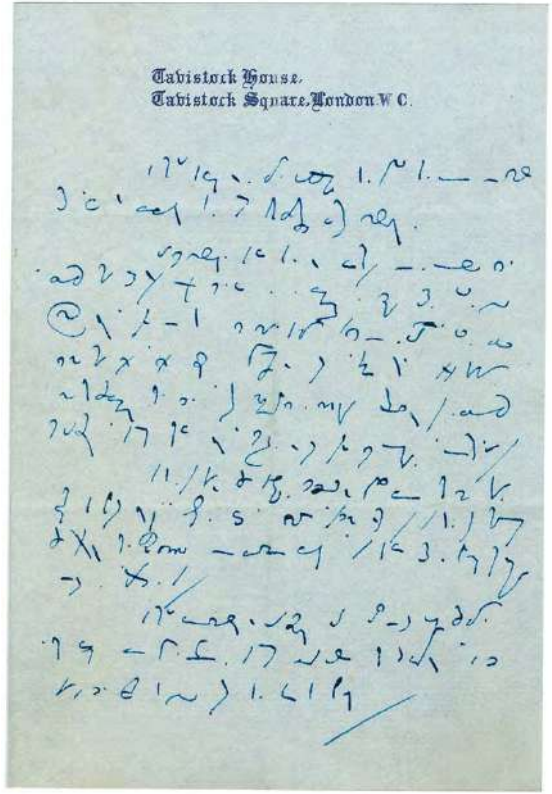
http://www.artsrn.ualberta.ca/taporwiki/index.php/How_do_you_define_Humanities_Computing_/_Digital_Humanities%3F

Digital Humanities Objectives

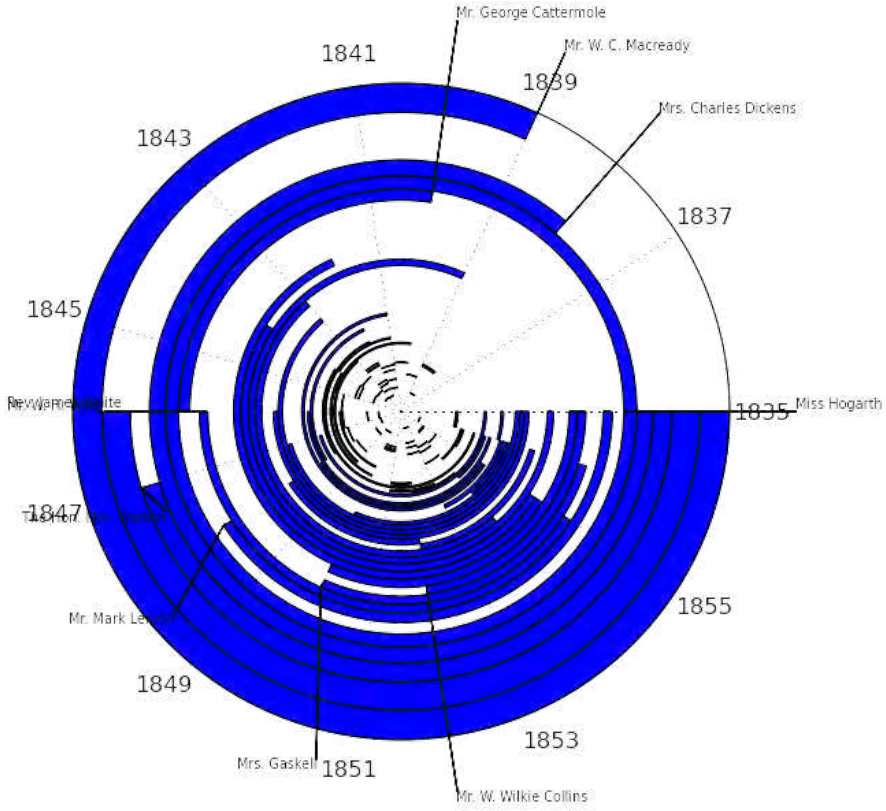
- To foster communication and collaboration between people interested in Digital Humanities.
- To engage with current issues and developments in Digital Humanities; to actively participate in exploring, interrogating, experimenting and extending DH technologies, practices, and paradigms.
- To train students, faculty and researchers in DH practices, through participation in DH project development, workshops in using tools and technologies for research and teaching, and research groups exploring innovative approaches to DH.
- To develop an institutional infrastructure for the development, publication, and maintenance of DH work

Humanities → ”Close reading”





Digital Humanities → ”Distant reading”



What is Digital Humanities? (technological focus)

- "Our objectives are the advancement of knowledge...in the academic sphere and beyond it. We call for the integration of digital culture in the definition of the general culture of the twenty-first century."

A Manifesto for the Digital Humanities, 2010, Paris

- "The Digital Humanities seeks to play an inaugural role with respect to a world in which, no longer the sole producers, stewards, and disseminators of knowledge or culture, universities are called upon to shape natively digital models of scholarly discourse for the newly emergent public spheres of the present era (the www, the blogosphere, digital libraries, etc.)."

Digital Humanities Manifesto 2.0, 2009

How humanities researchers work traditionally

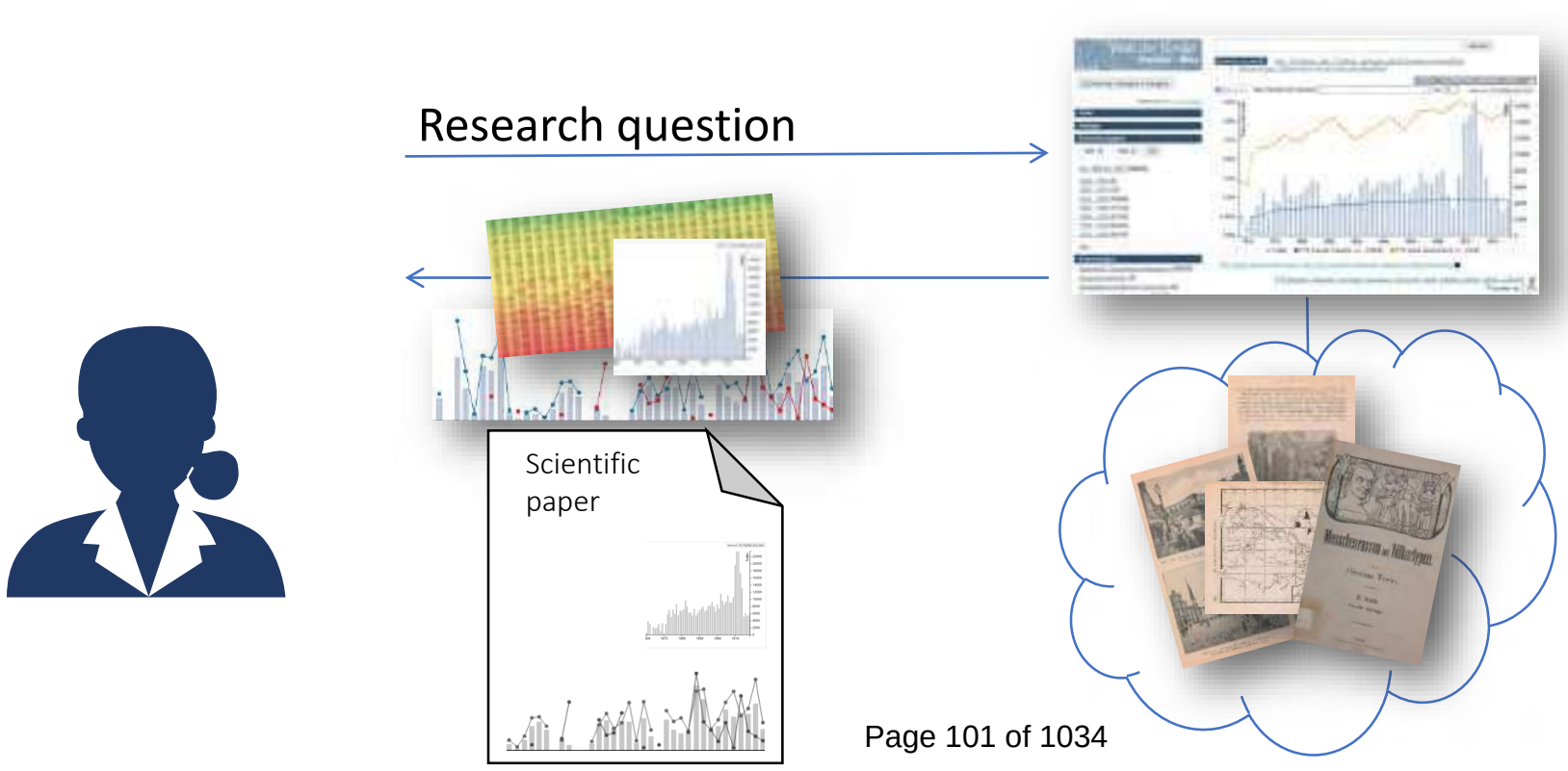


- PRO
  - Close reading has proven to be successful
  - Results are accurate
- CONTRA
  - Researching on a book takes a lot of time
  - The results are difficult to generalize
  - International views are often completely missing

How humanities researchers could work digitally?



How humanities researchers could work digitally?



How humanities researchers could work digitally?



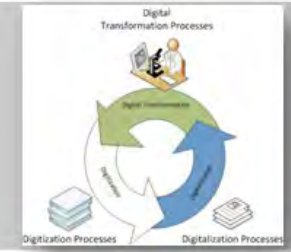
- Tools of the Digital Humanities
  - create visualizations and statistics on the occurrence of words and concepts
  - in thousands of books
  - in a very short time.

Big Data in the Humanities

- Big Data describes the condition that there is so much data that it cannot be handled without specially designed tools.
- Conventional methods of data processing fail because the data
  - is too big
  - is too fugitive
  - is too complex or
  - is weakly structured.
- In our context, the concept of Big Data has been revised and has another connotation which regards the data being too big or complex to be analyzed manually by close reading.

Katherine Bourzac (2011). The Mechanic Muse - What Is Distant Reading? - The New York Times. Retrieved January 22, 2020 from https://www.nytimes.com/2011/06/26/books/review/the-mechanic-muse-what-is-distant-reading.html

DIGITAL PROCESSES



Big Data in the Humanities



Big Data are data which are too large or too complex to be analysed by close reading.

DIGITAL HUMANITIES

CLOSE READING





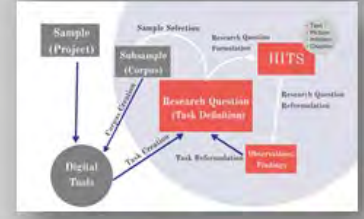
DISTANT READING



DIGITAL TRANSFORMATION

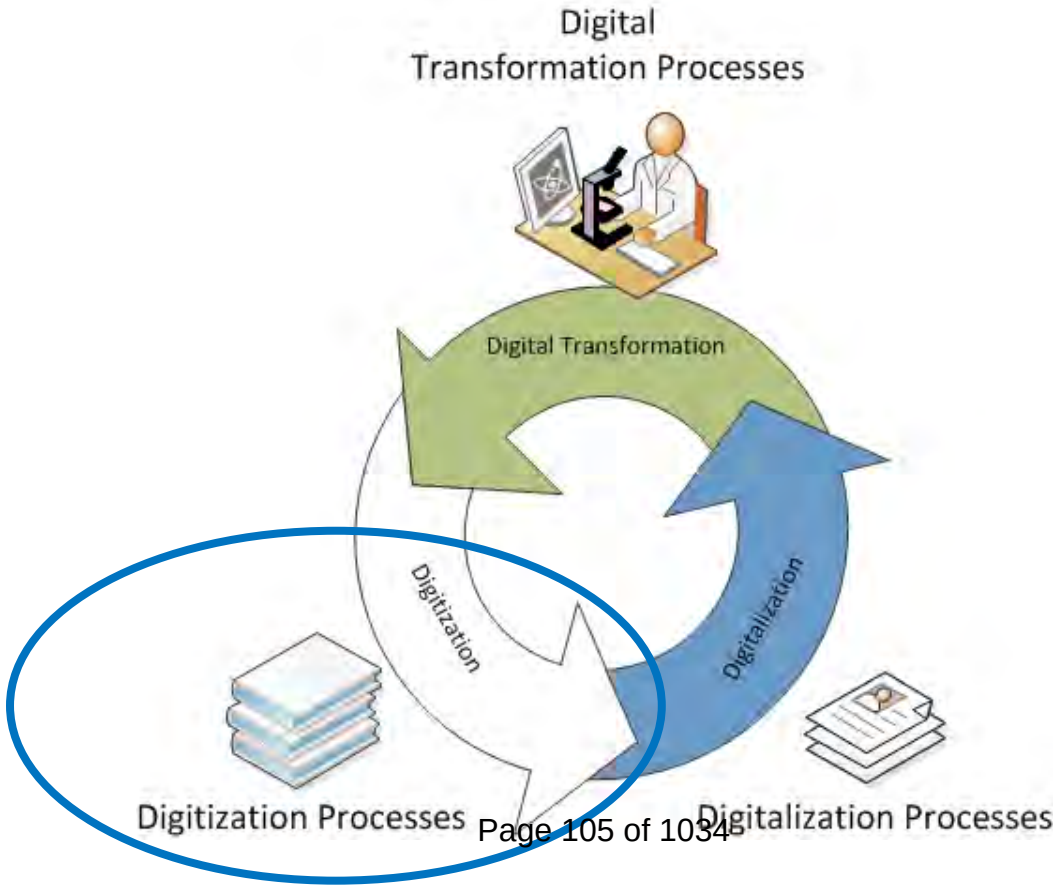




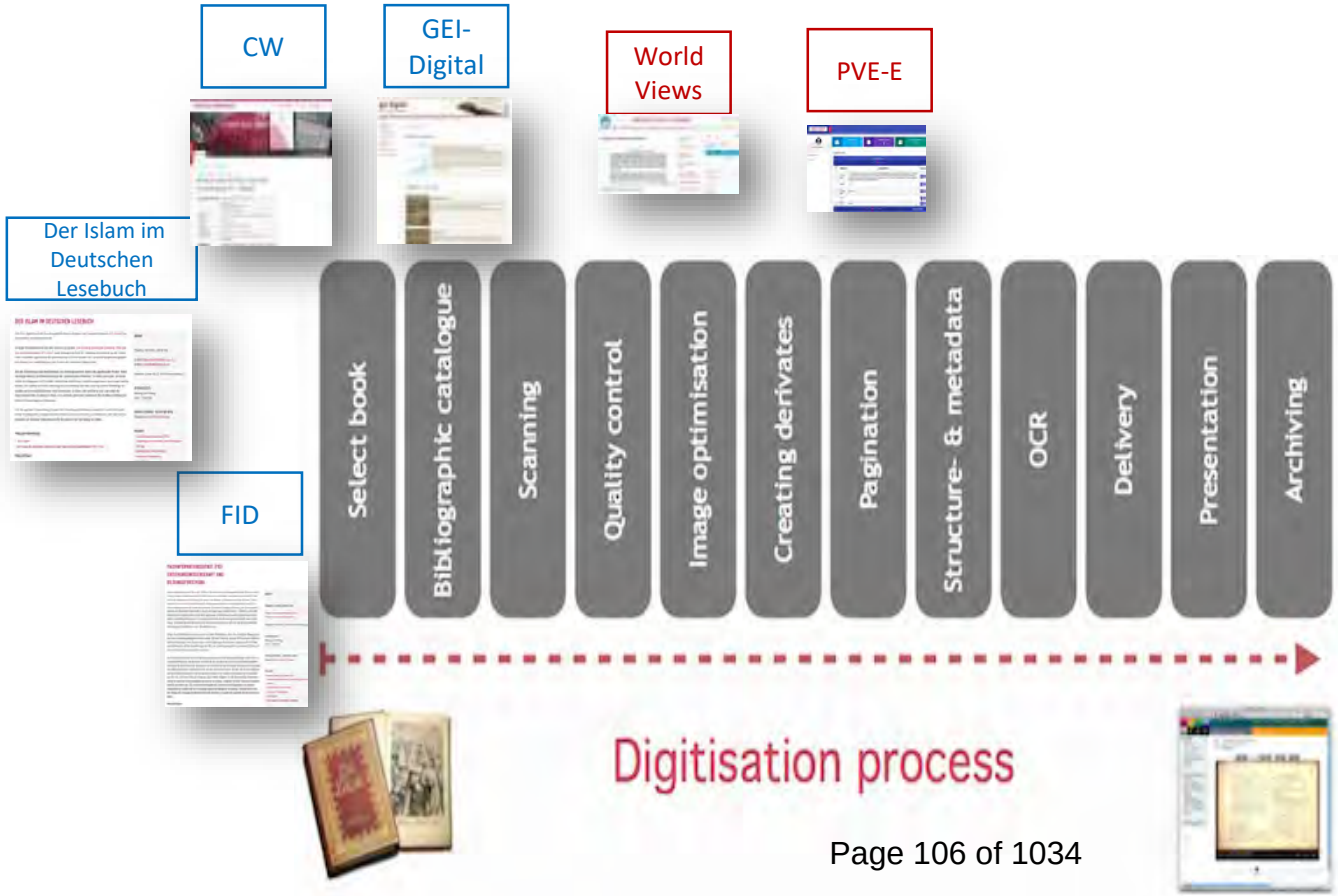




Digitization processes



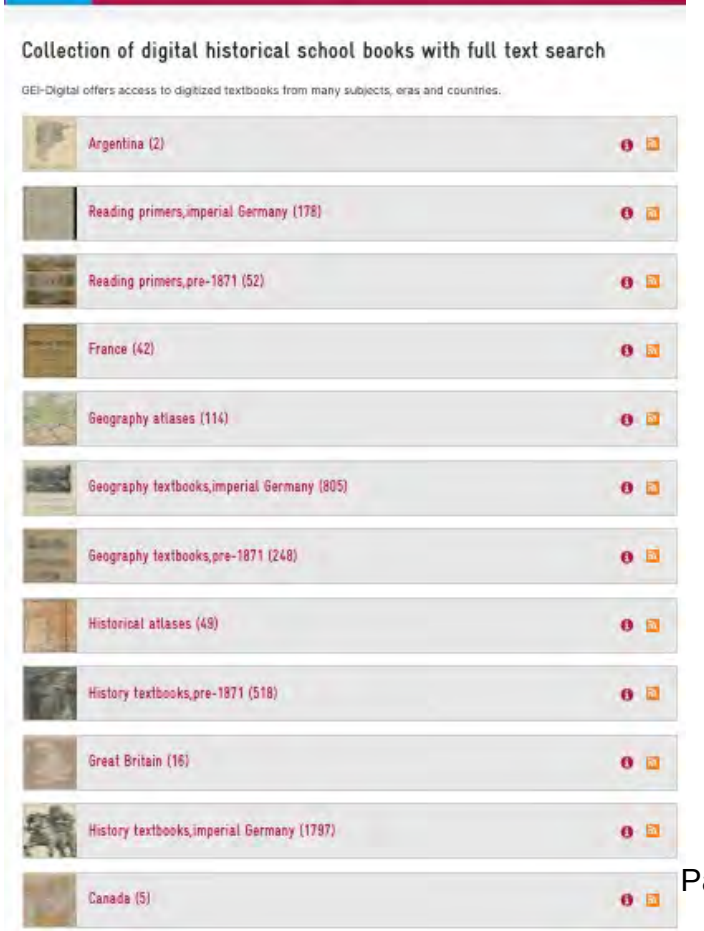
Digitization processes



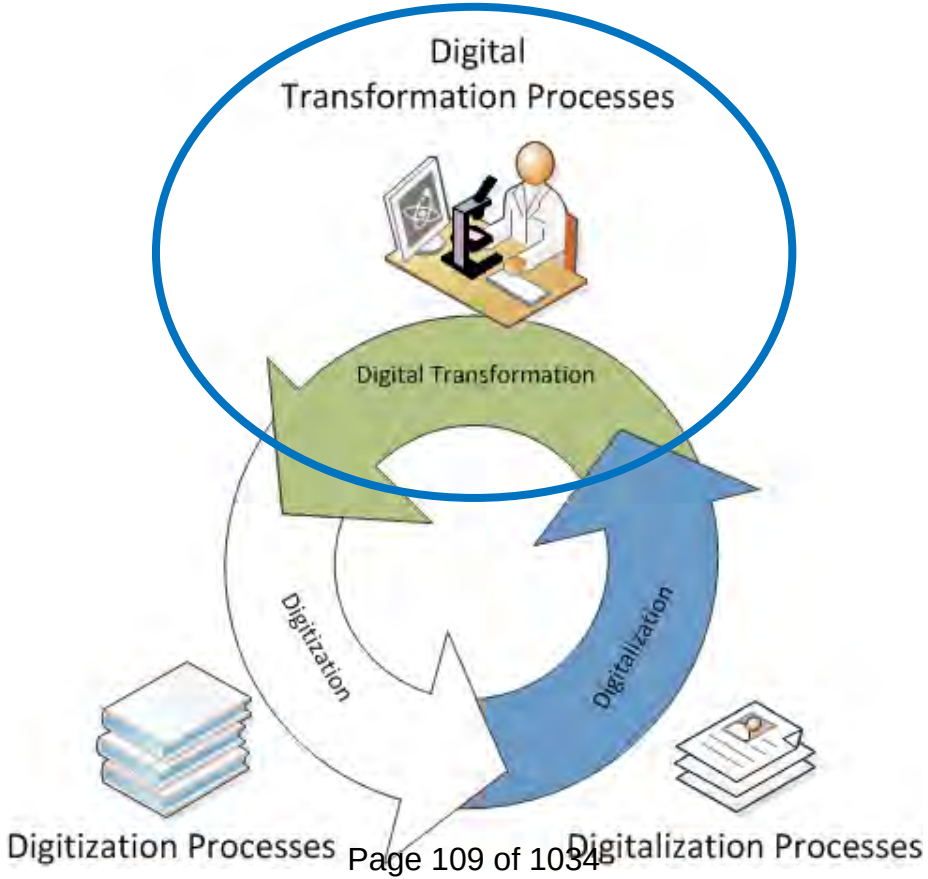
Digitalization processes



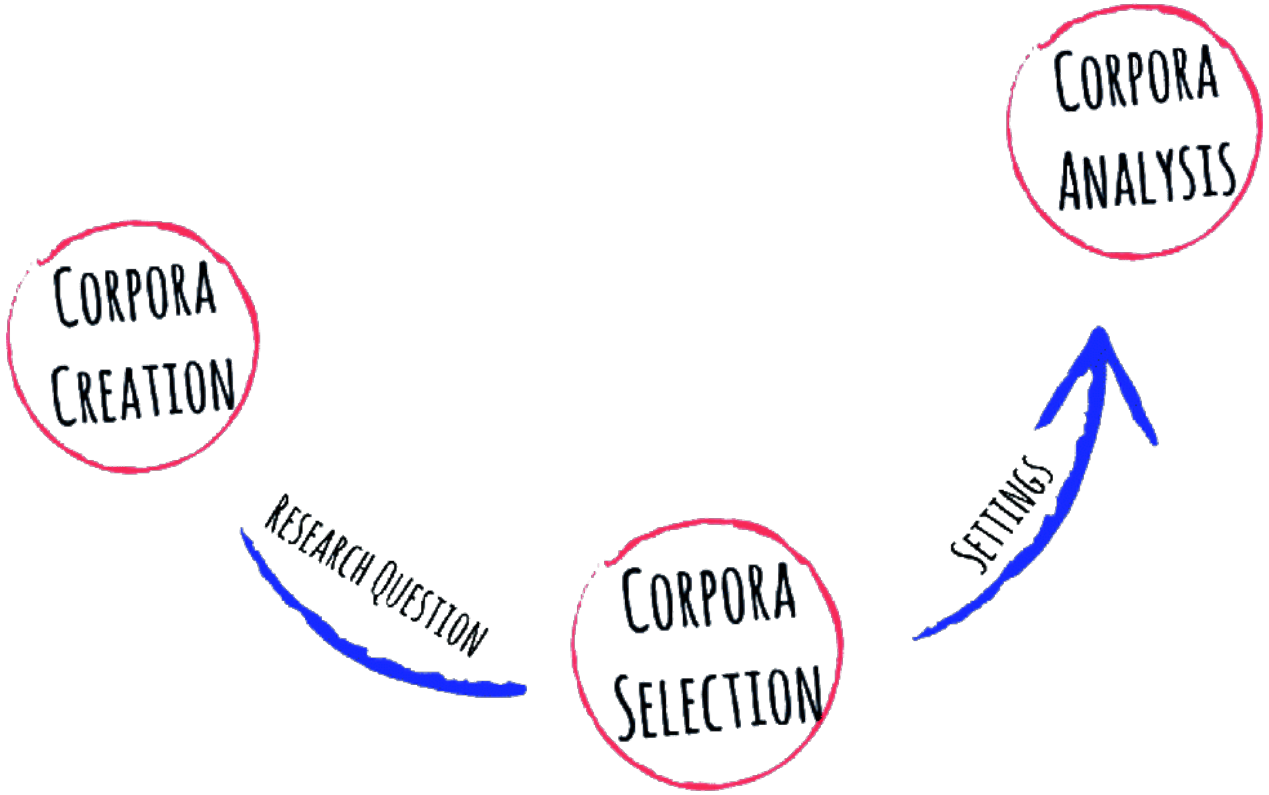
Digitalization processes



Digital Transformation processes



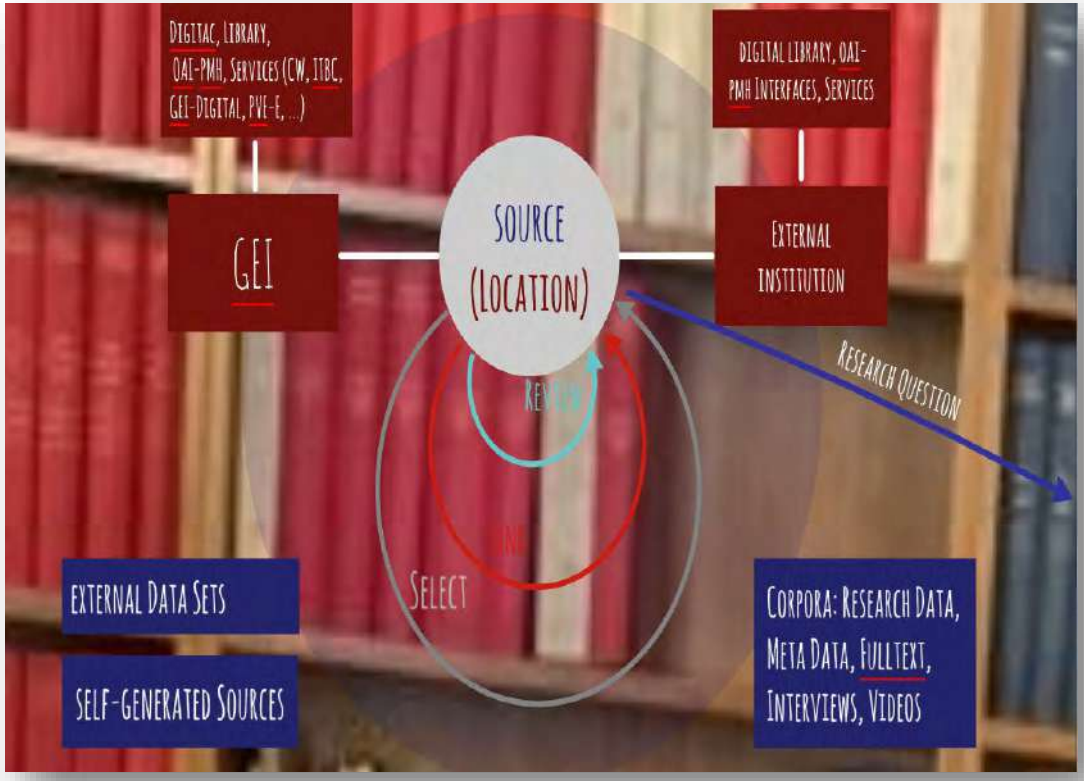
Research process for Text Analysis in the Humanities



E. W. De Luca and R. Spielhaus, *Digital transformation of research processes in the humanities*, Research Conference on Metadata and Semantics Research, Springer, Cham, 2019.

Research process for Text Analysis in the Humanities

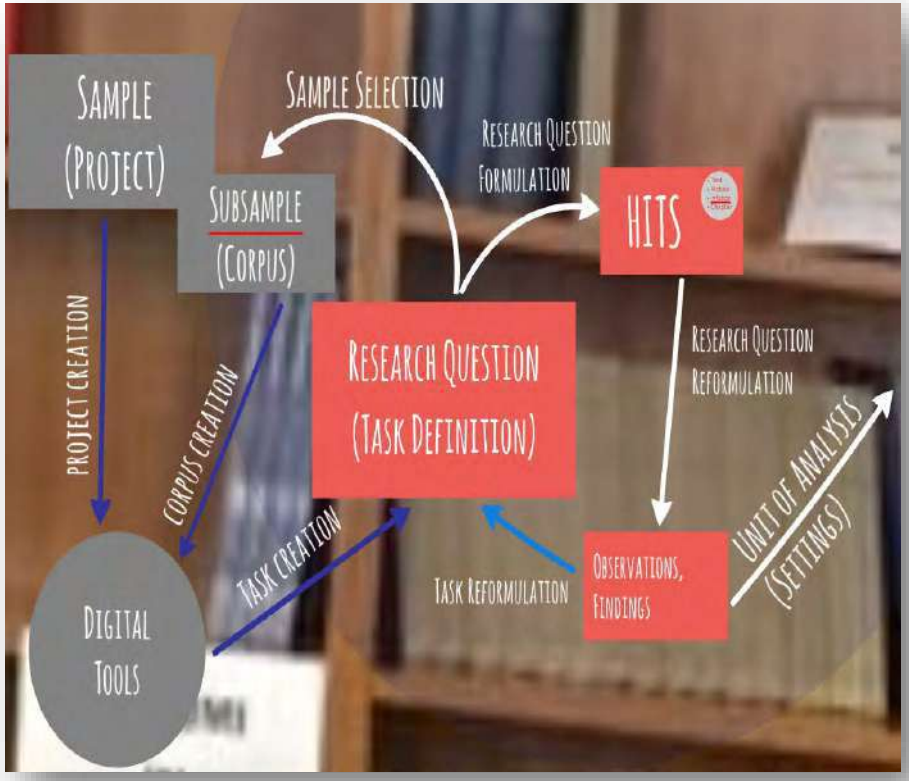
- Corpora Creation



E. W. De Luca and R. Spielhaus, *Digital transformation of research processes in the humanities*, Research Conference on Metadata and Semantics Research, Springer, Cham, 2019.

Research process for Text Analysis in the Humanities

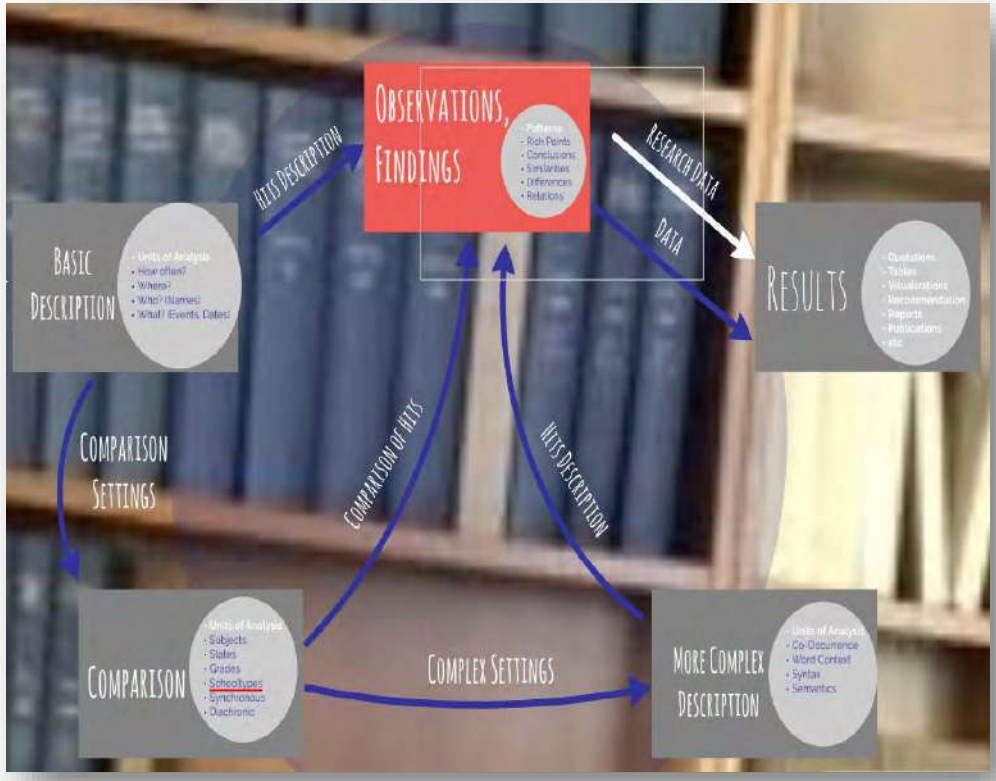
- Corpora Selection



E. W. De Luca and R. Spielhaus, *Digital transformation of research processes in the humanities*, Research Conference on Metadata and Semantics Research, Springer, Cham, 2019.

Research process for Text Analysis in the Humanities

- Corpora Analysis



E. W. De Luca and R. Spielhaus, *Digital transformation of research processes in the humanities*, Research Conference on Metadata and Semantics Research, Springer, Cham, 2019.

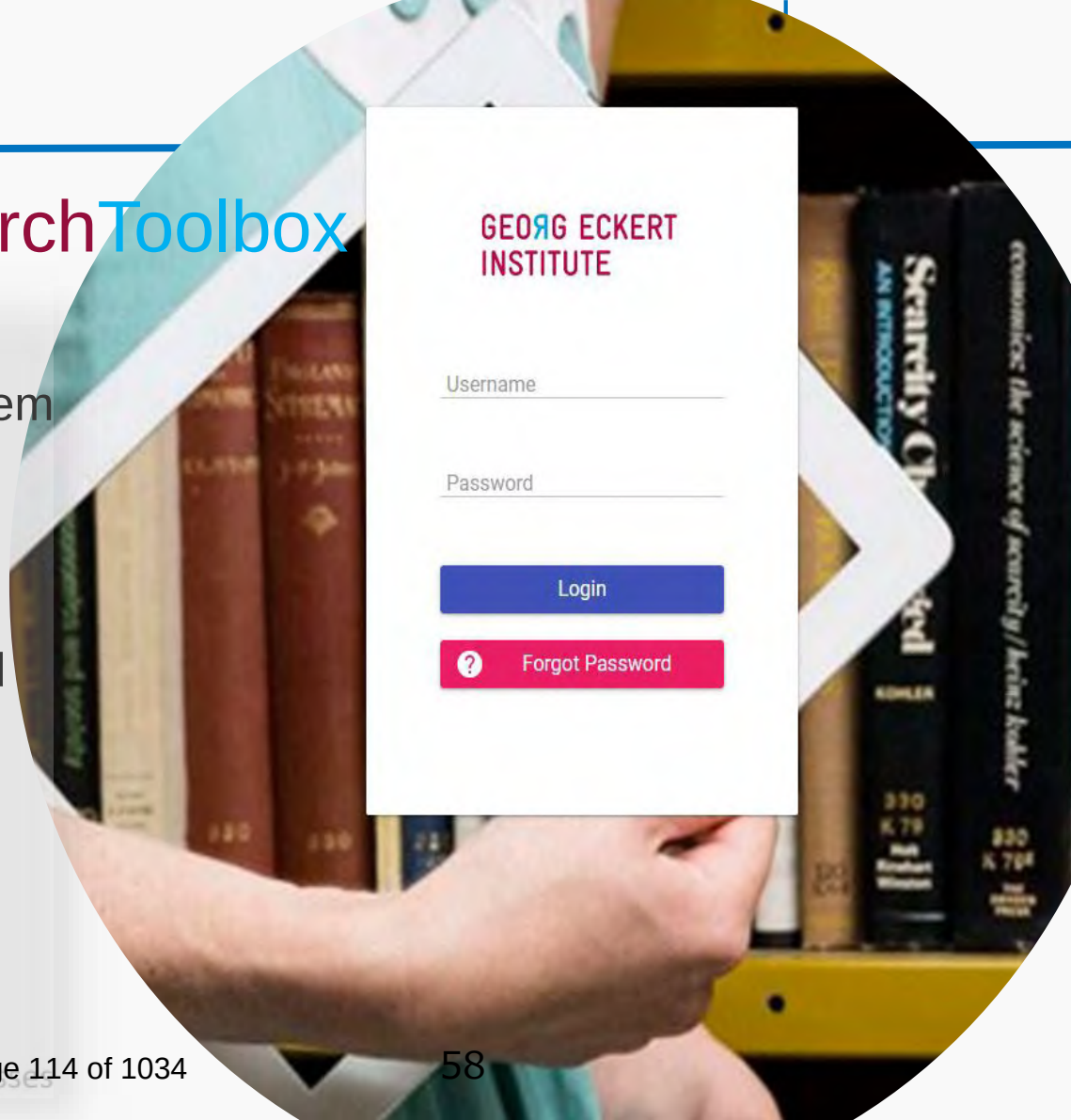
Educational media researchToolbox

Main Goals

- Digital document management system
- Corpus text analysis

User-oriented Goals

- User-friendly and research-oriented interface
- Customized access to content data (knowledge) in real time
- Comprehensive and personalized reports



Conclusion

- **Digitization**, **Digitalization**, and **Digital Transformation** are different terms with different meanings, even if people use them as synonyms;
- *Digitization* is the process for converting information from an analogic format to a digital format;
- If a company uses this process to improve its business, to earn, and to simplify some operations, it is called *Digitalization*;
- Results of this process are called *Digital Transformation*;
- *Digital Transformation* requires *Digitization* and *Digitalization* of how to build a digital business.

Knowledge check

- Possible questions:
  - What are Digitization, Digitalization and Digital Transformation defined?
  - What are the main differences between the three terms?
  - How has Digital Transformation changed companies and research institution processes?
  - How can you define the Multidisciplinary Data Science?


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MEHRBANI
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NINMONCHAR

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INF

LEIBNIZ-INSTITUT FÜR BILDUNGSMEDIEN | Georg-Eckert-Institut

HUMAN-CENTRED Design for Educational Media

Usability & User Experience

26.04.2024

Prof. Dr.-Ing. Ernesto William De Luca

Agenda



- Human-Centred Quality of an Interactive System
- Human-Centred Design Process
- Understand and Specify the Context of Use

This lecture is based on:
Course material provided by artop GmbH &
Curricula content from the International Usability and User Experience Qualification Board (UXQB®) https://uxqb.org/en/documents/

Human-Centred Quality of an Interactive System

Human-Centred Quality of Interactive System

USABILITY	Do certain users achieve their goals in a certain context with the appropriate effort? Are they satisfied?
USER EXPERIENCE	What perceptions and reactions do users have before, during and after the interaction? What are their expectations for the interaction? What are their experiences afterwards?
ACCESSIBILITY	How accessible is the interactive system for users with disabilities (e. g. mobility, visual or hearing disabilities, haptics, etc.)?
AVOIDANCE OF HARM FROM USE	What unacceptable risks (e. g. regarding data loss, data protection, availability of the service,...) can occur during the interaction from the user's point of view?

Usability

Definition: The extent to which an interactive system can be used by specific users to achieve specified **goals** with **effectiveness, efficiency, and satisfaction** in a specified **context of use.**

Usability

Do specific users in a particular use situation achieve their goals with the appropriate effort and are they satisfied?

Success factors:

- Users achieve goals more accurately,
- Users achieve goals that were previously impossible to achieve,
- Users achieve goals with less effort than before
- Users do not feel subjectively affected
- Users maintain a positive attitude towards this machine



User Experience (UX)

Definition: A user's perceptions and responses that result from the use and/or anticipated use of an interactive system.

- **Perceptions**: users' emotions, beliefs, preferences, comfort, behaviours, and accomplishments that occur before, during and after use
- **Consequence** of brand image, presentation, functionality, system performance, interactive behavior, and assistive capabilities of the interactive system
- **Usability criteria** can be used to assess aspects of UX
- Compared to usability, UX also takes into account what happens **before and after the interaction through to final use and recollections** of use.
- UX is mainly about satisfaction and fulfillment of **expectations**.

User Experience (UX)

What perceptions and reactions do users have before, during and after the interaction? What are their expectations of the interaction and their experiences afterwards?



Success factors:



- User expectations are met across all touchpoints
- Design of a holistic service that takes into account all relevant qualities of experience



Interaction is not only useful or simple, but also aesthetic, exciting, playful, fun, value-based.

Human-Centred Quality vs. Technical Quality

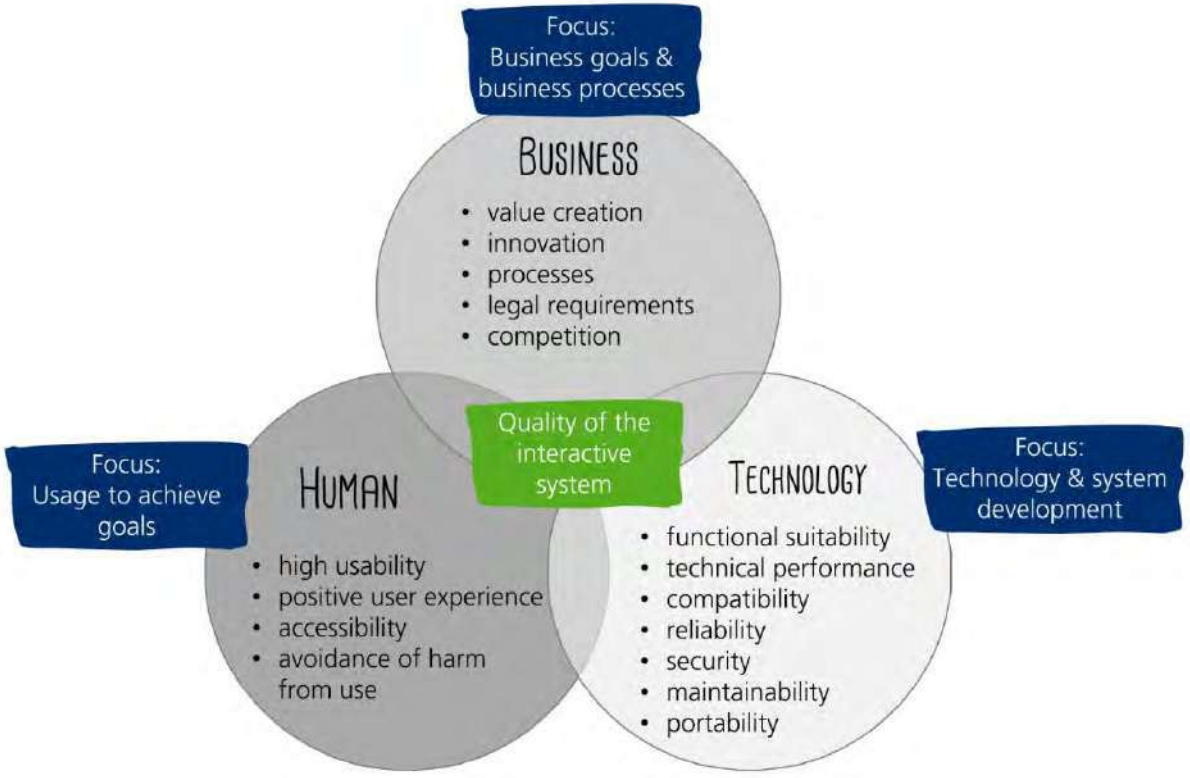


„Above the hood": actively perceived by costomers and users

„Below the hood": taken for granted by costomers and users



Stakeholders of Quality Objectives



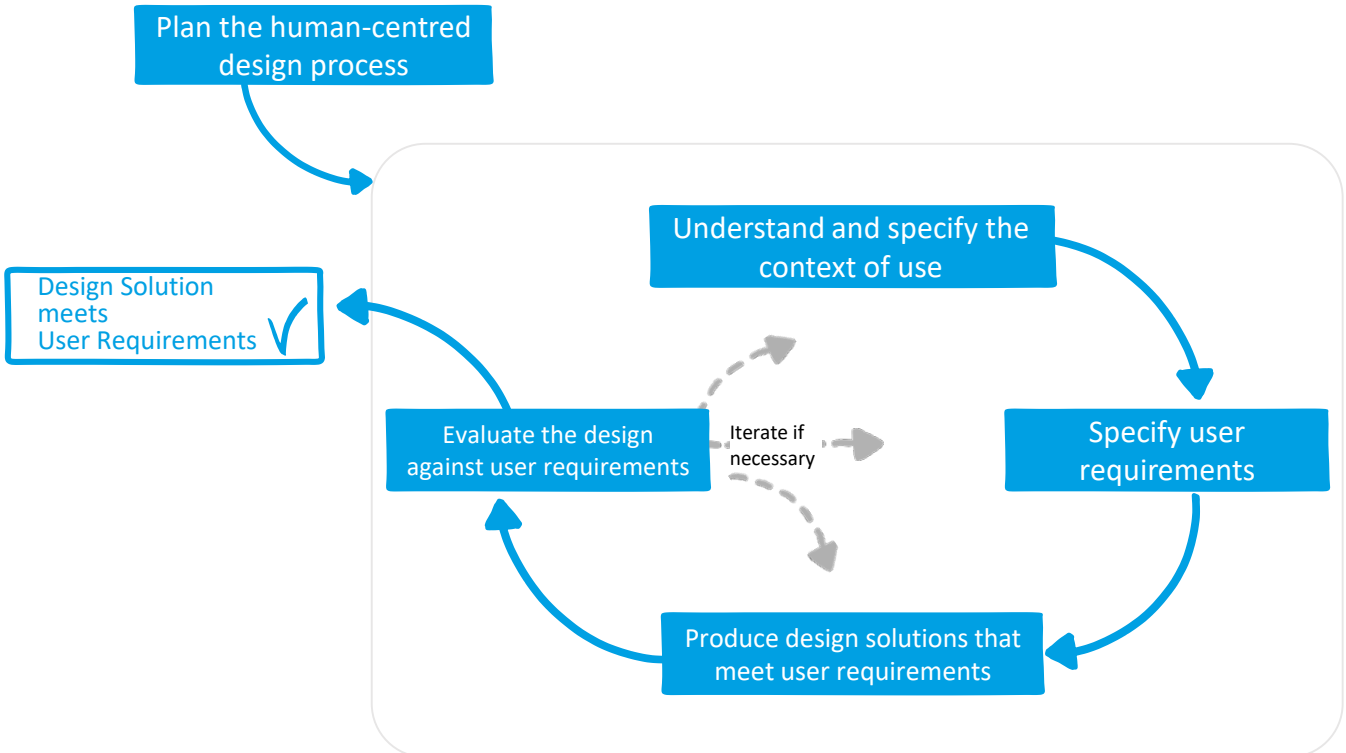
Human-Centred Design Process

ISO 9241

Definition: A family of standards covering human-centred design.

- ISO 9241 includes standards related to
  - a. Software ergonomics;
  - b. The human-centred design process;
  - c. Displays and display related hardware;
  - d. Physical input devices;
  - e. Workplace ergonomics;
  - f. Environment ergonomics;
  - g. Control centres

Human-Centred Design Process

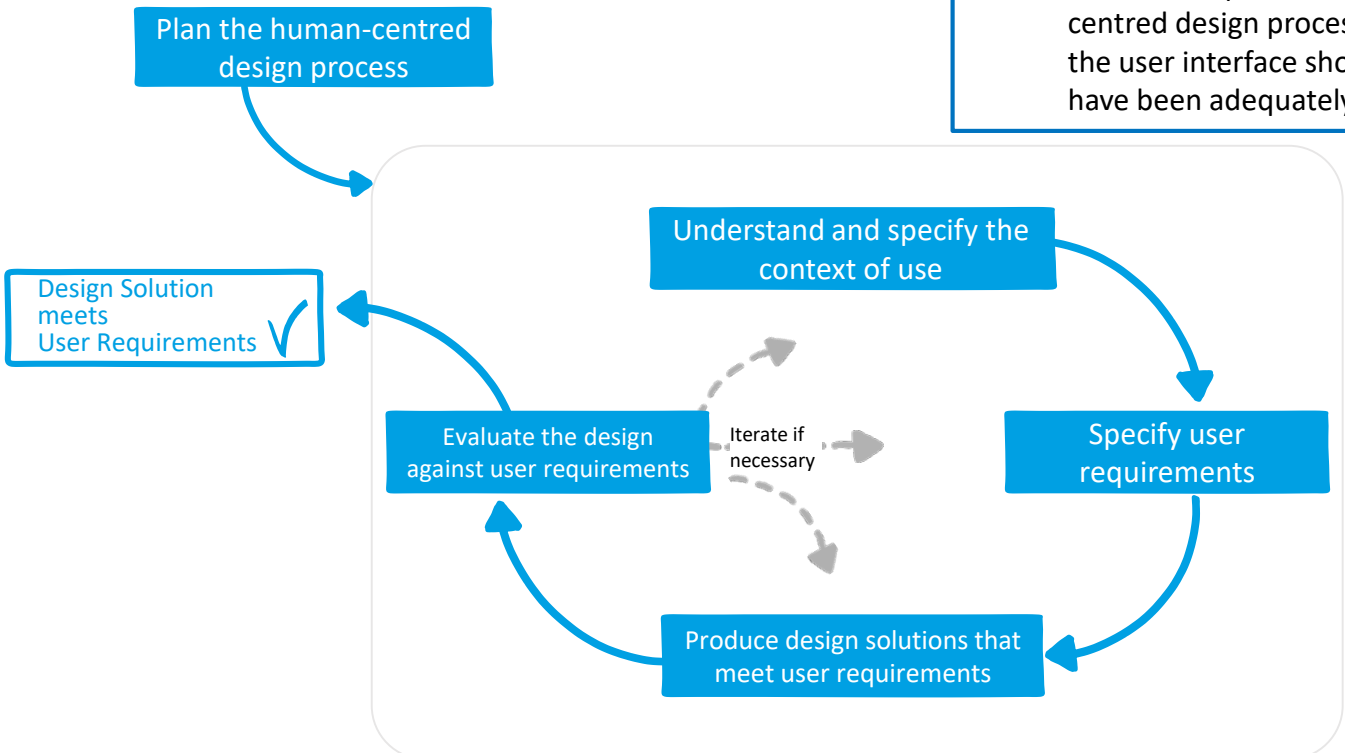


Human-Centred Design Process

Iterative

Definition: Repetitive.

- An iterative process repeats steps in the human-centred design process until a usability evaluation of the user interface shows that the user requirements have been adequately met.



Human-Centred Quality Objectives

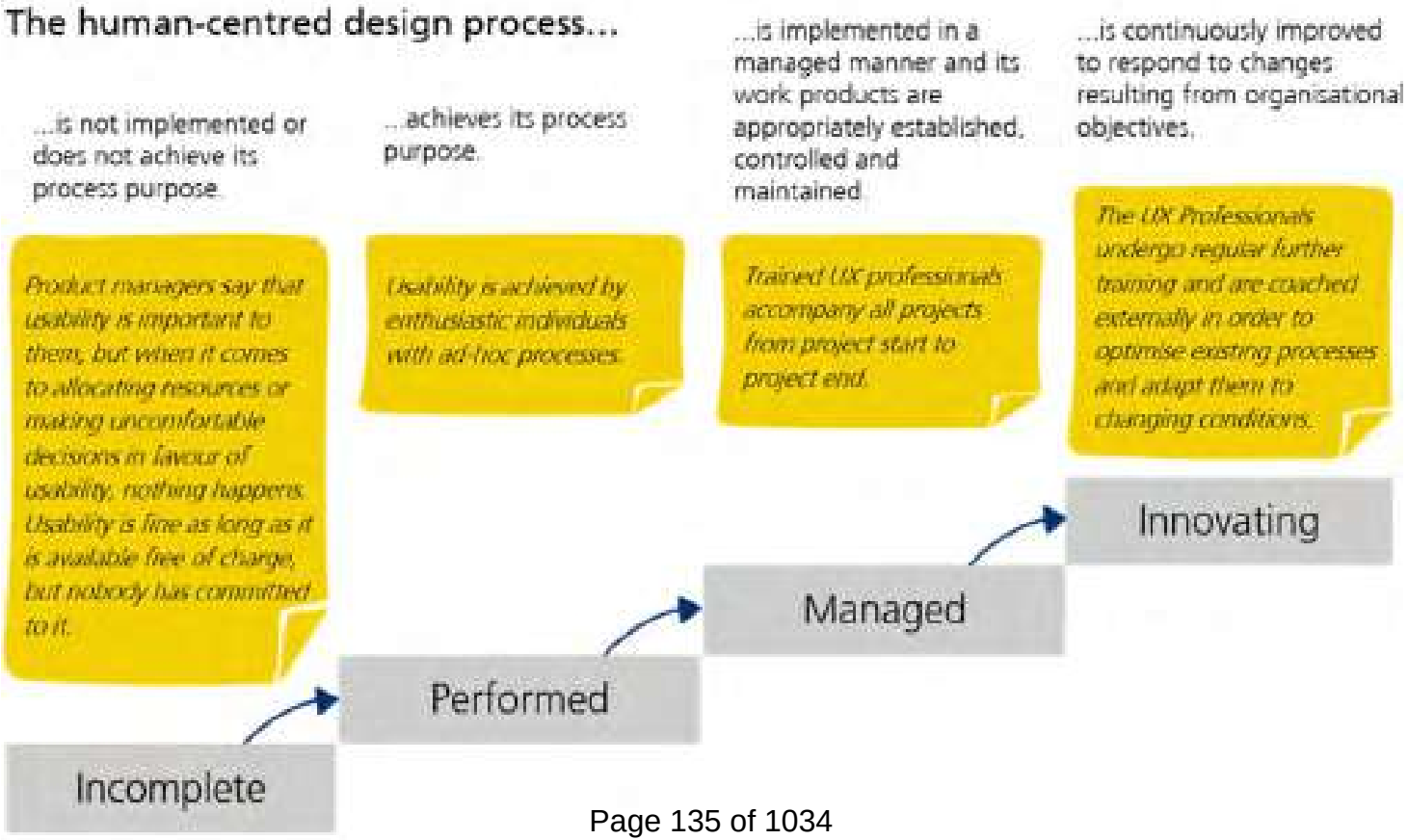
…are **goals of stakeholders** regarding the human-centred quality of the interactive system to be created or revised. They are **not yet user requirements**.

…are **specified during the planning** of human-centred design activities. The **user requirements engineer acts here as a moderator**, as he/she has specialised knowledge about this type of specification.

…helps if explicitly specified at the beginning of the project, to **adequately set the focus and scope of the context of use analysis** to be conducted. The actual **user requirements then arise** from the context of use analysis.

…can be formulated as **verifiable quantitative user requirements**, so that they can serve as acceptance criteria for the project.

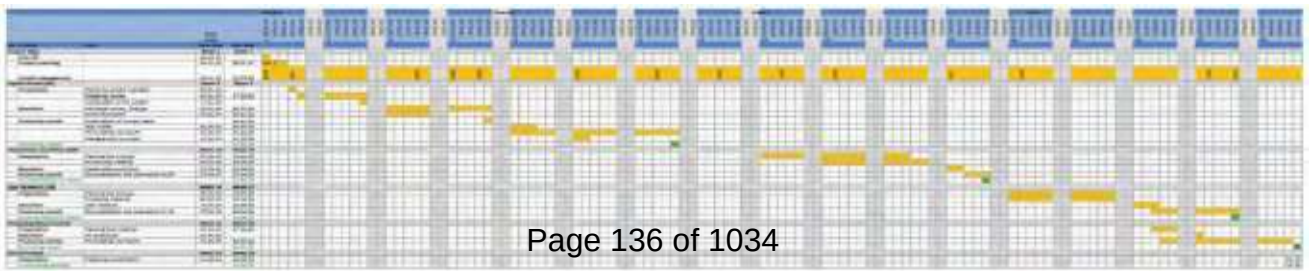
Usability Maturity



User Experience Project Plan

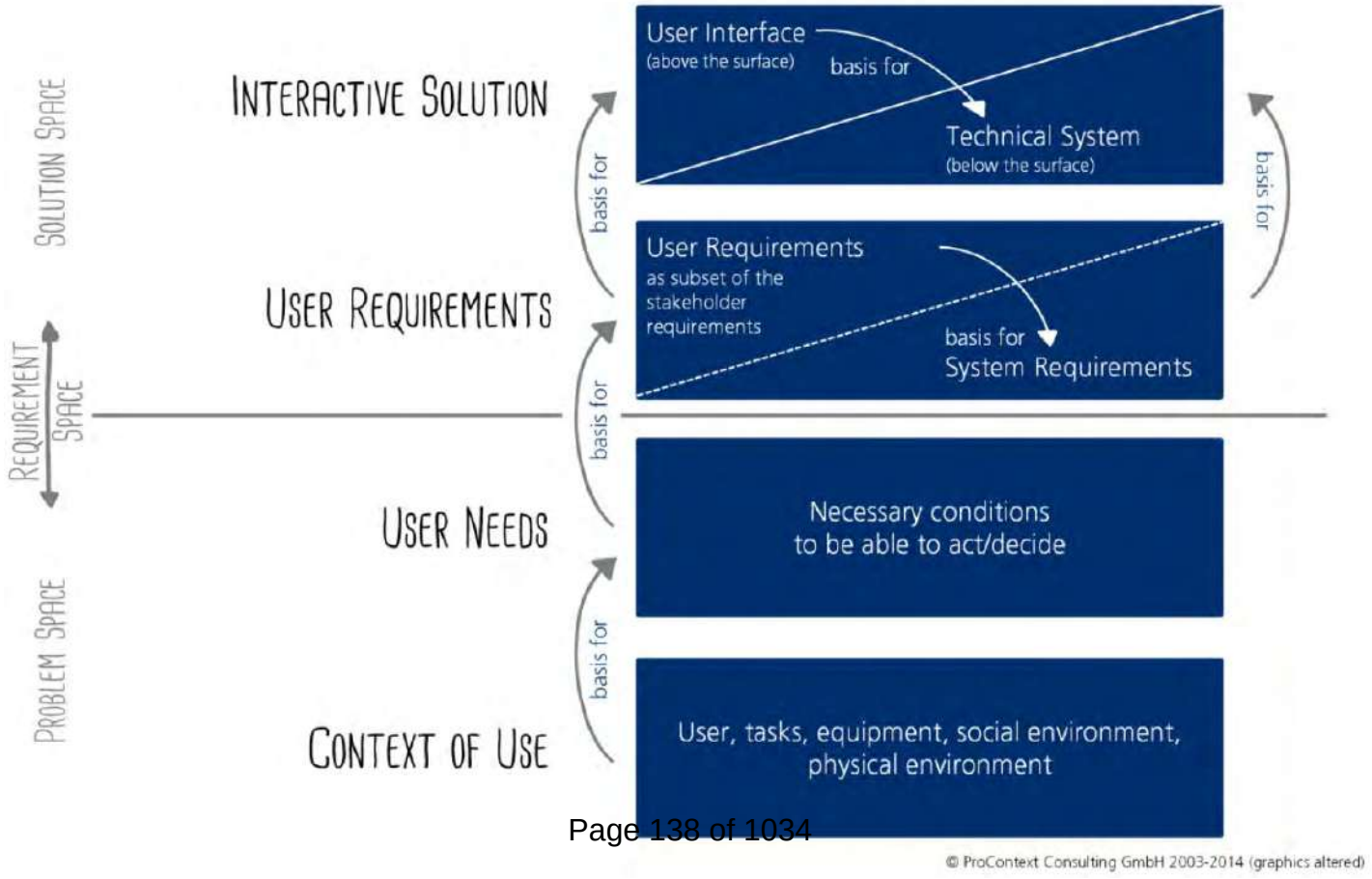
Definition: A description of the human-centred design **activities and deliverables** for an interactive system.

1. The description can be an independent document or a part of the overall project plan.
2. The user experience project plan contains:
   a. The **human-centred quality objectives** specific to the project;
   b. The planned human-centred **deliverables and the activities** needed to produce those deliverables as part of the project;
   c. The **time plan**;
   d. The **cost estimate** for the human-centred design activities.



Understand and Specify the Context of Use

Systematic Approach for Human-Centred Design

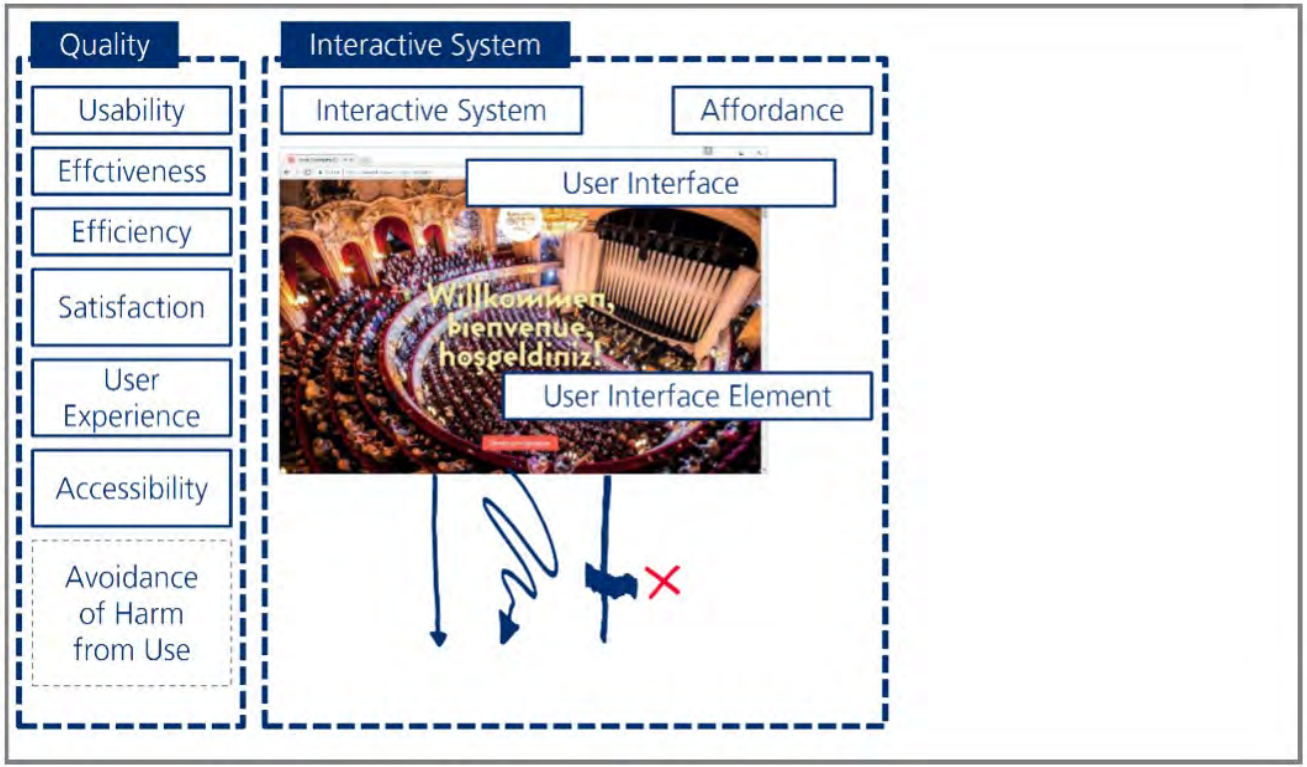


Interactive System

Definition: A combination of **hardware, software and services** that users interact with in order to achieve specific **goals**.

- Includes (where appropriate) packaging, user documentation, online help, support and training.
- Even systems that do not accept inputs (e.g., destination boards at the airport)

Quality of an Interactive System



User Assistance

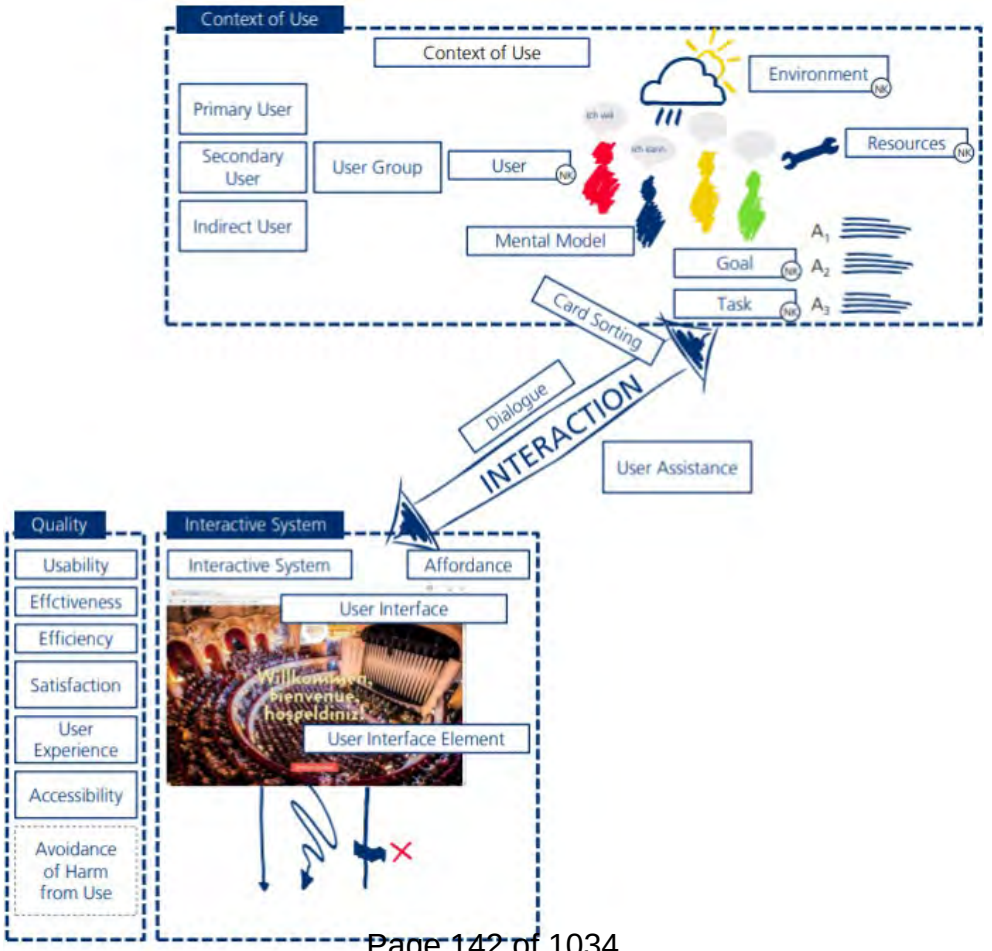
Definition: Information to **help a user to interact** with an interactive system.

- Describing the user interface
- Help the user to best apply the capabilities of the interactive system to their needs
- Example forms of help:
  - User documentation: written or other information for users; how the interactive system works and how to use it
  - Online help: computer software that assists in a topic-oriented manner, procedural manner or with reference information
  - System-initiated guidance: Unsolicited, explicit information about an event or a condition from an interactive system to a user

Examples:

- Messages
- Status information
- Instructions

Context of Use



User

Definition: A person who **interacts** with an interactive system, **or** who **uses the output** of the system.

- **Primary user:** uses the interactive system for its intended purpose.
- **Secondary user:** carries out support tasks with the interactive system
  - e.g., maintenance of the system, train primary users (often have different user interface)
- **Indirect user:** uses the output of the interactive system, but does not directly interact with it
- Stakeholders may or may not be users (depends on whether they interact with the system or use its output), examples of stakeholders who are not users:
  - Non-technical managers of a team of technical users
  - People affected by the noise produced by the system
  - Marketers affected by the impact of the use of the system on the brand

Users and Other Stakeholders

Primary User

Peter would like to give opera tickets to his girlfriend for her birthday. He orders tickets on the website of the Komische Oper.

Secondary User

Frank is responsible for the Komische Oper website. He makes sure that it is always up to date and takes care of technical problems.

Indirect User

Sally would like to buy tickets, but currently has no internet access, so she asks a friend to order tickets for her on the internet.

Stakeholder

Website Administrator
Requirement: The website should be easy to maintain and there should be the possibility to install updates without problems.

Marketing staff
Requirement: New information should be quickly uploadable, so that it is available promptly and can be distributed quickly.

Ticket buyer
Requirement: would like to buy tickets, find out about events, etc.

Further distinction between User Groups

User groups need to be defined because users differ significantly in terms of

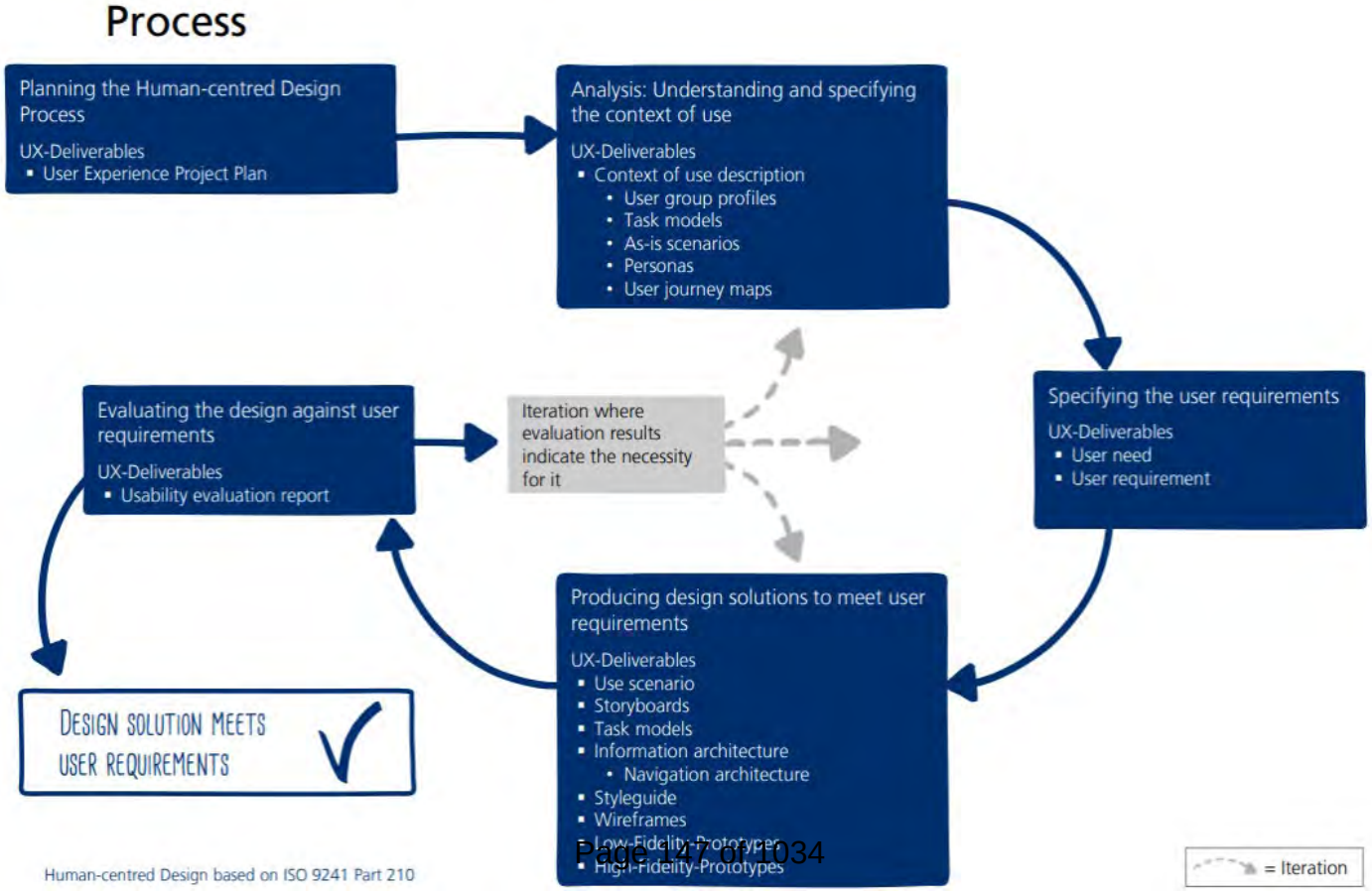
- their **personal attributes** (e.g., age, expertise, mental resilience, physical endurance,…)
- Their individual **goals and mentalities**
- Their **tasks** (core and subtasks typical for these users)
- Their **resources** (resources necessary or available for the completion of a task)
- Their social and physical **environment**

User Groups for the Context of Use “Parking in Managed Parking Lots”

User groups need to be defined because users differ significantly in terms of

1. Experienced visitors
2. Inexperienced visitors
3. Residents
4. Parking lot surveillance
5. Parking offenders

UX-Deliverables for Different Fields of Action in Human-Centred Design Process



Context of Use Description

Definition: A description of the users, goals, tasks, resources, and environments derived from observations, contextual interviews and focus groups.

Note:

1. The context of use description is the basis for identifying **user needs** and tracing them back to their source.
2. A **context of use description** describes:
   a. **Users,** in the form of **user group profiles and personas**;
   b. **Goals** in the form of **as-is scenarios;**
   c. **Tasks**, in the form of **task models, as-is scenarios or user journey maps;**
   d. **Resources**, in the form of **lists or as-is scenarios;**
   e. **Environments**, in the form of **as-is scenarios.**

UX-Deliverables: Understand and Specify the Context of Use

UX results:

There are **different forms of context of use descriptions**:

- User group profiles,
- task models,
- as-is scenarios,
- personas
- and user journey maps.

User Group Profile

Definition:

A **generalised description** of a user group.

Example of a user group profile for the website of a van rental company:

Customers – Private people who want to move house

Private people rent a cargo van, for example because they want to move house. Most rentals are booked in advance and last 2-3 days. Most customers are one-time only customers.

Customers have no particular experience with cargo vans – they are used to smaller cars. They are unfamiliar with business terms and conventions in cargo van rental.

Customers are reasonably familiar with the internet and are reluctant to provide their email address unless there is an explicit guarantee that they won't receive spam emails as a result.

User Group Profile (example)

User Group Title	Saver
Typical Tasks	• Searching through offers • Finding good value for money • Saving money
Software Experience	• Frequent use of technical devices • Experience in using websites and the internet

Task Model

Definition: A description of the **subtasks within a task** that have to be carried out in order to reach the user's goals.

1. The purpose of a task model is to provide a precise description of a task.
2. Task models should be written so users can understand and validate them.
3. A task model describes a task's contextual preconditions, the steps needed to carry out the task, and its intended outcomes, whereas as-is scenarios and use scenarios describe how one or more tasks are carried out by a person.
4. Task models are created during analysis to describe current tasks. They are also created or updated during design to describe intended tasks.

Task Model (example)

User group and task	
User group:	Medical assistant
Task:	Postpone an appointment for treatment
Pre condition:	a patient cannot attend an agreed appointment for treatment
Post condition:	The patient received an suitable appointment for treatment

1. Identify patient
2. Determine which treatment date must be scheduled
3. Identify available alternative treatment appointments
4. Set one of the available treatment appointments
5. Pass on the new treatment appointment to the patient

As-is Scenario

Definition: A **narrative text description** of the procedure a specific user currently follows to complete one or more tasks.

1. The specific user in the scenario is often a persona.
2. As-is scenarios are created by a user experience professional based on **results from observation and contextual interviews**.
3. As-is scenarios are a suitable basis for developing personas as thinking about users in their current context of use involves thinking about what they want to do, and thinking about activities involves thinking about who will be undertaking them.
4. As-is scenarios are reviewed by users to detect misunderstandings that may have occurred during contextual interview.

As-is Scenario (example)

Markus would like to give opera tickets to a friend and her husband for their birthday. Before that he wants to inform himself about the current programme. After work, he stops by the opera house and looks at the programme. He looks at the period after his girlfriend's birthday. Together with an employee at the box office, he looks at the seating plan, tries out different variations and calculates the total price. The two of them finally find seats that Markus is satisfied with and that do not exceed his set price limit. He pays cash and has the tickets printed out. On the way home he buys an envelope that harmonises well with the colours of the tickets, after all, the whole thing is a gift. Phew, good that everything worked out and Markus now has a nice present, but the effort was really big.

Persona

Definition: A description of a **fictitious but realistic user** and what they intend to do when using an interactive system.

1. Personas are not real people; they are realistic representations of users, constructed from empirically determined data, for example from observations or interviews.
2. Personas typically have a **name, age, some background, goals and aspirations.** A persona description should include information about the persona's knowledge and interest in the subject matter of the interactive system. Including a photo in a persona description helps to create the illusion of a real person.

Persona (example)

Carol Becker, 55, Stoke-on-Trent (UK):
"It must be simple and trouble free"



Education: Primary school.

Occupation: Helps out at the local library.

Family status: Widowed. Two children (son and daughter), both are married and live elsewhere with their families.

Hobbies and interests: Cooking and gardening.

Carol Becker lives in a large, old house several miles outside Stoke-on-Trent, which is south of Manchester.

Mrs. Becker has an old Windows computer. She uses it for her extensive collection of cooking recipes and has recently been using it to keep in touch with the family via e-mail. She refers to the computer as "the beast" because it sometimes issues scary messages, which require a lot of time and help from others to resolve.

Her children gave her a smartphone for Christmas. She currently uses it just to make calls.

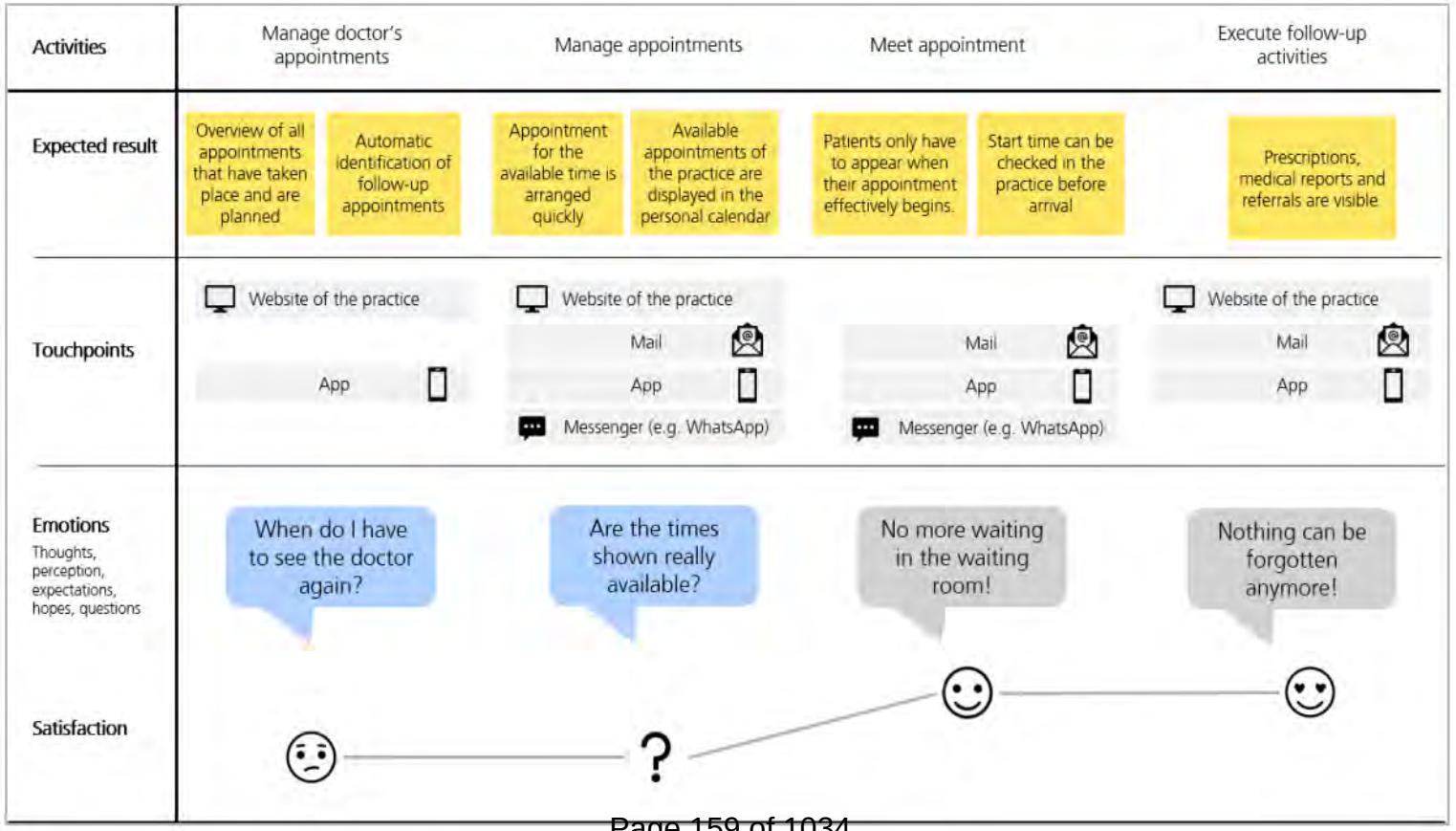
Mrs. Becker maintains her house well. Because her house is old, she often has craftsmen visiting. Mrs. Becker is often away from home and she has problems letting the craftsmen in when she's not present

User Journey Map

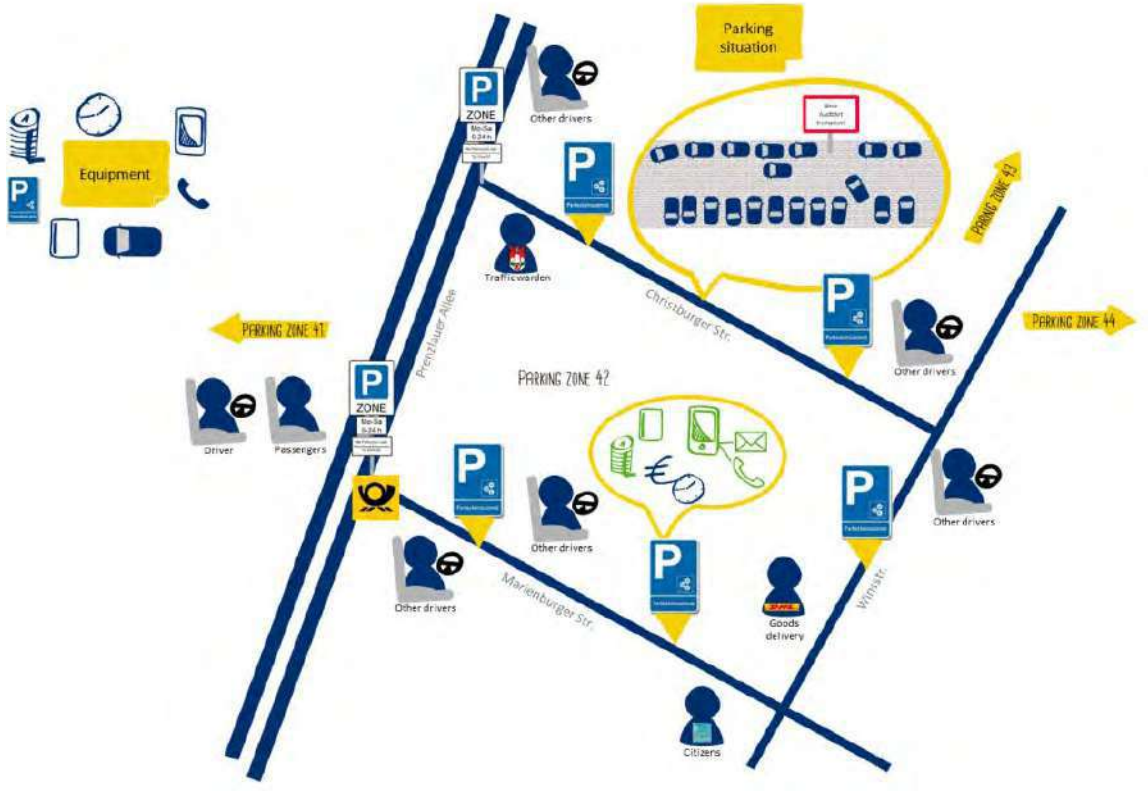
Definition: A **graphical or tabular** description of all encounters users have with the interactive system covering all **touchpoints** that influence the **user experience**, making the overall user experience tangible for others.

1. Besides depicting as-is scenarios or use scenarios, user journey maps can be used as a general communications medium to **exemplify scenarios for stakeholders** that extend beyond the pure interaction, for example from the discovery of the product to the purchase situation to the usage of the product.
2. User journey maps do not replace as-is scenarios or use/usage scenarios .
3. User journey maps are graphs or tables that show the full user experience for users in general. User journey maps can also show the user experience for a persona.
4. User journey maps are created during analysis to describe current encounters. They are also created or updated during design to describe intended encounters.

User Journey Map (example)



Environmental Model



Interview

Definition:

A data-gathering method that **questions a few carefully selected individuals in depth** to arrive at a fuller understanding of the context of use for an existing or planned interactive system. Through inquiry and interpretation, it **reveals commonalities and differences across the user base.**

Interview

1. In an interview, the interviewer (a user experience professional) typically conducts a **briefing** and then asks **questions to a user about the current context of use** and, if applicable, about the planned interactive system. The interviewer uses an **interview checklist** to ensure that all relevant topics are covered.
2. Interview questions should be
   a. Open rather than closed;
   b. Neutral rather than leading.
3. The main purpose of an interview is to **gather information about users, goals, tasks, resources and environments** – that is, how things are currently done. In an iterative cycle, a **low-fidelity prototype** based on data collected from users through observation and interviews may be subsequently evaluated with users to clarify the understanding of the context of use, user needs, user requirements and the use scenario for the interactive system.
4. Interview participants **may make valuable suggestions** regarding the expected future system – these can be documented separately and should be probed in subsequent interviews to check their validity. They can also be communicated through as-is scenarios as shown in example 2 in the definition of as-is scenario.
5. Where possible, interviews should be done **contextually**, however any interview is better than no interview at all.

Successful Interviewers

A. Use **open questions** and avoid closed questions;
B. Use **neutral questions** and avoid leading questions;
C. **Don’t talk too much;**
D. Use an **interview checklist but remain flexible**;
E. **Prepare** for the interview;
F. Remain **curious;**
G. Check their notes before the interview participant leaves so they **never leave unsure** about what happened.

Contextual Interviews

Definition:

An interview that **takes place at the location** where the user's interaction with the interactive

system **usually** takes place and **focuses on the context of use** of the user.

Master-apprentice Model

Definition:

A principle for a successful contextual interview: The **interviewer treats the user as the master** while the interviewer is the apprentice. The goal of the master-apprentice model is to understand users' goals and tasks in detail by learning them as an apprentice would.

1. The interviewer asks because they sincerely want to learn – not because they want to demonstrate their knowledge.
2. Everything the master says is correct. Sometimes the apprentice must ask several questions in order to fully understand the master – the interviewer must never leave unsure about what happened.
3. Typical mistakes include:
   a. Interrupting the master;
   b. Attempting to influence the master;
   c. Doubting or even trying to correct the master;
   d. Using the interview checklist to steer the interview rather than letting the master address issues in the way they prefer

Open Question

Definition:

A question in an interview that **does not give any indication of the expected format or content** of the answer.

1. Open questions are desirable in interviews because they invite users to start talking and

   provide extensive answers to questions.
1. Compare this to a closed question.

Closed Question

Definition:

An interview question that **requires an answer from a predetermined set of alternatives,** for example yes and no.

1. Avoid several closed questions in sequence. They stop users talking because they sound like a

   police interrogation.

1. Compare this to an open question.

Example:

Closed question: “Have you ever rented a car?”

A corresponding open question might be: “Please tell me about the last time you rented a car.”

Neutral Question

Definition:

A question in an interview that has **no built-in assumptions**, and no frame that excludes anything or directs the reply in a certain direction.

Compare this to a leading question.

Leading Question

Definition:

A question in an interview that **signals a preference for certain possibilities**, or attempts to direct the reply in a certain direction.

Compare this to a neutral question.

Interview Checklist

Definition:

A written **list of suitable questions and cues** used by the interviewer during an interview to make sure that all relevant topics are covered.

Interview Checklist

Conducting the interview

Goal

- Getting to know and really understanding the interviewee's working and living environment
  - Tasks, goals, wishes
  - Situations, differences, similarities

Attitude

- Master-apprentice model
  - As an interviewer (apprentice) you want to learn from the interviewee (master)
- Meeting at eye level
- Open, unbiased, solution-neutral
- Transparent

Techniques

- Active listening and being present
- Verbalising and paraphrasing
  - Repeat what you have heard and repeat it in your own words
- Use WH questiony
  - Who, where, when, why, …

Question types

- Open (instead of closed / alternative)
  - Example: "Please tell me about the last time you made an appointment.
- Neutral (instead of suggestive)
  - Exampe: „What do you mean?"
- „Aladdin question"

Example: "If you were in an ideal world, ...?

Example: Key questions „medical assistant"

1. What is your role in the medical practice?
2. Which colleagues do you have?
3. How is the practice organised spatially?
4. What are your typical tasks?
5. How do you share the work with your colleagues?
6. How do patients make appointments with you?
7. What exactly do you ask for when making an enquiry about a treatment appointment?
8. How do you document treatment appointments?
9. What difficulties do you experience when making an appointment?
10. What other difficulties do you have with regard to agreed treatment appointments?
11. If you were in an ideal world, how would you make an appointment?

Deepen your enquiry…

- regarding tasks and goals
- regarding environments, resources and work equipment and touchpoints
- regarding experience and expertise
- regarding standard situations and special situations

- In-depth questions
  - What do you do?
    → Actions / decisions
  - What do you want to achieve?
    → Intentions / goals
  - What / how do you feel?
    → Feelings
  - Why ist hat important?
    → Needs
  - Why is this so?
    → Situation
  - What do you want?
    → Solution ideas
  - Why?
    → Reasons

Scrutinize!!!

Observation

Definition:

A method for gathering contextual information relating to user needs in which an **observer watches users who carry out tasks** that are related to the interactive system.

1. The observer behaves **unobtrusively** except that they may ask an occasional clarifying question.
2. If no interactive system is available, existing procedures can be observed.
3. Observation should take place in a **context that is as natural as possible**, for example at the user's workplace, their home or in a shop.

Focus Group

Definition:

A **focused discussion** where a moderator leads a group of participants through a set of questions

on specific topics.

Do **not** use focus groups **for usability evaluation.** Focus groups are about attitude and opinion. In

comparison, usability tests are about observing actual user behaviour.

Recruiting

Definition: A process for **selecting candidates** that have the appropriate characteristics to participate in a human-centred activity such as a focus group, contextual interview, or usability test.

1. A **recruitment screener** is often used to determine whether candidates have the appropriate

   characteristics to participate in the human-centred activity. It consists of a series of questions for

   prospective participants to identify whether they represent the intended users.
1. Relevant characteristics might include: **Personal and professional background, knowledge of the subject matter, attitudes and interests.**

Briefing

Definition:

The first activity in an interview or a usability test session where the usability test participant is **informed about the purpose of the interview or usability test and what their role and contribution** will be.

Roles in the Conduction of Interviews, Focus Groups and Usability Tests

Moderator

A **neutral person who conducts** a usability test session or a focus group session.

1. The moderator’s tasks during a usability test session are described under usability test session.
2. Facilitator is a frequently used synonym for moderator.

Moderation

Definition: The **activity carried out by a moderator** in a usability test or focus group.

Roles in the Conduction of Interviews, Focus Groups and Usability Tests

Observer

Definition: A person who **watches users** in an observation, usability test session or focus group.

Observers do not interfere with the usability activity. Observers may be actively involved in the analysis of the results.

Roles in the Conduction of Interviews, Focus Groups and Usability Tests

Note-taker

Definition: A user experience professional who **makes notes of usability findings** during a usability test session, focus group or interview.

1. **Note-taking can be handled by the moderator** in order to keep costs down.
2. The use of an additional note-taker allows the moderator to concentrate fully on the usability test participant.

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LEIBNIZ-INSTITUT FÜR BILDUNGSMEDIEN | Georg-Eckert-Institut

HUMAN-CENTRED Design for Educational Media

User Needs & User Requirements

26.04.2024

Prof. Dr.-Ing. Ernesto William De Luca

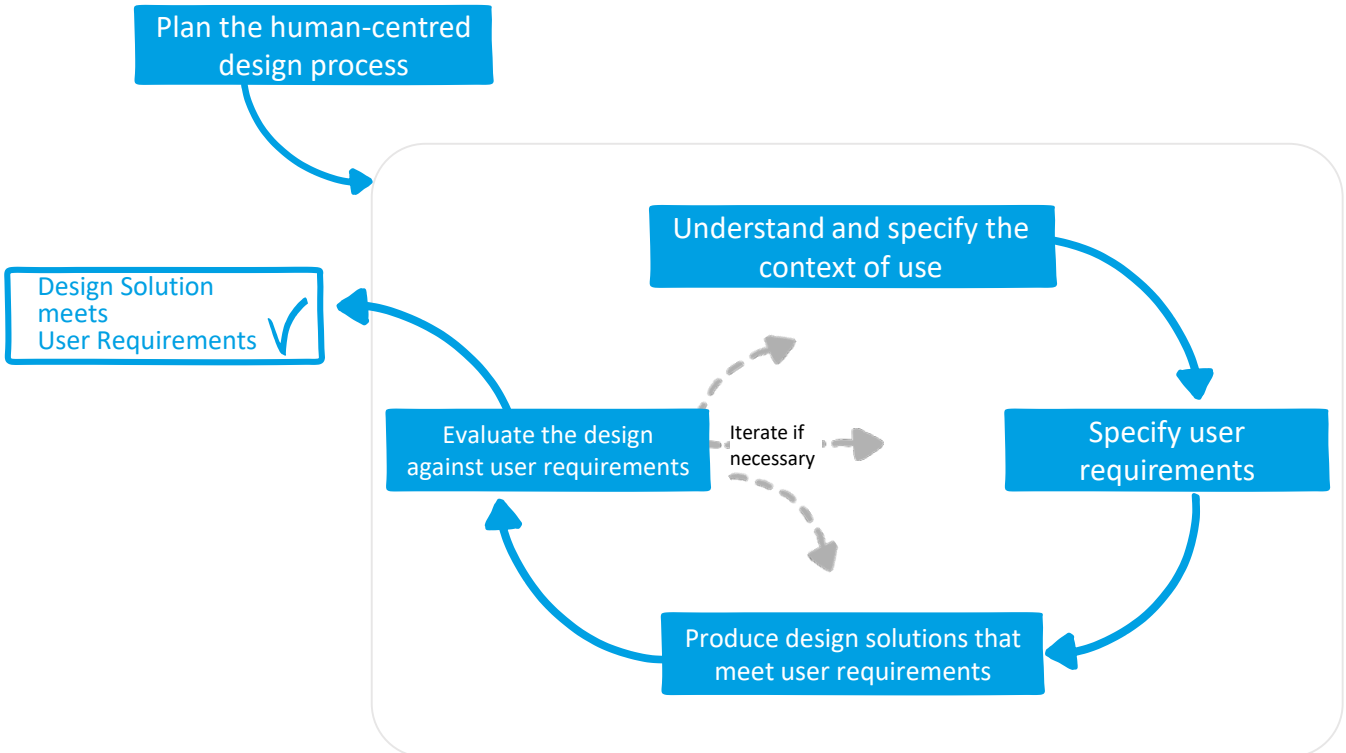
Agenda



- Derive User Needs from the Context of Use
- Specify User Requirements based on User Needs

This lecture is based on:
Course material provided by artop GmbH &
Curricula content from the International Usability and User Experience Qualification Board (UXQB®) https://uxqb.org/en/documents/

Human-Centred Design Process



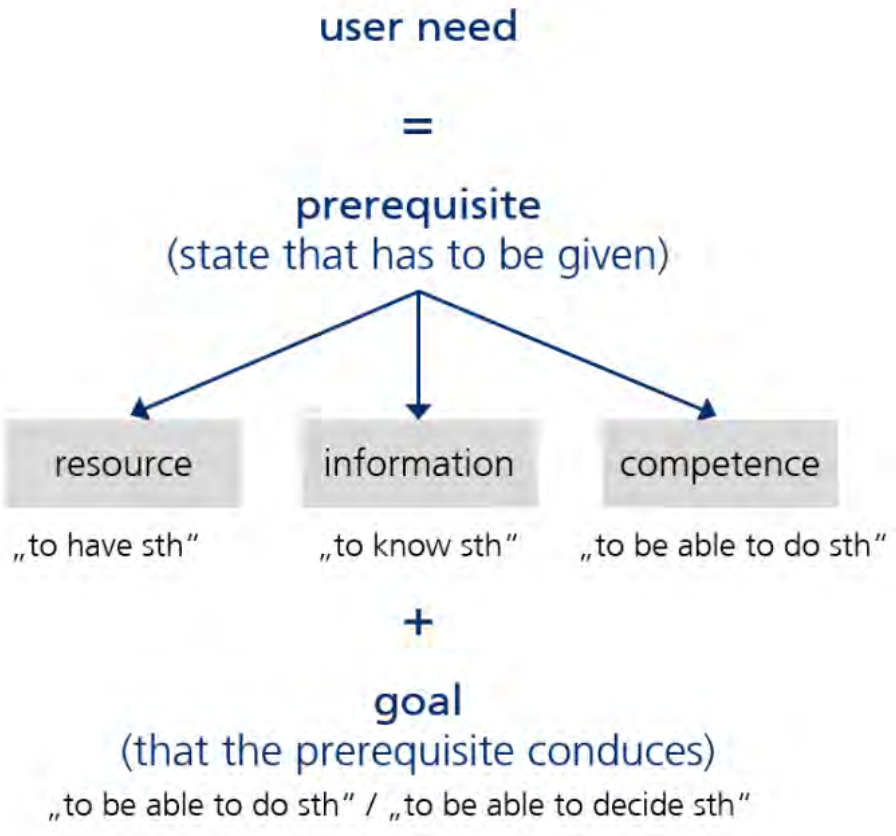
Derive User Needs from the Context of Use

User Need

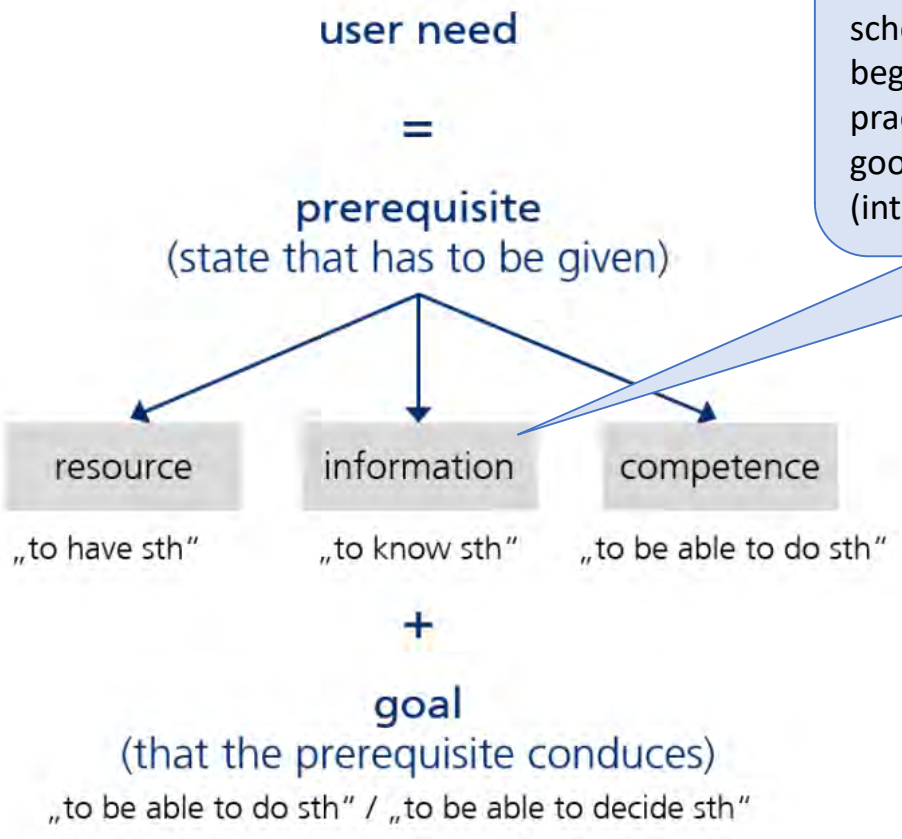
Definition: A **prerequisite identified as necessary for a user,** or a user group, to achieve a goal, implied or stated within a specific context of use. The purpose of user needs is to serve as a helpful intermediate step in the transformation of the context of use information into comprehensive user requirements.

1. A user need is independent of any proposed solution for that need. In other words, **a user need must not reference, for example, “the system” or “the website”.**
2. User needs are identified based on various approaches including interviews with users, observations, user surveys, usability evaluations, expert analysis, etc.
3. User needs often represent gaps (or discrepancies) between what is and what should be.
4. User needs are transformed into user requirements. User requirements are then prioritised for implementation, taking the context of use, user priorities, trade-offs with other requirements and constraints into consideration.

User Need


user need
=
prerequisite
(state that has to be given)
resource
information
competence
„to have sth"
„to know sth"
„to be able to do sth"
+
goal
(that the prerequisite conduces)
„to be able to do sth" / „to be able to decide sth"

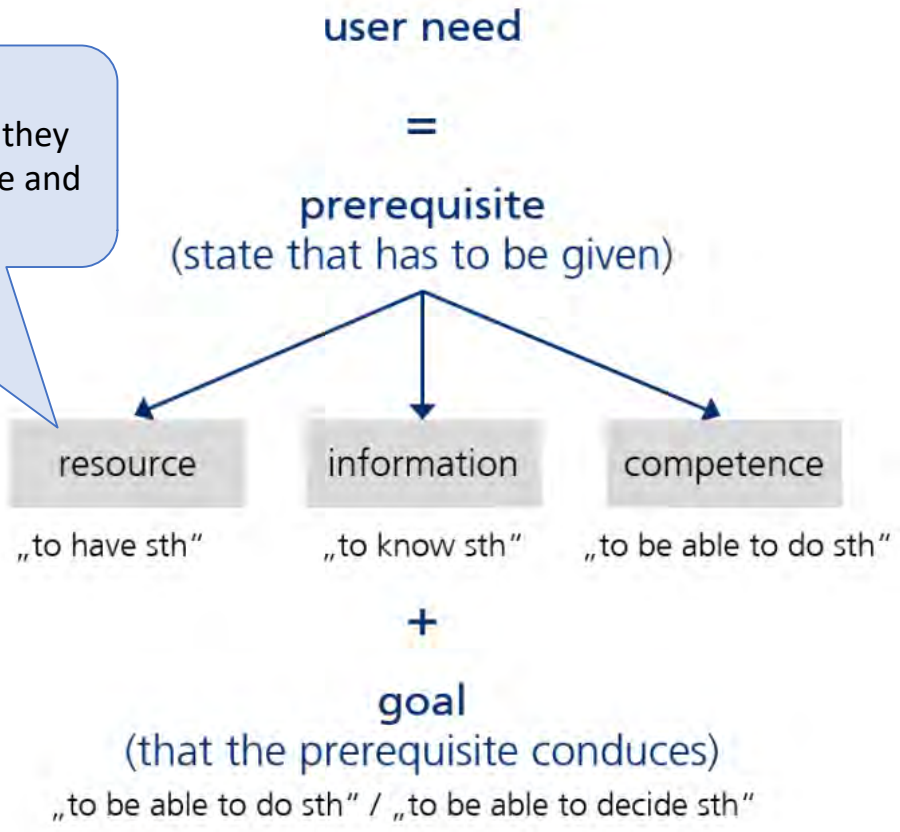
User Need



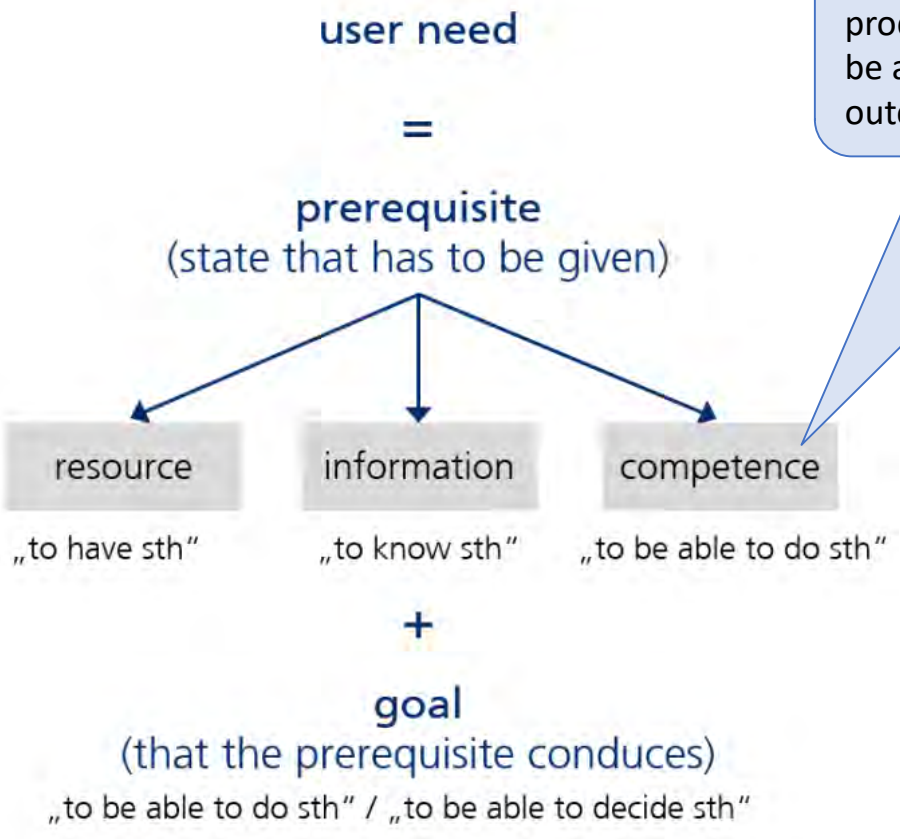
The patient needs to know when their scheduled appointment will in fact begin before arriving at the doctor's practice (information) in order to make good use of the time remaining (intended outcome).

User Need

The patient needs to have an appointment (resource) to ensure they receive treatment at a specific date and time (intended outcome).



User Need



The baker needs to have the skill to produce a cheesecake (competency) to be able to sell it successfully (intended outcome).

Syntax Rules for Phrasing User Needs

Informational need	The <user group> needs to know <information> in order to <decide> or <perform an activity>.
Resource need	The <user group> needs to have <resource> in order to <decide> or <perform an activity>.
Competency need	The <user group> needs to have <competency or skill> in order to <decide> or <perform an activity>.

Best Practices for Phrasing User Needs

- Formulate **only one prerequisite** per user need (to know something or to have something or to be able to do something).
- Formulate **only one purpose** per requirement (", in order to...").
- **Avoid tautologies** ("must know how much time is left in order to know how much time is left").
- Two **requirements differ** either by 1.) prerequisite or 2.) purpose or 3.) both.
- Do not write down recurring user needs from several interviews more than once, but **refer to the requirement** already written down.

Types of User Needs

What type of user need is it?
(Informational need, competency need or resource need?)

- The patient needs to know when their scheduled appointment will in fact begin before arriving at the doctor's practice in order to make good use of the time remaining.
- The baker needs to have the skill to produce a cheesecake to be able to sell it successfully .
- The patient needs to have an appointment to ensure they receive treatment at a specific date and time.
- The ophthalmologist needs to have the skill of performing cataract surgery in order to achieve the intended treatment outcome for the patient .
- The prospective taxi passenger who needs a taxi at a moment's notice, needs to have a taxi available in their vicinity in order to reach their destination on time.
- The prospective taxi passenger needs to know how much the trip is likely to cost before getting into the taxi in order to decide whether to take the taxi or use a different form of transport.

Types of User Needs

What type of user need is it?
(Informational need, competency need or resource need?)

- I • The patient needs to know when their scheduled appointment will in fact begin before arriving at the doctor's practice in order to make good use of the time remaining.
- C • The baker needs to have the skill to produce a cheesecake to be able to sell it successfully .
- R • The patient needs to have an appointment to ensure they receive treatment at a specific date and time.
- C • The ophthalmologist needs to have the skill of performing cataract surgery in order to achieve the intended treatment outcome for the patient .
- R • The prospective taxi passenger who needs a taxi at a moment's notice, needs to have a taxi available in their vicinity in order to reach their destination on time.
- I • The prospective taxi passenger needs to know how much the trip is likely to cost before getting into the taxi in order to decide whether to take the taxi or use a different form of transport.

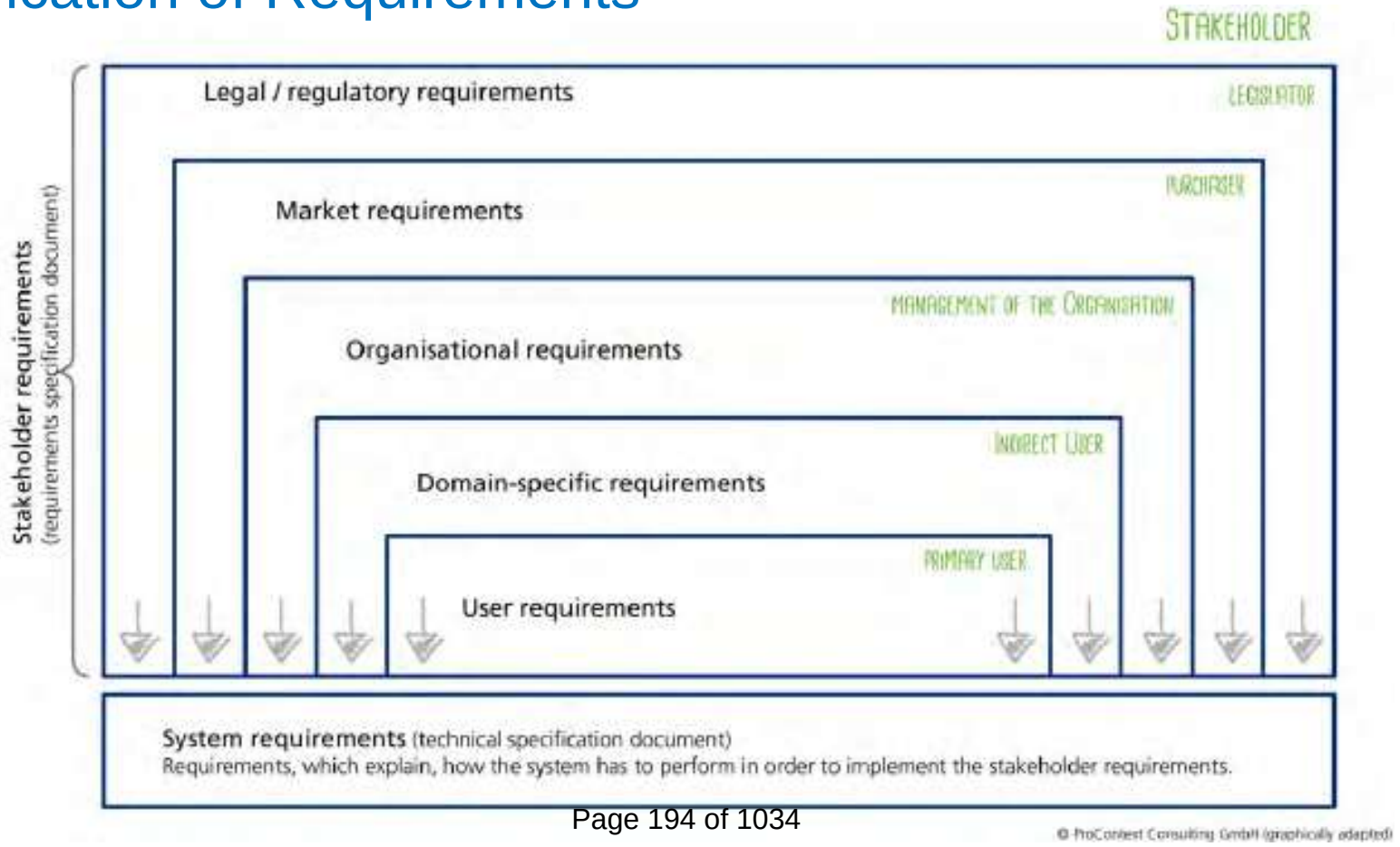
Specify User Requirements based on User Needs

Requirement

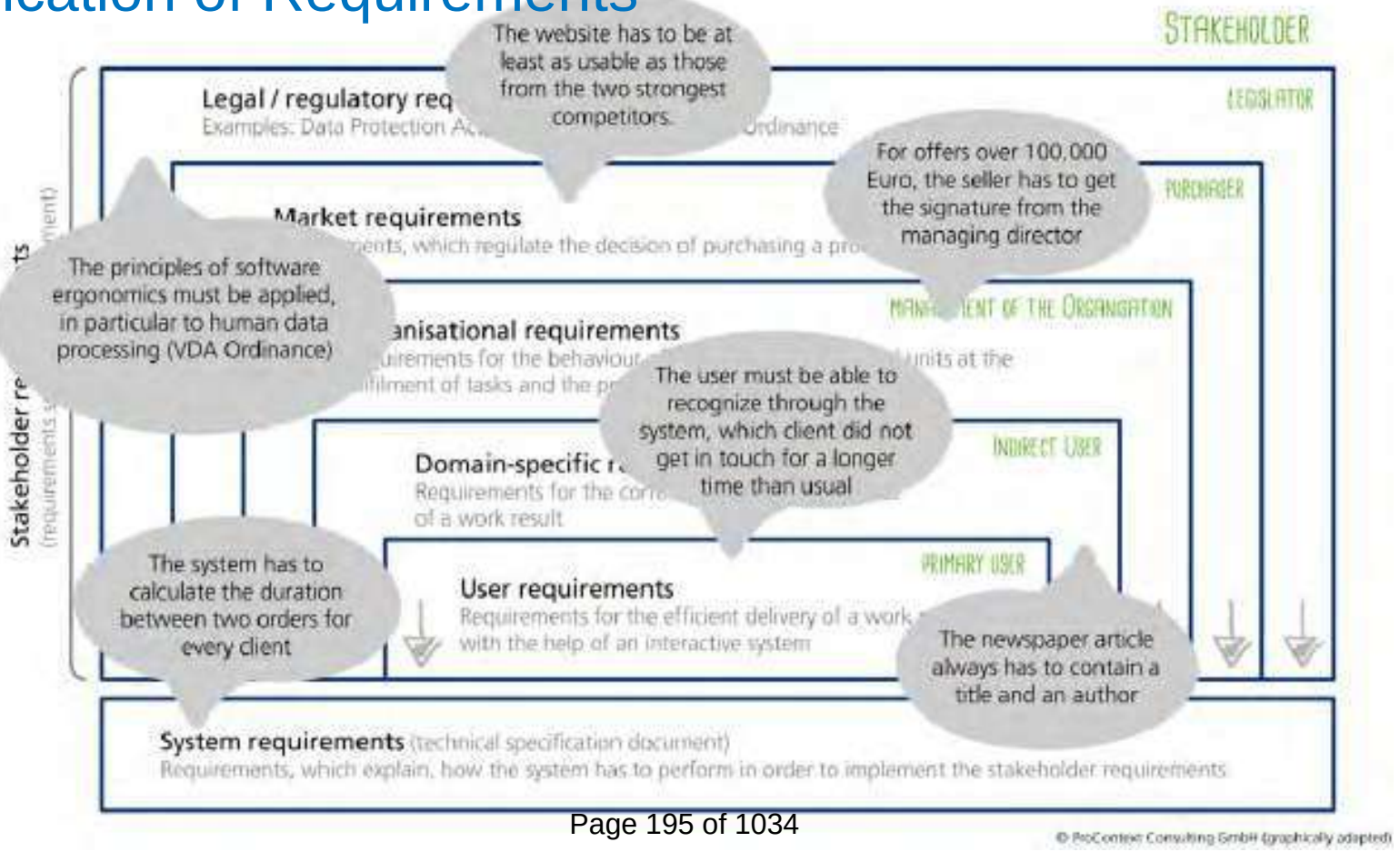
Definition: **A condition or capability that must be met or possessed** by an interactive system to satisfy an agreement, standard, specification or other formally imposed documents

1. A requirement should have a **determinable condition** that makes it possible to validate it.
2. This curriculum defines the following **types** of requirements:
   a. Market requirement;
   b. Organisational requirement;
   c. User requirement.
3. This curriculum further distinguishes between the following types of user requirements:
   a. Qualitative user requirement;
   b. Quantitative user requirement

Classification of Requirements



Classification of Requirements



User Requirement

Definition: A **requirement for use** that provides the basis for design and evaluation of an interactive system to meet identified user needs.

1. User requirements are **derived from user needs**.
2. A user requirement can be a **qualitative** user requirement or a **quantitative** user requirement.
3. Both qualitative and quantitative user requirements provide a basis for the design of the interactive system and can be verified by evaluating the interactive system. While qualitative user requirements address the way in which the interactive system is used to arrive at a user goal, quantitative user requirements set measurable goals for usability and user experience.

Syntax Rule for Phrasing User Requirements

With the system, the user must be able to recognise / select / input / <information or a resource> under <optional condition>.

Example:

- Dish washer: With the system, the user must be able to recognise that all dishes have been cleaned (information), before adding dirty dishes to the dishwasher (condition).
- Fridge: With the system, the user must be able to select the height of each storage compartment (resource) when placing a precooked dishn the fridge using only one hand (condition).

Qualitative User Requirement

Definition: A statement **of what users must be able to locate, recognise, understand, select or input as part of conducting a task** with the interactive system to meet identified user needs in a specified context of use.

1. Qualitative user requirements are not features. They provide the basis for features.

Qualitative User Requirement

Finding the right level of abstraction

Negative example: 

„ The user must be able to buy a ticket from the ticket machine.“

- Too general
- Describes the task to be supported, not a user requirement
- Does not describe what must be able to be recognised, selected or put in

Positive example: 

- „With the system the user must be able to input the destination.“
- „With the system the user must be able to overview all connections to the destination.“
- „With the system the user must recognize the fare price for each connection.“

Quantitative User Requirement

Definition: **A required level of usability to meet identified user needs expressed in terms of measures of effectiveness, efficiency, satisfaction, accessibility, user experience and avoidance of harm from use** in a specified context of use.

1. Quantitative user requirements are acceptance criteria for usability and user experience, for example whether users can solve particular tasks with the interactive system in an acceptable time or with a specified maximum number of use errors.
2. When defining suitable quantitative user requirements:
   a. Look for guidance from existing systems – users will expect the new interactive system to perform better than or at least as well as the existing system.
   b. Consider quantitative user requirements set by stakeholders who have an interest in a specific minimum performance of the interactive system.
   c. Verify quantitative user requirements with users to determine whether or not they are appropriate from their perspective.

Quantitative User Requirement

Phrase user requirements indpendently from solutions

Negative example:

„ The user must be able to select heat levels 1, 2, 3, 4, 5 at the mixer tap.“

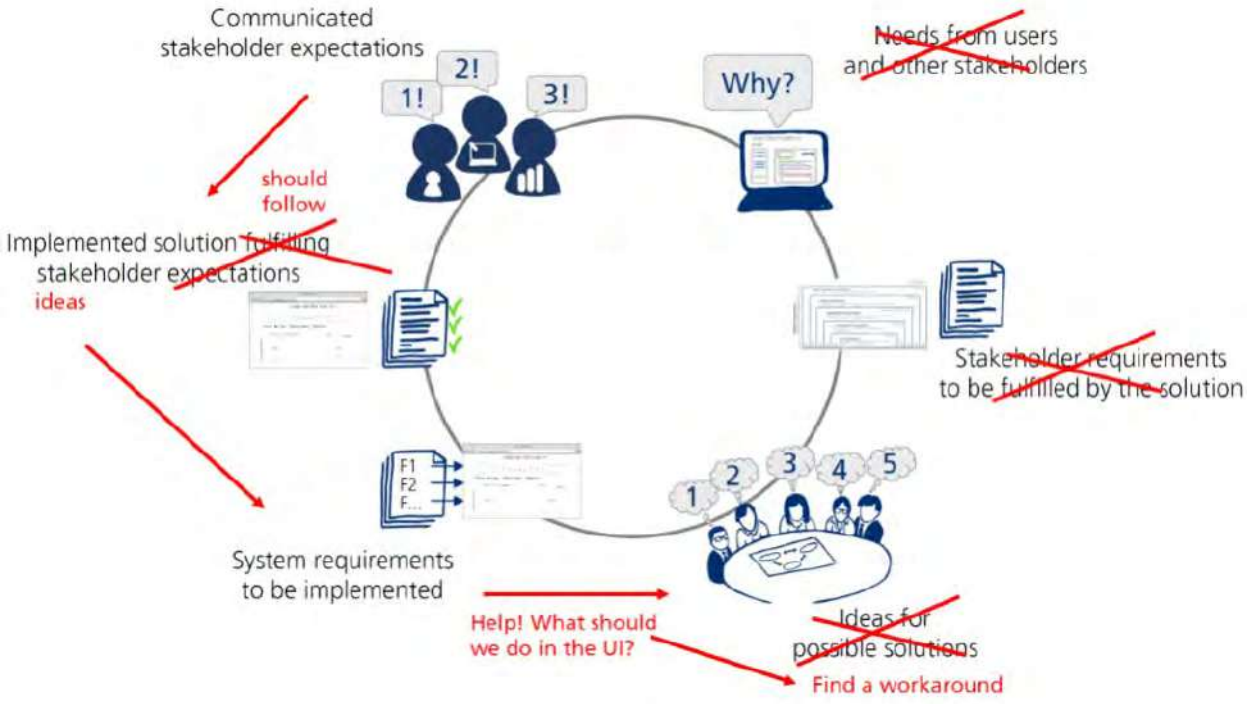
- Derived from the solution
- Does not satisfy the user needs
- The more experience teams have with existing products, the higher the risk that requirements will be derived from the existing solution (immunisation trap and "innovation killer").

Positive example:

- „With the system the user must be able to select the desired temperature for the shower. “
- „With the system the user musst be able to recognize what temperature range is suitable for a shower (i.e. 38 – 41 degrees).“

(Example for a system requirement that has been derived from a user requirement: „The system must keep the temperature stable regardless of the ambient temperature.“)

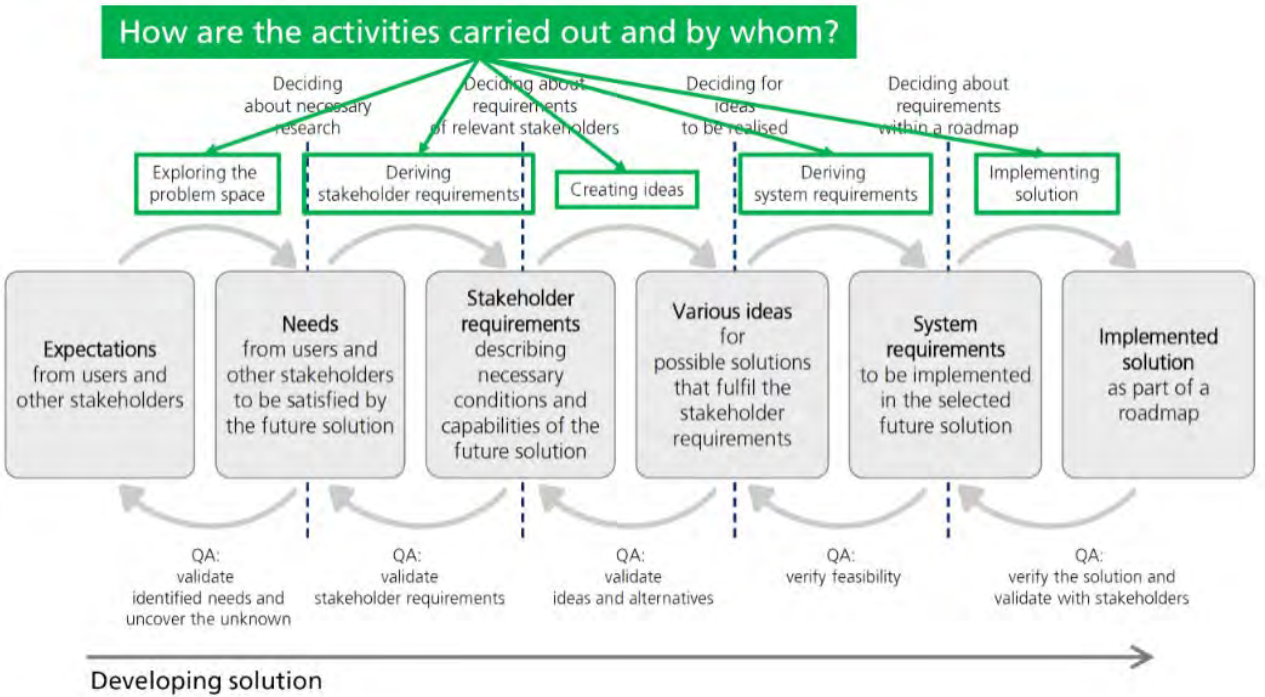
Fulfilling stakeholder expectations?



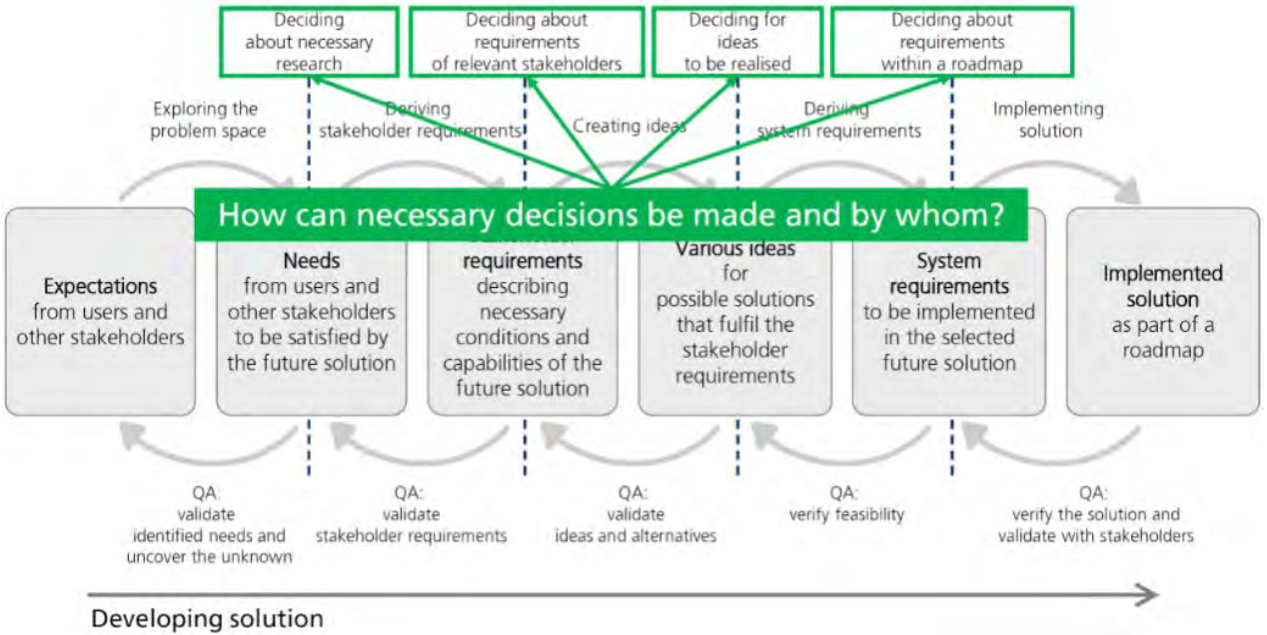
Fulfilling stakeholder expectations?



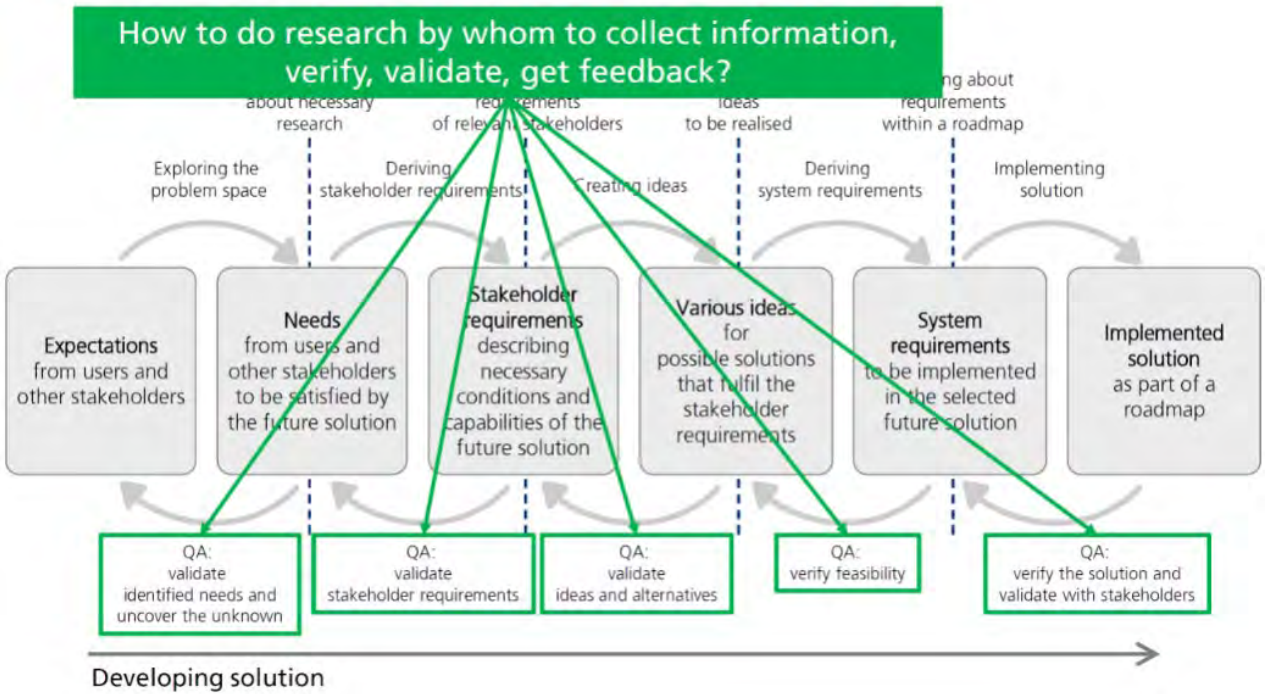
The general approach to identify, validate and implement stakeholder & system requirements



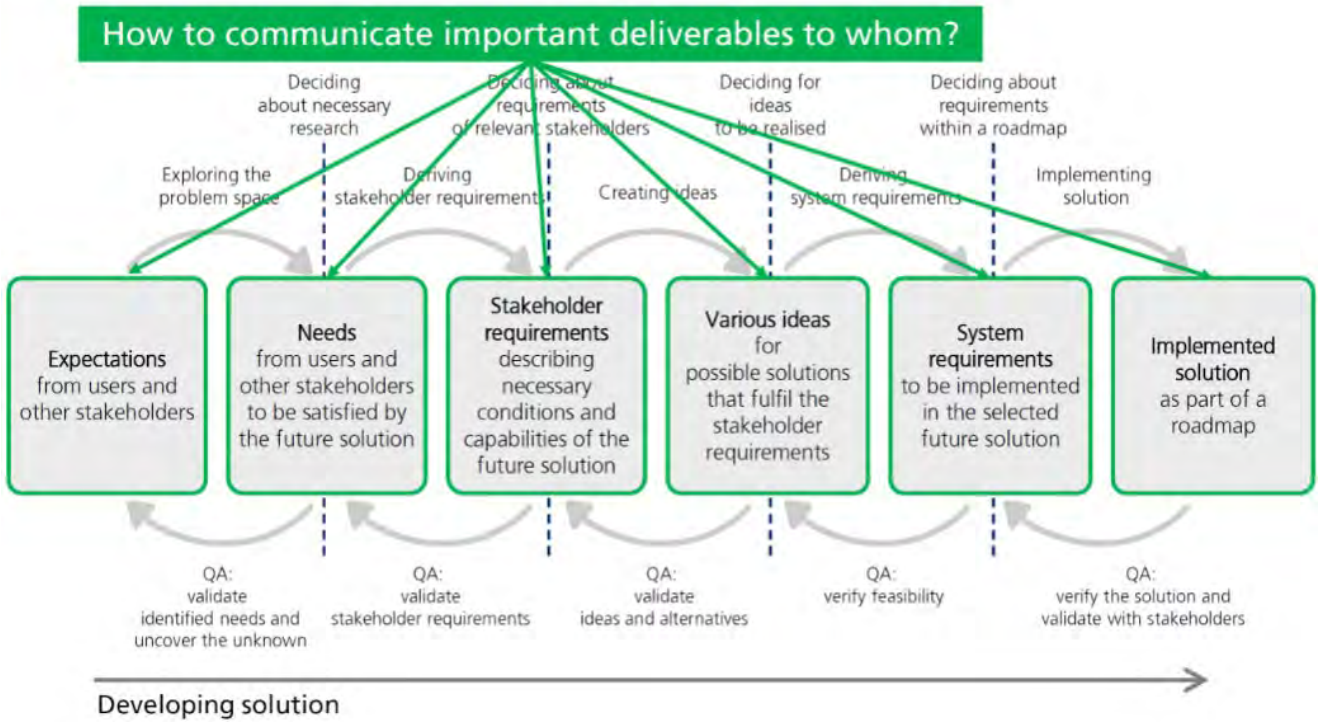
The general approach to identify, validate and implement stakeholder & system requirements



The general approach to identify, validate and implement stakeholder & system requirements



The general approach to identify, validate and implement stakeholder & system requirements



Types of verification whether requirements are considered or fulfilled

Verification	vs.	Validation
The process of determining if all requirements have been transferred into corresponding product characteristics.		The process of determining whether all stakeholder requirements have been implemented appropriately from the perspective of all stakeholders
Example: Inspection-based usability evaluation to check the fulfilment of user requirements or design rules		Example: Usability test to check the fulfilment of user requirements by users

Approach for identifying User Needs and deriving User Requirements (1/2)

Context of Use Information	Identified User Needs	Derived User Requirements
Extract from a context of use description which describes user behaviour, i.e. provides information on why certain users or a user group within a certain context of use achieve or fail to achieve their goals. *Stories, quotations, interview statements, descriptions of behaviour, ...*	Statements on prerequisites identified as necessary for a user or user group in order to achieve goals within a specific context of use. *The* **<user group>** *need to* **<know, have or be capable of>** *something,* *in order to* **<make a decision or perform an action>**.	Statements about **what** users or a user group in a particular context of use need to **recognise, select or input** while performing a task with the interactive system. ***With the system,*** **<The user or a specific user group>** *must* **<input, select or recognise>** *<an information or resource> in the system under the* **<condition>** (optional).

Approach for identifying User Needs and deriving User Requirements (2/2)

Procedure:

1. Identify **goals** in the available context of use information ("in order to be able to decide something or act in a certain way")
2. Clarify **what the user is missing** to achieve the identified goal: Does the user need to know something (information), have something available (resource) or be capable of something (competence)?
3. Formulate **identified requirement(s):** The <user group> need to <know, have or be able to do> something in order to <take a decision or perform an action>.
4. Derive **user requirement(s)** from each identified requirement: What must the user be able to recognise, select or input when using an interactive system in order to achieve his or her goal?
5. Formulate **user requirement(s):** With the system, the user must be able to input / select / recognize <an information or resource> in the system under <optional condition>.
6. **Assign derived user requirements to the subtasks** of the task model.

Contacts



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HUMAN-CENTRED Design for Educational Media

Designing Solutions

26.04.2024

Prof. Dr.-Ing. Ernesto William De Luca

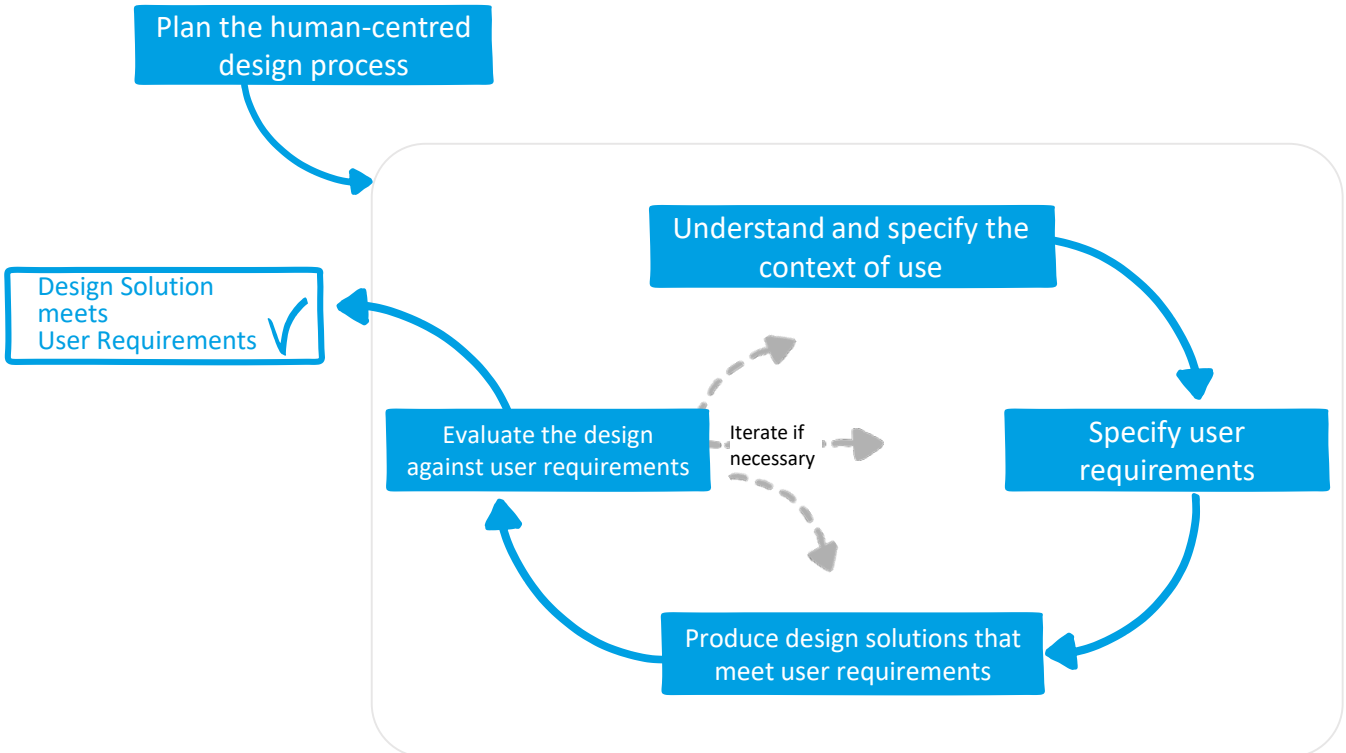
Agenda



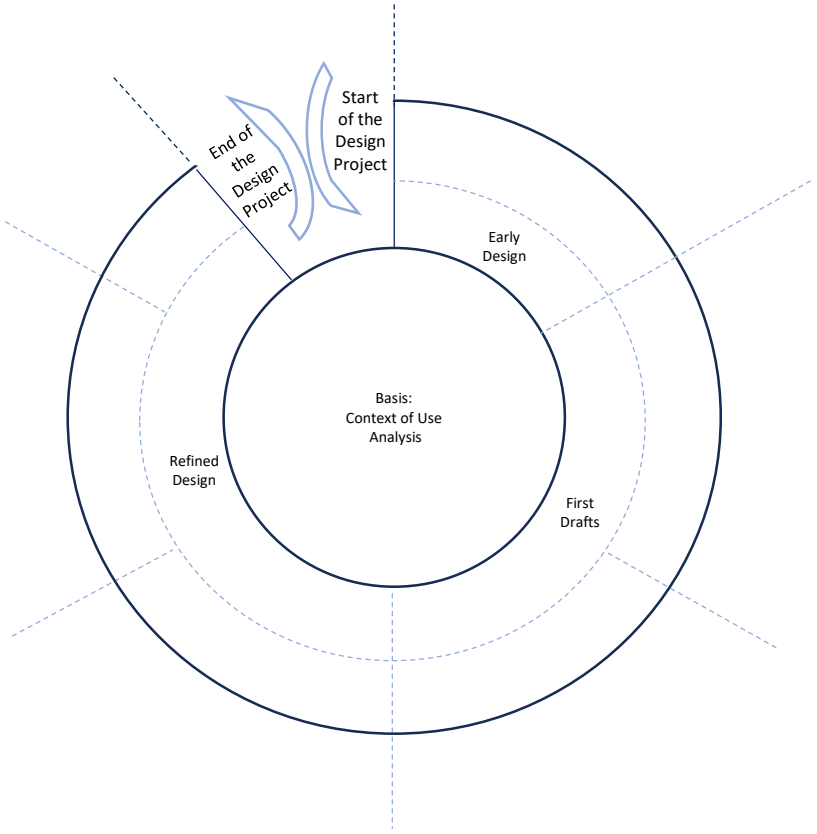
- Early Design
- First Drafts
- Refined Design

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Human-Centred Design Process

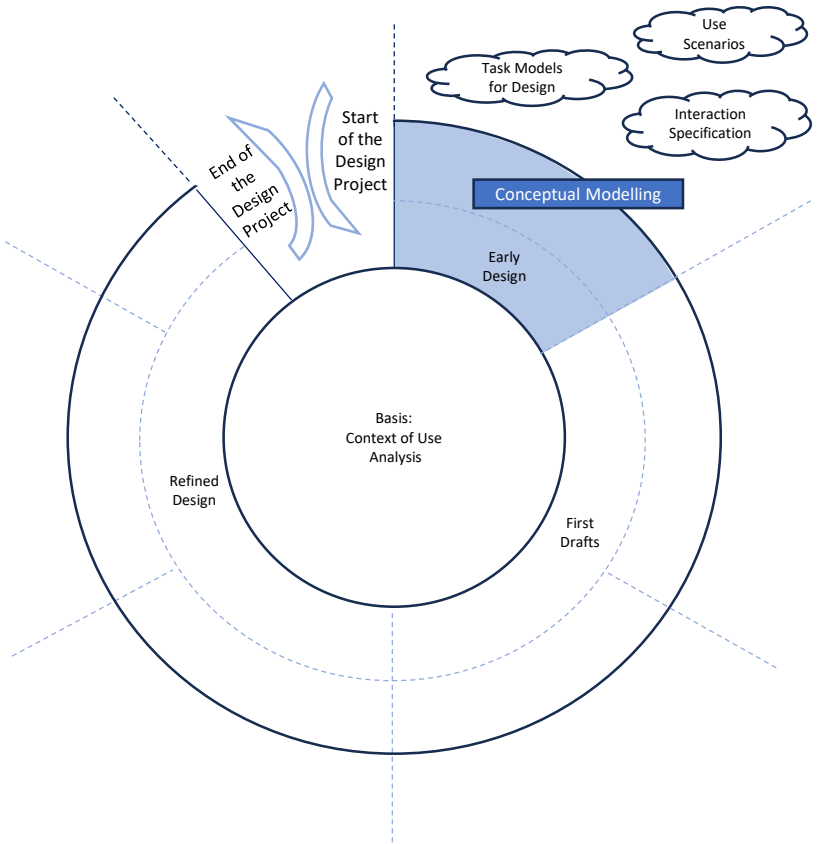


Designing Solutions Process



Early Design

Designing Solutions Process



A good design process begins with the definition of future collaboration between users and interactive systems, while taking a closer look at the necessary information exchange between a human and the system. These ideas can be evaluated with users and other stakeholders: “Conceptual Modeling”.

Conceptual Model

Definition:
An activity that determines **the task models for design, the interaction specifications, the task objects and their attributes, and the executable functions**, and transforms them into tangible **use scenarios** for evaluation with users and other stakeholders.

Conceptual modelling is based on the context of use information. During conceptual modelling , dependencies between different tasks are considered and different alternatives are created.

Use Scenario

Definition: Narrative text description that describes an **intended usage situation** with the interactive system under development.

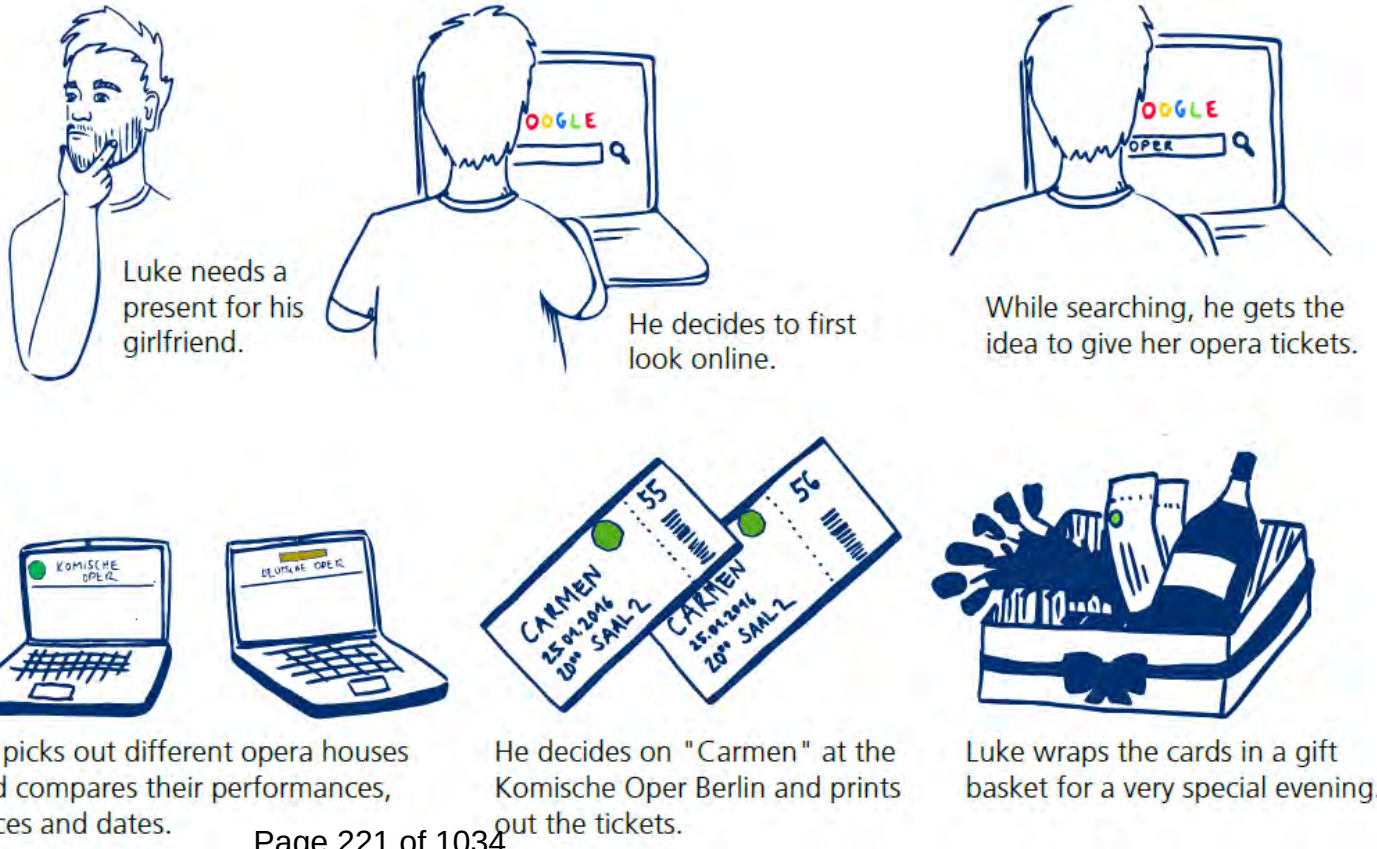
- The purpose of use scenarios is to provide a very early, tangible basis for discussions about what the intended interactive system could be like for the user, before prototypes are constructed. Use scenarios are based on a **deep understanding of the context of use, user needs, user requirements as well as discussions with users and stakeholders**.
- The specific user in the use scenario is often a **persona**.
- Use scenarios illustrate the use of the interactive system in a real context. They can be viewed as **textual representations of the initial prototypes** of a new interactive system. They enable developers to understand processes and context.
- A use scenario should **avoid placing unnecessary constraints** on the design by referencing specific objects, such as command buttons, in the user interface.

Interaction specifications can be used as a basis to illustrate use scenarios in various forms, for example, narrative text, story board, user journey map.

Story Board

Definition: A sequence of **visual frames illustrating the interplay** between a user and an envisioned interactive system.

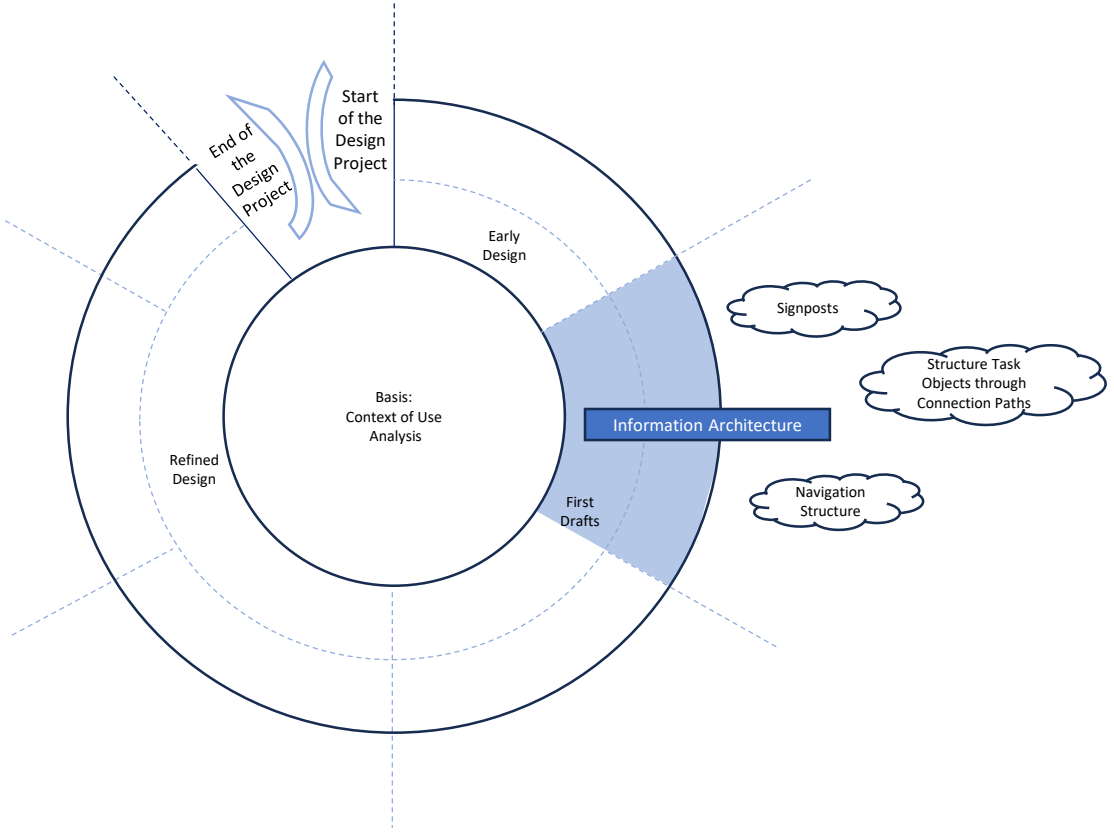
Notes:
1. The purpose of a storyboard is similar to the purpose of a use scenario.
2. A storyboard is a comic book style representation of a use scenario.
3. Storyboards can also be used to illustrate a current user experience.



First Drafts

Designing Solutions Process

The relevant supporting information and functions to be provided by the system that were identified in the conceptual modeling must be discoverable based on the expectations of the user groups. Structuring the information helps to provide the necessary access to supporting functions: “Information architecture”



Information Architecture

Definition:
The information architecture describes the **labels and the structure within all task objects,** their attributes, and the executable functions so that **users can find and understand information.**

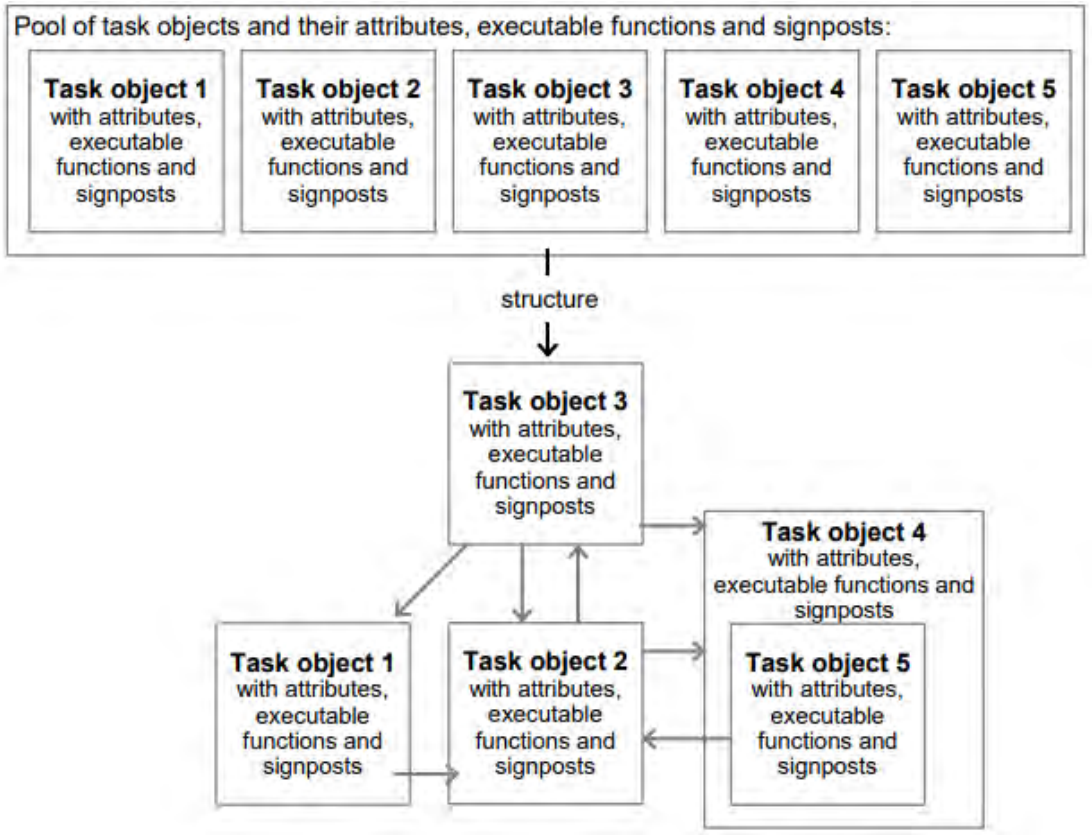
To help the user anticipate the conceptual model of the designer in the system image, the objects represented in the **user's mental model** must be represented in the user interface in a comprehensible and discoverable way.

The information architecture is created by **enhancing the task objects** with signposts (required to locate task objects and executable functions), structuring those task objects, making this structure visible for evaluation, and creating the navigation structure.

Task objects: The objects that are created, modified, or inspected by a person to achieve the intended outcome(s) of a task.

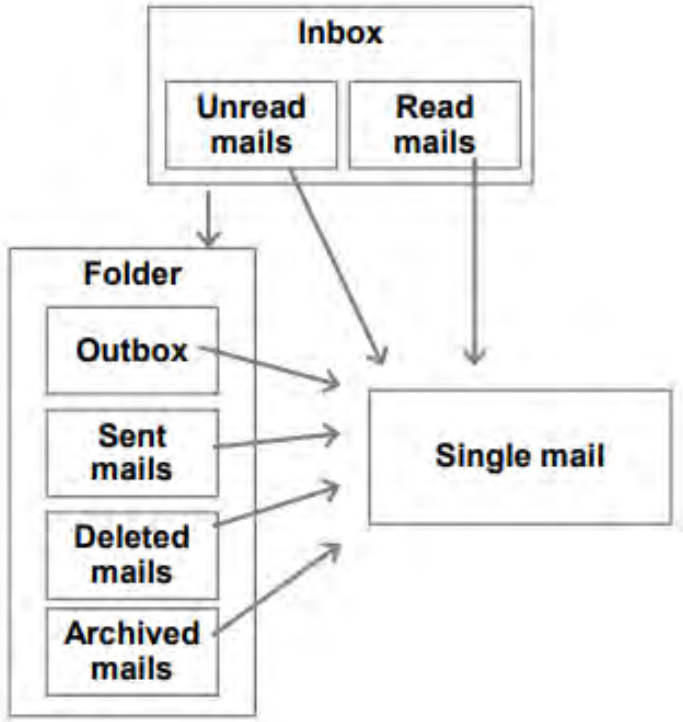
Information Architecture

- Ensures navigation between task objects
- Corresponds to the user‘s mental models



Information Architecture (Schematic Representation)

- Boxes representing task objects that are set in relation to each other
- The hierarchy of boxes shows which task objects are superior or subordinate to other task objects
- Using the schematic representation, the designer can demonstrate that the task object can contain further task objects (for example, the task object “deleted mails” belongs to the task object “folders”)
- Connection paths (calls to action) are indicated by arrows pointing from one task object to another

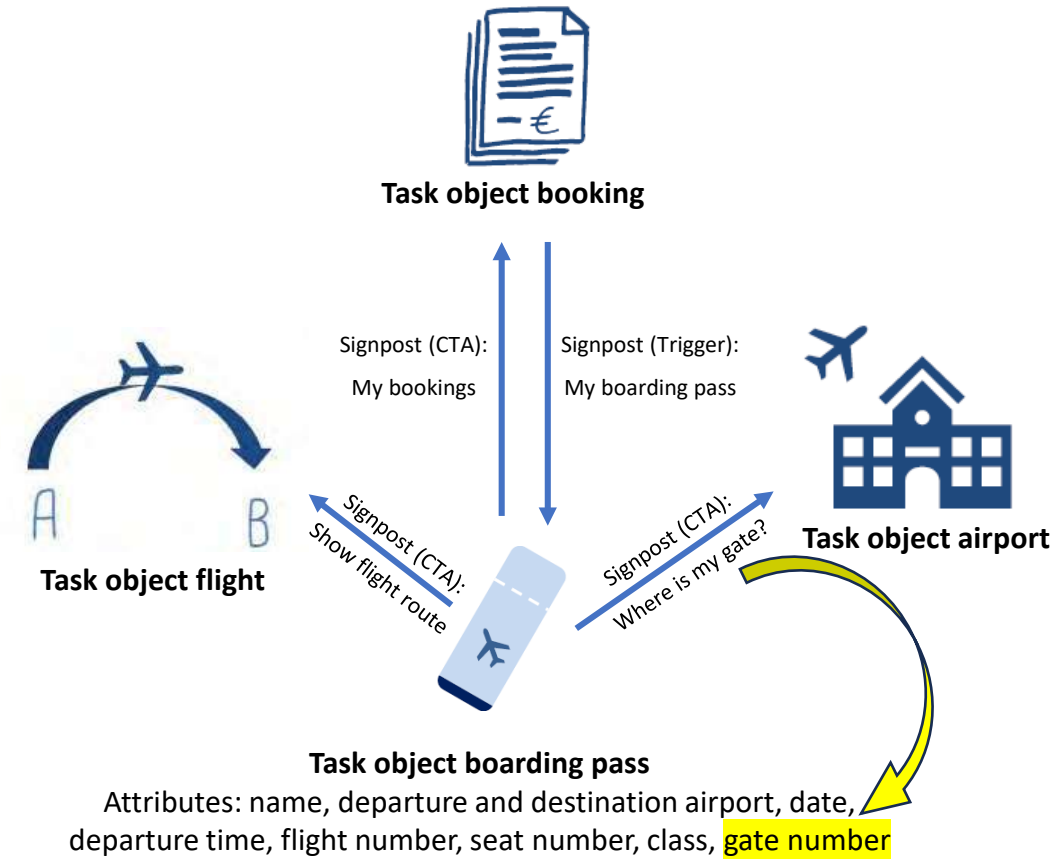


Sign Posts

Definition:
A **hint – often realised as a navigation element** – that supports the user in finding a particular task object or an executable function in the interactive system.

Two different perspectives can be taken on signposts:

- **"Calls to action" (CTA):** Signposts from each task object to executable functions; for example, "reschedule connection" or Signposts from each task object to other task objects; for example, "my tickets"
- **"Trigger words":** Signposts from any other navigation point to the task object; for example, "my next journey".



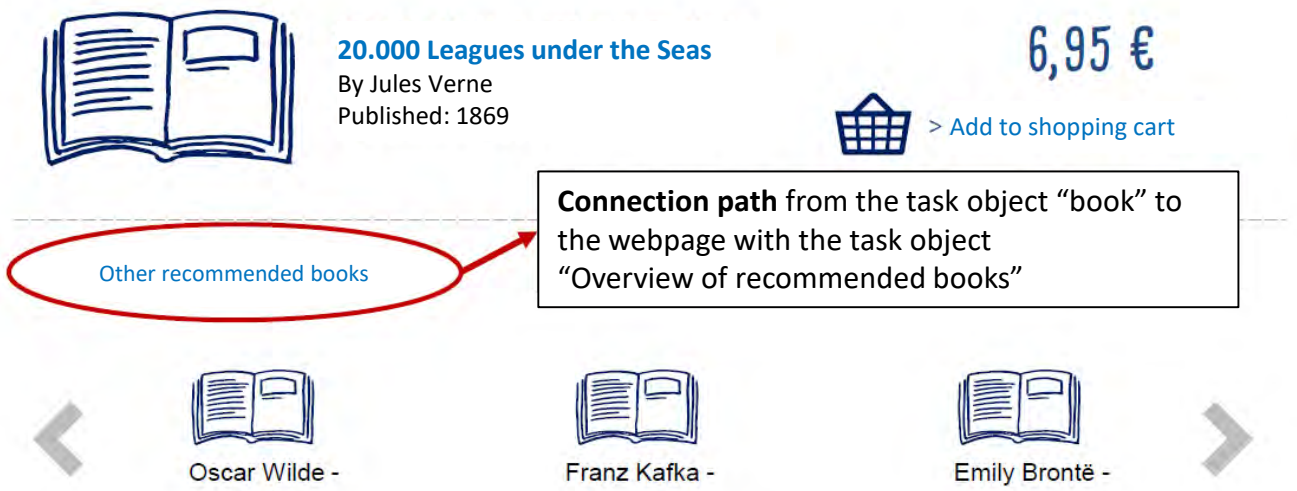
Sign Posts

Task object: boarding pass	Details
Attributes	• Name, departure and destination airport, date, departure time, flight number, seat number, class, gate number
Executable Functions	• Create boarding pass • Save boarding pass as PDF file • Print boarding pass
Signposts to other task objects and to other reachable functions from here (CTA)	• Show flight route • Where is my gate? • My bookings • New boarding pass • Save boarding pass • Print boarding pass
Signposts from other navigation points (Trigger)	• My boarding pass

Connection Paths

To supply a semantic structure that corresponds to the user's mental model, the super- and subordination
– the **hierarchical** relationship – of task objects must be considered (for example, products could be part of a shopping cart or product overview).

Defining connection paths using the identified signposts helps to identify the required navigation structure.



Tabular overview

- All task objects and executable functions
- Connection paths can be understood by reading the columns “trigger words” and “calls to action”

Task object	Attributes	Executable functions	Signposts to executable functions and other task objects (calls to action):	Signposts from other navigational points (trigger words):

Restaurant	• Name
	• Address
	• Telephone
	• E-Mail
		• Show available tables
		  • Select room
		  • …
		• …
			• Reserve now
			• …
				• Restaurants around you
				• …

Reservation	• Person who has made a reservation • Date and Time • Table • Number of guests	• View an existing reservation • Make a new reservation • Reschedule an existing reservation • Cancel an existing reservation • …	• Show all available tables •	• My reservations • …

All available tables	• Available table 1 - Available table n
	• Date and time of availability
		• Specify a table
		  • Select shape
		  • Select location (at the window, in the centre)
		  • …
			• Tables at the window
			• …
				• Show available tables
				• …

Reservation confirmation	• Name of sender
	• E-mail address of sender
	• Name of restaurant
	• Address of restaurant
	• Date and time of reservation
	• Name of person who reserved
	• Number of guests
	• Type of table
		• View
		• Save in calendar
		  • select calendar (private, work, …)
		  • …
		• Cancel reservation
			• Add reservation to calendar
			• …
				• View confirmation
				• …

Navigation Structure

Definition:
Navigation structure is a part of the information architecture and **forms the structure within which task objects and executable functions** can be found specifically through **signposts**.

First, designers make a complete list of connection paths and signposts needed to visualise the navigation structure. The labels of all connection paths are extracted and arranged **hierarchically**; for example, in a navigation tree. Each entry in a navigation tree represents a cue for the user that helps them locate a needed task object or executable function or a particular form of user assistance.

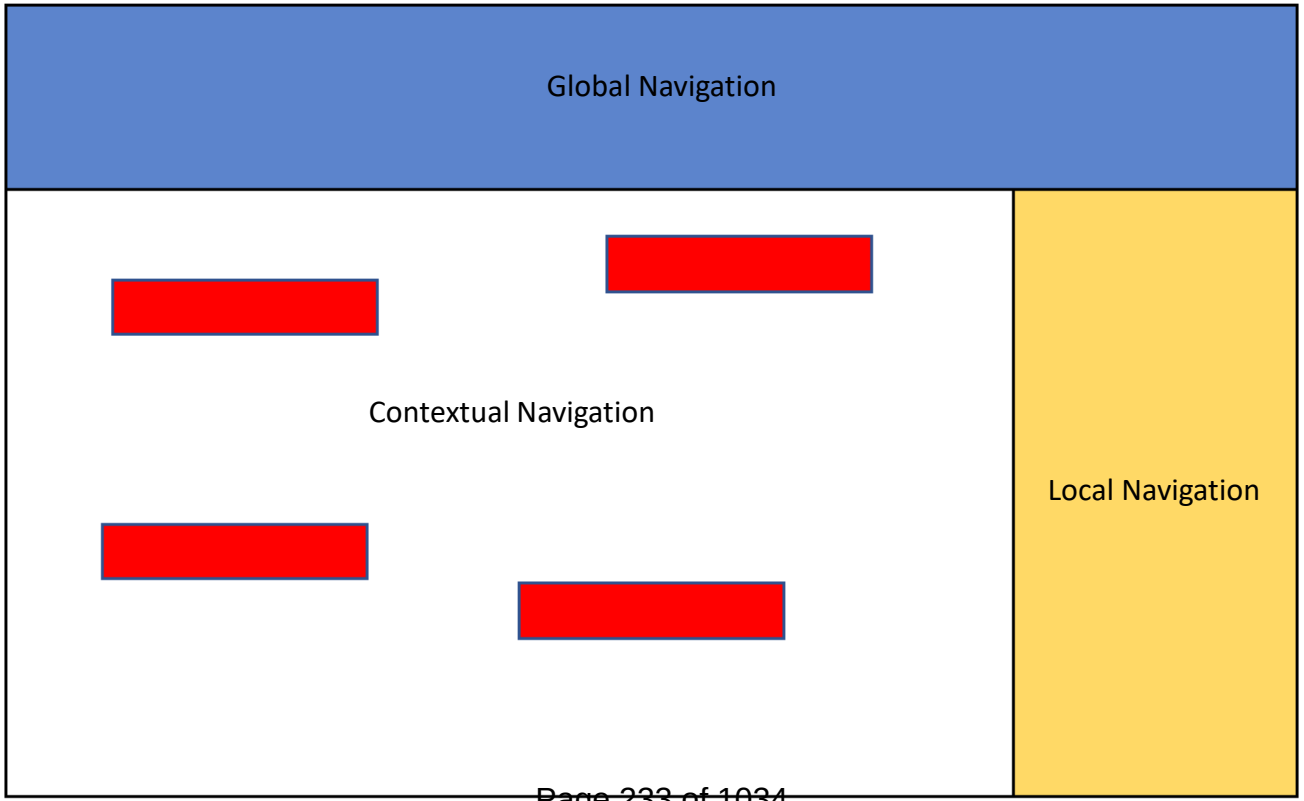
The prioritisation and selection of entries within the navigation must be **based on the results of the context of use analysis**; for example, based on the prioritisation of user tasks by identifying the top tasks.

Navigation System

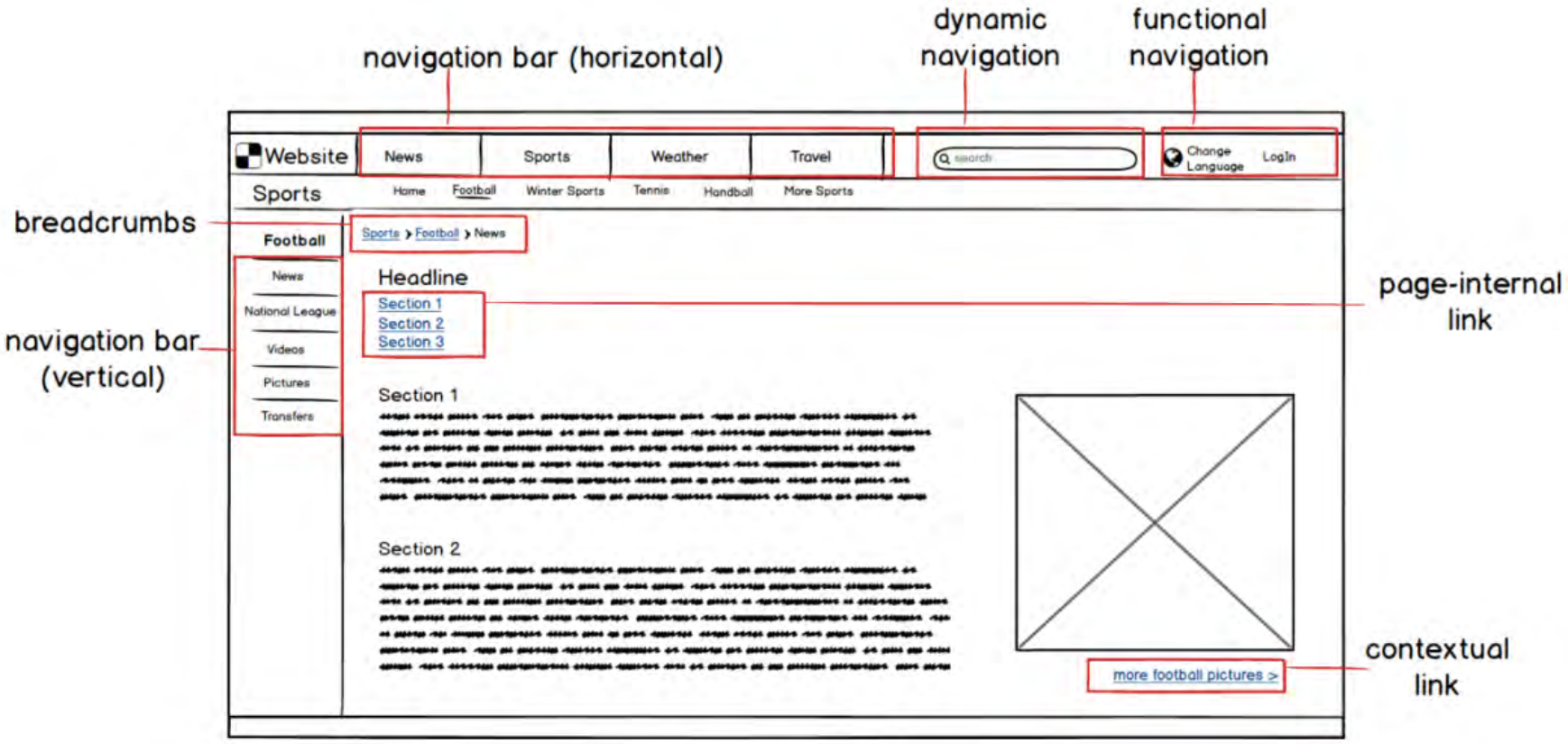
Definition:
An arrangement of information that **provides users with their location** in the interactive system. It serves the user to determine their position and helps them find their way through the interactive system (Where am I? What is nearby? What is related to what here?).

Navigation systems are means to implement a navigation structure and consist of **navigation elements and subsystems**.

Navigation System

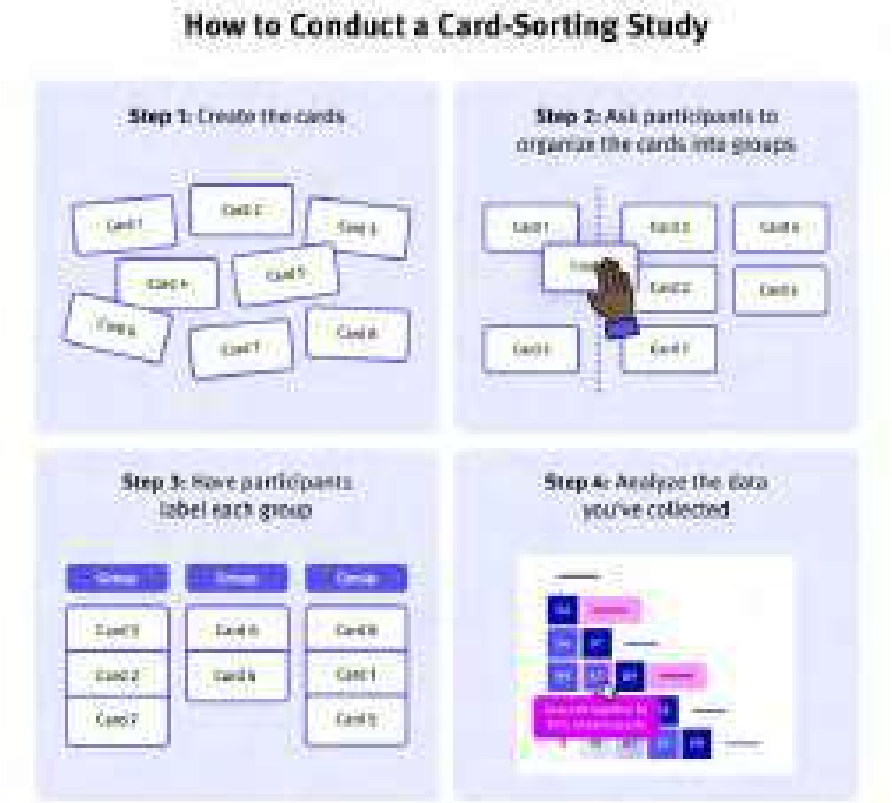


Navigation System



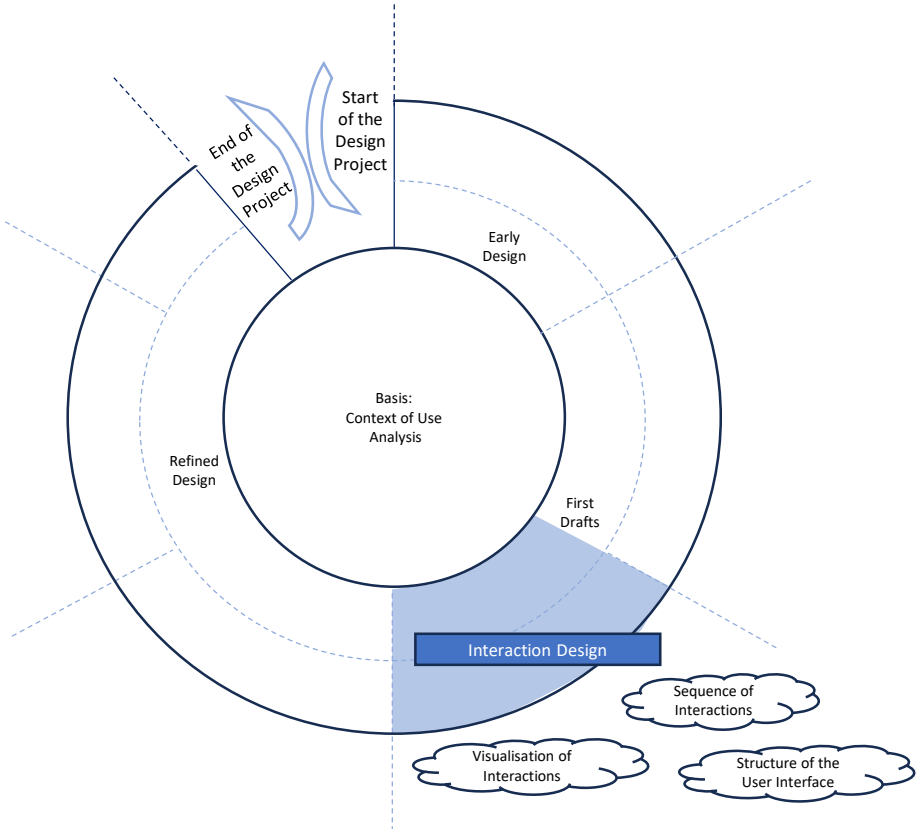
Evaluation Method – Card Sorting

Card sorting can be used to identify existing **mental models** of the user and **validate the information architecture**.



A card sorting activity can be either **open** (where users create terms and categories themselves) or **closed** (where users sort terms according to prescribed categories).

Designing Solutions Process



"Interaction Design": The design activity of structuring the user interface in views, pages / screens as well as determining the interaction sequences.

Sequence of Interactions

Definition: The translation of dialogue steps specified in the interaction specification for each task into a sequence of interactions in a logical order in the user interface. If necessary, an interaction sequence will have multiple views which together represent the user interface structure

Visualization of Interactions

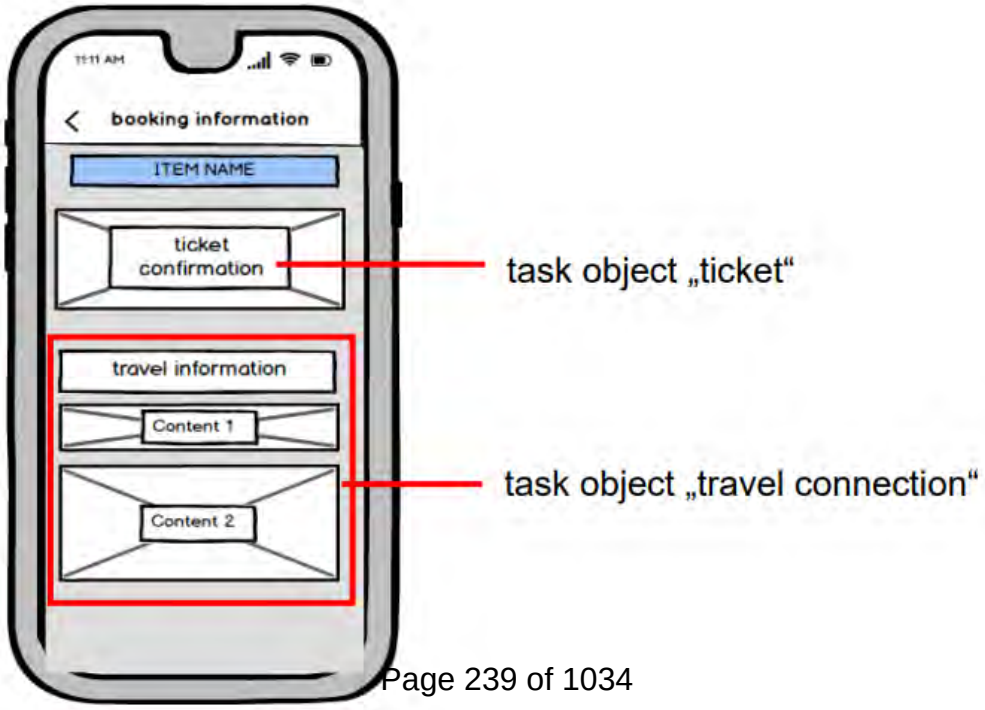
Definition: The chosen interaction sequences must be visualised for evaluation with users and stakeholders. The designer must make design decisions about the **views** that need to be provided (as well as the connection paths between views) and any forms of **user assistance**, for each interaction sequence to be visualised.

View: A composition of all the user interface elements perceived by the user in one specific temporal context (for example, at one point in time), representing one or more task objects. A view can also be a screen or a page.

The resulting views for each interaction sequence must **enable the user to complete a task effectively and efficiently.**

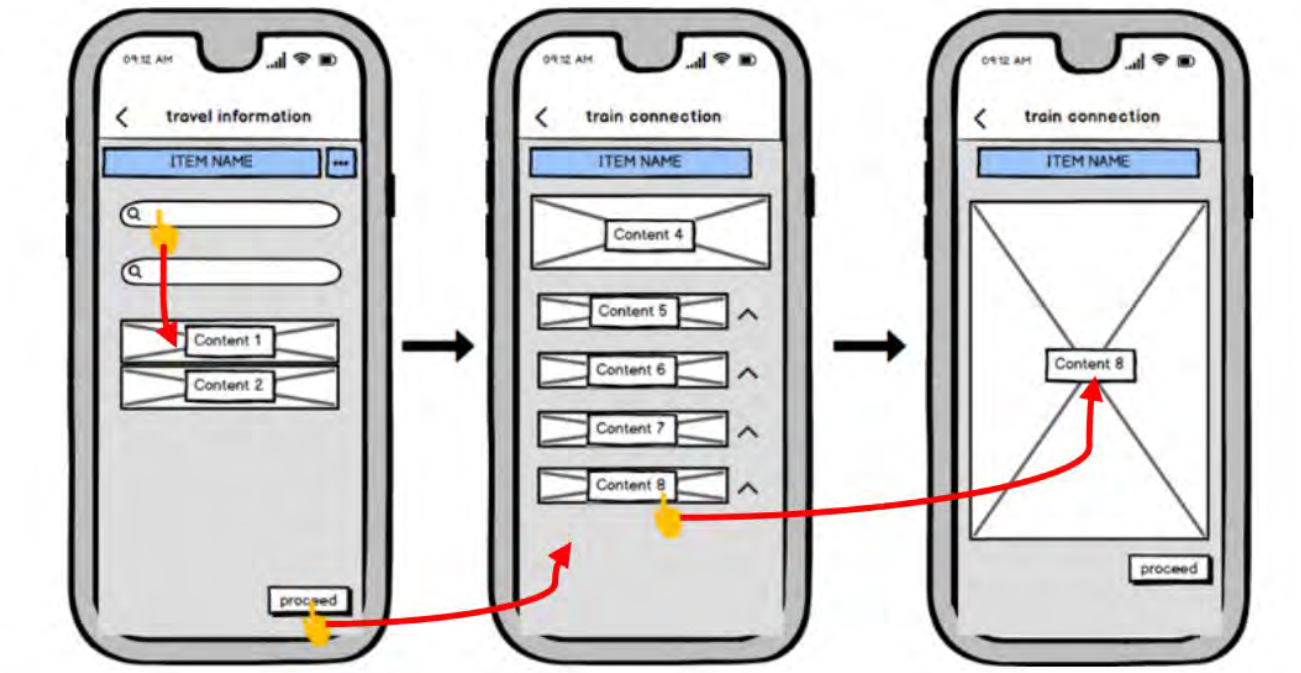
Sequence of Interactions

One view which represents two task objects



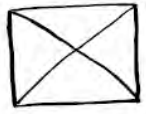
Sequence of Interactions

Interaction across a row of (three) views

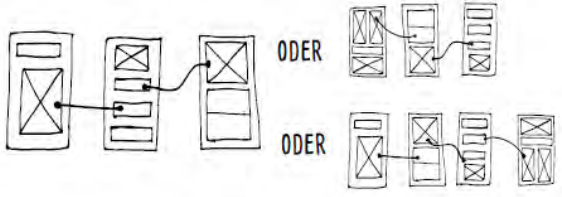


Visualization of Interactions

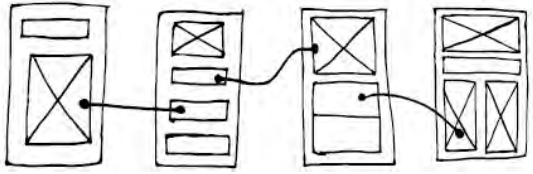
For the visualization of each interaction sequence, the designer will…



… use placeholders which represent task objects with attributes and signposts to executable functions



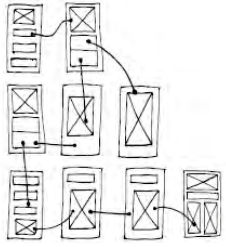
… possibly visualize multiple variants of an interaction sequence



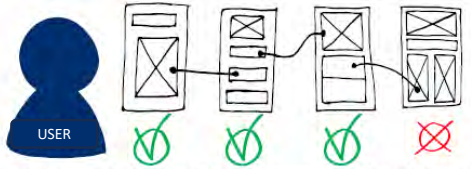
… illustrate how users follow dialogue steps by using the placeholders in a view or a sequence of views

Visualization of Interactions

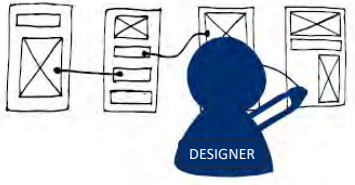
For the visualization of each interaction sequence, the designer will…



… repeat the process for each interaction specification, trying to re-use as many views as possible



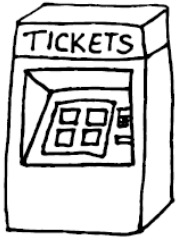
… test the interaction sequence using the views and improve them based on user feedback



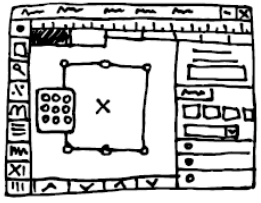
… improve the views or add new views to support the execution of tasks, if needed.

Structure of the User Interface

Definition: The arrangement of all views of the interactive system that enable users to perform their tasks.



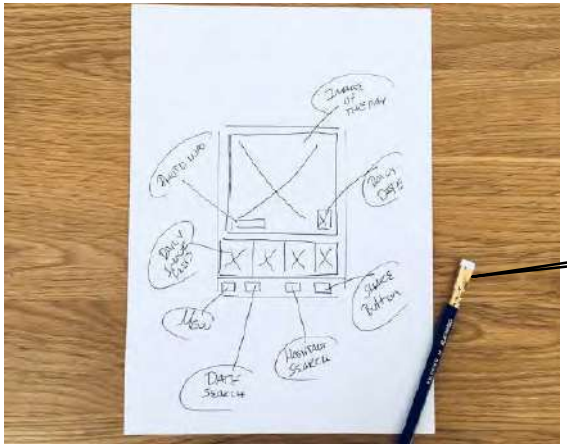
Walk-up-and-use-systems require views with a low complexity, such users can find their way to the next interaction step without explicit effort.
- many views with lower complexity



Expert systems often contain interaction sequences for many use scenarios in a single view or few views.
- few views overall, bur with a high complexity, so that the risk of “losing context” is minimized

UX-Deliverable: Sketch

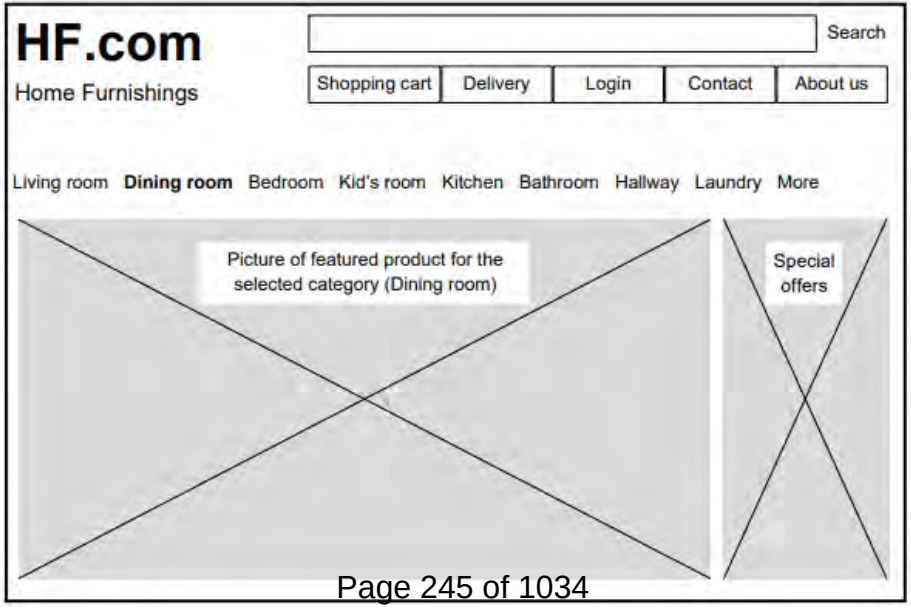
Definition: A short-lived deliverable that is used by the designer himself or for quick team-internal iterations of initial solution ideas in early design as preparation for other work products. A sketch is a quick draft that is usually created by hand. It contains **placeholders** for content in **often only one view**, but **many variants** are created.



„Fail early and often“

UX-Deliverable: Wireframe

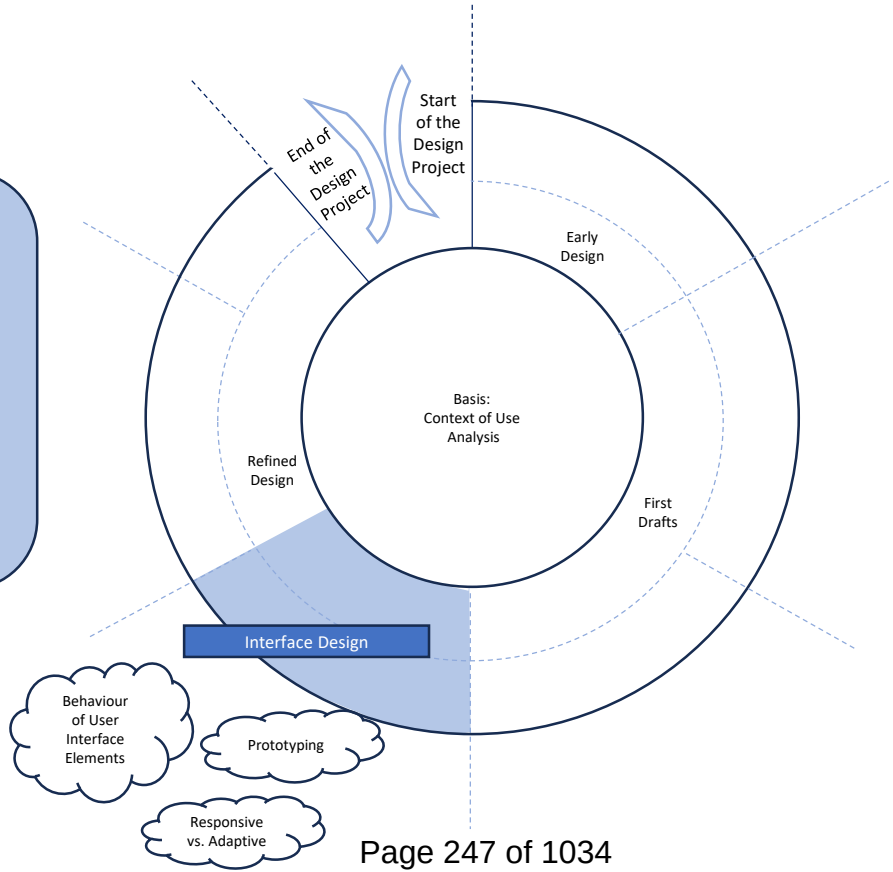
Definition: A screen or page in a low-fidelity prototype for a graphical user interface, consisting of **lines, rectangular boxes and textboxes and text, representing the future interaction design**.



Refined Design

Designing Solutions Process

Selection, combination and positioning of the user interface elements, e.g. whether a radio button or a check box is used, or definition of the behaviour of user interface elements. For example, the default state of an element must be defined.



Interface Design

Definition: The selection, combination, arrangement and definition of the **behaviour of user interface elements for all views**, as required for the interaction between the user and the user interface.

User Interface Element: A basic element of a user interface presented to the user by the interactive system.



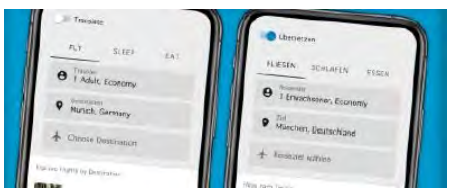
Typical User Interface Element for Image Editing

UX-Deliverable: Prototypes

Low-Fidelity Prototype: An inexpensive, simple visualisation of a design or concept that is used to gather feedback from users and other stakeholders during early stages of development. It is a **hand-crafted or digital visualisation, often based on wireframes** that resemble the product, showing one or more views with required details. Two variants are the “Paper” prototype and the "Wizard-of-Oz-prototype“.



High-Fidelity Prototype: A software prototype that is **similar to the finished interactive system**. A high-fidelity prototype is an elaborated work product for the evaluation of the user experience of the screen design of the future system in the “refined design” phase. It is a digital representation, usually in a single version, which closely resembles the product. The prototype can contain any number of detailed views, including interactivity and navigation structure.



Guiding Questions for User Interface Design



1. Type of interaction: What is it about?
   - Data input
   - Data selection
   - Data display
   - Execution of commands
   - Grouping of contents.

2. Which user interface elements are available for this interaction?
   - Examples of data input: Input field, dialogue box, calendar picker
   - Examples of data selection: dropdown, radio buttons for single and check boxes for multiple selections.

3. In which cases do you use a certain user interface element? For example,
   - input field: The system requires information from the user that cannot be presented as a pre-defined option.
   - dialogue box: Explicit decision, action, or data entry is required.
   - calendar picker: A single date must be chosen by the user.

Guiding Questions for User Interface Design

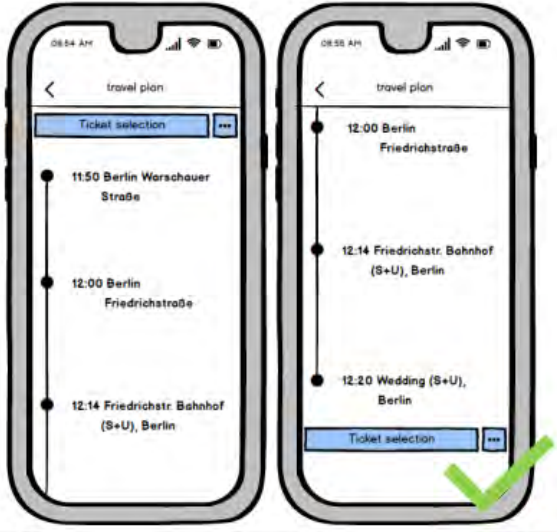
4. Which design guidelines are to be applied for the selected user interface element?
   - Example for a calendar picker:
     - The month and year should be selectable independently from each other.
     - Local cultural date conventions should be observed during the implementation.
     - Users must be provided with the ability to set a preferred date format.

5. How should user interface elements be combined and arranged?
   - Arrange groups of user interface elements as expected
   - Group elements with similar content together
   - Make dependencies visible
   - Support the natural flow of reading • Display states correctly

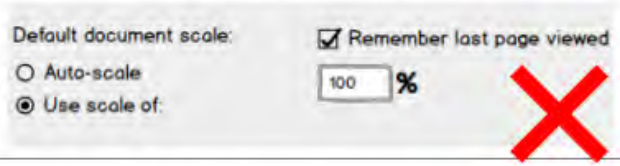
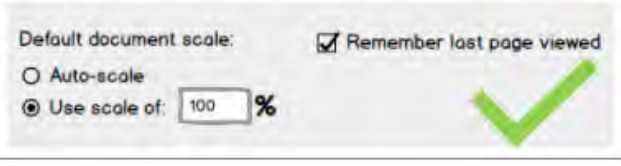
Typical Mistakes for Selecting User Interface Elements

Incorrect Selection	Correct Selection
Would you like to receive further information about our products? ☑ Yes ☑ No 	Would you like to receive further information about our products? ◉ Yes ○ No 
The use of checkboxes allows the user to select multiple options. The user interface element checkbox is not suitable in this case, because the user can answer both yes and no to the same question.	The use of radio buttons allows the user to select only one option. The radio button is suitable in this case because the user has to decide whether to answer yes or no to the question.

Typical Mistakes when Arranging User Interface Elements

Incorrect Arrangement	Correct Arrangement
	
The “Ticket selection” command button is designed to only be visible at the top of the train connection. In order to select an offer, users have to scroll back up after they have scrolled down to read all route information.	The “Ticket selection” command button is configured so that it is always visible and can be selected regardless of the scroll position.

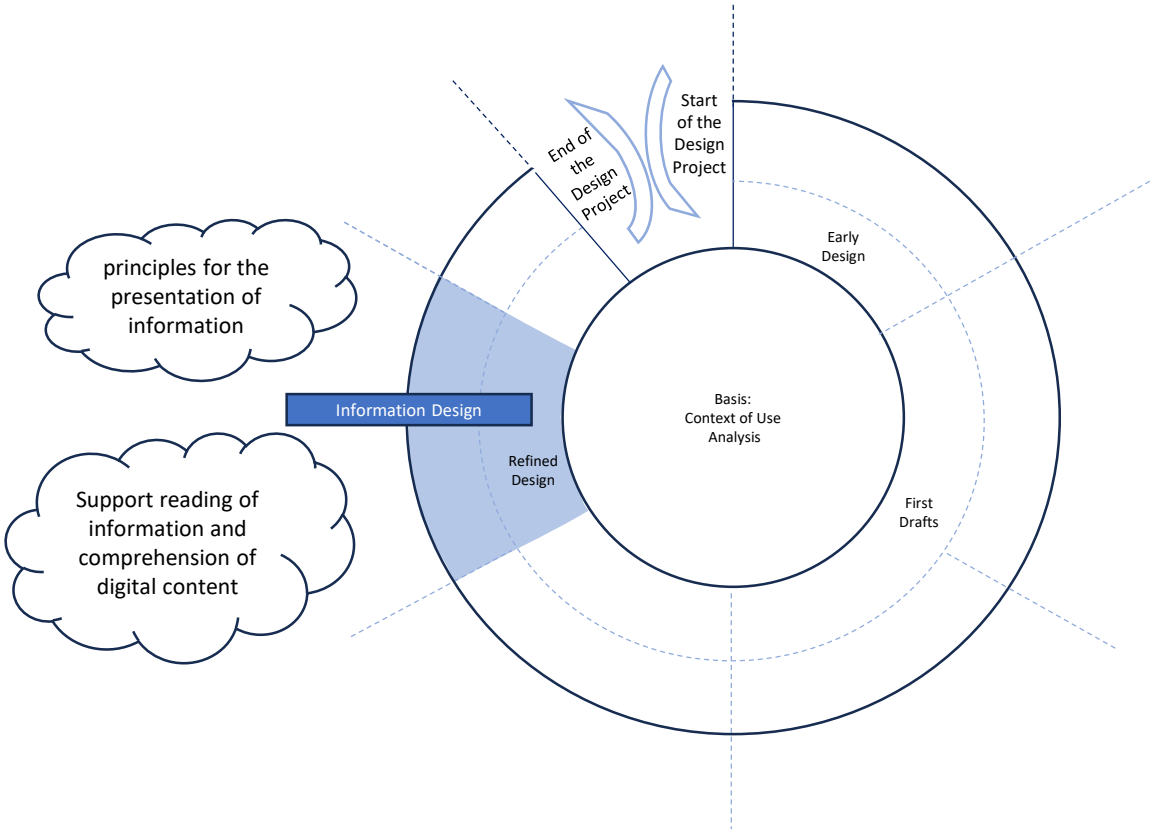
Typical Mistakes when Combining User Interface Elements

Incorrect Combination	Correct Combination
	
The input box for users to specify the scaling factor has been arranged in such a way that the relationship between the radio buttons and the caption is no longer clear.	The user interface elements are arranged correctly so that the relationship between the radio buttons, the caption, and the input box is clear.

Responsive Design vs. Adaptive Design

Responsive Design	Adaptive Design
Standardised layout across all screen sizes	**Better control** for designers, allows optimisation of the design for specific screen sizes
Less effort for creation and maintenance because there is only one core layout	**More labour-intensive**, as a large number of layouts needs to be created and maintained
Flexible, fills all the gaps left by adaptive designleaves behind, **but possibly unpredictable behaviour** when changing the screen size	**Can become less appealing at intermediate** sizes because it was only designed for certain screen sizes
For websites: **Possibly slower while downloading** and waiting for responses because the entire code must be sent (relevant for low internet bandwidth or slow devices)	**Significantly faster while downloading** and responding because only the code required for the specific layout has to be sent

Designing Solutions Process



Design decisions on the information design relate to the comprehensibility and interpretability of the information presented in relation to all content. No matter if these are texts, symbols, labelling, images or other media that convey information.

Information Design

Definition: Design of the **presentation of meaningful information** (texts, labelling, icons, symbols, etc.) to ensure the **comprehensibility and interpretability** of the content represented in task objects.

Principles for the Presentation of Information

Detectability: Presented information is detectable if the information is presented so that it will be **recognised** as present.

Example: A prominent headline (large font and prominent placement in the upper centre) with a supporting image allows readers of a newsletter to quickly see what this short text is all about.

Freedom from distraction: Information is free from distractions if it is presented so that the required information will be perceived **without other presented information interfering** with its perception. Distractions from a user's point of view can result from both distracting events and information overload.

Example: Playing a video, the website automatically adjusts the contrast of the background to avoid distracting users from the video.

Distinguishability: Information is distinguishable if it is presented such that **discrete items or groups of items can be accurately differentiated**, and the items of information are presented in a manner that supports their association with or differentiation from other items or groups of items.

Example: On a news website, different menu levels are designed in different colours to clearly distinguish them from each other.

Principles for the Presentation of Information

Interpretability: Information is interpretable if it is **comprehended as intended**.

Example: Supporting images for each category name of an online shop clarify the content of the categories.

Conciseness: Information is concise if **only the necessary** information is presented.

Example: On a website menu for booking tickets for events, various subcategories can be selected step by step as additional menu items. So, the user does not get too much information at once.

Consistency: (internal and external) Information is consistent if items of **information with similar intent are presented similarly** and items of **information with different intent are presented in a different style and form**, within and across the interactive systems and the user's environments.

Example: A link named "Help" on a Web page takes the user to a page titled "Help" rather than to a page named "Information".

Step-by-step reading of information

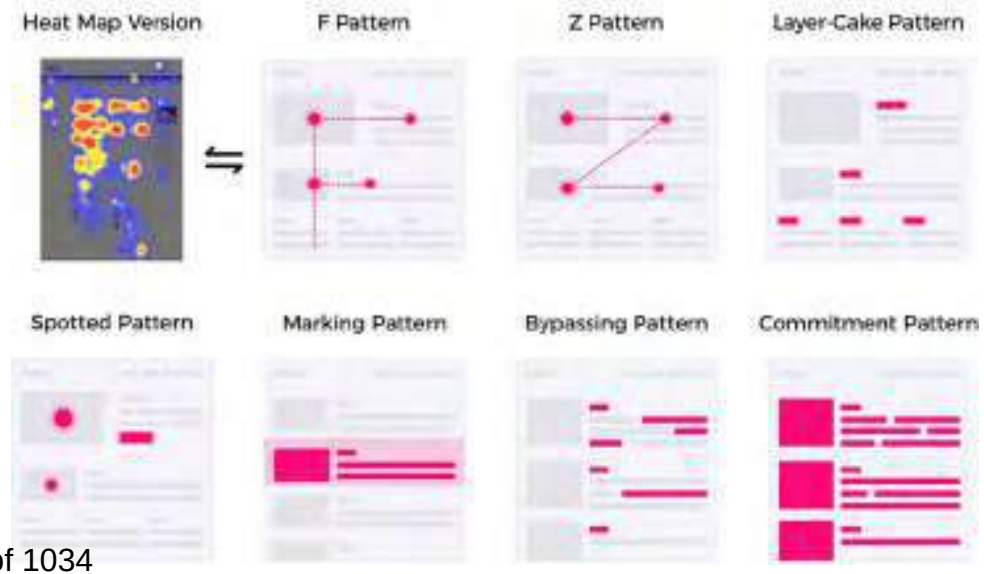
Reading of information

An interplay of three ways for capturing content:

1. **Scanning:** User's attention during task completion is guided by the content
2. **Skimming:** Scanned contents are systematically passed over to get their gist
3. **Reading:** If a skimmed piece of content is recognised as helpful for task completion, the user reads its information systematically and completely

Reading Scheme

A pattern describing the **typical chronological order in which users place their attention** on a page. The intended reading scheme for a page or set of pages depends on the basic layout, the design guidelines followed, and the extent to which single user interface elements get the user's attention on the page.

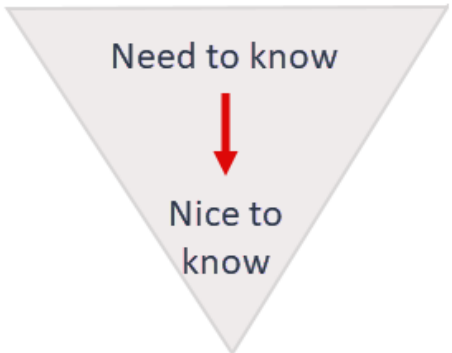


Source: https://www.toptal.com/designers/web/ui-design-best-practices

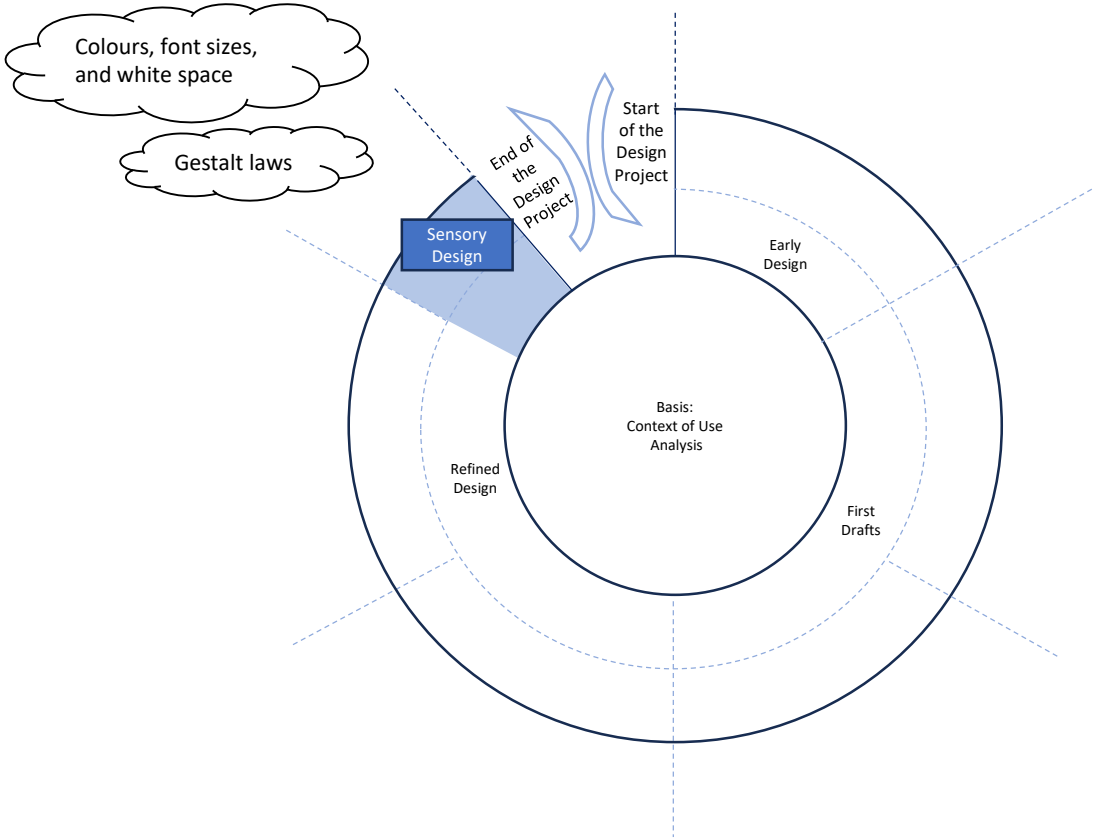
Inverted Pyramid Approach to Support Reading Comprehension

Source: https://www.nngroup.com/articles/inverted-pyramid/

- **Most important information** (or what might even be considered the conclusion) **is presented first**:
  - Who, what, when, where and why appear at the start of a story,
  - followed by supporting details and background information.



Designing Solutions Process



Sensory design is about the perspective of human perceptual abilities, for example, it is often about font sizes, contrasts, groupings and the design of white spaces, but also about an aesthetic appearance, the famous “look and feel”.

Sensory Design

Definition: Before users can recognise the meaning of information, they must be able to **perceive what is presented**. If users miss perceiving information due to inattention or due to not being able to use the given sensory channels, the information needed for completing the task will be missing.

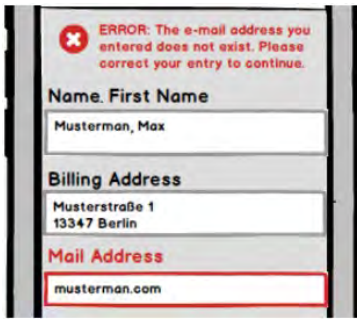
Gestalt Laws: Rules that describe how people perceive individual shapes – lines, surfaces, edges, colours – as a single unit, due to shared characteristics such as proximity and similarity.

Gestalt Laws

Law of proximity: Objects that are **close to each other** are more likely to be **perceived as belonging together** than objects that are distant from one another.



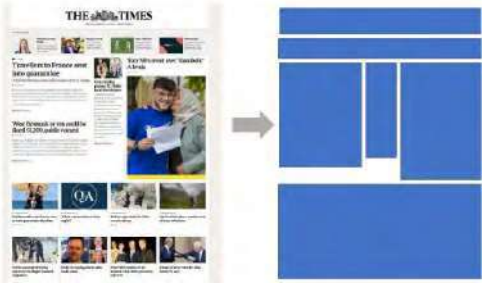
Law of similarity: Elements that are **similar to each other** (for example or colour) are **perceived as belonging together.**



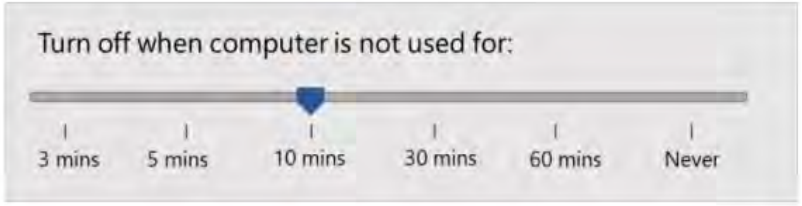
Gestalt Laws



Law of good form: The brain divides objects into structures that are as simple as possible. Even though complicated shapes may have more than one possible interpretation, our **vision breaks them up into the simplest shapes**, as this interpretation requires the least cognitive effort.
It prevents us from becoming overwhelmed with information.



Law of continuation: The human eye will prefer to see **continuous, unbroken paths and curves**, trying to follow it even if another object might try to interrupt it.



Gestalt Laws

Law of closure: **Incomplete, simple elements are perceived as forming familiar patterns, shapes, and groups**. This law is often employed on UI elements such as loading indicators, progress bars, or sliders.
Many icons and logos use this law as well.



Law of common fate: Figures with **similar movement** characteristics
(for example, moving in the same direction, along the same path) are **perceived as one unit** because they share a common fate.



Colours, font sizes, and white space

The **basic rules** for the use of colours are as follows:

- The **foreground colour should stand out sufficiently** from the background. W3C Web Content Accessibility Guidelines mandate a contrast ratio of at least 4.5:1 for text against its background.
- The use of **good contrast** ensures legibility. Especially when displays are used outdoors, environmental light can impair contrast.
- Be aware that the use of **certain RGB colours in conjunction can cause a flickering** effect as their wavelengths are close together.



Colours, font sizes, and white space

The following recommendations for usage of colours are stated in **[ISO9241- 171]:**

- Information should **not be conveyed by colour alone**.
- Colour schemes for **users with visual impairments** should be considered.
- Depending on the context of use, it should be checked whether the **customising of colour coding** and colour schemes is necessary.
- Sufficient **contrast between the foreground** and the background should be provided, preferably within basic settings.



Colours, font sizes, and white space



White Space:
The free and **undescribed areas on a display** (for example, margins, gutters, and space between columns and graphics). Designers can use white space to separate unrelated user interface elements and add aesthetic and effective value to the design.

The appropriate use of white space supports the **recognition of the grouping and structure** of user interface elements and thus the faster comprehension and readability - the user needs less concentration.

The appropriate use of white space is also helpful from an **aesthetic** point of view, especially in contrast to separator lines or borders

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LEIBNIZ-INSTITUT FÜR BILDUNGSMEDIEN | Georg-Eckert-Institut

HUMAN-CENTRED Design for Educational Media

Usability Testing

26.04.2024

Prof. Dr.-Ing. Ernesto William De Luca

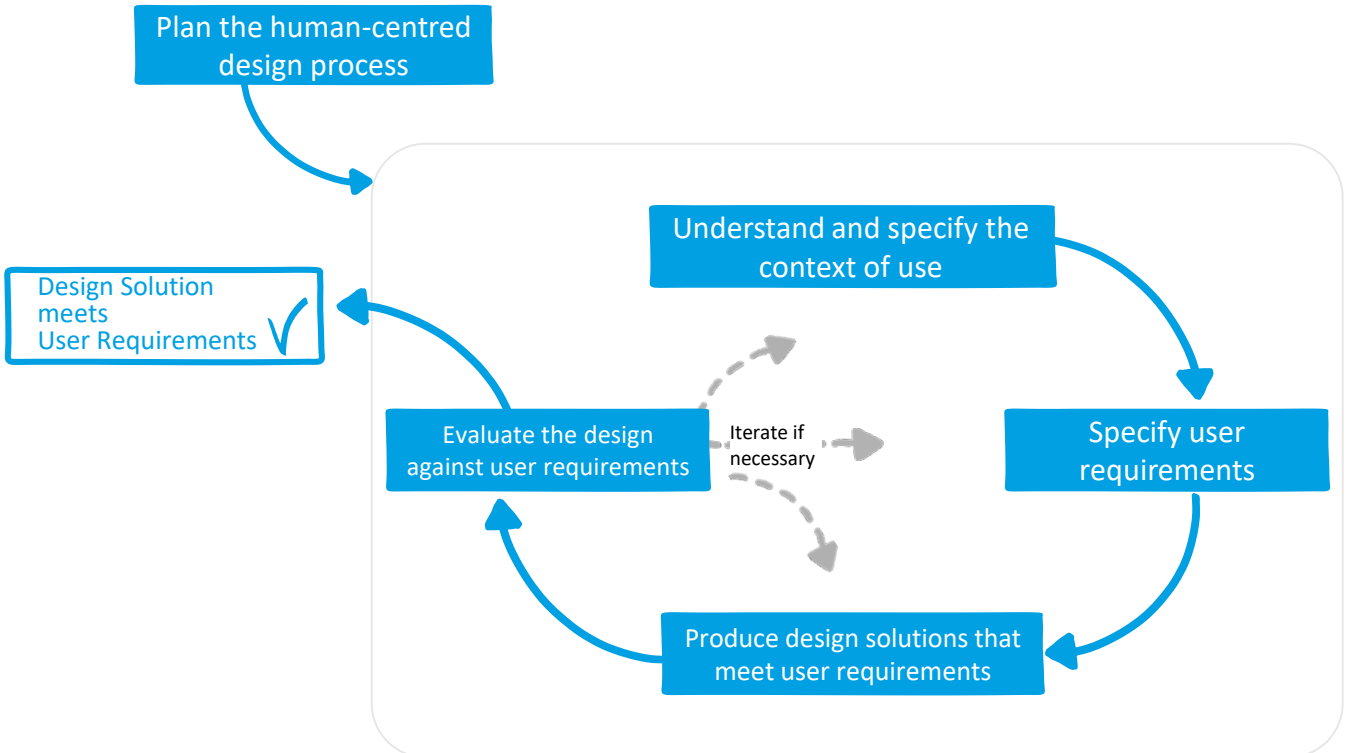
Agenda



- Method Overview
- User Survey
- Usability Test

This lecture is based on:
Course material provided by artop GmbH &
Curricula content from the International Usability and User Experience Qualification Board (UXQB®) https://uxqb.org/en/documents/

Human-Centred Design Process



Method Overview

Definition and Purpose of Usability Evaluation

Definition:
A process through which information about the usability of an interactive system is gathered in order to **improve** the interactive system (known as formative usability evaluation) or to **assess the merit or worth** of the interactive system (known as summative usability evaluation).

Purpose:
The purpose of a usability evaluation is to identify as many valid **usability problems and**
positive findings as possible in an interactive system.

Knowing the (research) question before conducting a usability evaluation is a must!

Example (Research) Questions

- Can users complete a task?
- Which of several products is the best product?
- How often is the same product used?
- How good is the navigation and/or information architecture of the product?
- How can the level of awareness be increased?
- What problems occur?
- How can the usability of a product be improved?
- How can an overall positive user experience be created?
- What are the effects of subtle changes?
- Which one of the alternative designs is the best?

How plausible are the following reasons for a usability evaluation?

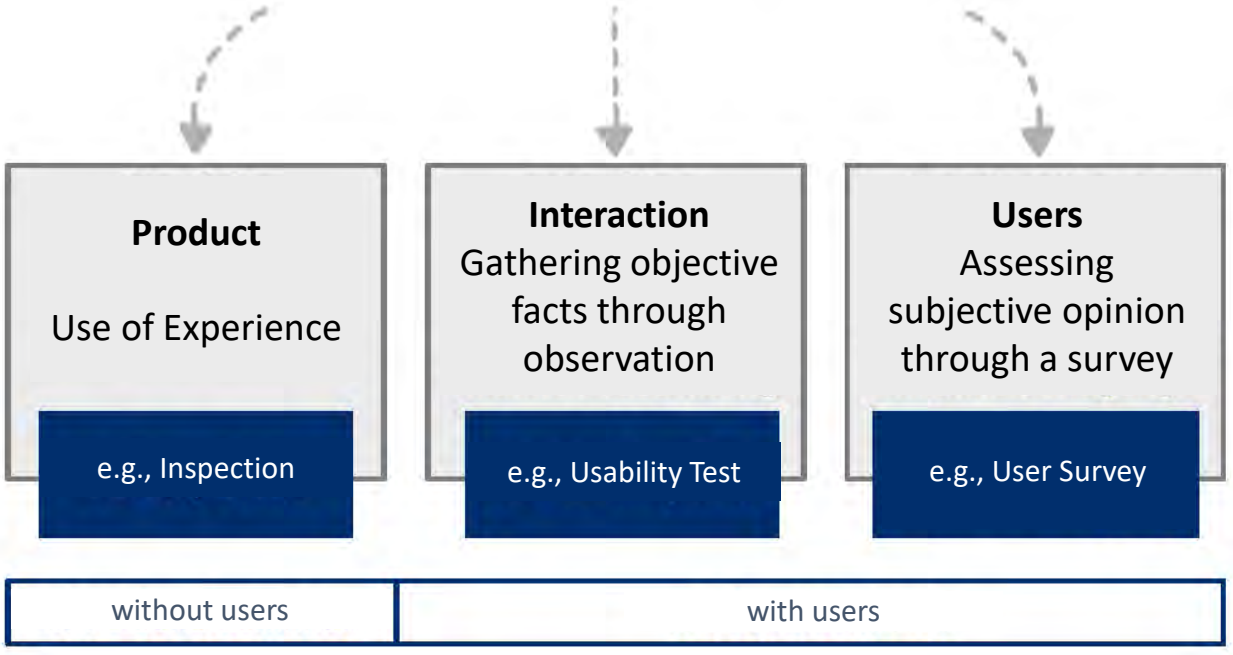
- After an update last month, users rated the app significantly lower.
- In order to develop a product idea, expectations of the product should be collected from users.
- The design of the website should be changed.
- The company wants to increase its usability maturity.
- Sceptical colleagues in the company should be convinced that taking user needs into account is important in product development.

How plausible are the following reasons for a usability evaluation?

- After an update last month, users rated the app significantly lower.
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Method Overview

What shall be assessed in a usability evaluation?



Usability Test

Usability Test

Definition: Representative **users carry out specific usability test tasks** one after the other with an interactive system to enable user experience professionals to identify and analyse usability problems.

A usability test can take place **at any time** during the process of human-centred design.

Reasons why a usability test is carried out:

- To assess whether **user requirements** have been met
- To uncover **usability problems** so that they can be corrected
- **Educating stakeholders** that an interactive system may have serious usability issues that can be found and fixed

Usability Test – General Process



Prepare the Usability Test

- Create a usability test plan
- Write usability test script with usability test tasks
- Recruit test participants
- Conduct pilot usability tests

Conduct the Usability Test



- Briefing and pre-session interview
- Processing of usability test tasks
- Debriefing

Report Findings



- Analyse collected data
- Identify usability findings
- Create a usability test report
- Communicate usability findings

Usability Test – Possibilities for Obtaining Data

Qualitative Usability Test	Quantitative Usability Test
Think Aloud	Rate of Success / Failure / Disaster
Observation / Recording	Eye Tracking (Fixation length / frequency)
Retrospective Memorization	Time taken to solve a task
Qualitative Interview	A/B Testing

Usability Test Plan

Content:

- Aims of the usability test
- Identification of the test object (name, version, test object)
- Characteristics of the user group(s)
- Usage requirements for the interactive system
- Planned number of test participants
- Duration of a usability test session
- Names of moderator(s)
- Schedule
- Estimated effort for the usability test
- How usability findings are communicated

Usability Test Tasks

- **Test task scenario:** story or situation into which test takers are asked to put themselves.
- **Key task:** Easy task to query the core function(s) of the interactive system.
- **Open-ended test task:** Objective of the test task is decided and explained by participants.
- **Closed test task:** Objective of the test item is predetermined.

Structure

- Logical sequence of tasks
- Sufficient number of tasks
- From easy to difficult (strengthen the moment of success)

Design

- Short task
- Seriousness
- Precise formulation (clear & understandable)
- No hints

Content

- Start or precondition
- If necessary, embed in a scenario
- Basic function of the interactive system
- Different use cases to be tested
- Realistically solvable
- Relevance for test participants
- Diagnostic benefit
- Description of the purpose of the task
- Completion & cancellation criteria
- No political or religious views

Usability Test – Typical Problems

- **Hint:** Information which accidently helps to solve the task.
- **Sensitive personal information:** Task which requires the disclosure of personal data.
- **Silly task:** Funny task through the use of comical names of persons, places or products.
- **Imprecise task:** Task with vague, imprecise or missing information.
- **Derogatory task:** Task which demands the participant to act silly sometimes.
- **System-oriented task:** Task is relevant from the point of view of the system, but not of the users.
- **Actor task:** Task requires participants to act like someone else.

Usability Test – Ethical Aspects

- **Code of Professional Conduct (CPC)**
  1. Test participants should feel safe and important.
  2. Test participants should be told in advance what to expect in order to demystify a usability test.
  3. Test participants can never make a mistake, do something stupid or wrong during the usability test session.
  4. Test participants can cancel at any time and still receive a reward.
  5. Test participants are anonymous.

Usability Test – Data Protection

- **Protection of intellectual property**
- **Non-Disclosure and Release Declaration (NDRD)**
- **Protection of personal data and guarantee of anonymity**
  - Earmarking
  - Minimal scope
  - Limited access
  - Retention or storage
  - Rights of the participants
- **Complete privacy policy**
  - Who collects which data and for how long?
  - How can participants exercise data protection and information rights of the test participant?
- **Dealing with consent after being informed**

User Survey

User Survey

Definition: An evaluation in which users are asked to **enter subjective data based on their experience** with the interactive system in a questionnaire.

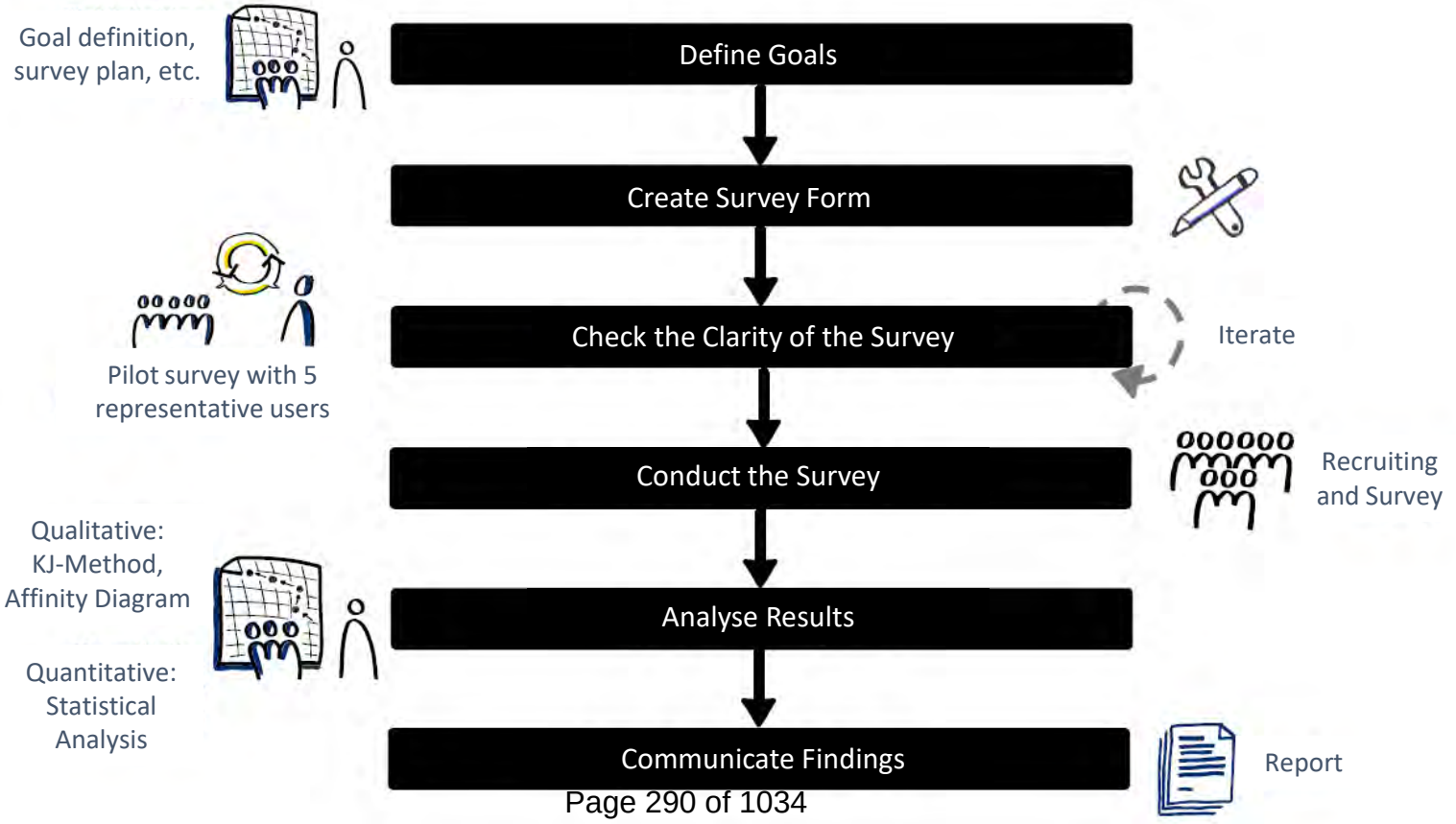
Possible objectives of a survey are:

- To make **satisfaction or dissatisfaction** with the interactive system tangible from the user's point of view
- Measure the possible effects of changes to an interactive system
- Comparison of two interactive systems

Questions can be **qualitative but also quantitative**.

The **number of participants** depends on the objective and whether qualitative or quantitative data is collected.

User Survey – General Process



Criteria for User Survey

*Example Standard Questionnaires:
SUS: https://www.taylorfrancis.com/chapters/edit/10.1201/9781498710411-35/sus-quick-dirty-usability-scale-john-brooke
UMUX-Lite: https://dl.acm.org/doi/10.1145/2470654.2481287

How do I create a usable questionnaire?

- Explain the purpose clearly at the beginning
- Indicate the approximate duration of the survey
- Inform about progress during the survey
- Only ask one question at a time-the same rating scales if possible
- Use standard questionnaires (if possible)*

How do I formulate usable questions for a questionnaire?-

- Each question must contribute to the purpose of the questionnaire
- easy to understand
- unambiguous (do not use double negations)
- free of inbuilt assumptions
- Give the opportunity to explain answers in free text form
- neutral wording

Contacts



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Usability Inspection of the Edumeres Toolbox and its Annotator

Exercise| 26.04.2024

Leibniz Gemeinschaft

State of the Art “GEI Usability Lab“ & “Edumeres Toolbox“

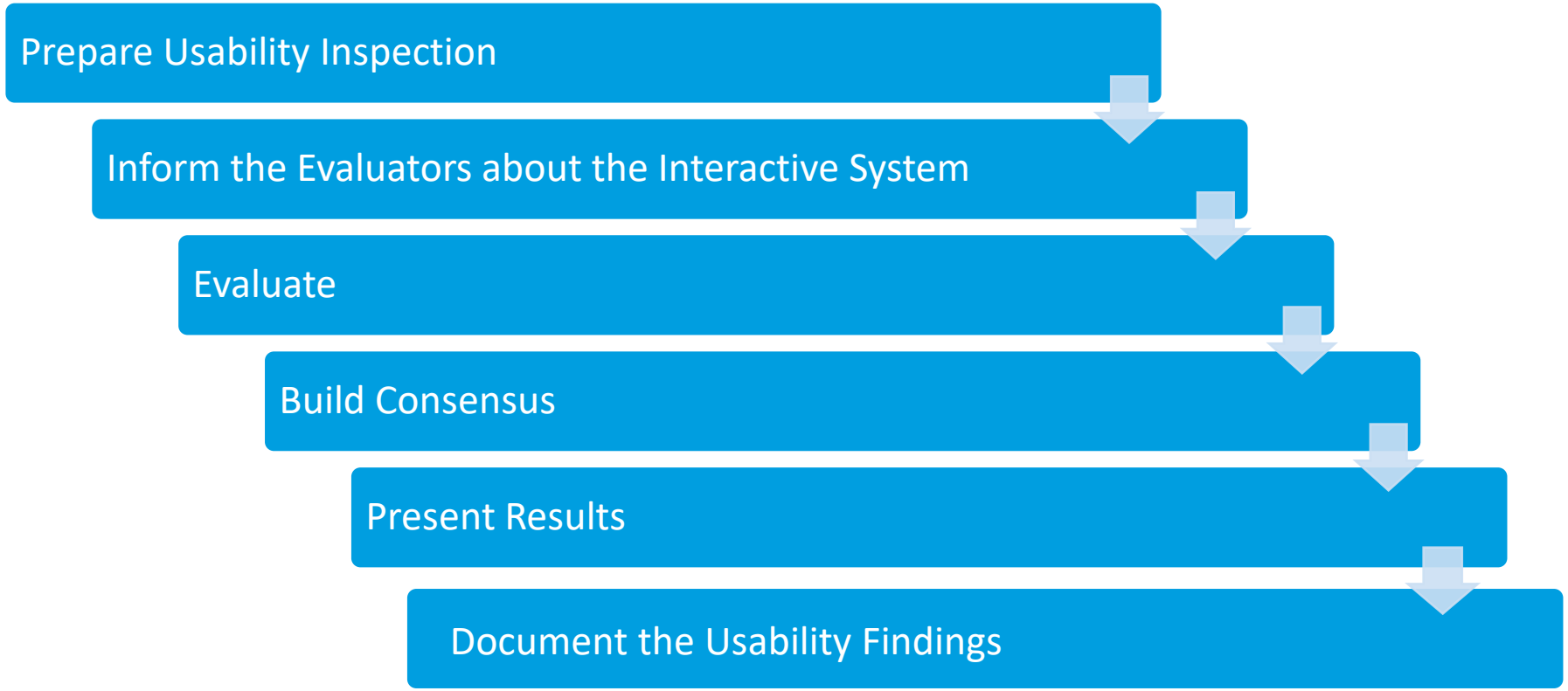
New Team – New Way of Working

- Regular Meetings
- UX in the Loop
- Interviews
- New Annotator

→ Let us check UX today!



Usability Inspection





Usability Inspection

*A usability evaluation based on the judgment of one or more evaluators who **examine** or use an interactive system to identify potential usability problems **based on usability inspection criteria**.*

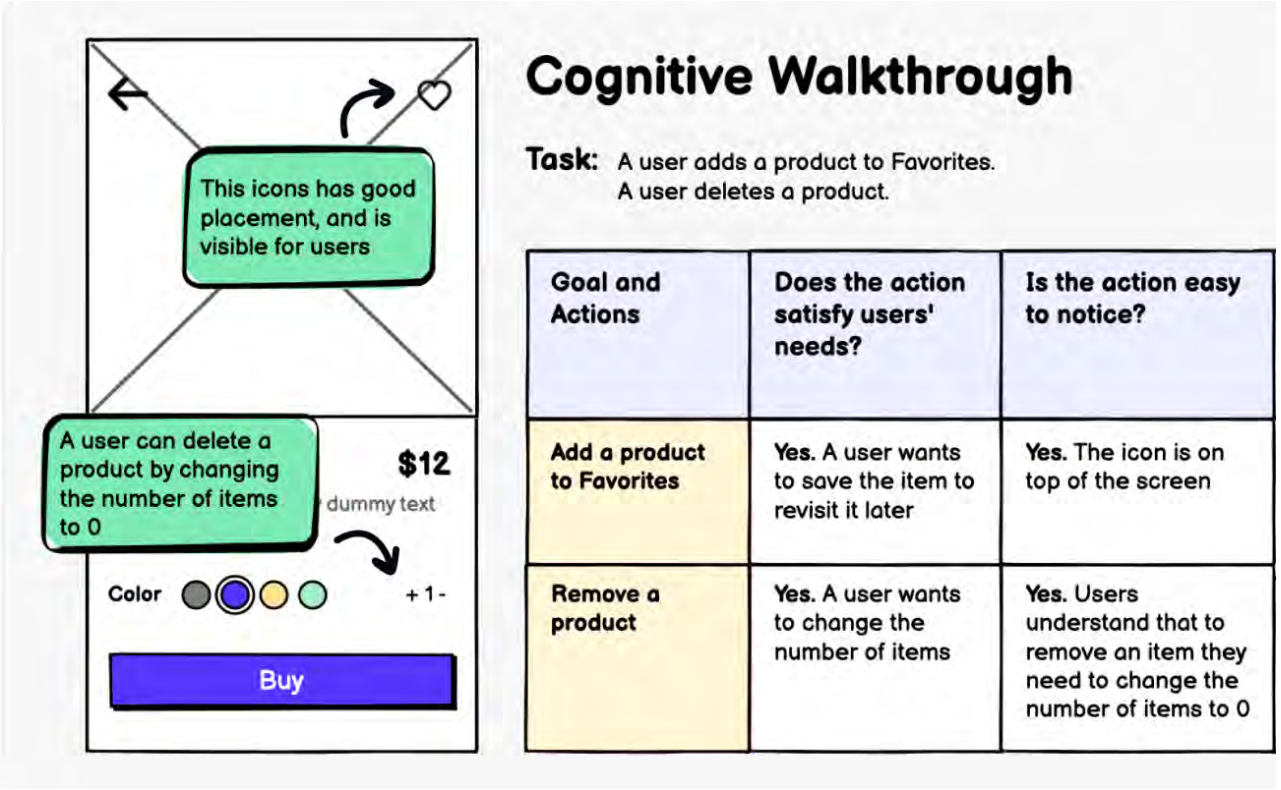


Usability Inspection

Usability inspection **techniques** are:

- **heuristic evaluation**;
- cognitive walkthrough

A usability inspection in which one or more evaluators compare an interactive system to a list of heuristics and identify where the interactive system does not follow those heuristics



Cognitive Walkthrough

Task: A user adds a product to Favorites.
A user deletes a product.

Goal and Actions	Does the action satisfy users' needs?	Is the action easy to notice?
Add a product to Favorites	**Yes.** A user wants to save the item to revisit it later	**Yes.** The icon is on top of the screen
Remove a product	**Yes.** A user wants to change the number of items	**Yes.** Users understand that to remove an item they need to change the number of items to 0

Usability Inspection

Usability inspection **techniques** are:

- heuristic evaluation;
- **cognitive walkthrough**

A usability inspection of a user interface in the context of one or more specific user tasks.

A cognitive walkthrough is often carried out in the context of a scenario and a persona.

Usability Inspection

Usability inspection **criteria** include:

- user requirements;
- heuristics and interaction principles;
- user interface guidelines.

Usability Inspection

Usability inspection **criteria** include:

- (user requirements;)
- heuristics and interaction principles;
- (user interface guidelines.)

Heuristic

A generally recognized rule of thumb that helps to achieve usability.

→ ***10 heuristics created by Jakob Nielsen***



1. Visibility of system status

The interactive system should always **keep users informed about what is going on**, through appropriate feedback within reasonable time.

Examples:

- While moving files, an app regularly updates the message “5955 of 42573 files moved”.
- After a password is changed, the app confirms “Password successfully changed”.

2. Match between system and the real world

The interactive system should **speak the users' language**, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

Examples:

- The message "This page does not exist" is easier to understand than "Error 404".
- A car rental app explains technical terms such as CDW as "CDW – Collision Damage Waiver – exempts the renter from having to pay for any damages to the rental car".

3. User control and freedom

Users often choose system functions by mistake and will need a clearly marked “**emergency exit**” to leave the unwanted state without having to go through an extended dialogue. **Support undo and redo**.

Examples:

- A user accidentally hits the Exit button. The app offers the choices “Save and exit”, “Exit without saving” and “Cancel”. The availability of the three buttons satisfies this heuristic.
- A file system lets the user undo recent file deletions, moves and renamings.

4. Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow **platform conventions**.

Examples:

- All cars, irrespective of the brand, have the same ordering of gas, brake and clutch pedal.
- In an organisation, all systems consistently use the same phrases for login, for example, “user name” (not user-id) and “password” (not access key).

5. Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either **eliminate error-prone conditions** or check for them and present users with a **confirmation option** before they commit to the action.

Examples:

- Users select dates from a calendar, rather than having to type the dates.
- In a message asking the user to confirm the deletion of a file, the default option is “Do not delete the file”.

6. Recognition rather than recall

Minimise the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. **Instructions** for use of the interactive system should **be visible or easily retrievable** whenever appropriate.

Examples:

- In an address form, a drop-down list displays the names and codes of all 50 US states, so the user does not have to remember the correct spelling.
- A search engine helps users retrace their searches by displaying past searches.

7. Flexibility and efficiency of use

Accelerators – unseen by the novice user – may often **speed up the interaction for the expert user** such that the system can cater to both inexperienced and experienced users. Allow users to **tailor frequent actions**.

Examples:

- A word-processing system allows inexperienced users to select functions by clicking on menus; experienced users can quickly enter Alt-sequences such as Alt+H+K+C.
- A hotel reservation app allows users to easily change the language and currency.

8. Aesthetic and minimalist design

Dialogues should **not contain information which is irrelevant or rarely needed**. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Examples:

- A bank offers two versions of online banking service: the full version and a more limited and less complex version for people who prefer minimalist design – that is, simplicity.
- The home page of a presidential candidate only shows a large picture of the candidate, the candidate's name, a "Donate" button, a "Sign-up" button and a "Learn More" link.

9. Help users recover from errors

Error messages should be expressed in **plain language** (no codes), precisely **indicate the problem**, and **constructively suggest a solution**.

Examples:

- The error message “File names must start with a letter” is more constructive than “Error in file name”.
- The error message “The pick-up date (16-Dec-2020) must not be later than the return date (13-Dec-2020)” is more precise than “Something went wrong”.

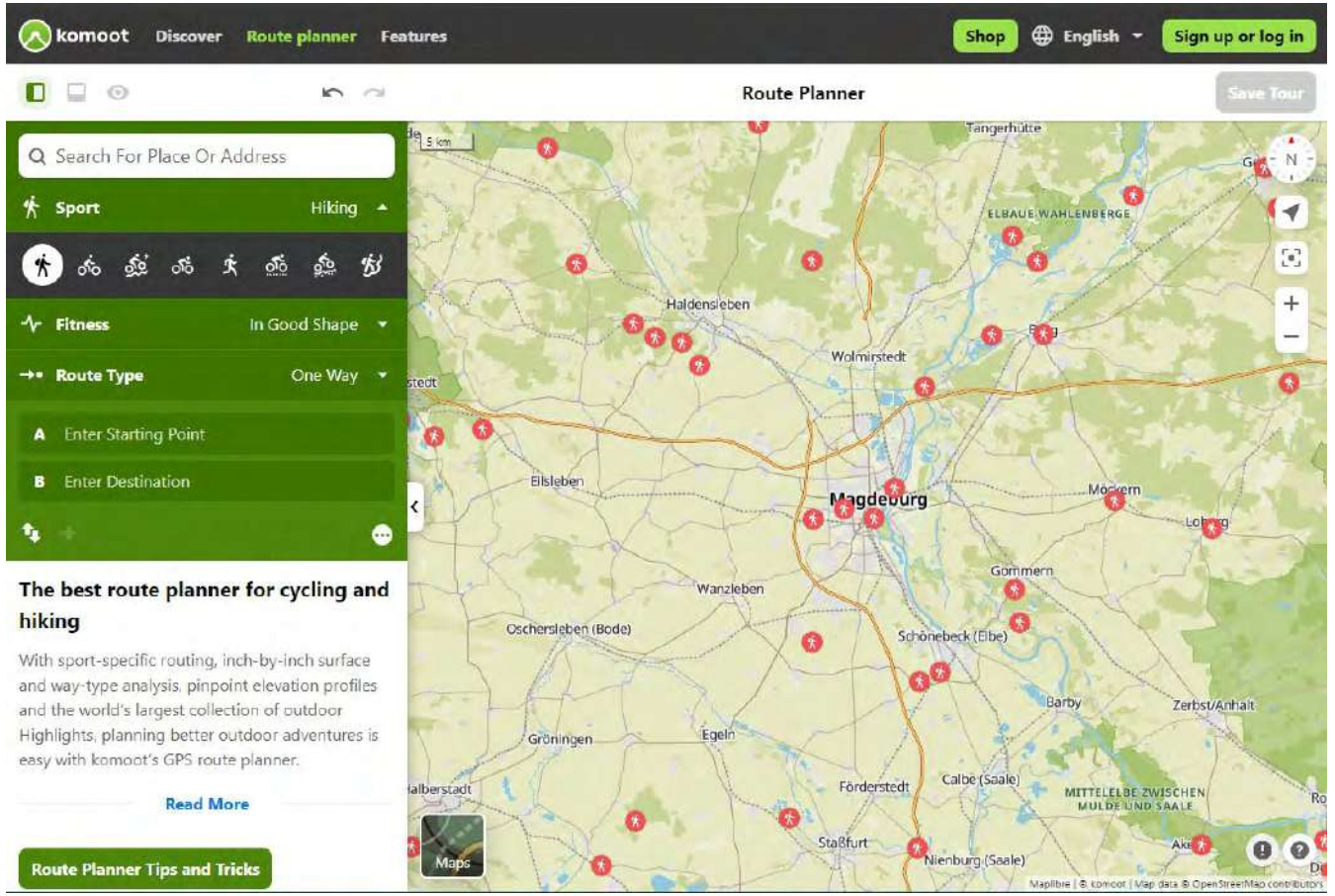
10. Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be **easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large**.

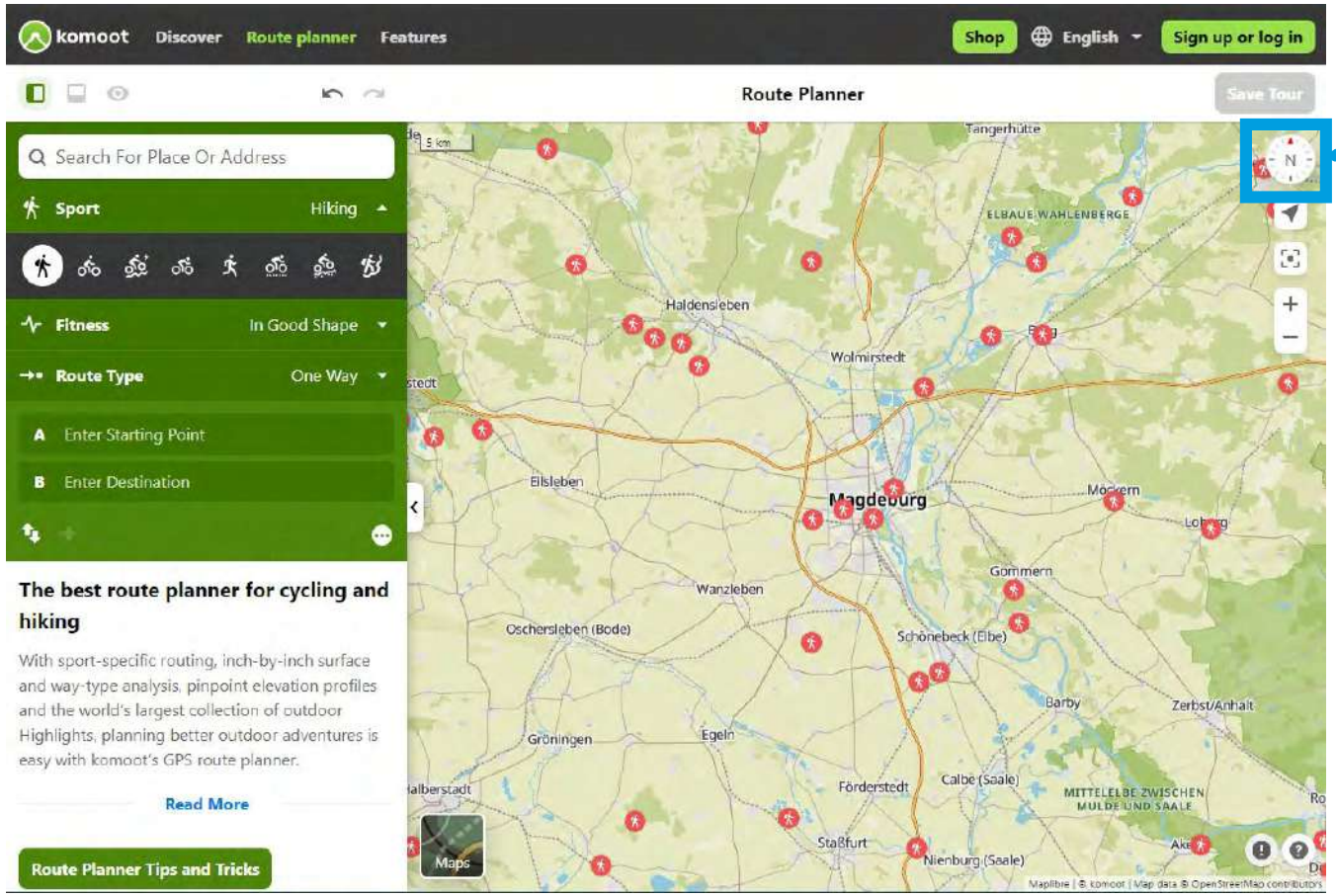
Examples:

- If the user hovers over a technical term such as CDW on a car rental website, a helpful explanation appears; the explanation includes an example.
- A remote control for hearing aids comes with an attractive 2-page getting-started guide.

Apply Heuristics as Evaluation Criteria: Example Komoot

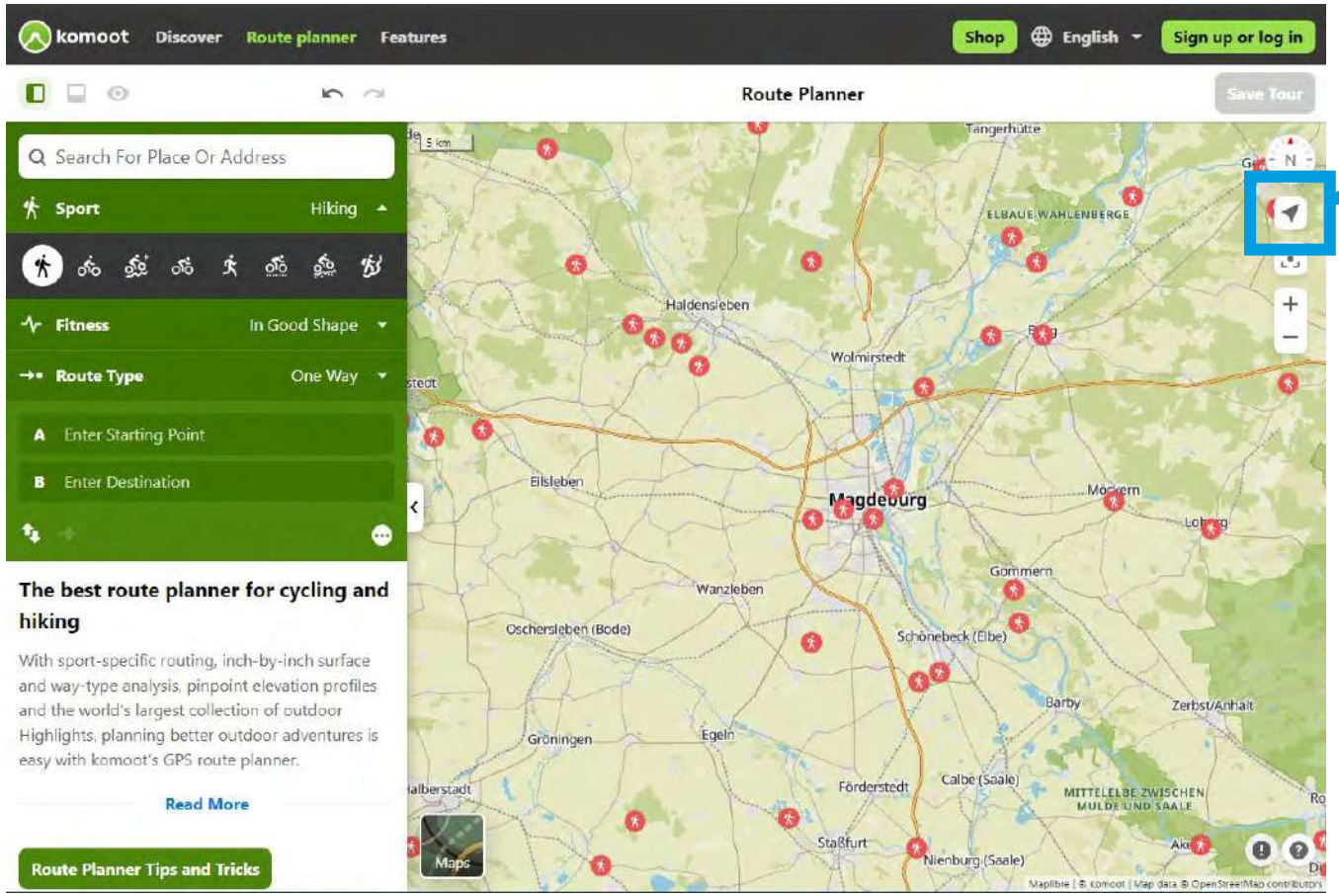


Apply Heuristics as Evaluation Criteria: Example Komoot



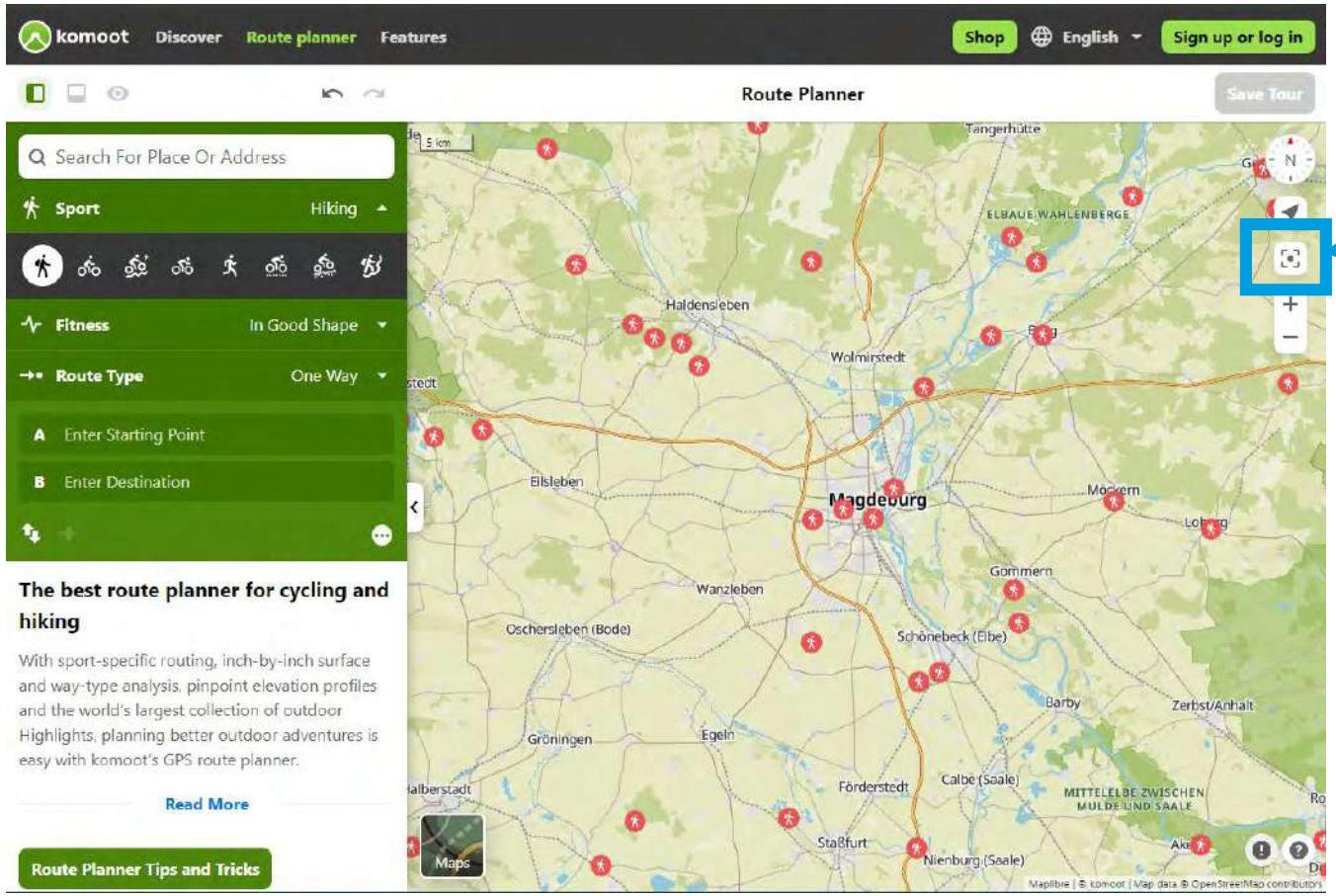
4. Consistency and standards

Apply Heuristics as Evaluation Criteria: Example Komoot



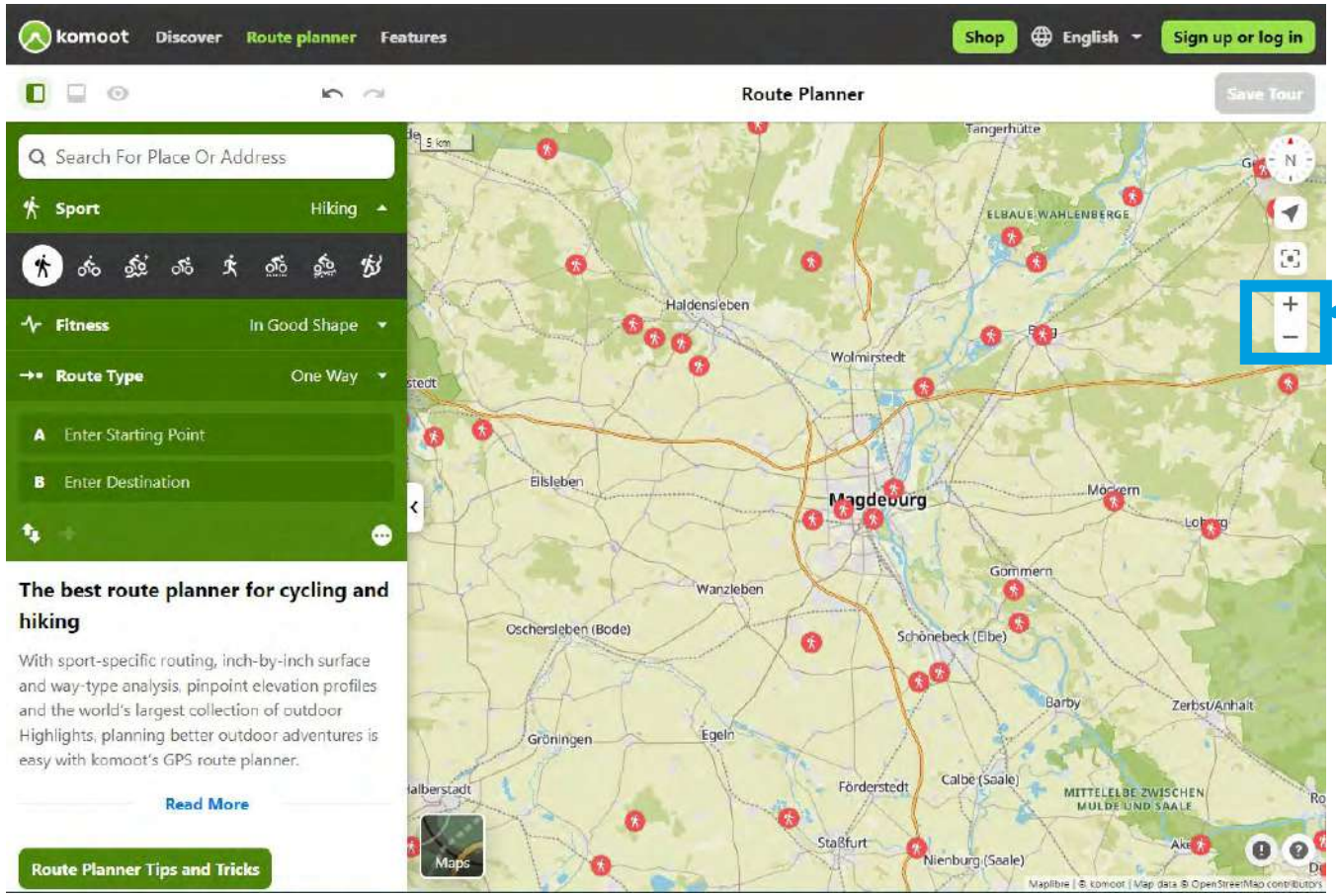
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Apply Heuristics as Evaluation Criteria: Example Komoot



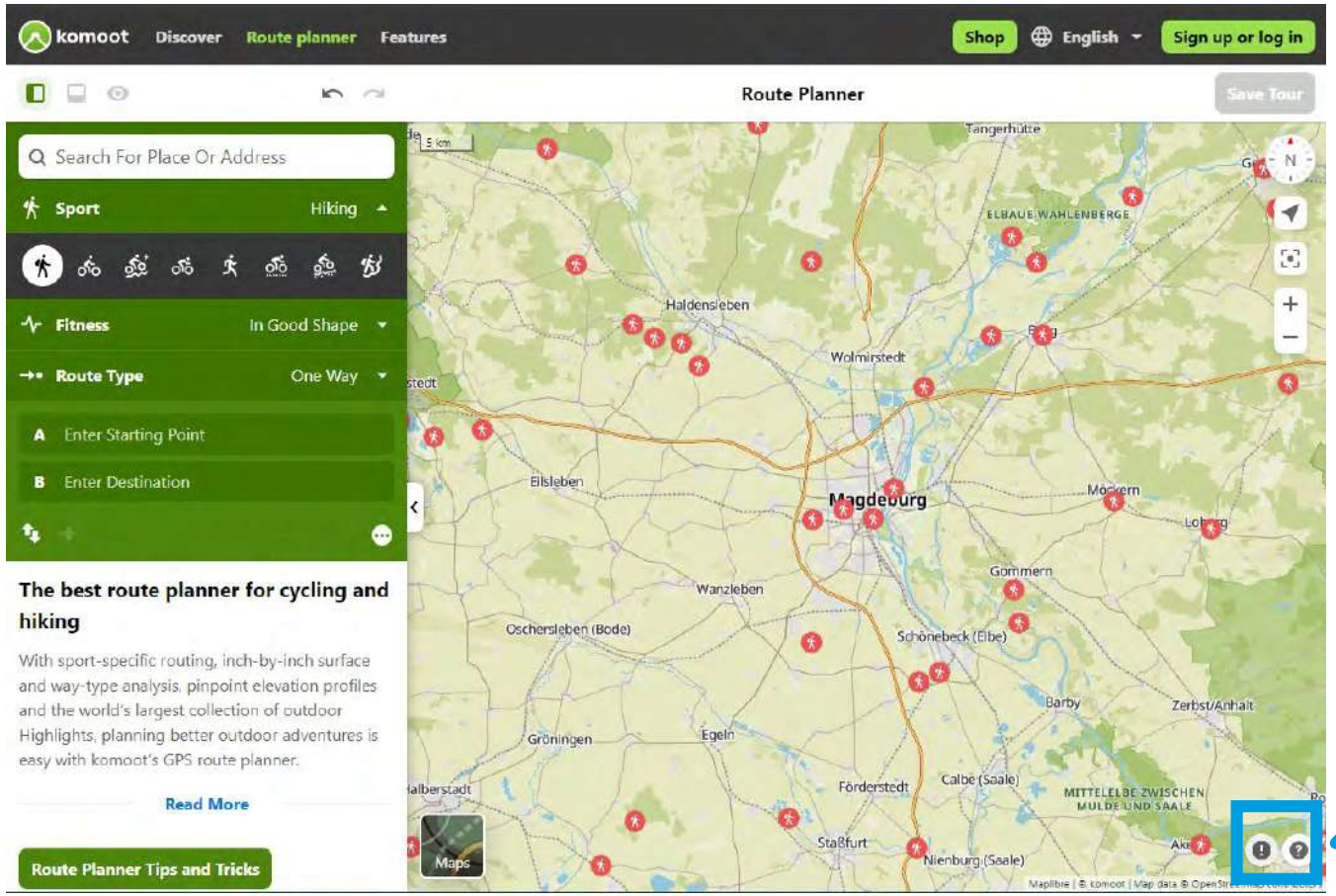
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Apply Heuristics as Evaluation Criteria: Example Komoot



4. Consistency and standards

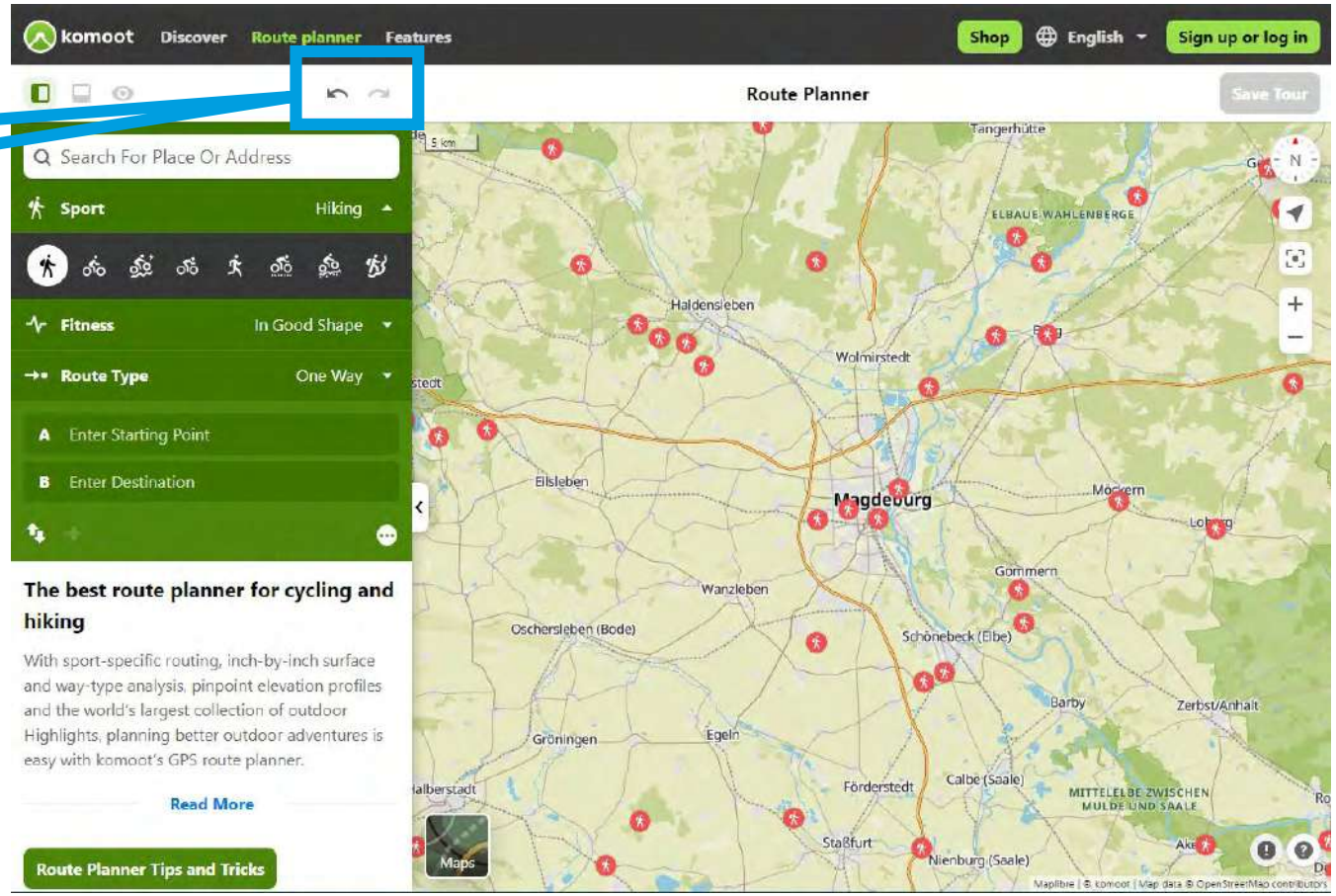
Apply Heuristics as Evaluation Criteria: Example Komoot



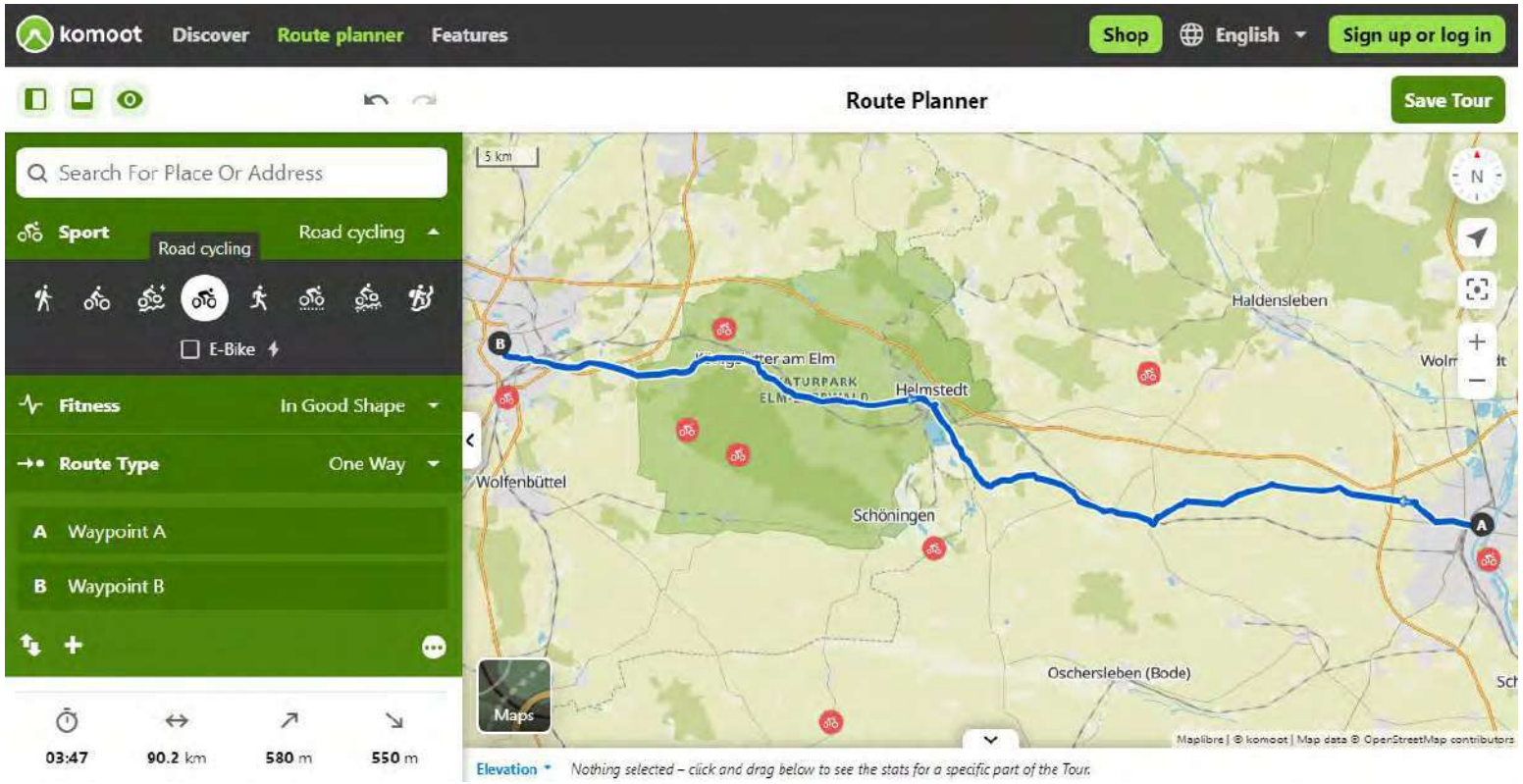
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Apply Heuristics as Evaluation Criteria: Example Komoot

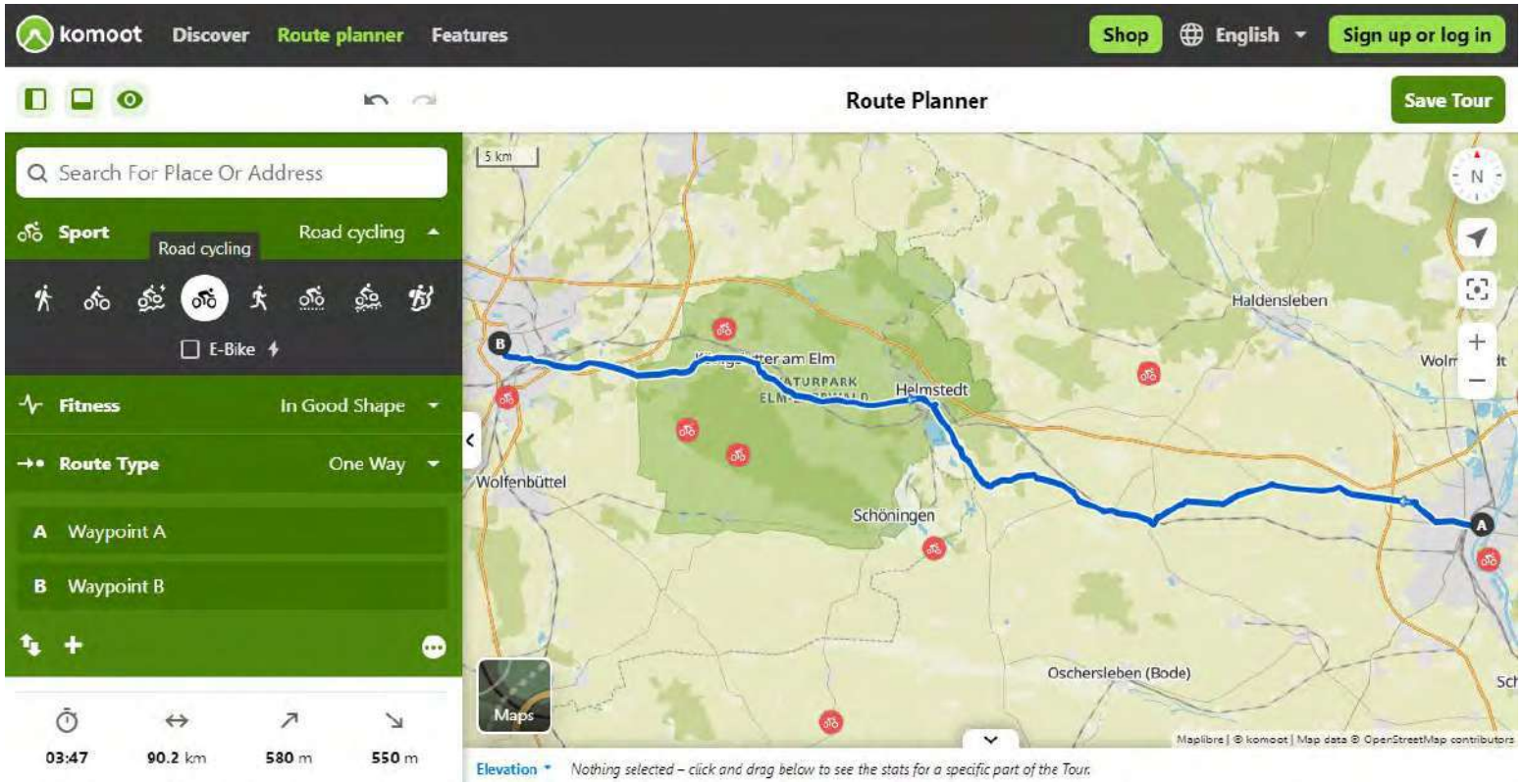
3. User control and freedom



Apply Heuristics as Evaluation Criteria: Example Komoot

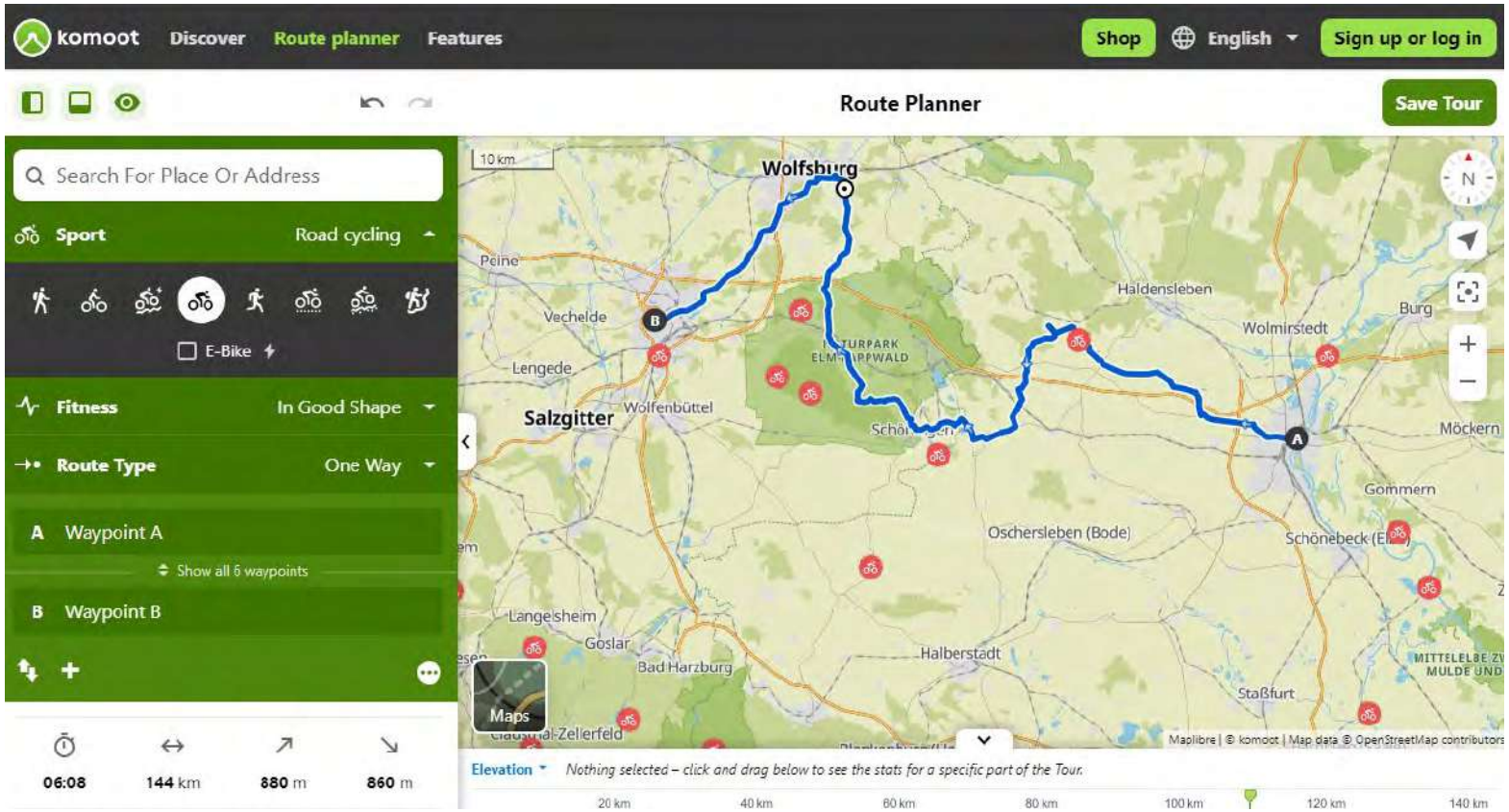


Apply Heuristics as Evaluation Criteria: Example Komoot



Violated heuristic: 7. Flexibility and efficiency of use, because only one route is shown.
What are alternative routes?

Apply Heuristics as Evaluation Criteria: Example Komoot



Supported heuristic: 7. Flexibility and efficiency of use, because the route can be adjusted via drag and drop.

Problem Severity Rating

Typical ratings are:

- Positive finding – something that worked well in the context of the current usability test or that test participants liked;
- Minor problem – noticeable delays or minor dissatisfaction;
- Major problem – substantial delays or moderate dissatisfaction;
- Critical problem – test participants gave up or experience substantial dissatisfaction, or there is a risk of minor harm to the user;
- Catastrophic problem – existential threats, there is a risk of major harm to the user or to the organisation.

Usability problems should only be classified as "catastrophic" after consultation with the risk manager or a top-level manager, as a UX professional should not have the authority to declare a problem as catastrophic.

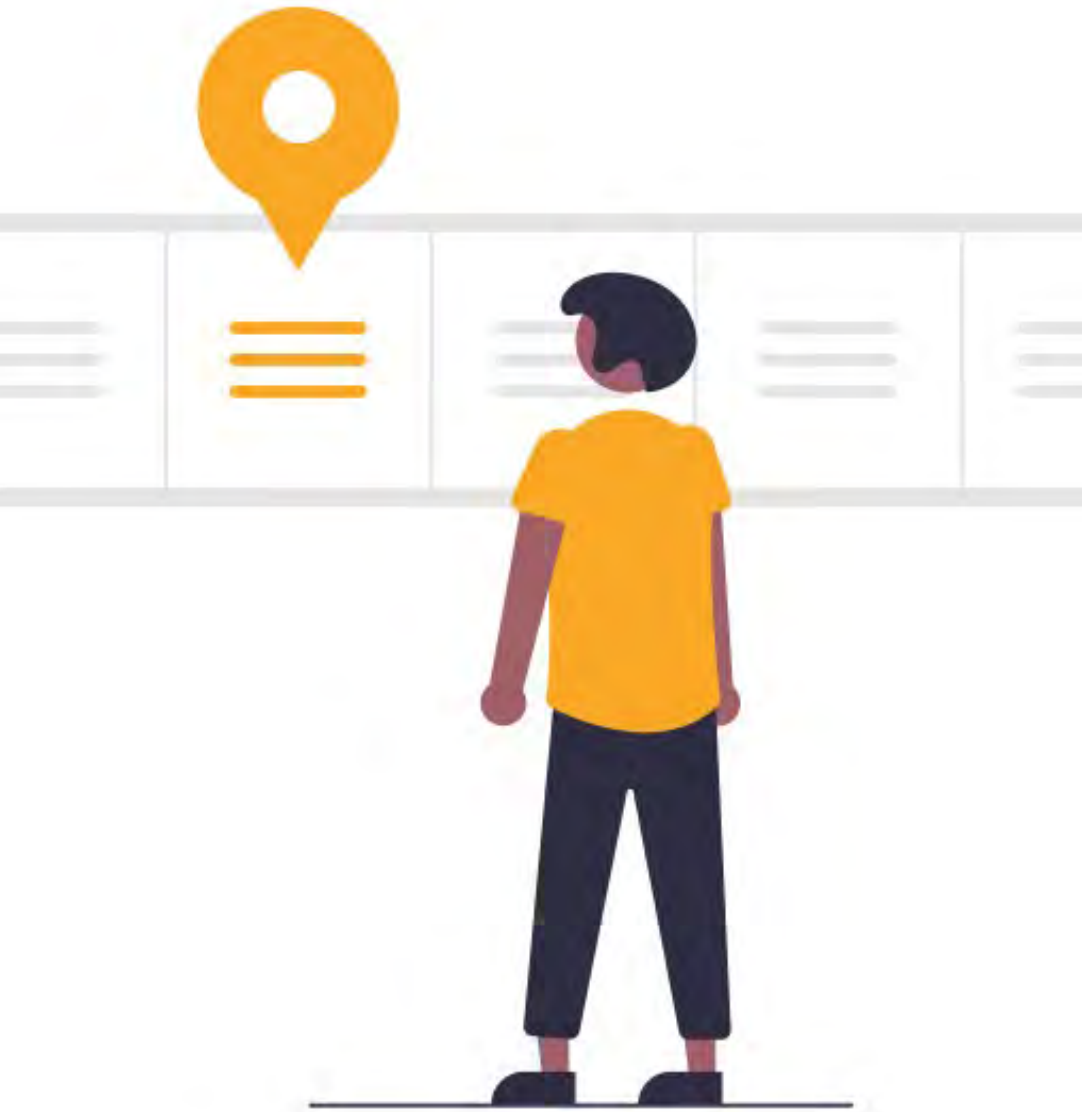
Problem Severity Rating

Examples of critical usability problems:

- inability to book a flight: booking a wrong, expensive, non-refundable flight due to poor usability.

Examples of catastrophic usability problems:

- renting a car with inadequate liability insurance because information about liability insurance is difficult to understand on the car rental website; •
- administering a lethal dose of medication because the control that specifies the dosage is easily misinterpreted .



Interaction Principles

General goals for the design of useful and usable user-system interactions.

→ ***7 interaction principles listed in ISO 9241-110***

1. Suitability for the user's tasks

The interactive system supports the users in the completion of their tasks – that is, when the **operating functions** and the user-system interactions are **based on the task characteristics** (rather than the technology chosen to perform the task).

Examples:

- The interactive system should avoid imposing steps on the user that are derived from the technology rather than from the needs of the task itself.
- The interactive system should offer defaults, where appropriate.

2. Self-descriptiveness

The interactive system presents appropriate information, where needed by the user, to make its **capabilities and use immediately obvious** to the user without unnecessary user system interactions.

Examples:

- Clear and descriptive titles, breadcrumbs, appropriate feedback and progress indicators, and affordances, including clear instructions, are means to make an interactive system self-descriptive.
- Make it obvious what users can do: The home page of an app for a pet adoption service clearly and briefly describes the purpose of the app and provides an overview of the five key functions offered by the app: The adoption process, Adopt a dog, Stories from users who adopted a dog, Donate, Help.
- Make it obvious what users cannot do: A ticket machine for train tickets clearly states that it only accepts credit cards (no cash) and provides a list of the accepted credit cards.

3. Conformity with user expectations

The interactive **system's behaviour is predictable** based on the context of use and commonly accepted conventions in this context.

Examples:

- Speak the users' language: An insurance company's website uses words that are understood by users who have little experience with insurance. Whenever the use of technical terms is unavoidable, the meaning of the words is explained in a tooltip with examples.
- Consistency: In an organisation, all systems consistently use the same phrases for login, for example, "user name" (not user-id) and "password" (not access key).

4. Learnability

The interactive system supports discovery of its capabilities and how to use them, allows **exploration** of the interactive system, **minimises the need for learning** and **provides support** when learning is needed.

Examples:

- The interaction should provide sufficient feedback about the intermediate and final results of an activity so that the user learns from successfully accomplished activities.
- If appropriate to the tasks and learning goals, the interactive system should allow the user to explore by trying out interaction steps without negative consequences.
- Make it obvious what users can do: A hotel booking app clearly displays the functions that are of most interest to users on the home page: Book a room; Modify a booking; Cancel a booking; Special deals; Property reviews.
- Support when learning is needed: An application has step-by-step guides on how to use some of the key features. Initially, the guide will display a short explanation of a feature. On pressing ‘Next,’ it will explain the next feature, and so on.

5. Controllability

The interactive system allows the user to **maintain control** of the user interface and the interactions, **including the speed and sequence and individualisation** of the user-system interaction.

Examples:

- Properly placed and labelled exit-buttons (“Cancel”, “Skip”, or “Stop”), undo and redo are means to make an interactive system controllable.
- Interruption by the user: An antivirus program that is scanning a hard disk drive for viruses can be stopped at any point of time by the user pressing a prominent stop button.
- No surprises: On a newspaper website, a video starts playing only when the user explicitly starts the video. By default, the video’s sound is muted.
- Flexibility: In an online questionnaire, users can move forward and backwards between questions and pause the session at any time.

6. Use error robustness

The interactive system assists the user in **avoiding** errors and in case of identifiable errors treats them tolerantly and assists the user when recovering from errors.

Examples of error avoidance:

- Selection rather than typing: On a flight booking website, users have the option to enter dates by using a date picker. This avoids confusion around date formats when entering day and month into the same input field.
- Provide clear feedback: When entering a password, the user has the option to display the password on the screen.

6. Use error robustness

The interactive system assists the user in avoiding errors and in case of identifiable errors **treats them tolerantly** and assists the user when recovering from errors.

Examples of error tolerance:

- Allow the user to correct mistakes: A drawing application offers users undo and redo functions, so any mistake can easily be corrected.
- Support error recovery: A file management system keeps a copy of a file that the user has deleted, in case the user deletes the file by mistake.

6. Use error robustness

The interactive system assists the user in avoiding errors and in case of identifiable errors treats them tolerantly and assists the user when **recovering from errors.**

Examples of error recovery:

- Be constructive: “There is no service between these stations on December 25th. This service is available on December 23rd and December 26th. Please select a different departure, destination or date” (rather than, “Illegal service selected”).
- Be precise: “Passwords must consist of at least 14 characters. The password you entered contains 13 characters” (rather than, “An error occurred”).

7. User engagement

The interactive system presents functions and information in **an inviting and motivating manner supporting continued interaction** with the system.

User engagement can lead to a positive user experience. Excessive or inappropriate application of techniques intended to increase user engagement can lead to a negative user experience.

Examples:

- Build trust: An e-commerce website clearly displays its physical address and contact information together with pictures and biographies of key people. It also links to independent mentions and reviews of the company, for example in newspapers.
- Assure the user that everything is OK: An anti-virus program displays a clear assurance “You are protected” together with a large, green checkmark and the link “More information”.

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|Georg-Eckert-Institut

Thank you for your attention!



Leibniz Gemeinschaft

Handout: Usability Inspection

26.04.2024

Heuristics (by Jakob Nielsen)

A generally recognized rule of thumb that helps to achieve usability.

1. **Visibility of system status**
   The interactive system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
   Examples:
   While moving files, an app regularly updates the message “5955 of 42573 files moved”.
   After a password is changed, the app confirms “Password successfully changed”.
2. **Match between system and the real world**
   The interactive system should speak the users’ language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
   Examples:
   The message “This page does not exist” is easier to understand than “Error 404”.
   A car rental app explains technical terms such as CDW as “CDW – Collision Damage Waiver – exempts the renter from having to pay for any damages to the rental car”.
3. **User control and freedom**
   Users often choose system functions by mistake and will need a clearly marked “emergency exit” to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.
   Examples:
   A user accidentally hits the Exit button. The app offers the choices “Save and exit”, “Exit without saving” and “Cancel”. The availability of the three buttons satisfies this heuristic.
   A file system lets the user undo recent file deletions, moves and renamings.
4. **Consistency and standards**
   Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
   Examples:
   All cars, irrespective of the brand, have the same ordering of gas, brake and clutch pedal.
   In an organisation, all systems consistently use the same phrases for login, for example, “user name” (not user-id) and “password” (not access key).
5. **Error prevention**
   Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.
   Examples:
   Users select dates from a calendar, rather than having to type the dates.
   In a message asking the user to confirm the deletion of a file, the default option is “Do not delete the file”.
6. **Recognition rather than recall**

Minimise the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the interactive system should be visible or easily retrievable whenever appropriate.
Examples:
In an address form, a drop-down list displays the names and codes of all 50 US states, so the user does not have to remember the correct spelling.
A search engine helps users retrace their searches by displaying past searches.

7. **Flexibility and efficiency of use**
   Accelerators – unseen by the novice user – may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
   Examples:
   A word-processing system allows inexperienced users to select functions by clicking on menus; experienced users can quickly enter Alt-sequences such as Alt+H+K+C.
   A hotel reservation app allows users to easily change the language and currency.
8. **Aesthetic and minimalist design**
   Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
   Examples:
   A bank offers two versions of online banking service: the full version and a more limited and less complex version for people who prefer minimalist design – that is, simplicity.
   The home page of a presidential candidate only shows a large picture of the candidate, the candidate's name, a "Donate" button, a "Sign-up" button and a "Learn More" link.
9. **Help users recover from errors**
   Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.
   Examples:
   The error message "File names must start with a letter" is more constructive than "Error in file name".
   The error message "The pick-up date (16-Dec-2020) must not be later than the return date (13-Dec-2020)" is more precise than "Something went wrong".
10. **Help and documentation**
    Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.
    Examples:
    If the user hovers over a technical term such as CDW on a car rental website, a helpful explanation appears; the explanation includes an example.
    A remote control for hearing aids comes with an attractive 2-page getting-started guide.

Interaction Principles (in ISO 9241-110)

General goals for the design of useful and usable user-system interactions.

1. **Suitability for the user's tasks**
   The interactive system supports the users in the completion of their tasks – that is, when the operating functions and the user-system interactions are based on the task characteristics (rather than the technology chosen to perform the task).
   Examples:
   The interactive system should avoid imposing steps on the user that are derived from the technology rather than from the needs of the task itself.
   The interactive system should offer defaults, where appropriate.
2. **Self-descriptiveness**
   The interactive system presents appropriate information, where needed by the user, to make its capabilities and use immediately obvious to the user without unnecessary user system interactions.
   Examples:
   Clear and descriptive titles, breadcrumbs, appropriate feedback and progress indicators, and affordances, including clear instructions, are means to make an interactive system self-descriptive.
   Make it obvious what users can do: The home page of an app for a pet adoption service clearly and briefly describes the purpose of the app and provides an overview of the five key functions offered by the app: The adoption process, Adopt a dog, Stories from users who adopted a dog, Donate, Help.
   Make it obvious what users cannot do: A ticket machine for train tickets clearly states that it only accepts credit cards (no cash) and provides a list of the accepted credit cards.
3. **Conformity with user expectations**
   The interactive system's behaviour is predictable based on the context of use and commonly accepted conventions in this context.
   Examples:
   Speak the users' language: An insurance company's website uses words that are understood by users who have little experience with insurance. Whenever the use of technical terms is unavoidable, the meaning of the words is explained in a tooltip with examples.
   Consistency: In an organisation, all systems consistently use the same phrases for login, for example, "user name" (not user-id) and "password" (not access key).
4. **Learnability**
   The interactive system supports discovery of its capabilities and how to use them, allows exploration of the interactive system, minimises the need for learning and provides support when learning is needed.
   Examples:
   The interaction should provide sufficient feedback about the intermediate and final results of an activity so that the user learns from successfully accomplished activities.
   If appropriate to the tasks and learning goals, the interactive system should allow the user to explore by trying out interaction steps without negative consequences.
   Make it obvious what users can do: A hotel booking app clearly displays the functions that are of most interest to users on the home page: Book a room; Modify a booking; Cancel a booking; Special deals; Property reviews.

Support when learning is needed: An application has step-by-step guides on how to use some of the key features. Initially, the guide will display a short explanation of a feature. On pressing 'Next,' it will explain the next feature, and so on.

5. **Controllability**

   The interactive system allows the user to maintain control of the user interface and the interactions, including the speed and sequence and individualisation of the user-system interaction.

   Examples:

   Properly placed and labelled exit-buttons ("Cancel", "Skip", or "Stop"), undo and redo are means to make an interactive system controllable.

   Interruption by the user: An antivirus program that is scanning a hard disk drive for viruses can be stopped at any point of time by the user pressing a prominent stop button.

   No surprises: On a newspaper website, a video starts playing only when the user explicitly starts the video. By default, the video's sound is muted.

   Flexibility: In an online questionnaire, users can move forward and backwards between questions and pause the session at any time.

6. **Use error robustness**

   The interactive system assists the user in avoiding errors and in case of identifiable errors treats them tolerantly and assists the user when recovering from errors.

   Examples of error avoidance:

   Selection rather than typing: On a flight booking website, users have the option to enter dates by using a date picker. This avoids confusion around date formats when entering day and month into the same input field.

   Provide clear feedback: When entering a password, the user has the option to display the password on the screen.

   Examples of error tolerance:

   Allow the user to correct mistakes: A drawing application offers users undo and redo functions, so any mistake can easily be corrected.

   Support error recovery: A file management system keeps a copy of a file that the user has deleted, in case the user deletes the file by mistake.

   Examples of error recovery:

   Be constructive: "There is no service between these stations on December 25th. This service is available on December 23rd and December 26th. Please select a different departure, destination or date" (rather than, "Illegal service selected").

   Be precise: "Passwords must consist of at least 14 characters. The password you entered contains 13 characters" (rather than, "An error occurred").

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homodigitalis

AI training for Researchers: From Concept to Grant Proposal

This training will guide researchers/professor and research managers through the process of developing a grant proposal using AI tools. Participants will learn how to identify research topics, brainstorm questions, find partners, and write a compelling proposal.



by Adrian Besimi

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SOUTH EAST EUROPEAN UNIVERSITY

Who am I?

Professor in Computer Sciences @ SEEU

Digital Consultant | Digital NCP | **Data Science** | Enterpreneur

Teaching: Computer Architecture, Data Mining, Machine Learning

Research:

Data Science

Digital Transformation

AI adoption

Cybersecurity

XR

LinkedIn info here:

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Pre-Training Preparation

1

Set-up

Before the training, participants need to have all resources in place, Laptop/Workstation with Windows OS (Macbook will work in most of cases)

ChatGPT account and Bard Account are recommended.

2

Topic Selection

Participants should choose research topics or data sets in advance. This way you will have better focus on what to do :)

3

Survey Completion

4

Survey results

[AI training for Researchers: From Concept to Grant Proposal]



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Introductory video

Participants should watch an introductory video on Generative AI to gain a basic understanding of the technology and its potential applications in education.



YouTube

GPT-4o (Omni) math tutoring demo on Khan Academy

New GPT-4o (Omni) tutoring demo: My new book BRAVE NEW WORDS: HOW AI WILL REVOLUTIONIZE EDUCATION comes out tomorrow. What is described in this book is...

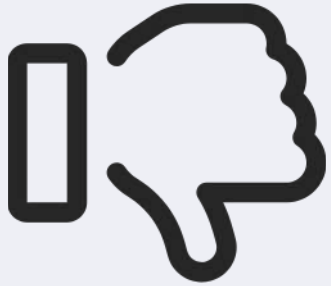
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Sentiment Analysis

Participants will engage in a sentiment analysis exercise using GPT to gauge their feelings about AI.







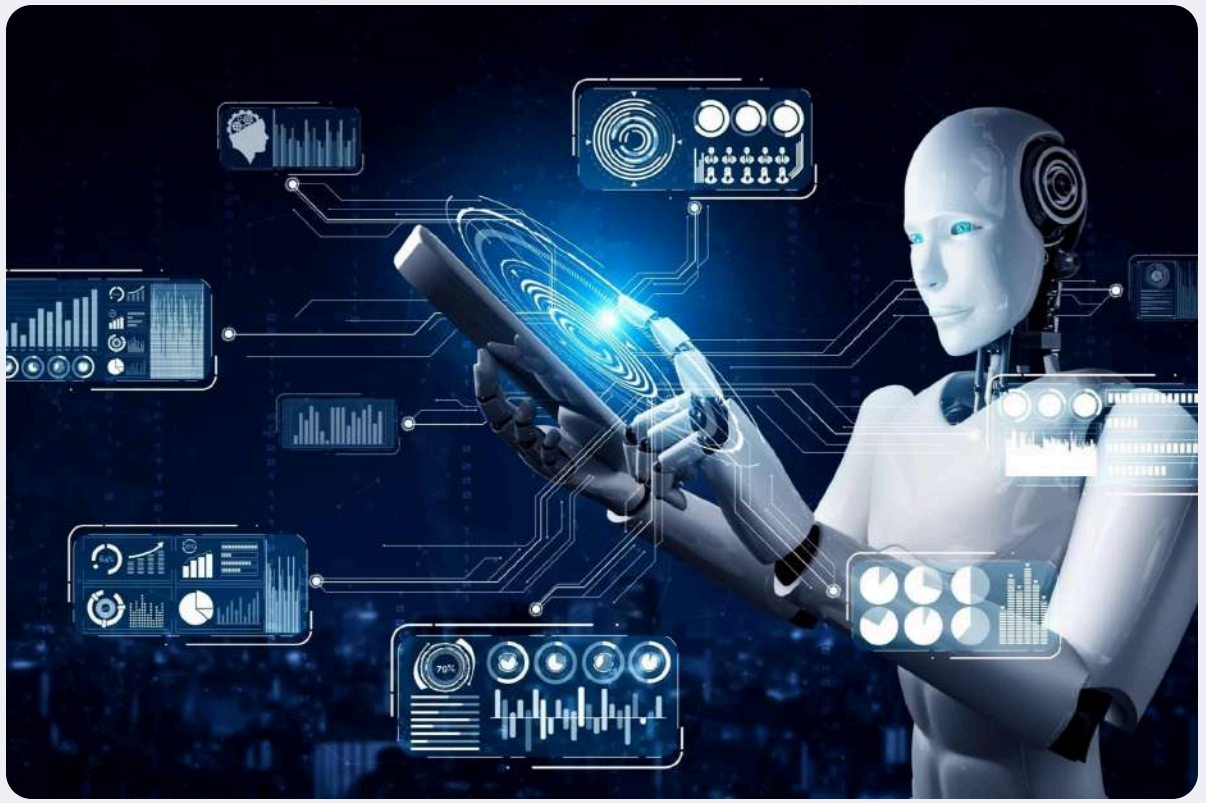
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Session 1: Enhancing Research using AI Tools

Understanding Generative AI

The challenges researchers face in understanding Generative AI, its capabilities, and potential applications.



- *Artificial Intelligence*: An entity that performs actions that look similar to what people do.
- **Machine Learning**, **Neural Network** and **Deep Learning** help computers learn.
- Prediction by example:

www.bing.com

msft stock - Search

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Session 1: Enhancing Research using AI Tools

Please complete the sentence:

ONCE UPON A _____

WE... (THOUSANDS OF COMBINATIONS AHEAD)

WE ARE ... (90% chance)

WE ARE HAPPY ... (40%)

WE ARE HAPPY AND ... (50%)

WE ARE HAPPY AND EXCITED ... (30%)

AI will provide different results 😅

WE ARE HAPPY AND EXCITED TO WIN THE LOTTERY.

WE ARE HAPPY AND EXCITED TO HAVE FINISHED THE SCHOOL.

WE ARE HAPPY AND EXCITED TO BE PART OF THIS TRAINING.

WE ARE HAPPY AND EXCITED TO SWIM WITH THE SHARKS.

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Session 1: Enhancing Research using AI Tools

GPT stands for *Generative Pre-trained Transformer*

- ***Generative***. The model is capable of generating continuations to the provided input. That is, given some text, the model tries to guess which words come next.
- ***Pre-trained.*** The model is trained on a very large corpus of general text and is meant to be trained once and used for a lot of different things without needing to be re-trained from scratch.
- ***A transformer*** is a particular type of deep learning model that transforms the encoding in a particular way that makes it easier to guess the blanked out word.

Read more: https://mark-riedl.medium.com/a-very-gentle-introduction-to-large-language-models-without-the-hype-5f67941fa59e

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Session 5: Enhancing Research using AI Tools

1

Sentiment Analysis

Participants will engage in a sentiment analysis exercise using GPT to gauge their feelings about AI. This interactive activity will provide insights into the perceptions and attitudes towards AI within the research community.

2

Understanding Generative AI

This session will address the challenges researchers face in understanding Generative AI, its capabilities, and potential applications. Participants will explore the concept of Generative AI and its role in research.

3

Capabilities and Limitations

The session will delve into the capabilities and limitations of Generative AI, highlighting its strengths and weaknesses in various research contexts. Participants will gain a comprehensive understanding of the potential and limitations of this technology.

4

Promises & Pitfalls

The session will discuss the promises and pitfalls of using AI for grant proposals. Participants will learn about the potential benefits and challenges associated with incorporating AI into the grant proposal writing process.

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Session 1: Enhancing Research using AI Tools

Capabilities and Limitations

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HeyGen

HeyGen Labs | Chinese Translation

One-click to translate your spokesperson video with natural voice clone, lip-sync and talking...



SoundCloud

Original Drake AI X The Weeknd- Heart ...

Drake AI X The Weeknd ORIGINAL

A year ago, a song using fake DRAKE and The Weeknd vocals purportedly generated by AI\ went viral after being posted on YouTube and other streaming platforms. Now, it's been pulled from streaming services after Universal Music Group issued a statement (via ***Billboard***) that criticized "**infringing content created with generative AI."**



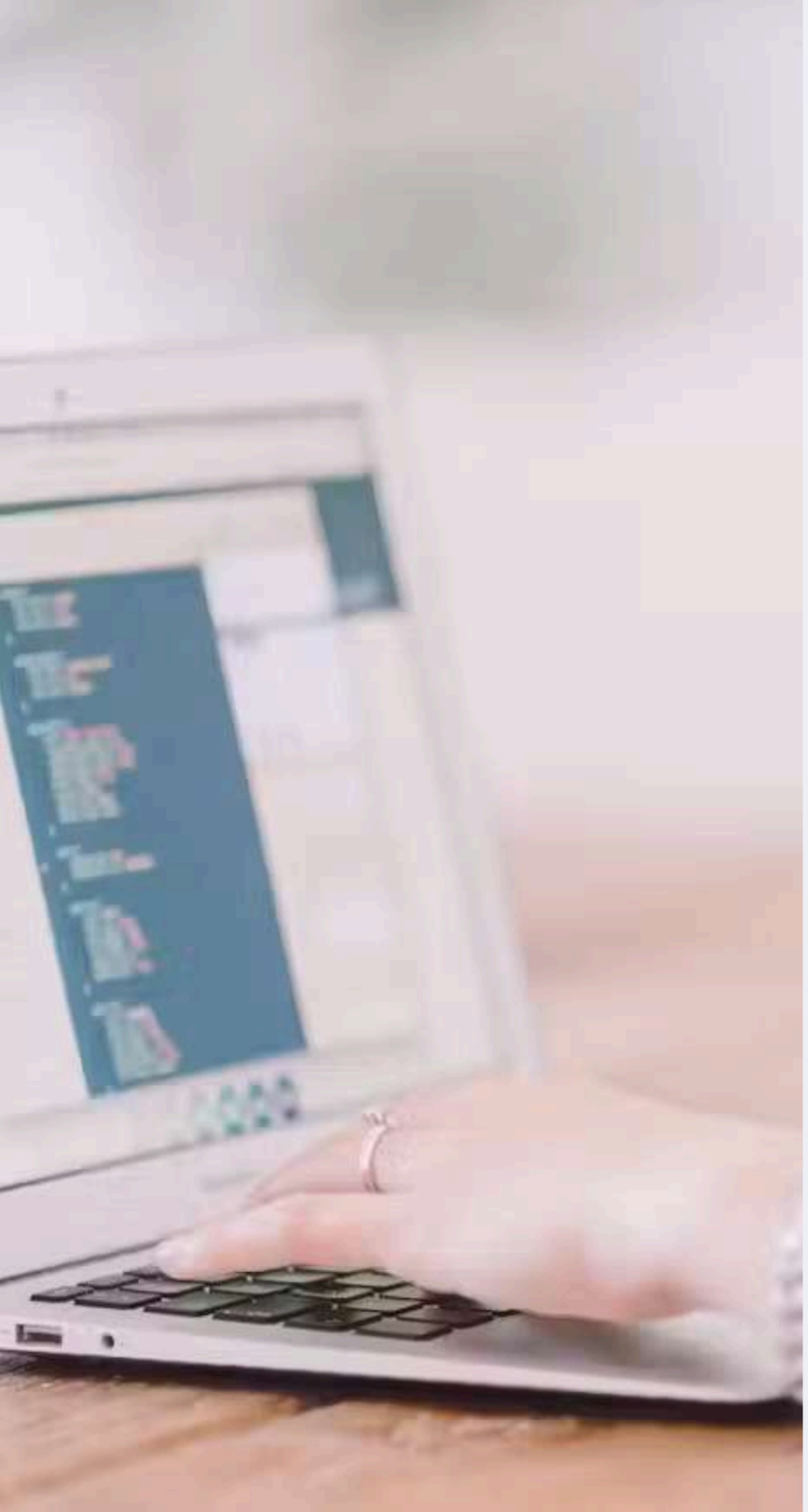


Twitter

Elon Musk on Twitter / X

Haters will say this is AI 🕺🕺 pic.twitter.com/vqWVxiYXeD— Elon Musk (@elonmusk) August 14, 2024

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Session 1: Enhancing Research using AI Tools

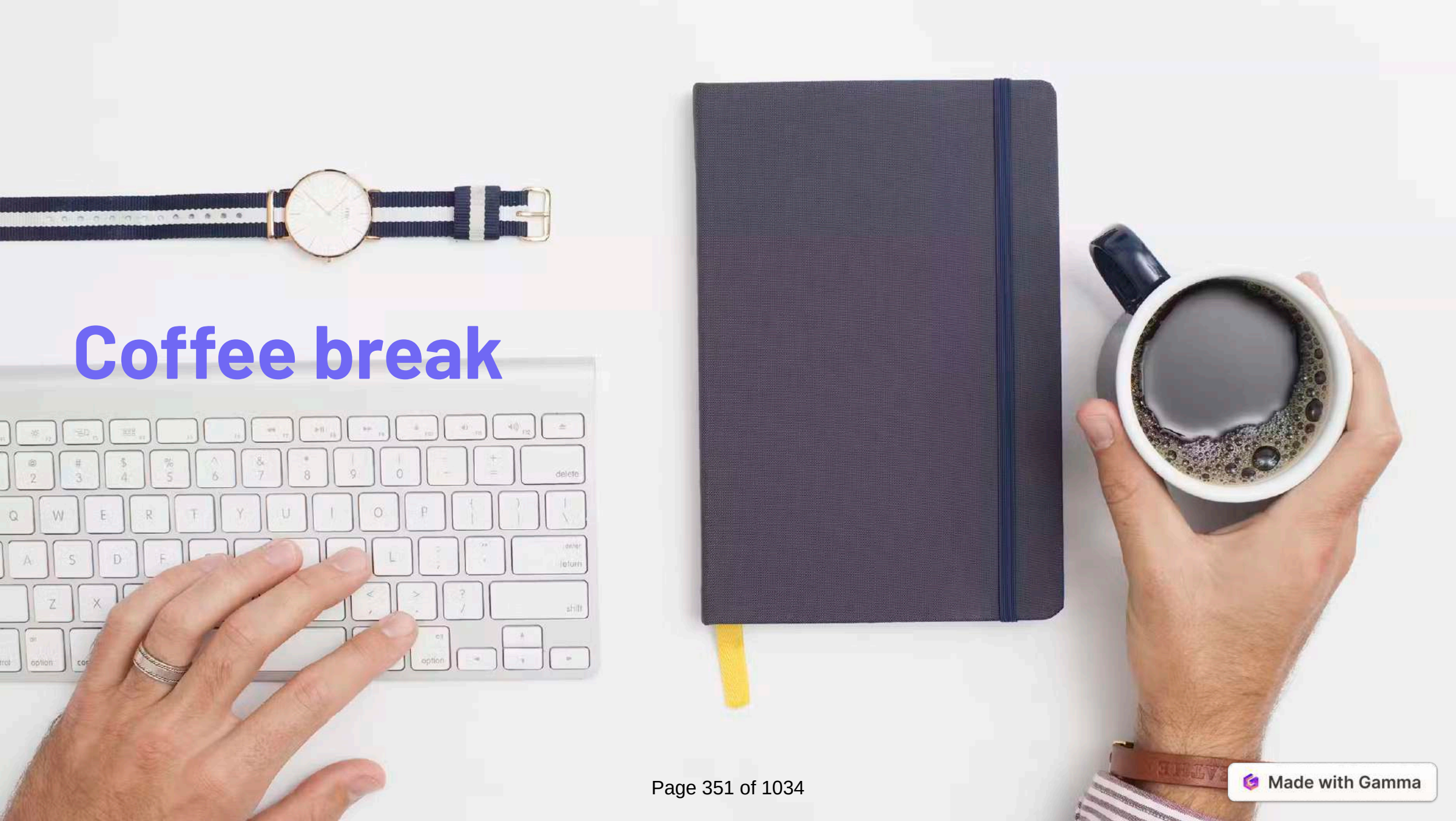
Promises & Pitfalls

The part will discuss the promises and pitfalls of using AI for grant proposals. Participants will learn about the potential benefits and challenges associated with incorporating AI into the grant proposal writing process.

> **Fast production of Text**
>
> **Understanding Context**
>
> **Reading bunch of documents and summarising**
>
> **Thinking about structures and providing feedback**
>
> **Good mentor/tutor**
>
> **Some hallucination**
>
> **Mixing facts and adding it's own content**
>
> **May provide good text but not relevant to the call**
>
> **Must be "advised" what to do**
>
> **Must have "demarcation" declared**
>
> **May use your data to train itself 😀**

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Coffee break



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Session 2: Ideation Brainstorming & Research Questions

Research Applications

The session will explore how researchers are currently using Generative AI in various aspects of their work, including research and discovery, summarization, note-taking, writing, editing, peer review, image creation, replication, recruitment, data processing and analysis, and systematic reviews and meta-analysis.

Topic Selection

Use GPT/AI to brainstorm strong research questions based on historical trends and your chosen research topic.

Keenious (Women in ICT, explore topics))

ChatGPT - Dimensions Research GPT (initial findings based on papers)

Research Rabbit (further paper discovery)

Scholarcy - Article Summarizer and Flashcard Generator (get that one paper and summarise it)

Brainstorm strong research questions

You will learn how to use GPT to brainstorm strong research questions based on historical funding trends and the chosen research topic. This will help you identify promising areas for investigation and develop compelling research proposals.

Perplexity (Women in ICT) *
** It may provide funding sources as well* 😀

TypeSet.io (Refinement with Insights))

Idea Generation & Refinement

We will **utilise Idea Factory** to generate innovative ideas and refine their research questions. This tool will help you explore new perspectives and develop unique research approaches.

Fully automatic?

IDEA-Factory (not working???)

Critique

Use GPT to **critique your research** questions and ensure they are clear, focused, and impactful

Search - Consensus: AI Search Engine for Research (Find answers to RQ)

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Lunch break

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Session 3: Call Reading

1

Call Analysis

Participants will learn how to use GPT to analyze funding calls and identify relevant opportunities for their research. This will help them stay informed about current funding trends and identify calls that align with their research interests.

2

Partner Identification

Participants will utilize ResearchRabbit and Litmaps to connect with other researchers in their field and identify potential collaborators. These tools will help them build networks and explore opportunities for joint projects.

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Session 4: Writing First Proposal with Prompting Best Practices

Prompting Playbook

Participants will learn the key ingredients of a winning prompt, including clear instructions, relevant context, and specific examples. This will help them maximize the effectiveness of AI tools in generating high-quality proposal content.

Prompting Example

Participants will be guided through a step-by-step process of crafting effective prompts for AI tools. This will involve defining the role, goal, level, and constraints of the prompt, as well as incorporating few-shot prompting and personalization techniques.

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Session 4: Writing First Proposal with Prompting Best Practices

Prompting Playbook

1. Role

2. Task

3. Level / requirements

4. Topic

5. Few-shot prompting *

6. Constraints *

*optional

Prompting Example

You are a **social behaviour researcher [1]** writing a starting **grant proposal for for research project [3]**. I want you to **write an initial one-pager [2]** on the topic of **"women in ICT" [4]**. The one-pager should focus on the most updated articles, reports and research in the topic of **"women in ICT" [4]**. Please be precise and do not include introduction and conclusion. **[6]**. Limit the references **to Europe only and last 4 years [6].** Here's a **sample model [5]** you can use in order to provide me the output:

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Session 5: Prompting Exercises

Summary of findings

Try to get a summary of Findings on Women in ICT and Digital Fields from the following file (*DESI Full European Analysis 2022*)

https://ec.europa.eu/newsroom/dae/redirection/document/88764

alt:



huggingface

HuggingChat

Making the community's best AI chat models available to...

One Page Summary of the call + Q&A

Use the file (*wp-5-culture-creativity-and-inclusive-society_horizon-2023-2024_en.pdf*)

https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2023-2024/wp-5-culture-creativity-and-inclusive-society_horizon-2023-2024_en.pdf

Sample chat:
https://chatgpt.com/share/b2a16db8-7155-47b1-a625-0a96d24a20fd

1. Please write me a one page summary of the call
2. Who could apply for this call "HORIZON-CL2-2024-HERITAGE-01-01"
3. What activities and research questions can be funded by this call?
4. Is there an option to implement Digital components in this call?
5. Can you draw an image of the calls and the connections amongst calls. You can identify calls since they start with HORIZON-CL*

Step-by-Step Excersise on your own

Can you assist with idea on project proposal based on the input I provide you?

Participants will learn how to use AI tools to generate different sections of a grant proposal, including the proposal presentation, outline, audit, few-shot-prompt model proposal, excellence section outline, and individual sections.

Need a Logo/Graphic?

Get one for free here:

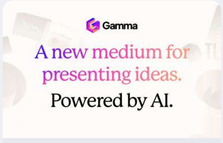
Use EDGE BROWSER by Microsoft » Use Copilot

www.microsoft.com

Copilot | Microsoft Edge

Learn how to access Copilot in Edge. Experience your AI-...

Some free graphics and PPT

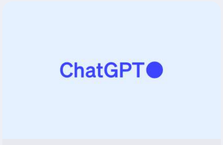


Gamma embed

Gamma

Made with Gamma. A new medium for presenting ideas,...

Sample Chat:



chatgpt.com

ChatGPT

A conversational AI system that listens, learns, and challenges

Need more AI Tools?



There's An AI For That

There's An AI For That (TA...

The largest database of 12,962 AIs available for over 14,248...

Sample Chat 2:



Gemini

Gemini - Women in DeepT...

Created with Gemini

Made with Gamma



Session 6: Closing Remarks and Q&A

Research Integrity & Data Privacy

The session will discuss the importance of responsible AI use in research, addressing concerns related to research fraud, bias, and misinformation. Participants will learn about best practices for using AI tools ethically and responsibly.

Discussion

Participants will engage in a discussion about their experiences with AI tools, sharing insights and best practices. This will provide a platform for knowledge sharing and collaborative learning.

Fake or real?

Twitter

Elon Musk on Twitter / X

High time for an AI fashion show pic.twitter.com/ra6cHQ4AAu— Elon Musk (@elonmusk) July 22, 2024

Feedback Collection

The session will conclude with a feedback collection process, allowing participants to share their thoughts and suggestions for future training sessions. This will help the organizers improve the program and address the evolving needs of the research community.

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Research Integrity (my case using AI)

1

Recent trends in Sentiment Analysis of text articles: A literature review

First Author[1], Second Author[2] (14)
*(Department, College/ University Name, Country Name)
Email: xxxxx@yahoo.com (10 Italic)
** (Department of Information Technology, ABC University, Australia
Email: 1234@yahoo.co.uk) (10 Italic)

ABSTRACT: *This paper will analyze recent published articles in the field of sentiment analysis. In order to dig deep into the literature review, we have selected recent 30 papers published in IEEE in 2021. These papers are organized into 5 main clusters, i.e.: Social networking (online), Analytical models, Feature extraction, Training and others.*

Keywords : sentiment analysis, Social networking (online), Analytical models, Feature extraction, Training

I. INTRODUCTION

Sentiment analysis is an old technology that is foreseeing a new application nowadays. From its beginning the purpose was to quantify or better say classify the large corpus of text into positive or negative (maybe even neutral) opinions of the authors. A lot has been done in this area with the enormous increase of text data online. Different business sectors use different approaches that require in-depth literature review to understand the recent trends.

Therefore, in this paper the focus is on papers published in 2021 by relevant publishers and indexed in the repository of IEEE.

II. LITERATURE REVIEW

These papers are organized into 5 main clusters, i.e.: Social networking (online), Analytical models, Feature extraction, Training and others that we will elaborate in the following section.

A. SOCIAL NETWORKING

This group of papers deals mainly with the sentiment analysis from Social networking (online) point of view.

According to authors Xuemin et al (Xuemin, 2021), the detection of public sentiment can help the service of

2

Paper submission

Adrian Besimi <a.besimi@seeu.edu.mk> Wed, Sep 15, 2021,
to ismsitconf, bcc: Nuhi

Dear Editor,

please find attached our manuscript without authors named, for the International Journal of Multidi

3

IJAREM: Review Report of your paper id: IJAREM-D6146

External

IJAREM Journal <editor@ijarem.org> Mon, Sep 20, 2021, 10:41AM
to me

Dear Sir / Madam,

Your article entitled **"Recent trends in Sentiment Analysis of text articles: A literature review"** is **Accepted** for publication in International Journal of Advanced Research in Engineering and Management (IJAREM) as per reviewer comments.

Reviewers Comments:

Reviewer 1: The paper contains significant information adequate to justify the paper title.

Reviewer 2: This paper seems original and the paper demonstrates an adequate understanding of the relevant literature in the field and cites an appropriate range of literature sources.

Reviewer 3: Article satisfies all appropriate bases of theory, concepts, or other ideas. Methods that are employed are appropriate.

Please send us the scanned copy of filled & signed copyright transfer form (can be downloaded from www.ijarem.org) along with payment receipt of article handling charges.

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AI training for Researchers: From Concept to Grant Proposal

Thank you!

by Adrian Besimi

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SOUTH EAST EUROPEAN UNIVERSITY

Digital Tools and Methods: Dashboard in a Day

- Prof. Dr. Visar Shehu

homodigitalis

About me

- Computer Science Professor at South East European University
- Teaching: Data Mining, Computer Graphics, Information Visualization
- Research: Extended Reality, STEM Education



Prerequisites and setup steps

- At minimum, a computer with 2-cores and 4GB RAM running Windows 8 / Windows Server 2008 R2, or later
- **Display:** At least 1440x900 or 1600x900 (16:9) recommended.
- **Internet connectivity:** You must have the ability to connect to the Internet outside your organization
- **Microsoft Power BI Desktop installed:** you should have downloaded and installed Power BI Desktop from the Microsoft Store https://go.microsoft.com/fwlink/?linkid=2135345 or from the download center https://go.microsoft.com/fwlink/?linkid=2135519
- Microsoft Power BI Desktop requires a modern browser.

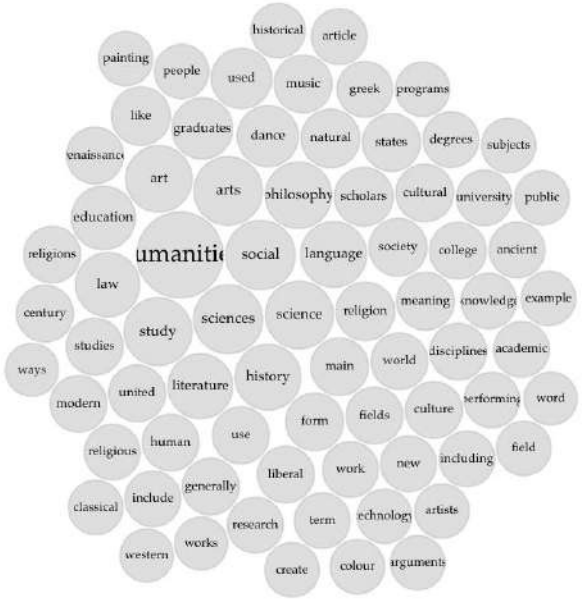
Introduction to Digital Tools in Humanities

- Digital tools refer to software and technologies that facilitate the collection, analysis, and presentation of data.
- In the humanities field, digital tools enable researchers to analyze texts, images, and other forms of cultural data.
- Understanding and utilizing digital tools is crucial for modern research and teaching in the humanities.

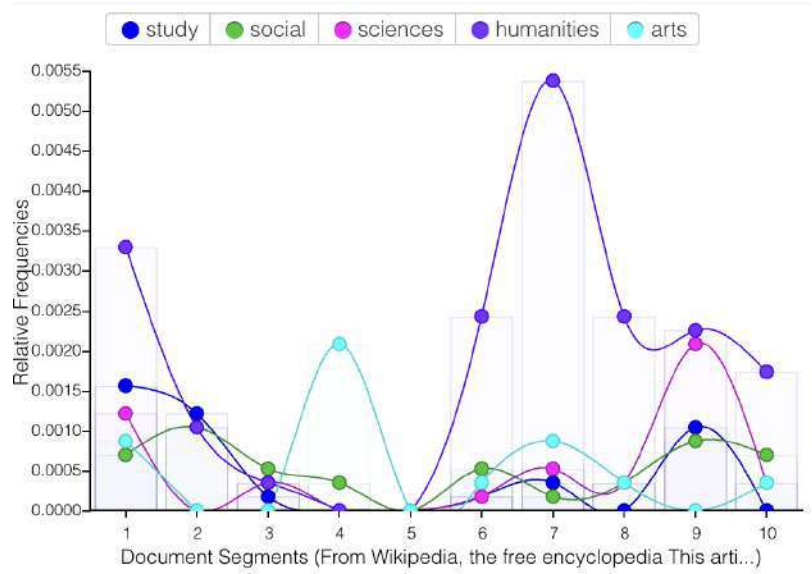
Overview of Key Digital Tools and Their Applications

- **Text Analysis Tools**
  - Voyant Tools, which allows for textual analysis through word frequency, trends, and collocations.
- **Data Management Tools:**
  - Zotero for organizing research sources.
- **GIS Tools:**
  - QGIS for mapping and spatial analysis.
- **Data Visualization Tools:**
  - Tableau, Power BI, d3js ...

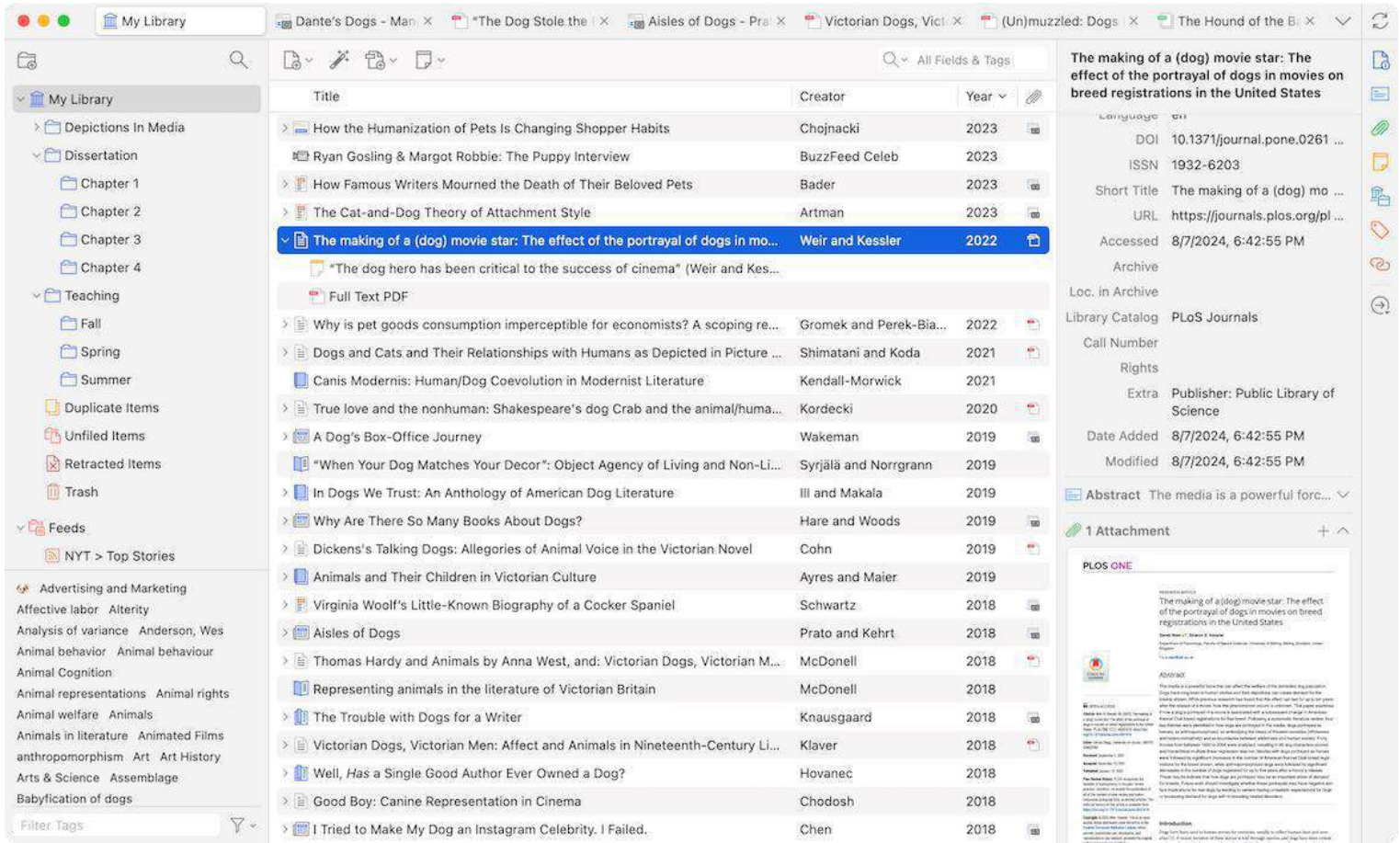
Voyant tools: https://voyant-tools.org



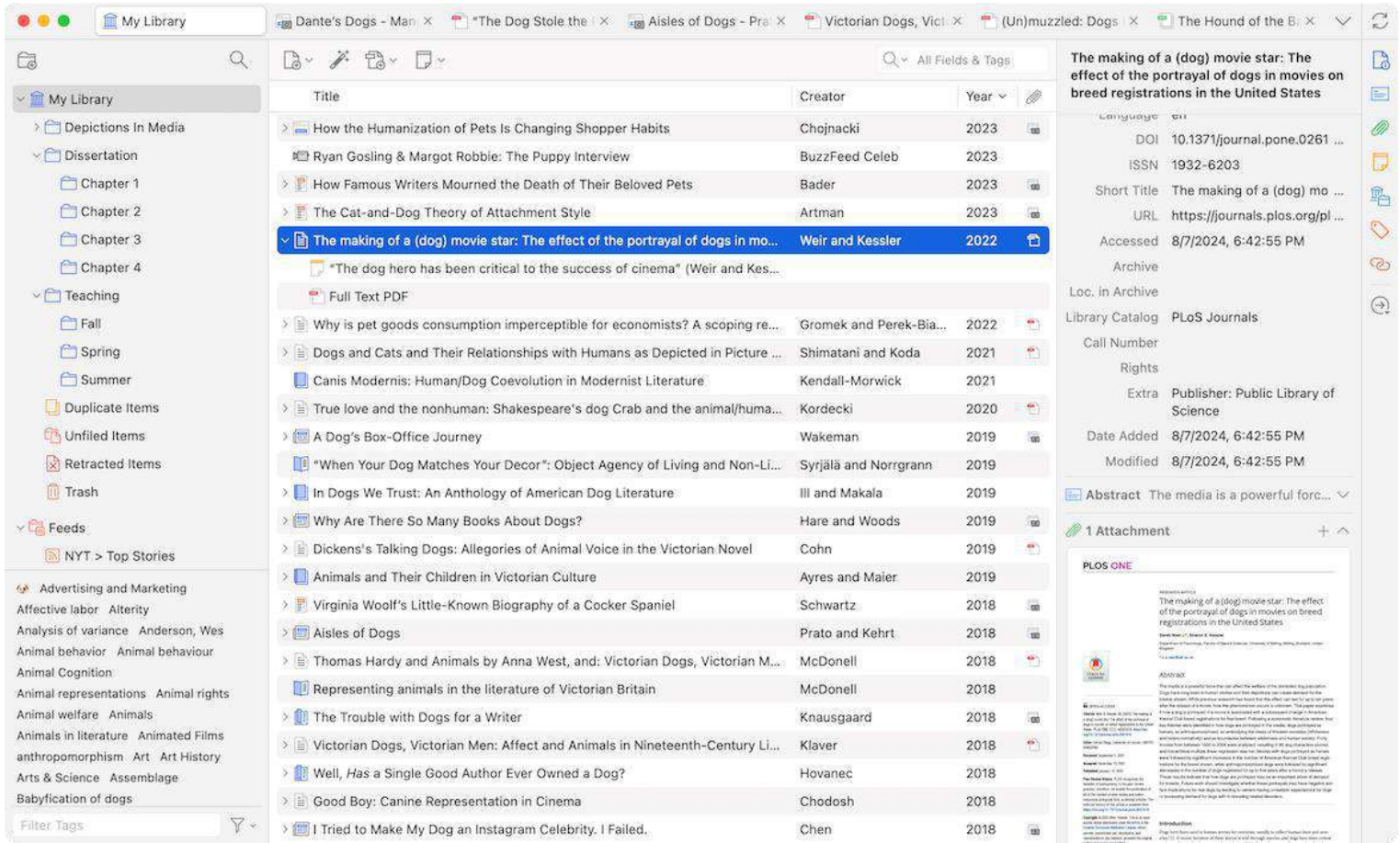




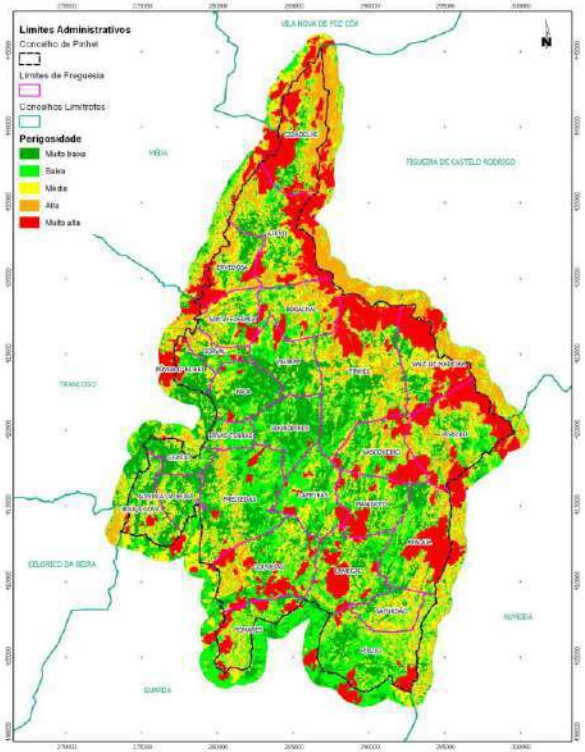
Zotero: https://www.zotero.org/

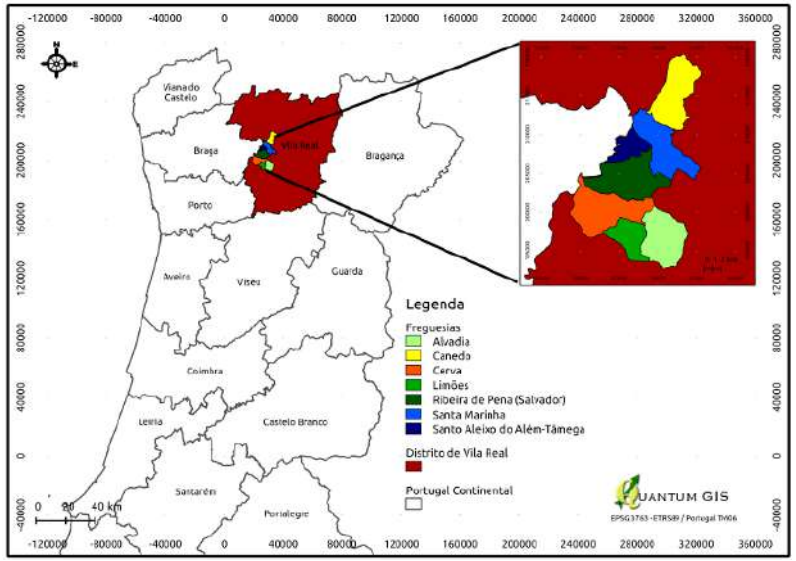


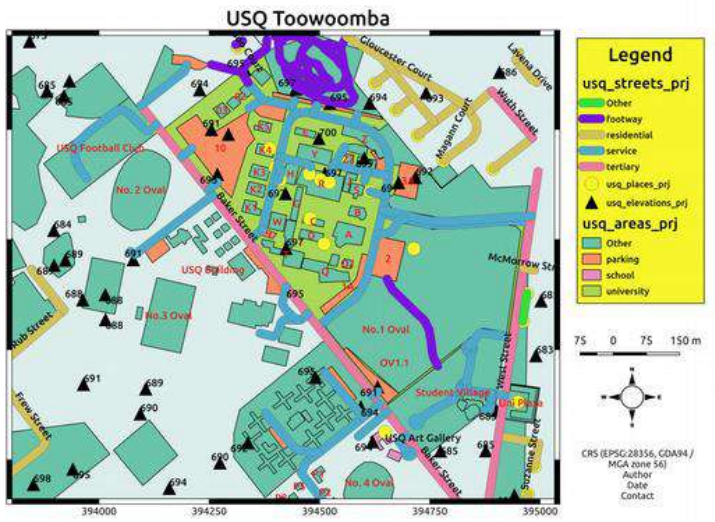
Zotero: https://www.zotero.org/



QGIS: https://www.qgis.org/





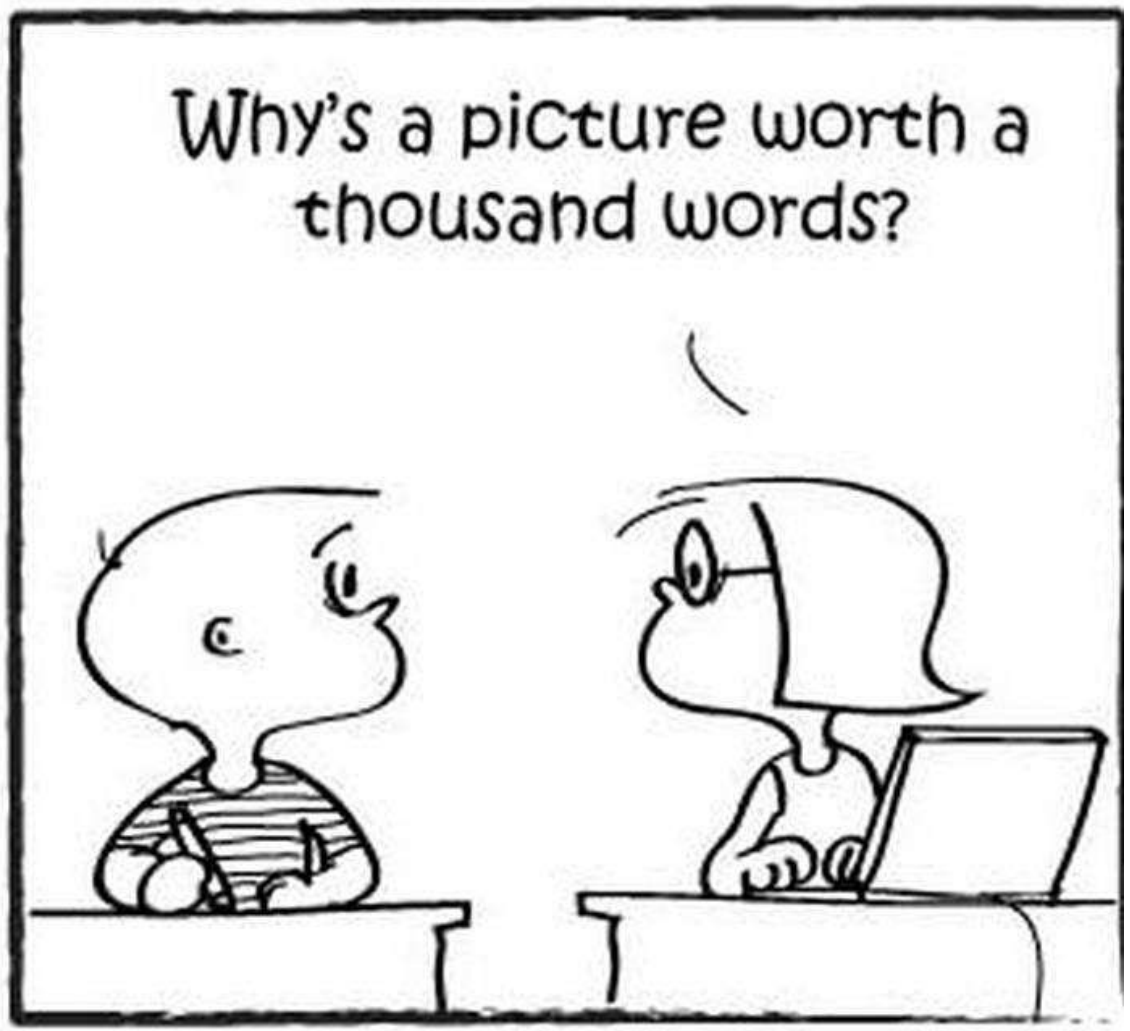


Understanding data

- Structured Data
  - Organized in tables (e.g., spreadsheets, databases).
- Unstructured Data
  - Text, images, videos, not organized in a pre-defined manner.
- Semi-structured Data
  - XML, JSON files, which do not fit into tables but have tags or markers.

Importance of Data Visualization in Research

- Simplifies complex data, making it accessible and understandable.
- Enhances interpretation, reveals patterns and trends, and supports decision-making.
- Used in academic research, policy-making, and public dissemination of information.



Principles of Effective Data Visualization

- **Clarity** - Ensure the visualization conveys the message clearly.
- **Accuracy** - Data should be represented accurately without misleading interpretations.
- **Simplicity** - Avoid clutter; focus on essential elements.
- **Engagement** - Use colors, shapes, and interactive elements to engage the audience.

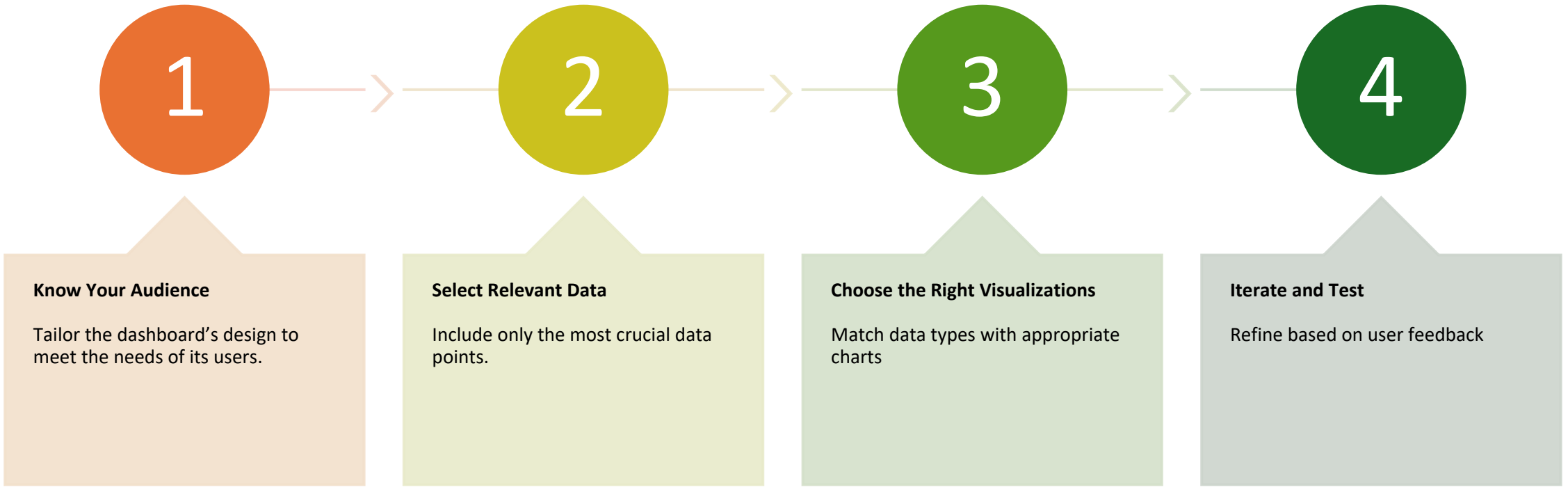




Introduction to dashboards

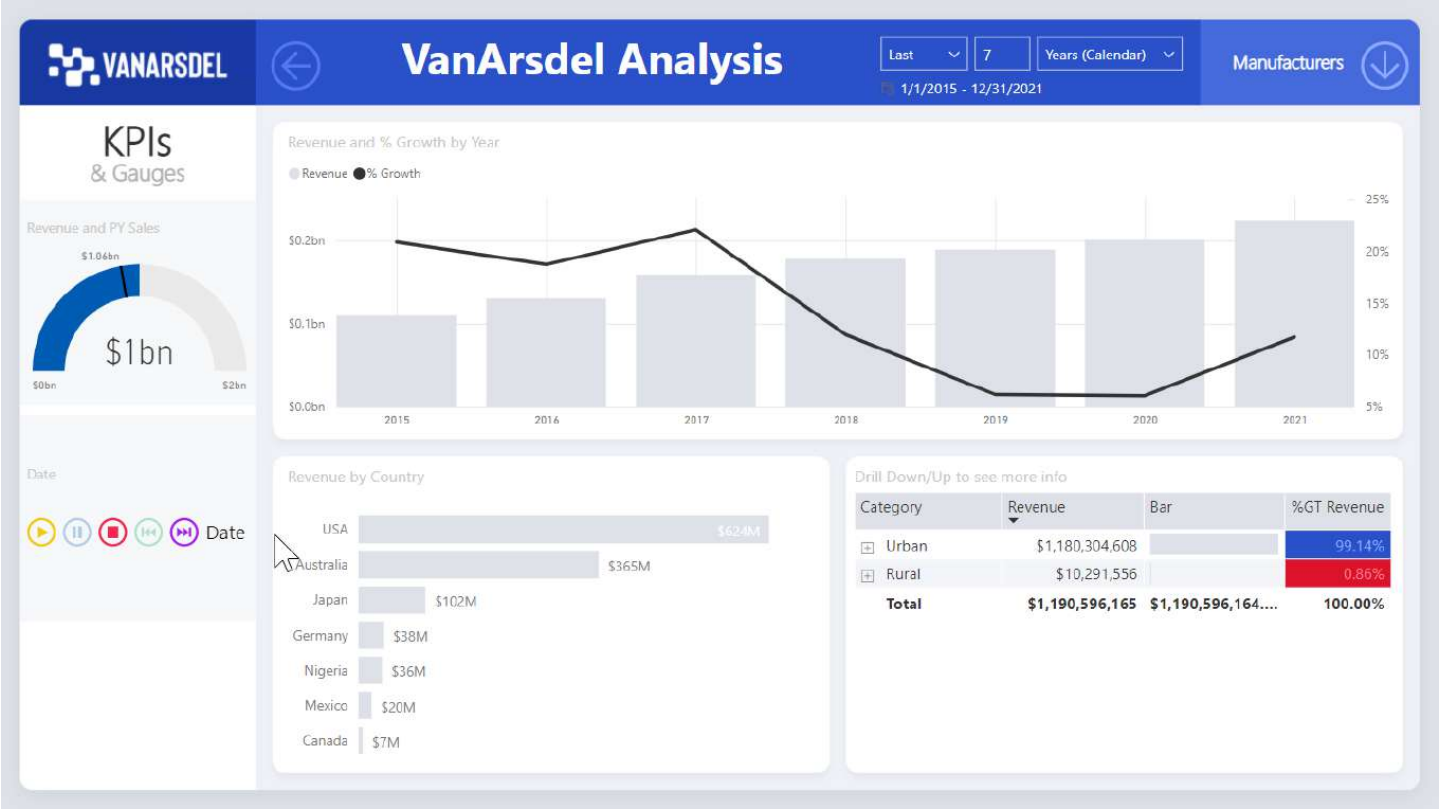
- Dashboards are visual displays of the most important information needed to achieve one or more objectives, consolidated on a single screen
- Types of dashboards:
  - Operational Dashboards: Monitor real-time operations
  - Analytical Dashboards: Support data analysis.
  - Strategic Dashboards: Focus on long-term strategies.

Designing Effective Dashboards

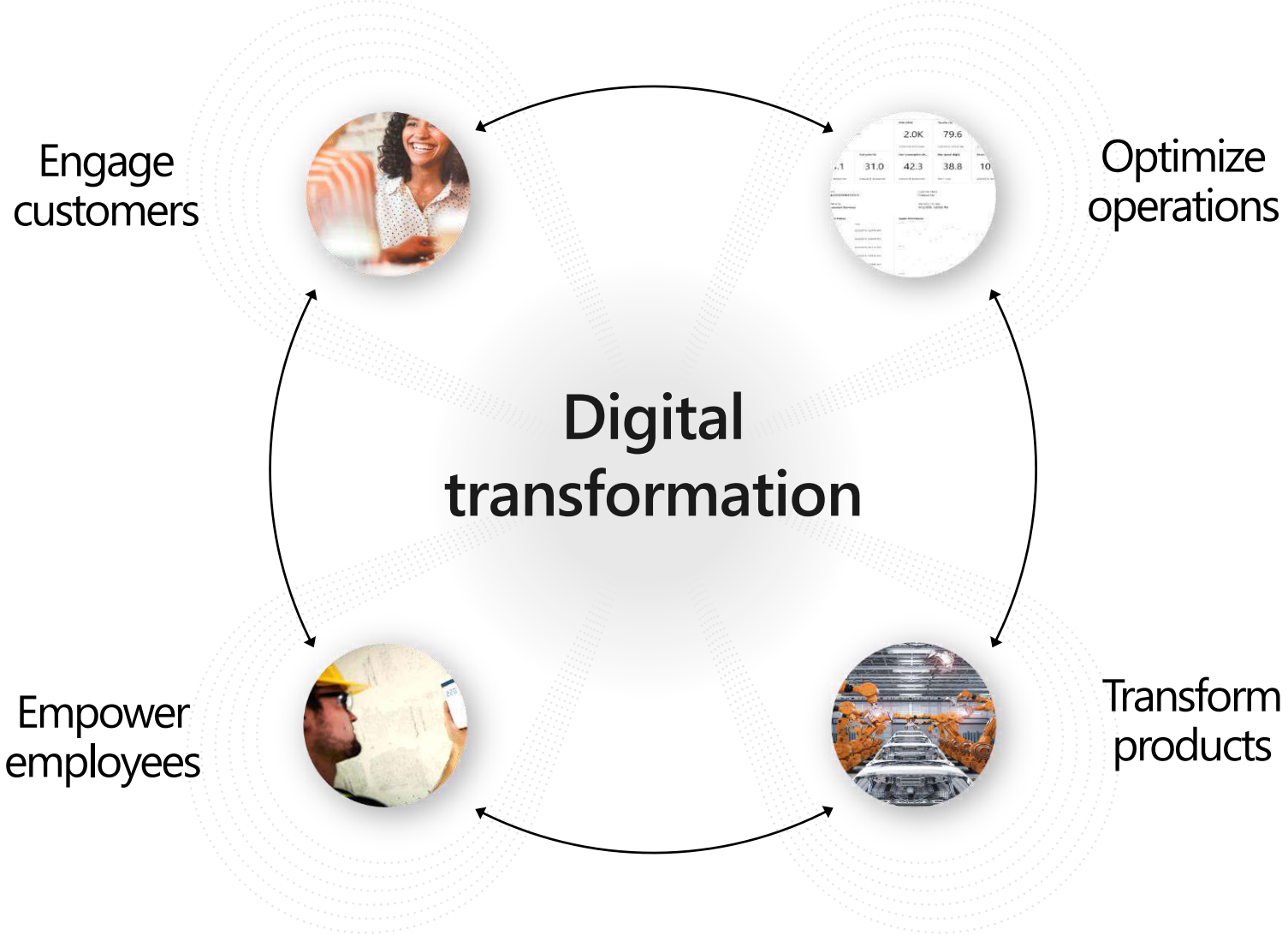


Enough theory!

A Dashboard in a Day

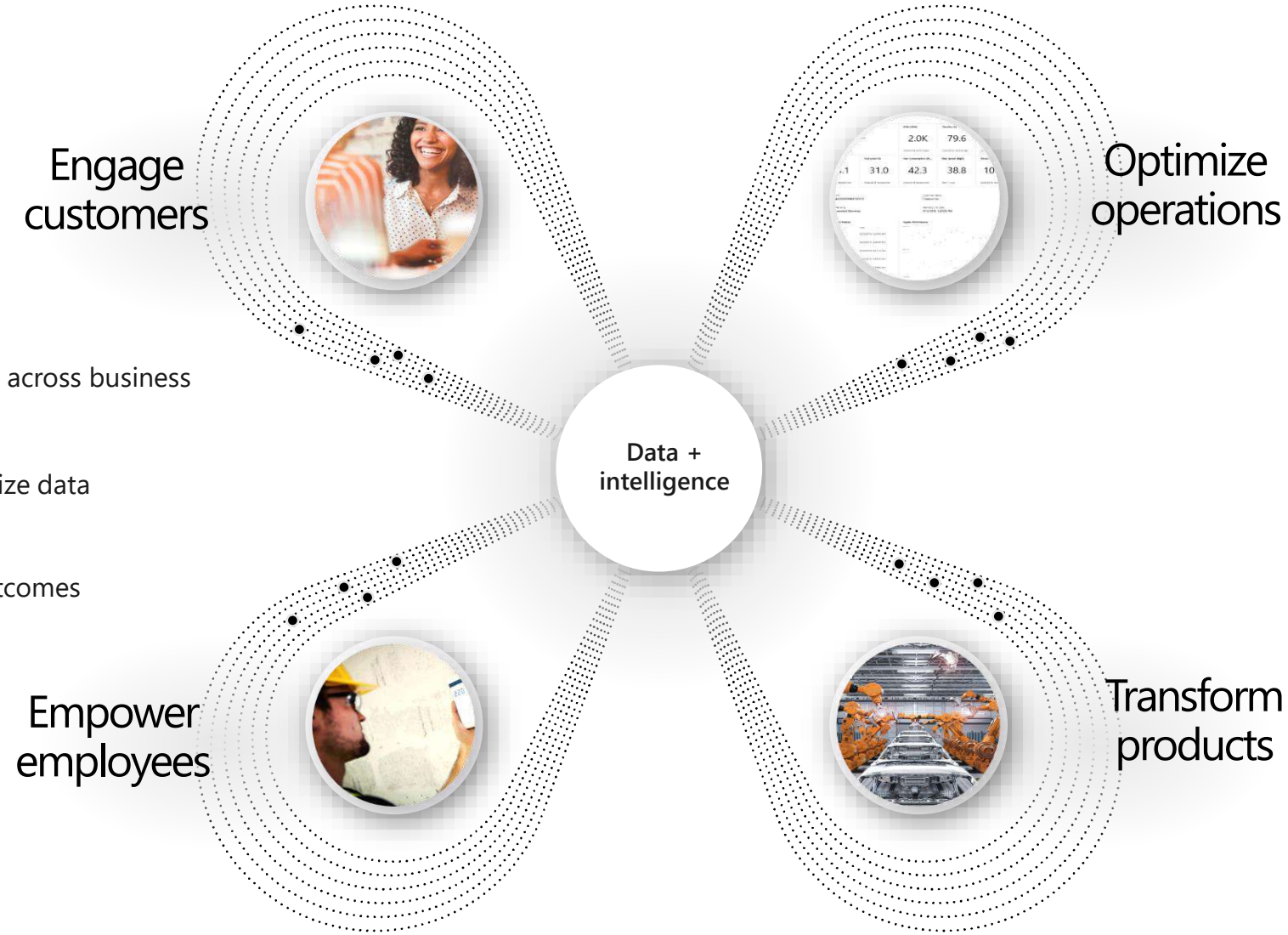


Digital Transformation



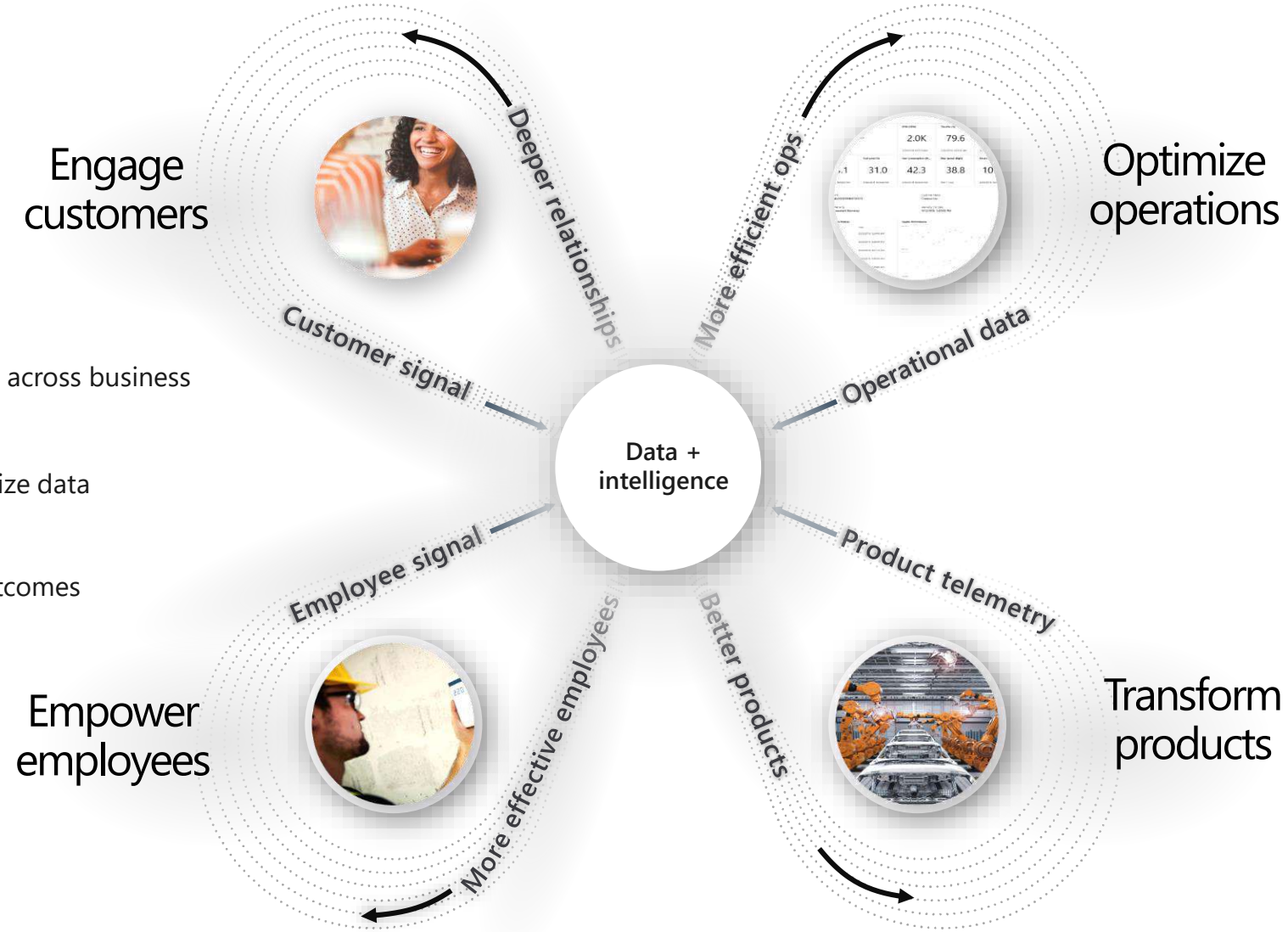
Digital Feedback Loop

1. **Data**
   Capture digital signal across business
2. **Intelligence**
   Connect and synthesize data
3. **Action**
   Improve business outcomes



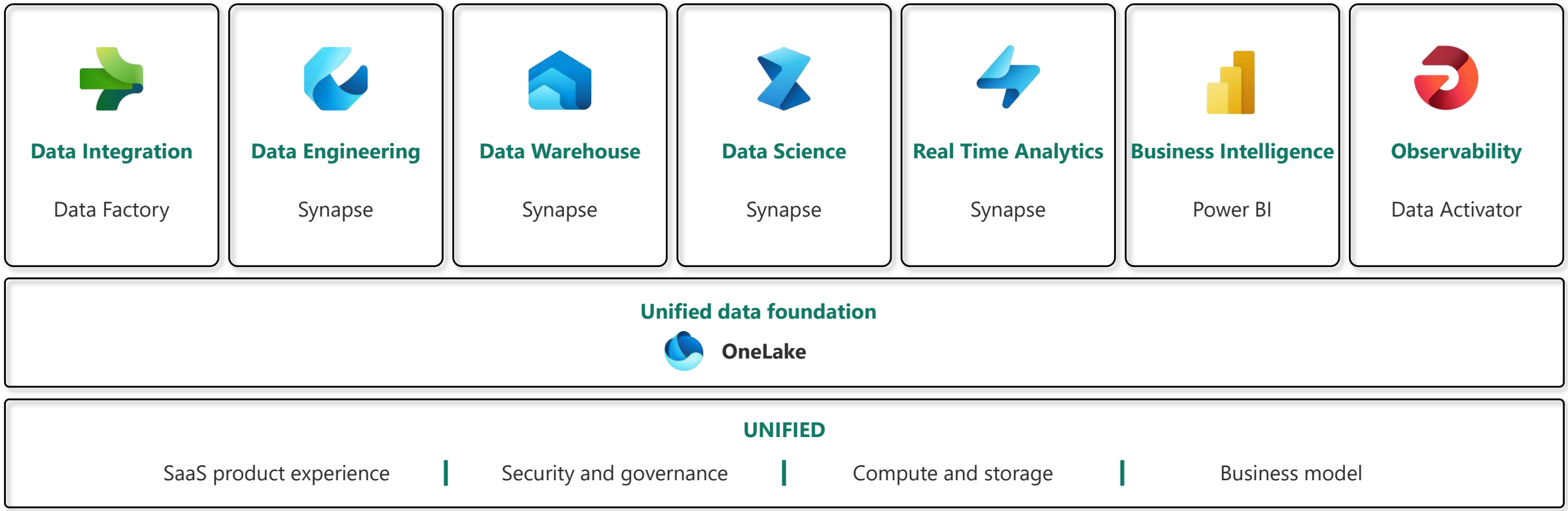
Digital Feedback Loop

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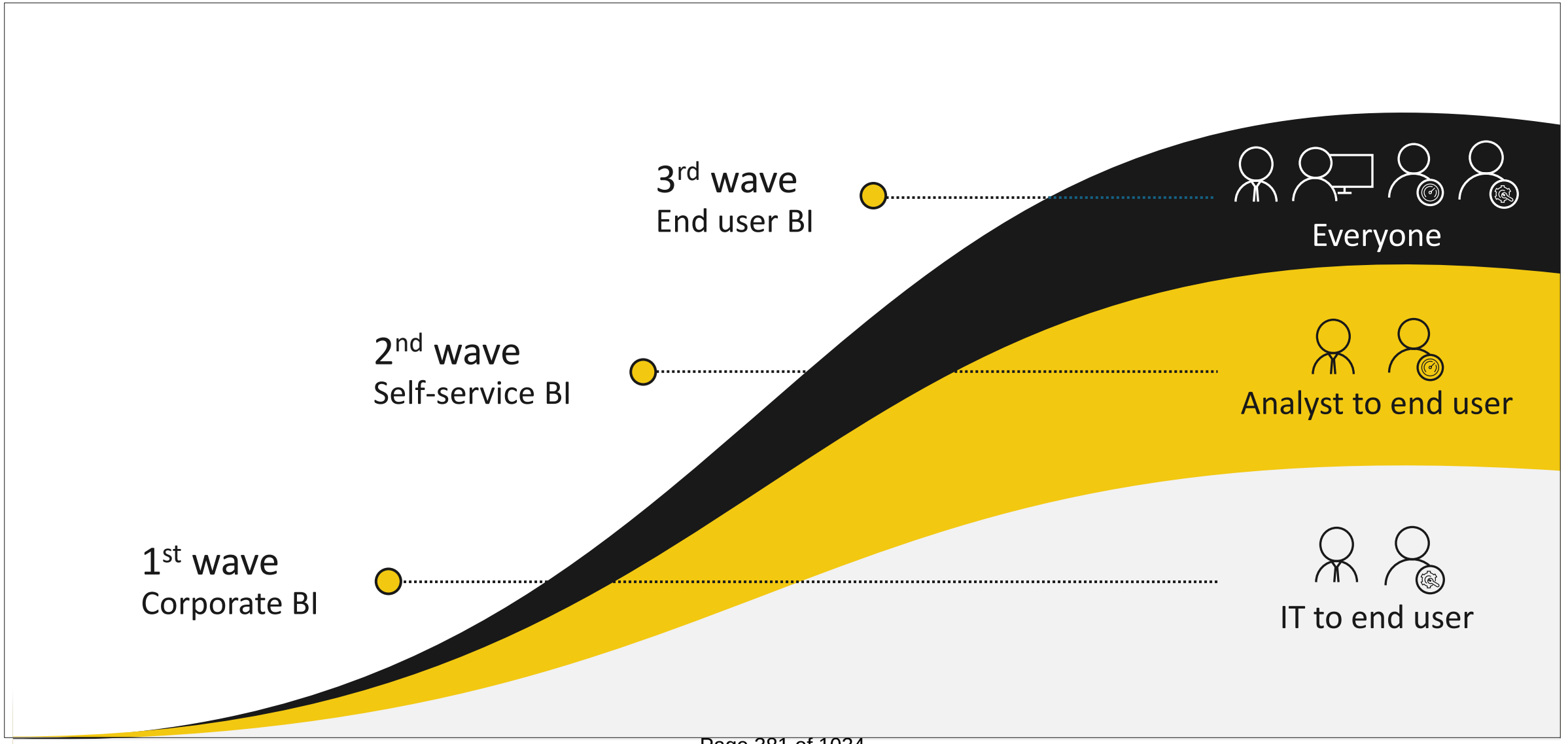


Microsoft Fabric does it all—in a unified solution

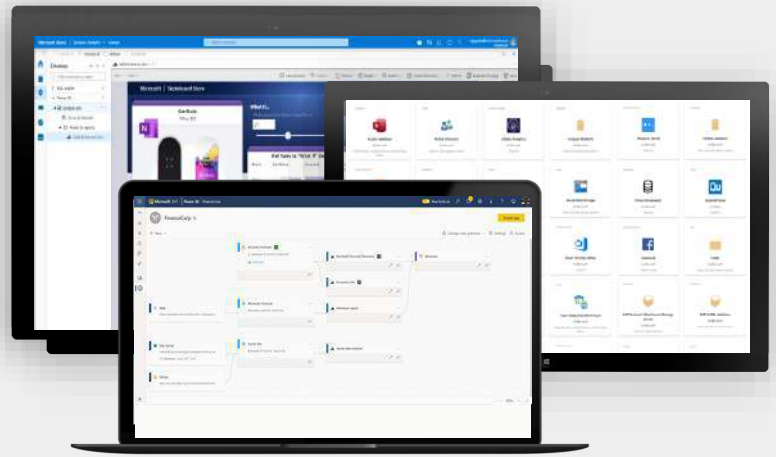
An end-to-end analytics platform that brings together all the data and analytics tools that organizations need to go from the data lake to the business user



The Evolution of BI



Power BI



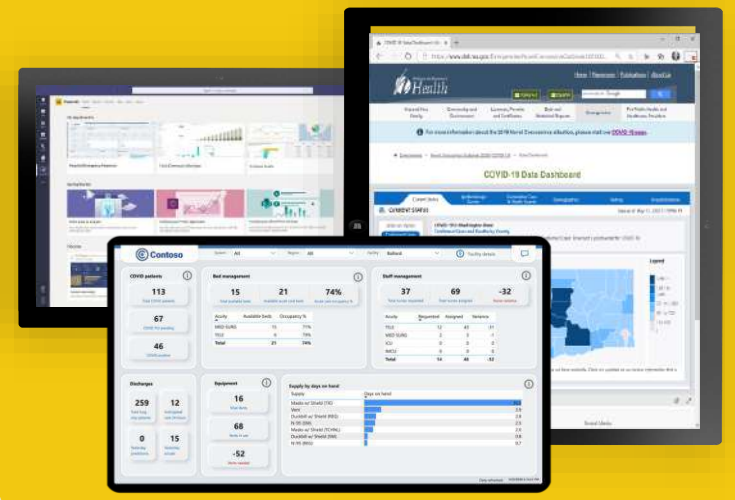
All Data

Break down data silos and enrich your data with intelligence



For Everyone

Create rich-interactive data experiences with AI infused insights



For Every Decision

Integrate trusted and secure BI into the fabric of your organization and apps

Power BI drives a data culture for everyone and every decision

Why Power BI?



Power BI Desktop is free



Real time dashboards and interactive reports



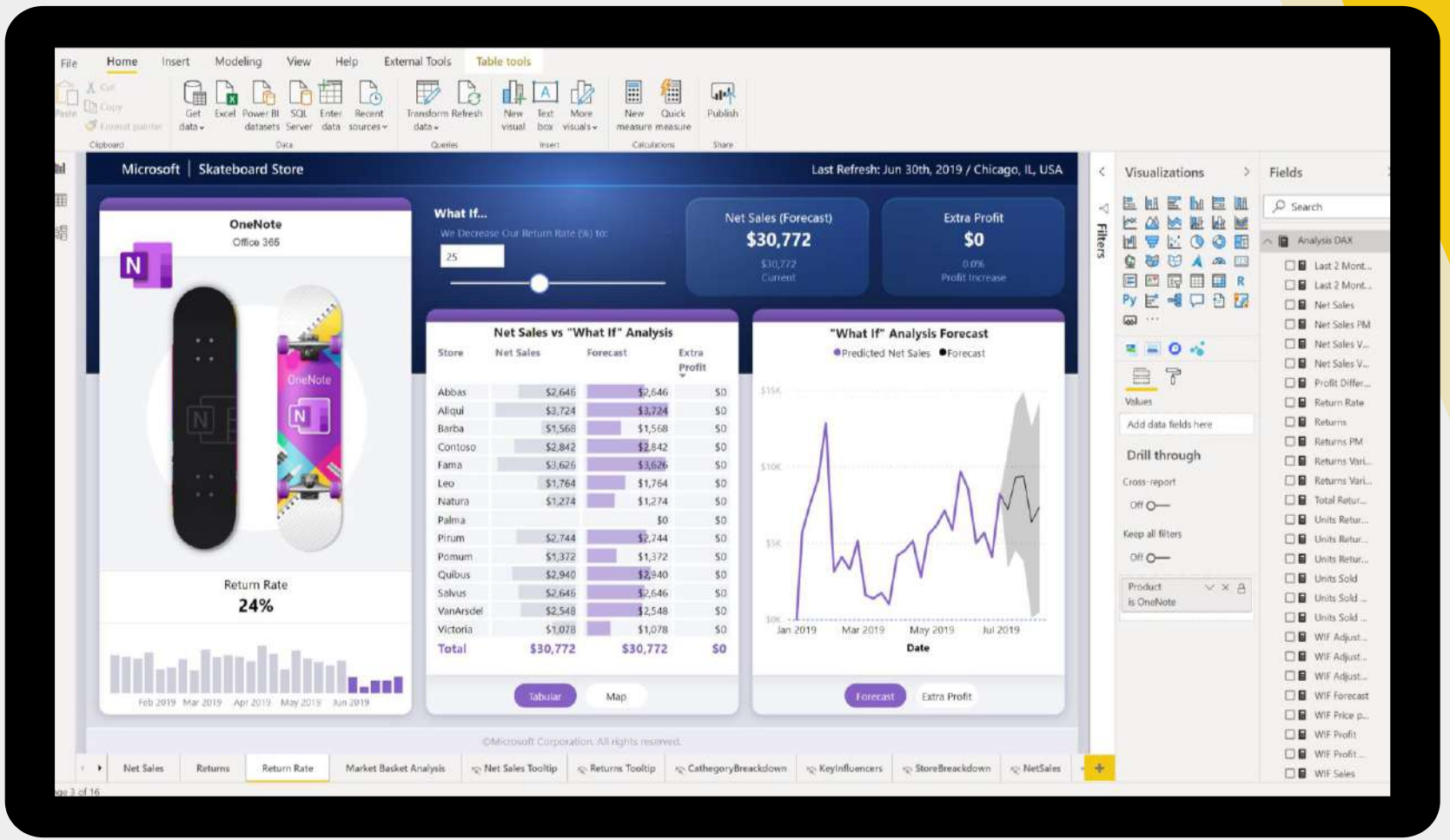
Natural Language query & AI insights



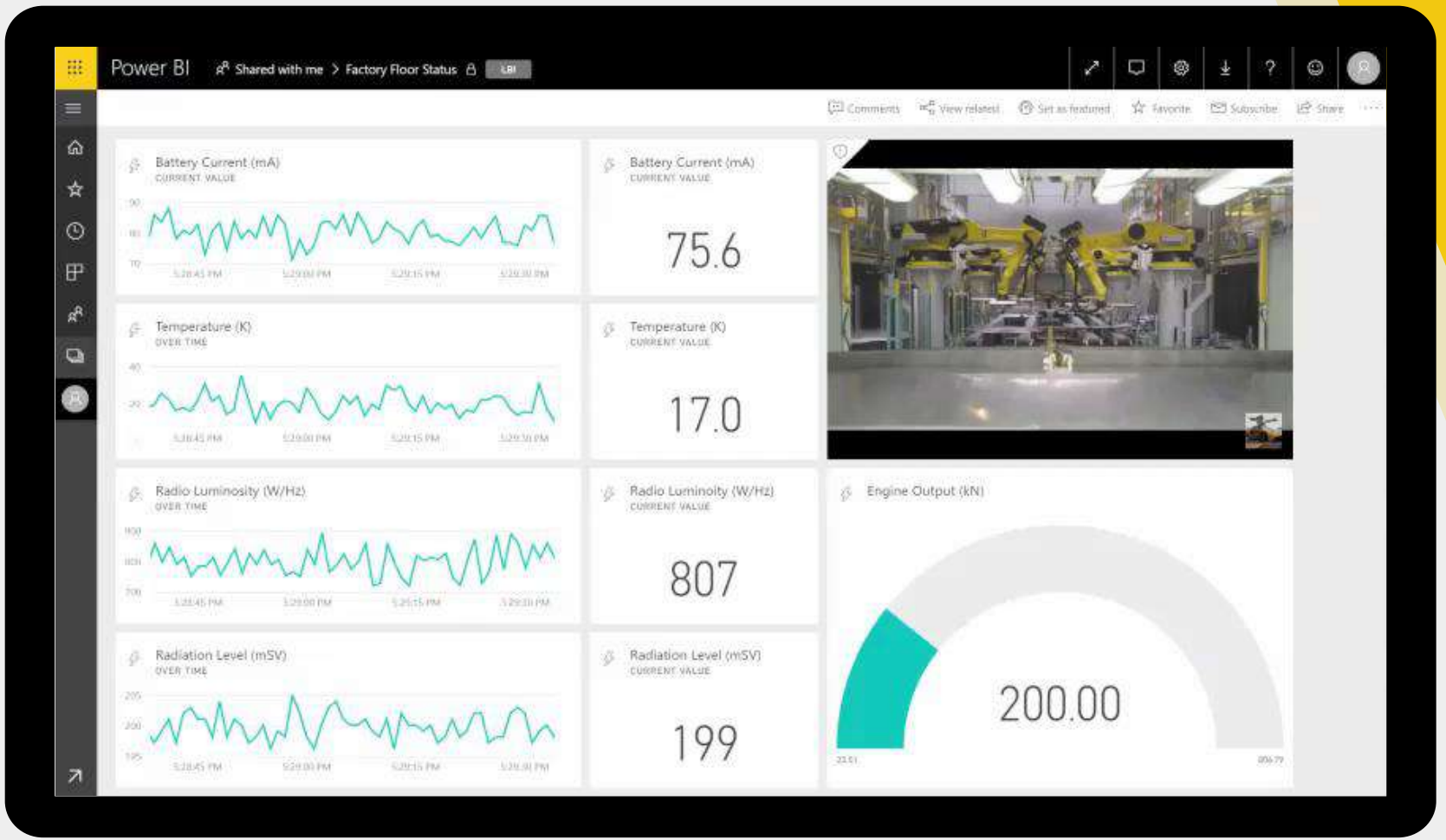
Custom visualizations and custom connectors



Integration with Excel, Power Point, SharePoint and Teams

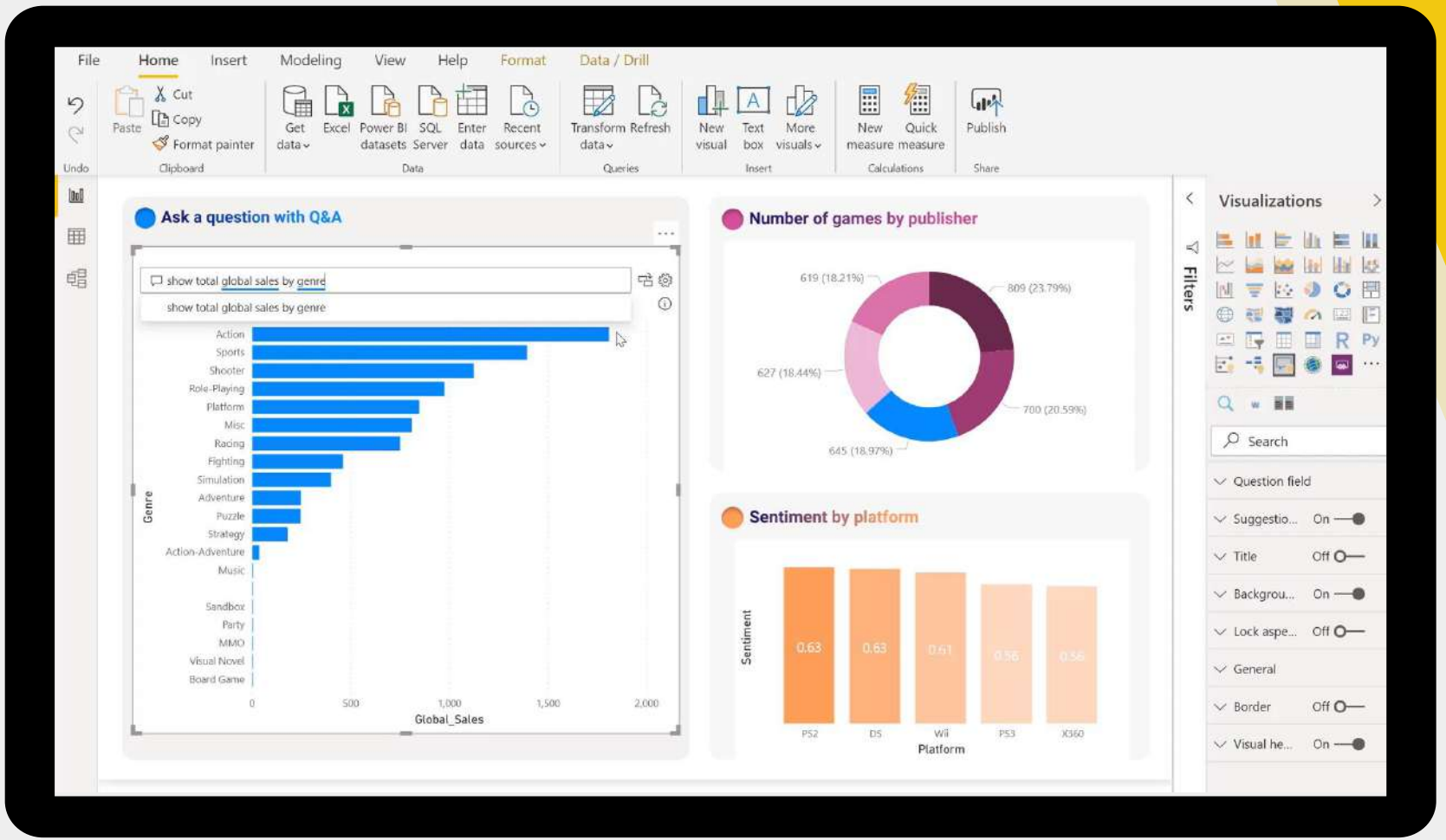


Power BI Desktop is free

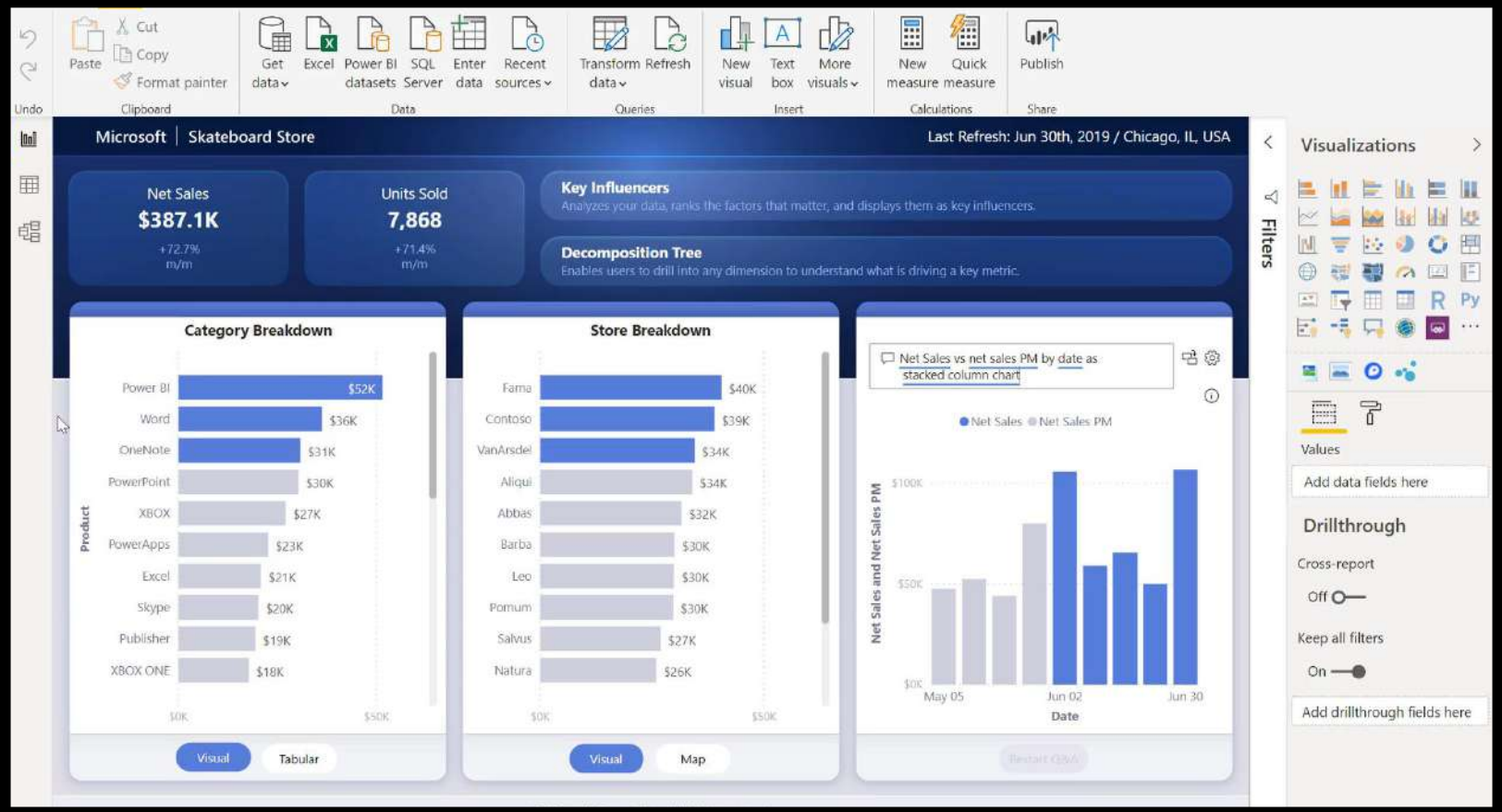


Real time dashboards and interactive reports

Natural Language query & AI insights

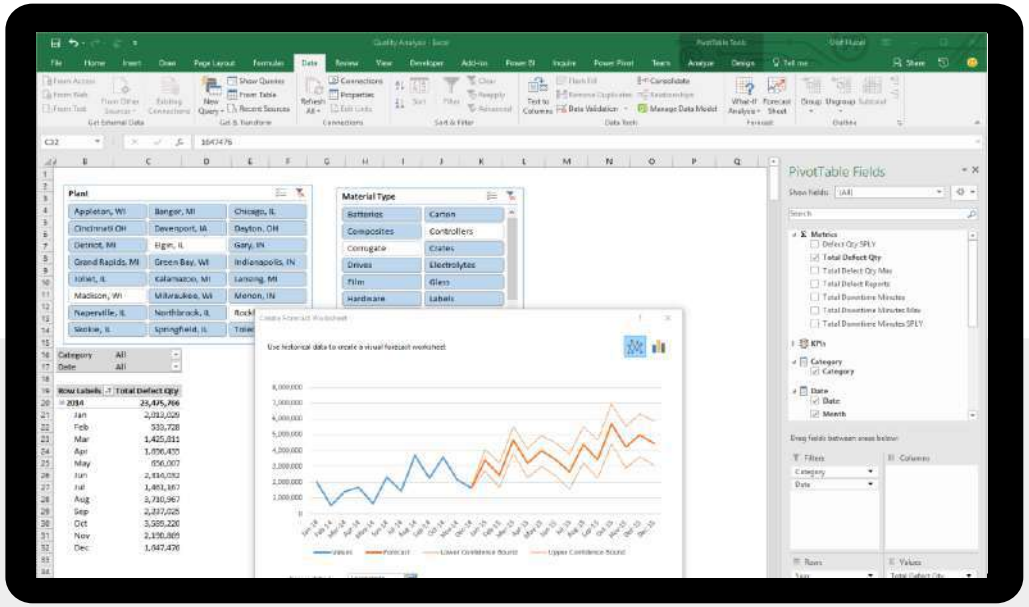




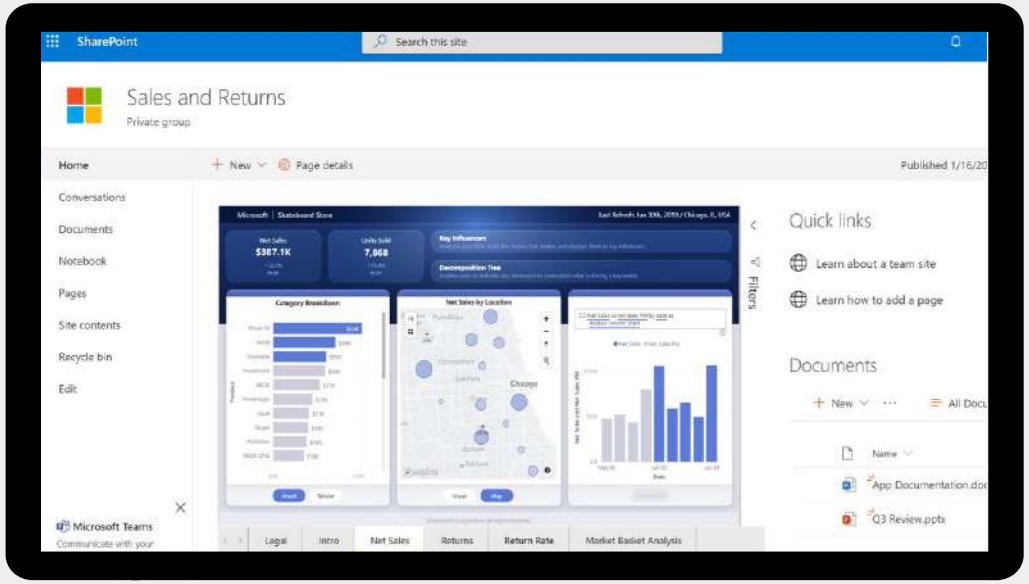


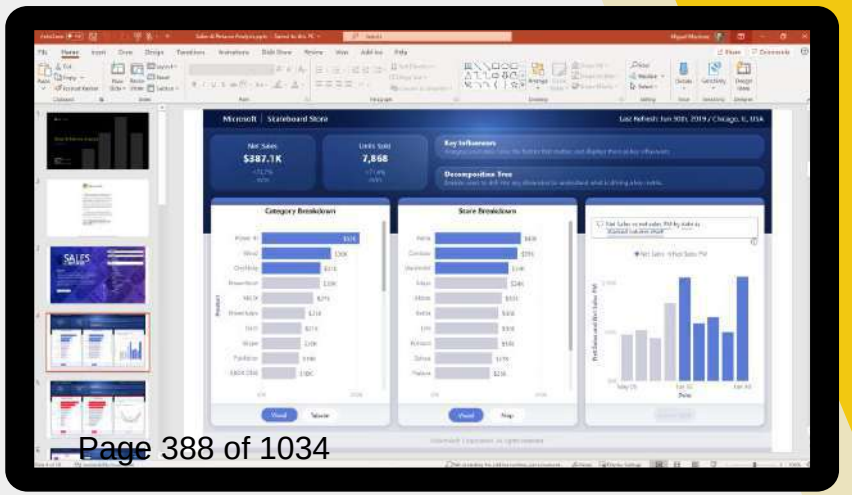
250+ Custom visuals

Integration with Excel, Power Poin
SharePoint and TEAMS









The LARGEST GLOBAL FOOTPRINT



43 | Languages

40 | Primary and backup datacenters worldwide

National Clouds | US Government, China & Germany

ISMS 27001 Certified · ESI China GB 18030 · HIPAA · PCI Security Standards Council · European Commission · CSA cloud security alliance® · GOV.UK · FedRAMP · irap® · Bundesamt für Sicherheit in der Informationstechnik

Gartner®

April 2023

A Leader in Analytics & BI Platforms*

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**Gartner; Magic Quadrant™ for Analytics and Business Intelligence Platforms; Kurt Schlegel, Julian Sun, David Pidsley, Anirudh Ganeshan, Fay Fei, Aura Popa, Radu Miclaus, Edgar Macari, Kevin Quinn, Christopher Long; 5 April 2023.*

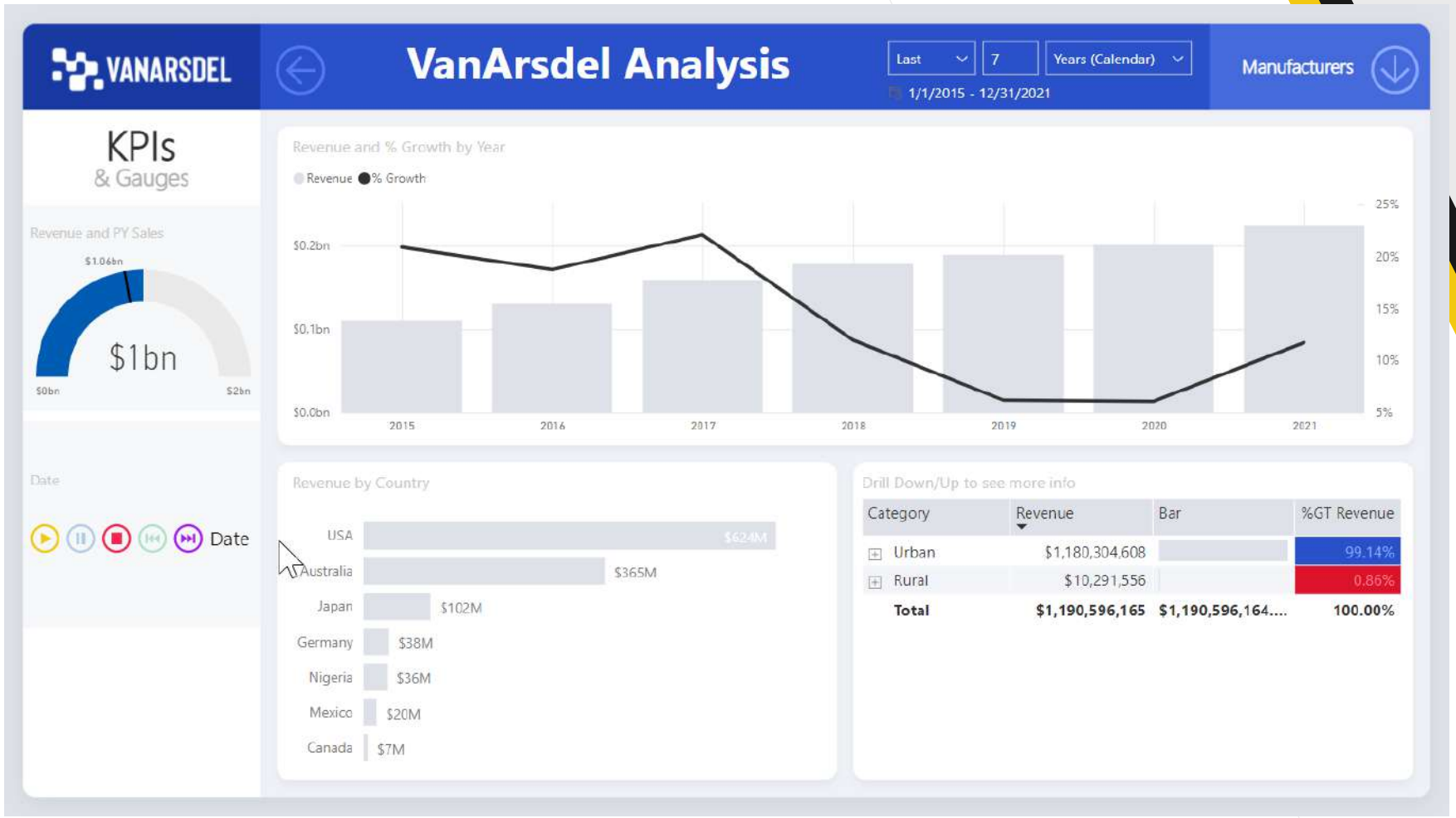
Figure 1: Magic Quadrant for Analytics and Business Intelligence Platforms



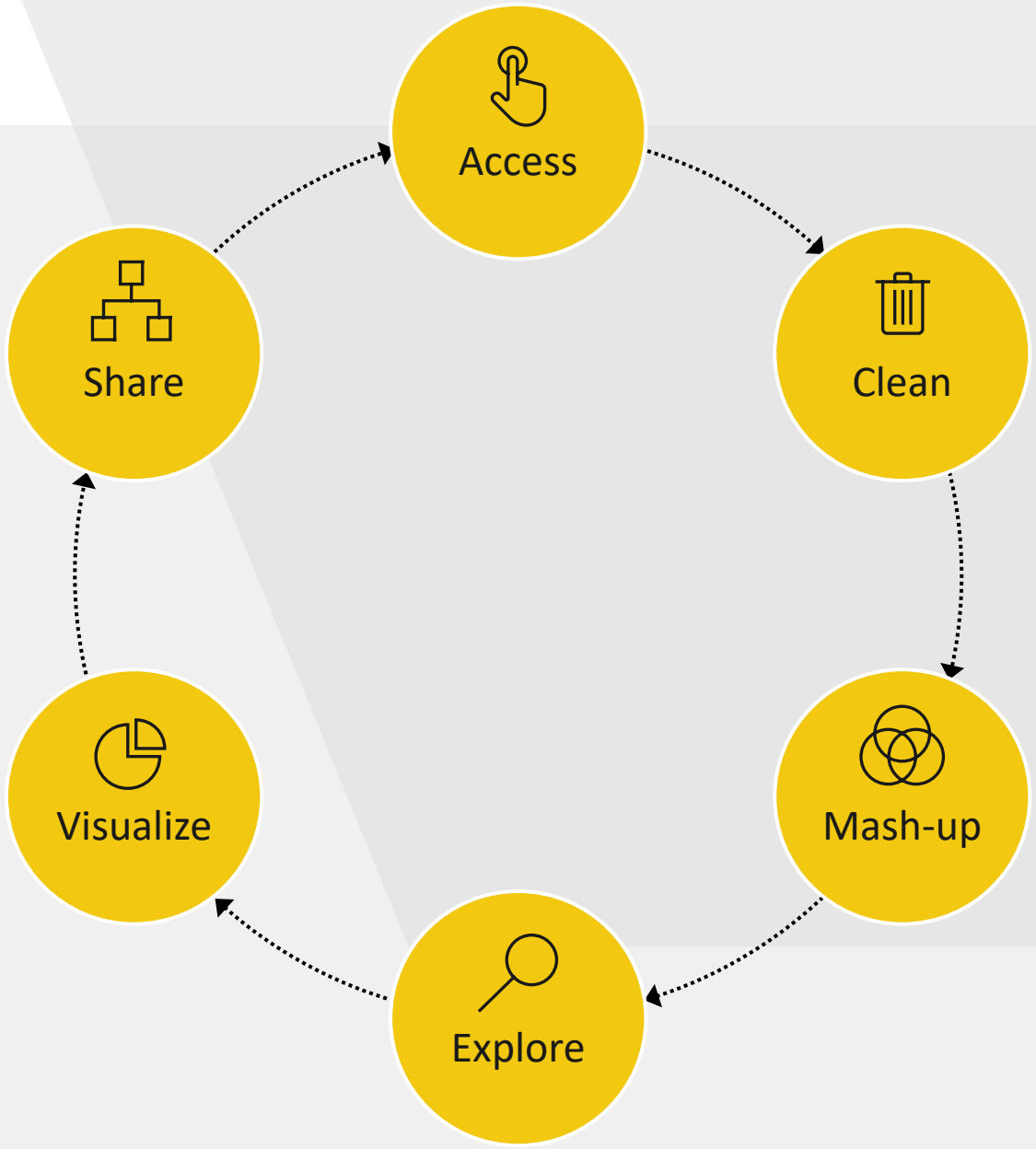
Source: Gartner

Power BI

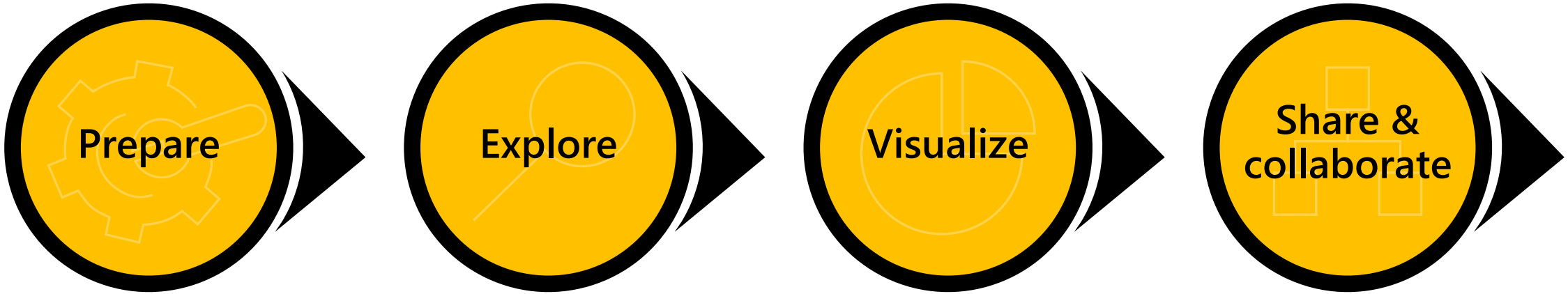
Demo



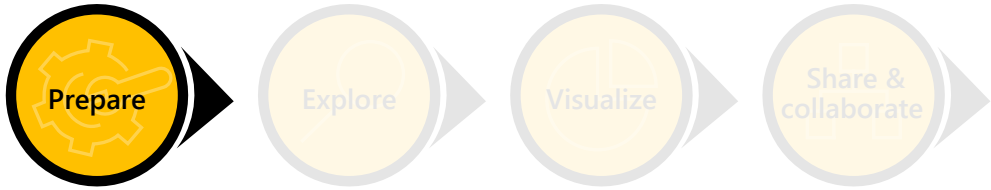
End User Needs



Lab overview



Access all your DATA



Data sources

SaaS solutions
e.g. Marketo, Salesforce, GitHub, Google Analytics

Organizational
Corporate data sources or external data services

On-premises Data

Azure services
Azure SQL, Stream Analytics…

Excel files

Power BI Desktop files
Data from files, databases, Azure, and other sources

Connect to 135 + data sources, both on-premises and cloud

Data from Applications

- SaaS services that you already use

Data from your organization

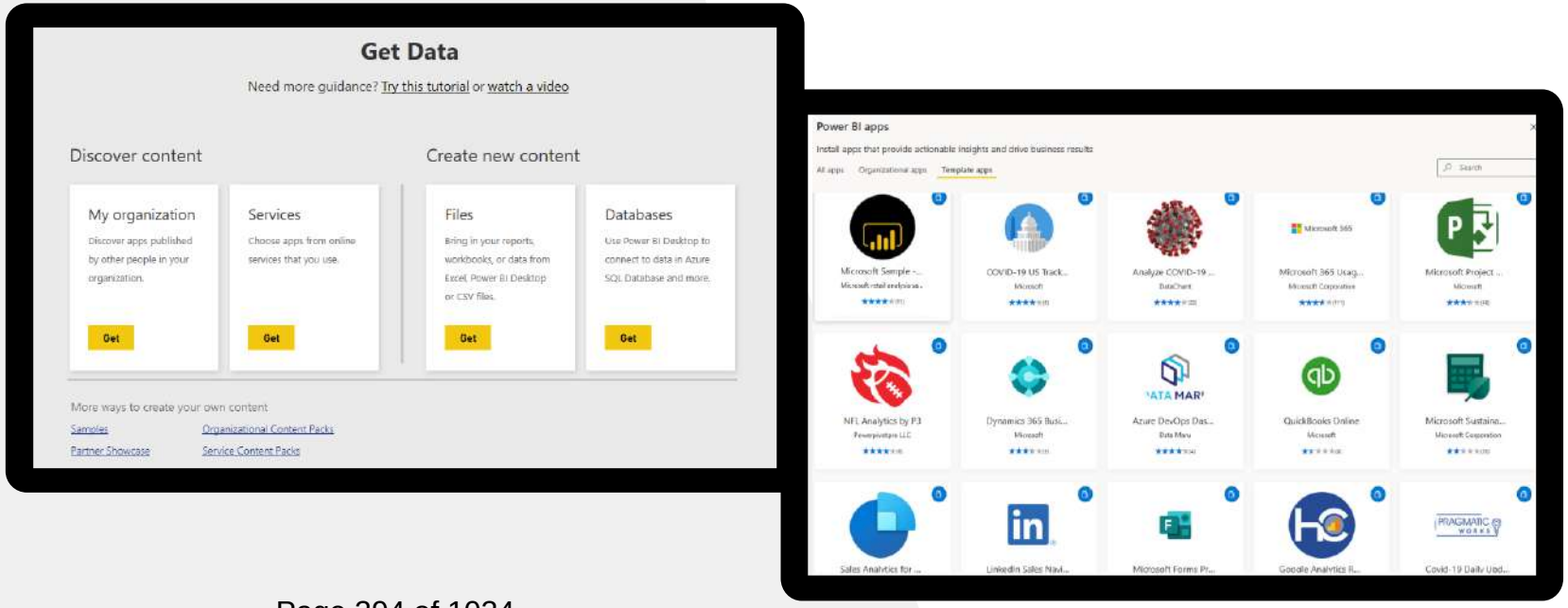
- Content published by others in your org (Datasets and Dataflows)

Big data and more

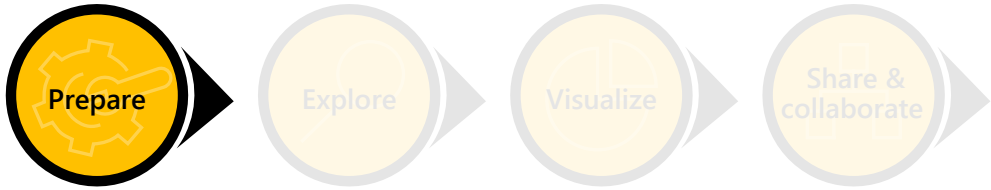
- Azure data services, e.g. SQL DW, ADLS.
- On-premises data sources, e.g. Oracle & SSAS

Data from files

- Import data from Text, CSV, Excel and Power BI Desktop files



Clean and mash-up your DATA



Consolidate data from a broad range of sources

- Merge or append queries to combine data from multiple queries into a single query

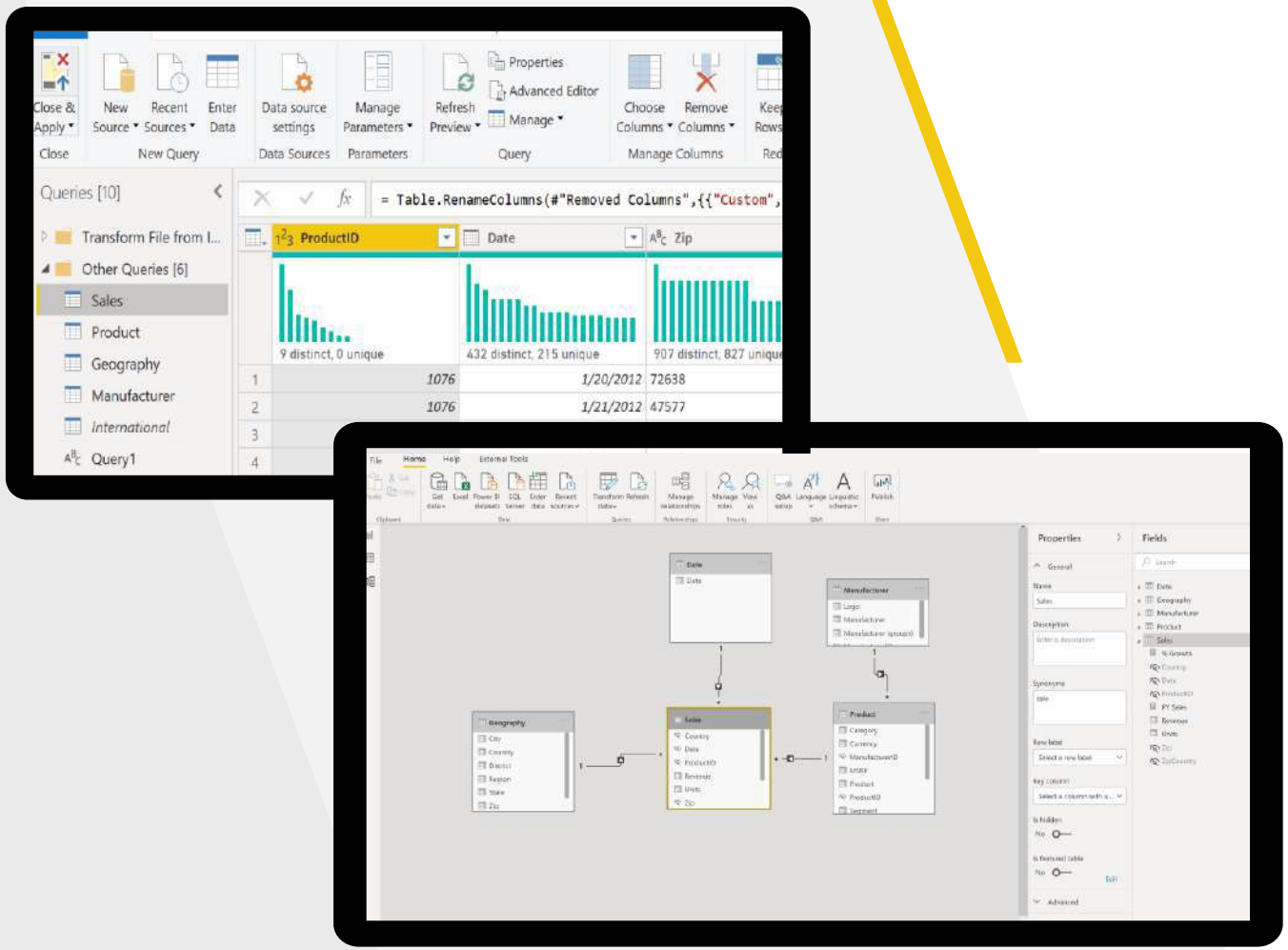
Transform data to fit your needs using intuitive UI

- Select data for inclusion
- Cleanse data and remove errors

Define calculations to generate new fields for use in reports

Develop advanced analytics using a combination of measures and relationships

- Uncover correlations, highlight exceptions and understand business outcomes



Lab 01 -

Accessing & Preparing the data

Explore your DATA



Explore data in a variety of ways and across multiple visualizations using drag and drop canvas

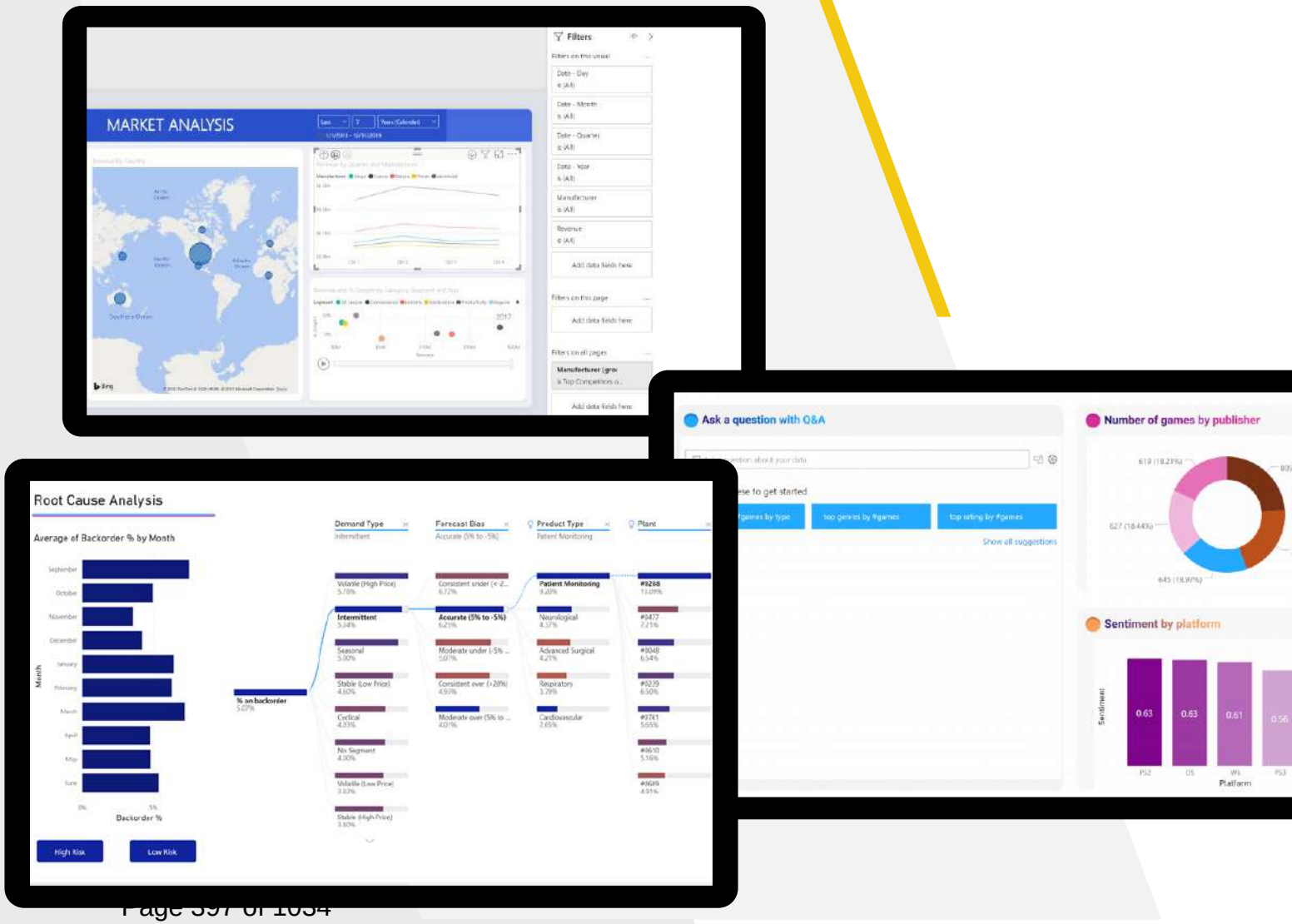
Dig deeper into your reports

- Drill-down in your hierarchical data
- Filter, sort, hover over and highlight data

Leverage Quick Insights to find insights in your data

Ask questions of your data in natural language with Q&A

- Type questions in plain language
- Q&A intelligently filters, sorts, aggregates, groups and displays data based on the question



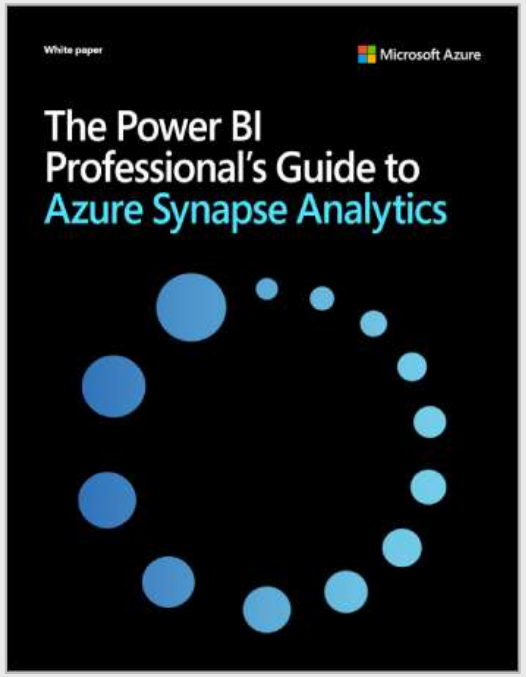
Lab 02 -

Data Modelling and Exploration

Maximize your BI investments with Azure Synapse Analytics



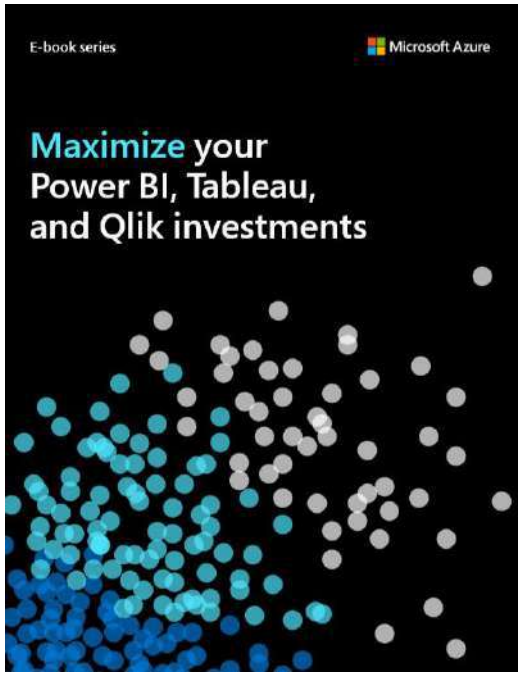
Free Infographic



Free Whitepaper



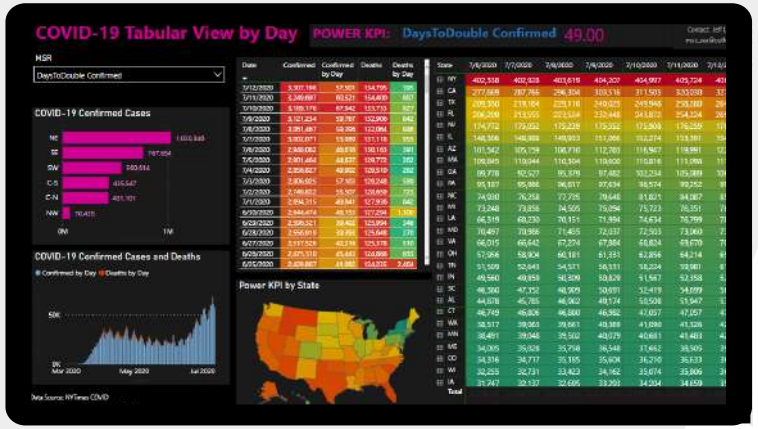
Free eBook

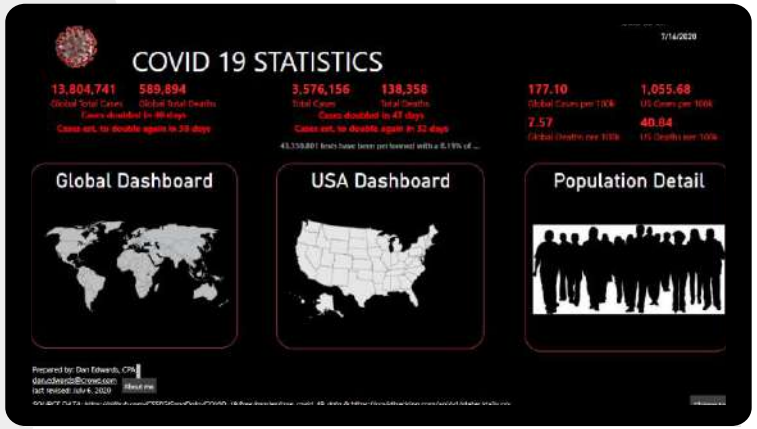


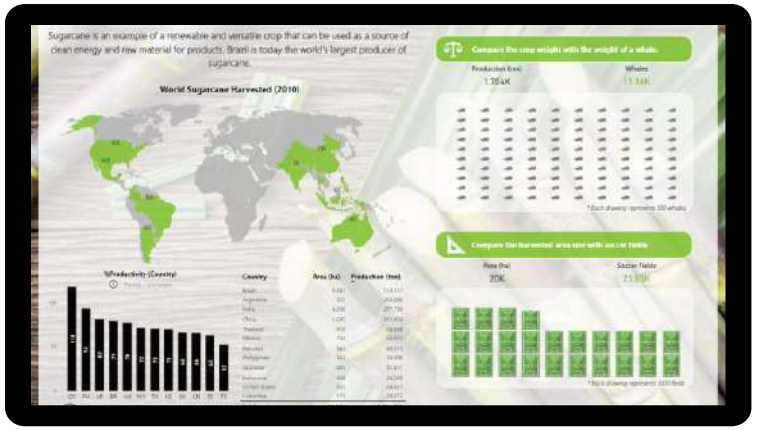
Free eBook

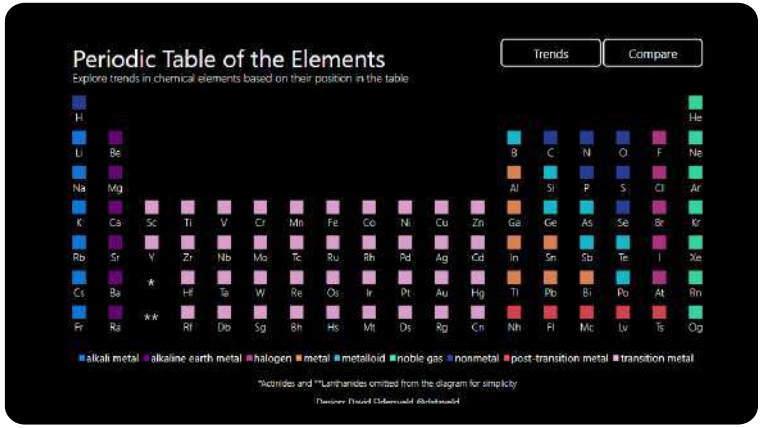
Get Started Today with a Free Azure Synapse Analytics Trial

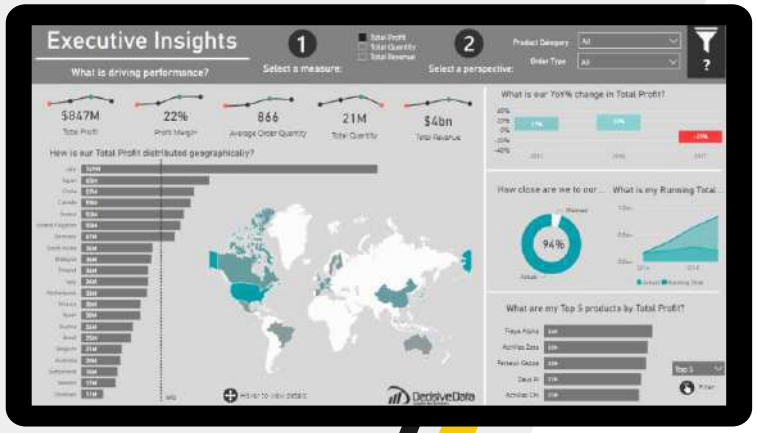
Explore and share your data stories





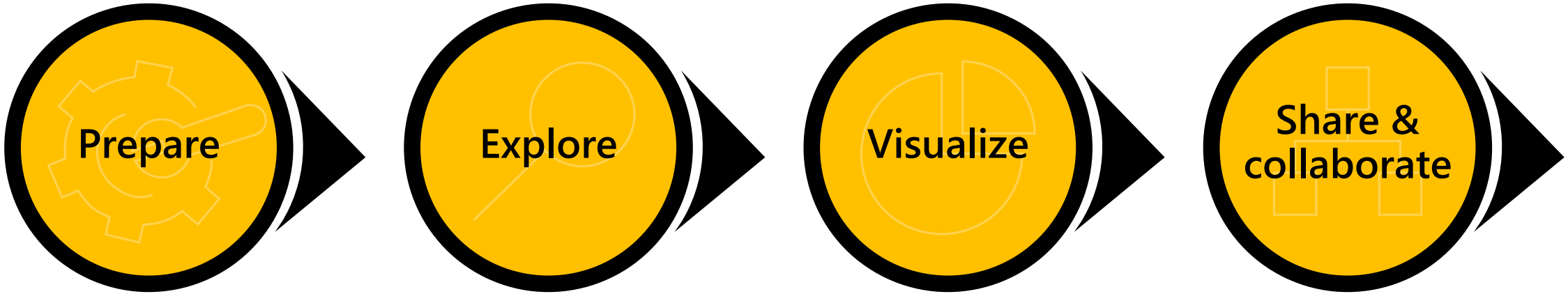




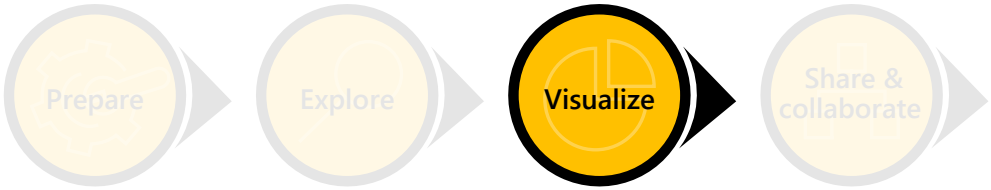


In the Data Stories Gallery
And
COVID-19 Data Stories Gallery

Lab overview



Visualize your DATA



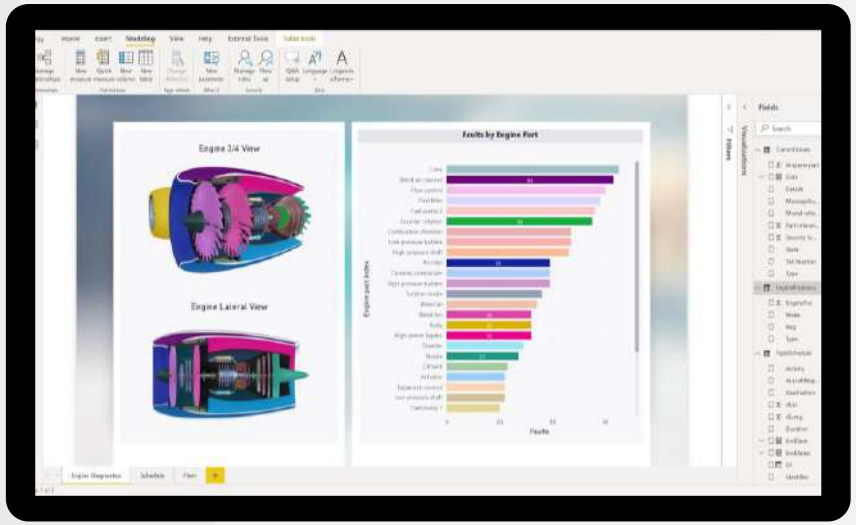
Visualize data in a variety of ways

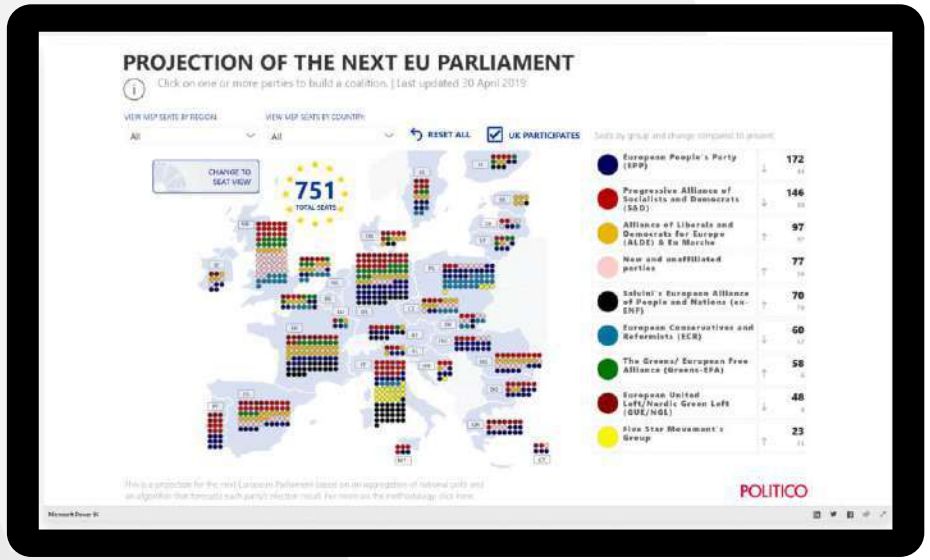
Growing number of visualization types

- Donuts, basic area, waterfall, filled maps, tree maps, funnel, gauges combo charts and more
- Custom visuals available from Power BI Visuals Marketplace
- Tools to develop, test, package new custom visuals

Visualizations on report page are connected – select value in one visualization to change other visualizations

Full screen pop out mode for report visuals to show additional details





Lab 03 -

Visualizations

Bring your story to life with DATA

Prepare → Explore → Visualize → **Share & collaborate**

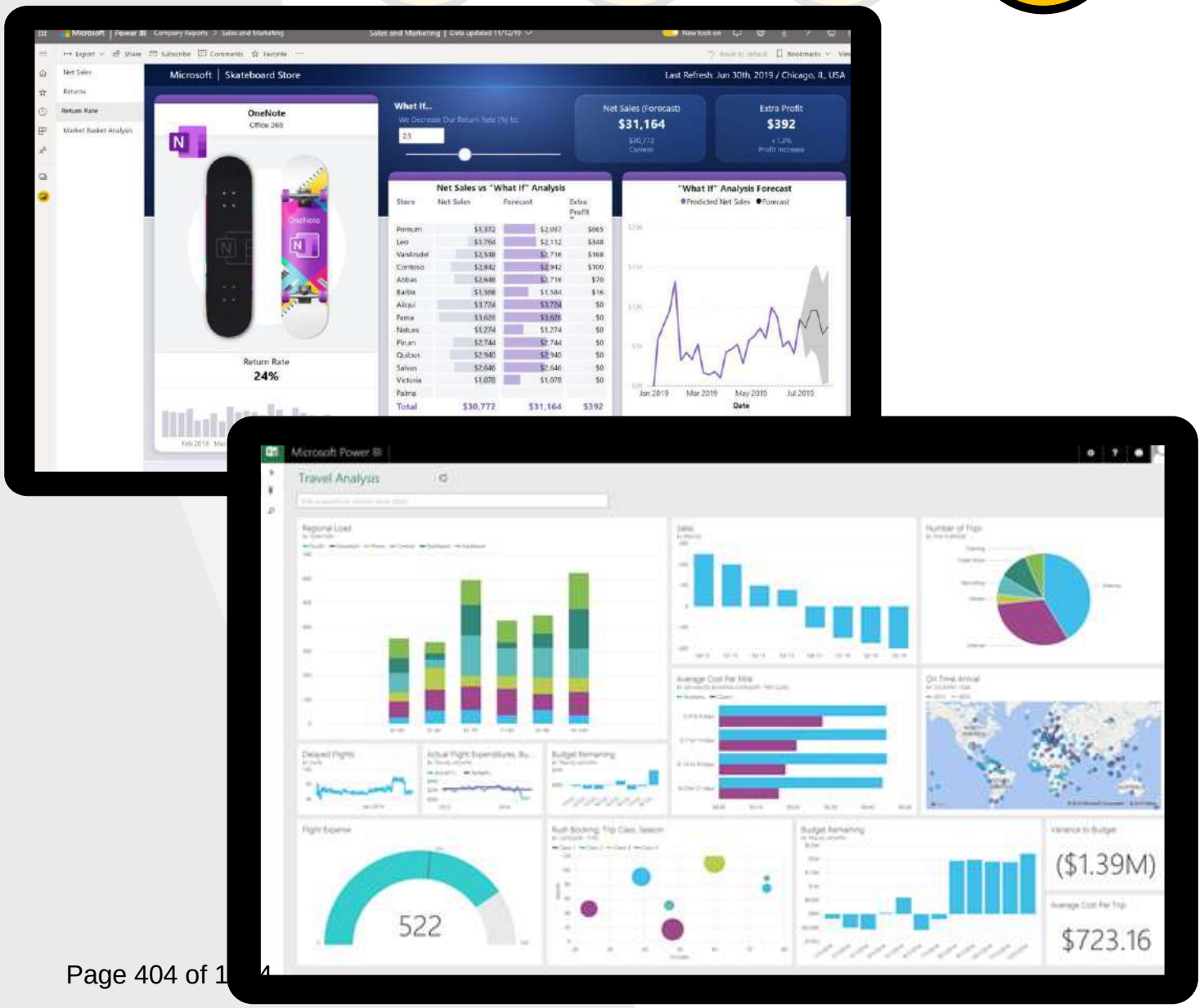
Save Power BI Desktop report files and easily publish them to powerbi.com

Access dashboards using native mobile apps for Windows, iOS and Android

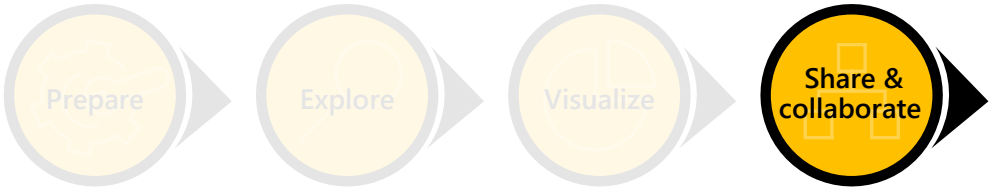
Share as appropriate with other Power BI users in your organization

Package your reports in apps for easy consumption and control

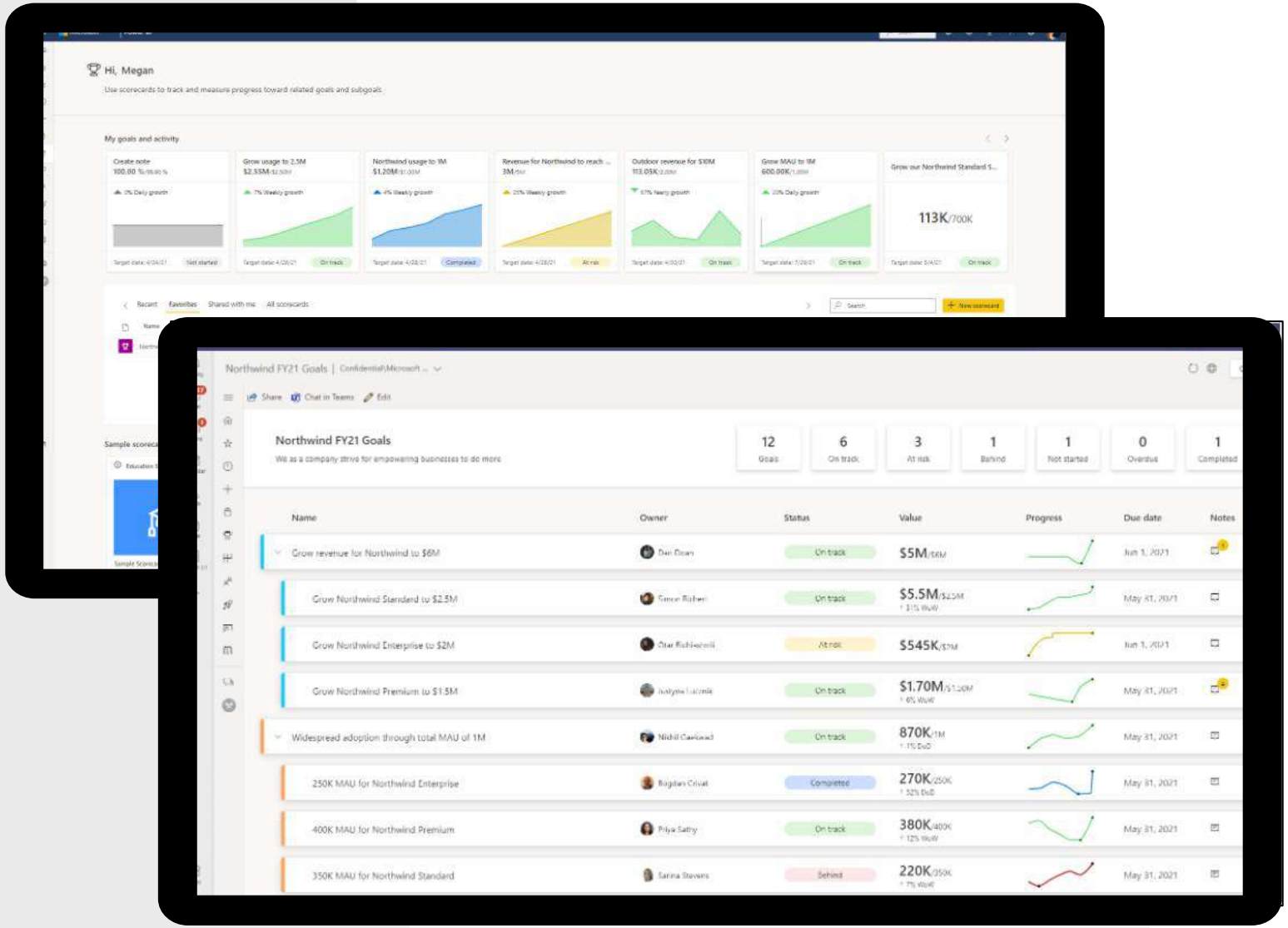
Easily embed interactive Power BI visualizations in blog posts, websites, through emails or social media With Power BI Publish to web



Track business metrics with Goals

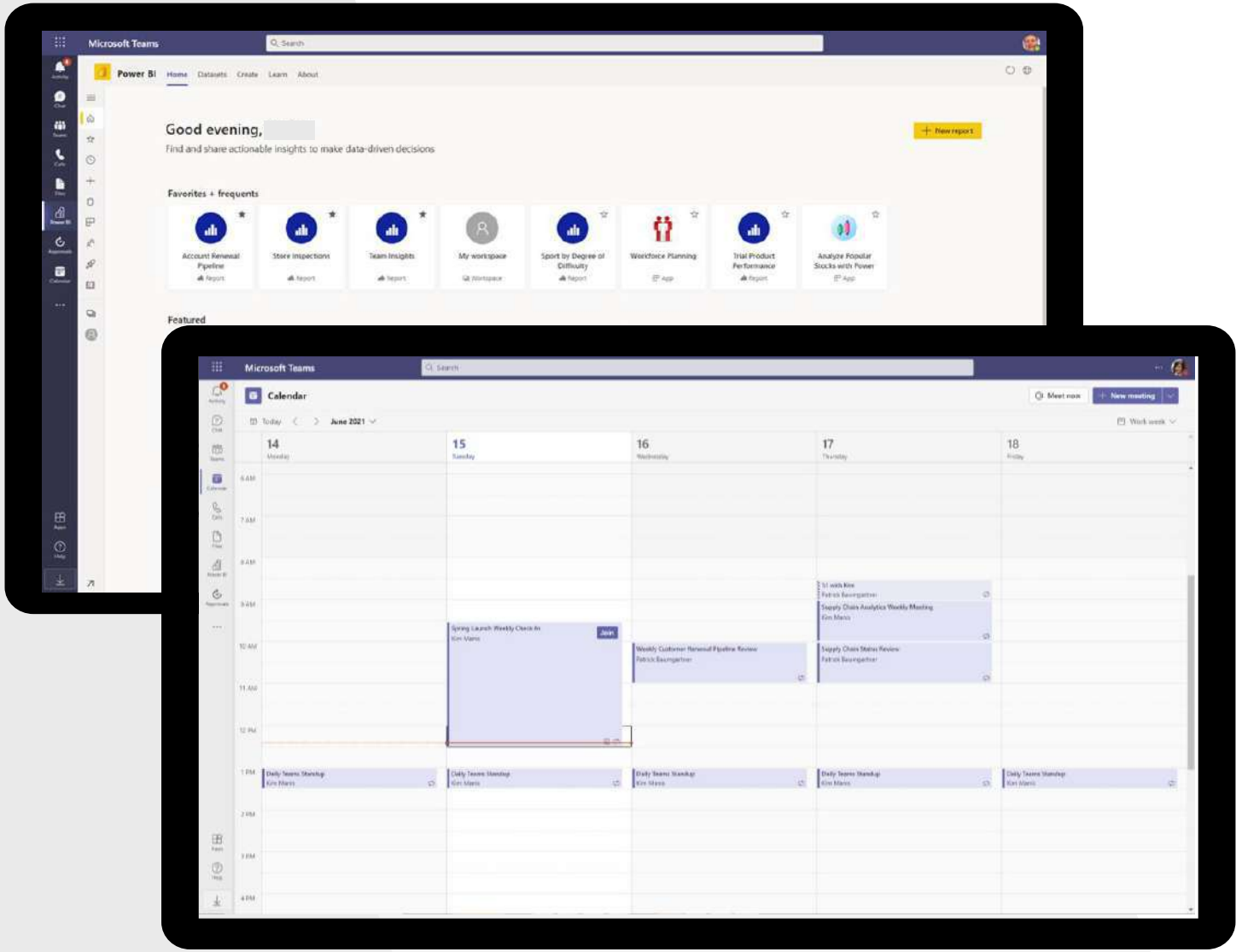


- Create scorecards
- Measure key business metrics
- Track goals in a single source
- Measure progress
- Share updates with the team
- Monitor the health of the business
- View on mobile



Take collaboration to the next level in Teams

- Meet users where they are with the Power BI app in Teams.
- Keep everyone aligned with data-driven meetings.
- Use data to inform discussions in teams, chats, and meetings.
- Find data and insights to drive better decision-making with the Power BI search extension
- Learn more here: https://aka.ms/LearnPBIInTeams



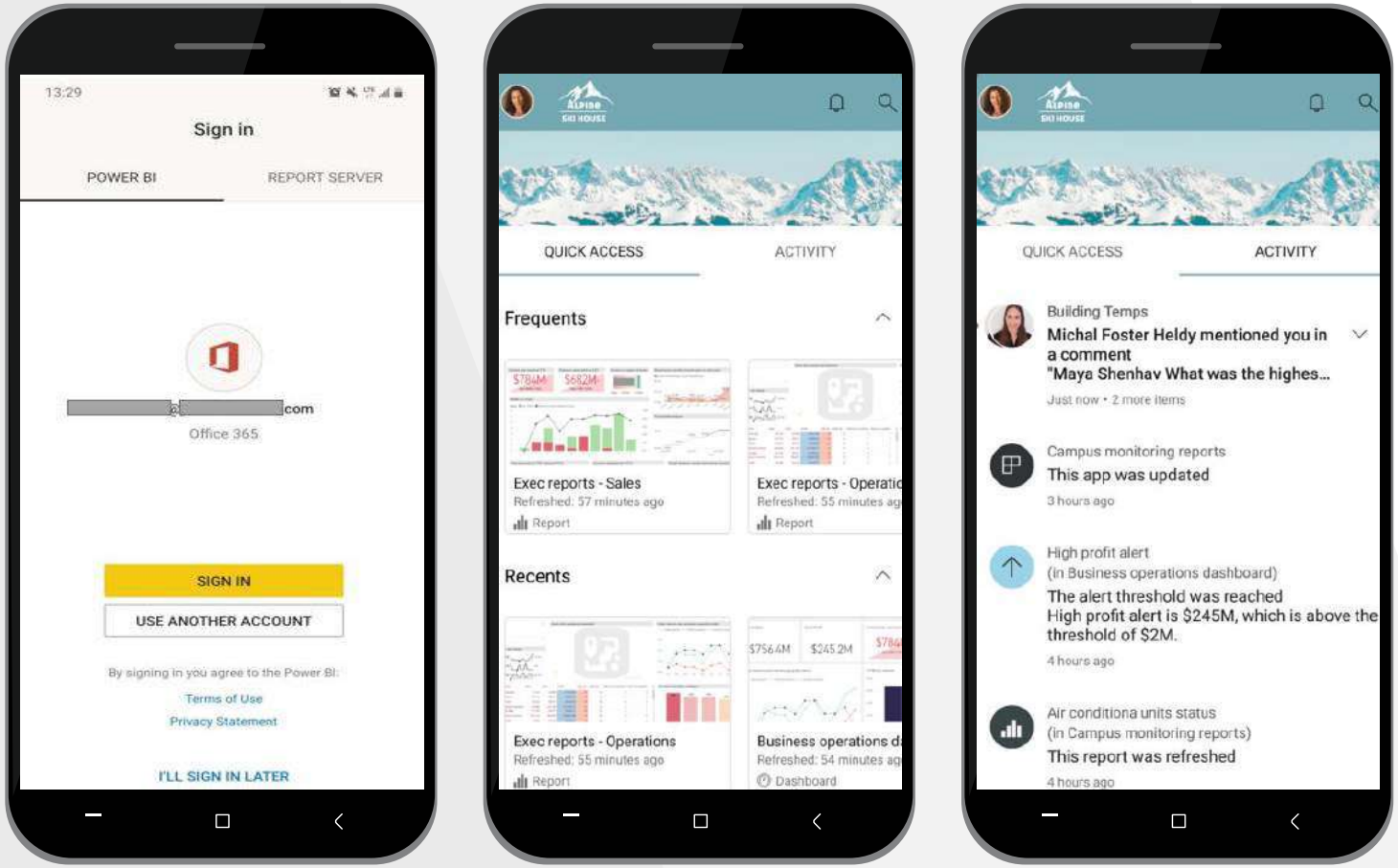
Access your story everywhere with Mobile

Access dashboards using native mobile apps for Windows, iOS and Android

Easy sign in page

Quick Access reports

Your personal Recent Activity feed



Lab 04 -

Publishing and accessing Reports

Lab 05 -

Building a Dashboard and Sharing

Q&A

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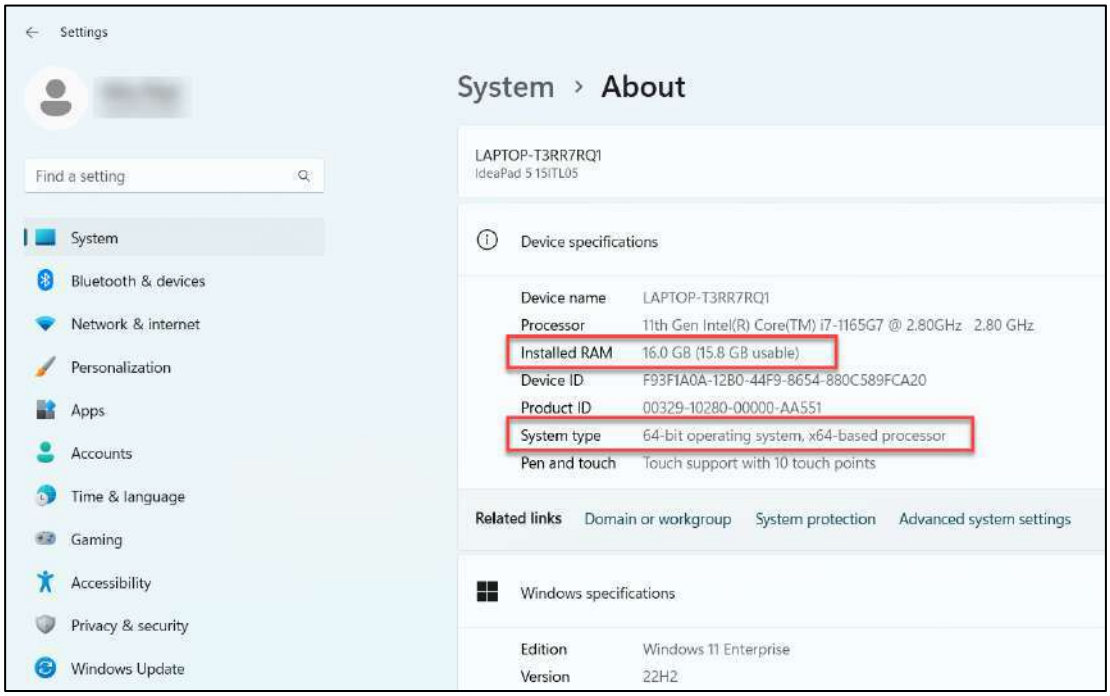
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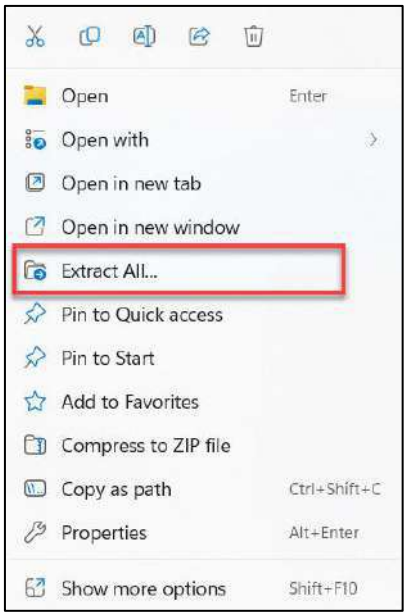
Lab Prerequisites

The following prerequisites and setup must be done for successful completion of the lab:

- You must be connected to the internet.
- You must have Microsoft Office installed.
- You must be signed up for Power BI**:** Go to http://aka.ms/pbidiadtraining and sign up for Power BI with a business email address. If you cannot sign up for Power BI, let the instructor know. If you have an existing account, please use the same URL as above to log in.
- You must have, at minimum, a computer with 2-cores and 4GB RAM running Windows 8, Windows Server 2008 R2, or later.
- You will need to have Microsoft Edge.
- You must verify if you have a 32-bit or a 64-bit operating system so you can install 32-bit or 64-bit applications. To check your operating system type:
    - Open **Control Panel**, select **System and Security**, and then choose **System**.
    - You will be able to identify if your operating system is 32-bit or 64-bit based on the **System type** field as shown in the screenshot below.



- You must download and unzip the Dashboard in a Day class content: Create a folder called **DIAD** on the C drive of your local computer. Copy all contents from the folder called **diad-student-english** to the **DIAD** folder you just created (C:\DIAD). If you are unfamiliar with how to unzip files, you will right-click on the **diad-student-english.zip** and select **Extract All…**



- You must download and install **Power BI Desktop** using any one of the options listed below:
    - If you have Windows 10 or later, use **Microsoft App Store** to download and install the **Power BI Desktop** app.
    - Download and install the **Microsoft Power BI Desktop** from https://aka.ms/pbiSingleInstaller.
    - If you already have the **Power BI Desktop** installed, ensure you have the latest version downloaded and installed.
- You must download and install the **Power BI Mobile App** on your mobile device.
    - If you are using an Apple product, download and install the M**icrosoft Power BI Mobile app** from the **Apple** store or visit this link: https://apps.apple.com/us/app/microsoft-power-bi/id929738808
    - If you are using an Android product, download and install the **Microsoft Power BI Mobile app** from the **Google Play** store or visit this link: https://play.google.com/store/apps/details?id=com.microsoft.powerbim

Document Structure

This document and the documents that follow have two main sections:

- **Power BI Desktop**: This section highlights the features available in Power BI Desktop and walks the user through the process of bringing in data from data sources, organizing data in a model and creating visualizations.
- **Power BI Service**: This section highlights the features available in Power BI Service including the ability to publish the Power BI Desktop model to the web, creating and sharing a dashboard, and Q&A.

The lab includes steps for the user to follow along together with associated screenshots that provide a visual aid. In the screenshots, sections are highlighted with red or orange boxes to indicate the area the user needs to focus on.

Users should use their own files from Lab 1 through Lab 5. The solutions provided for each lab are a final product to reference. The solutions are not meant to be the starting point for each lab.

> ***NOTE:*** *This lab uses real, anonymized data provided by ObviEnce, LLC. Visit their site to learn about their services: www.obvience.com. This data is property of ObviEnce, LLC and has been shared for the purpose of demonstrating Power BI functionality with industry sample data. Any use of this data must include this attribution to ObviEnce, LLC.*

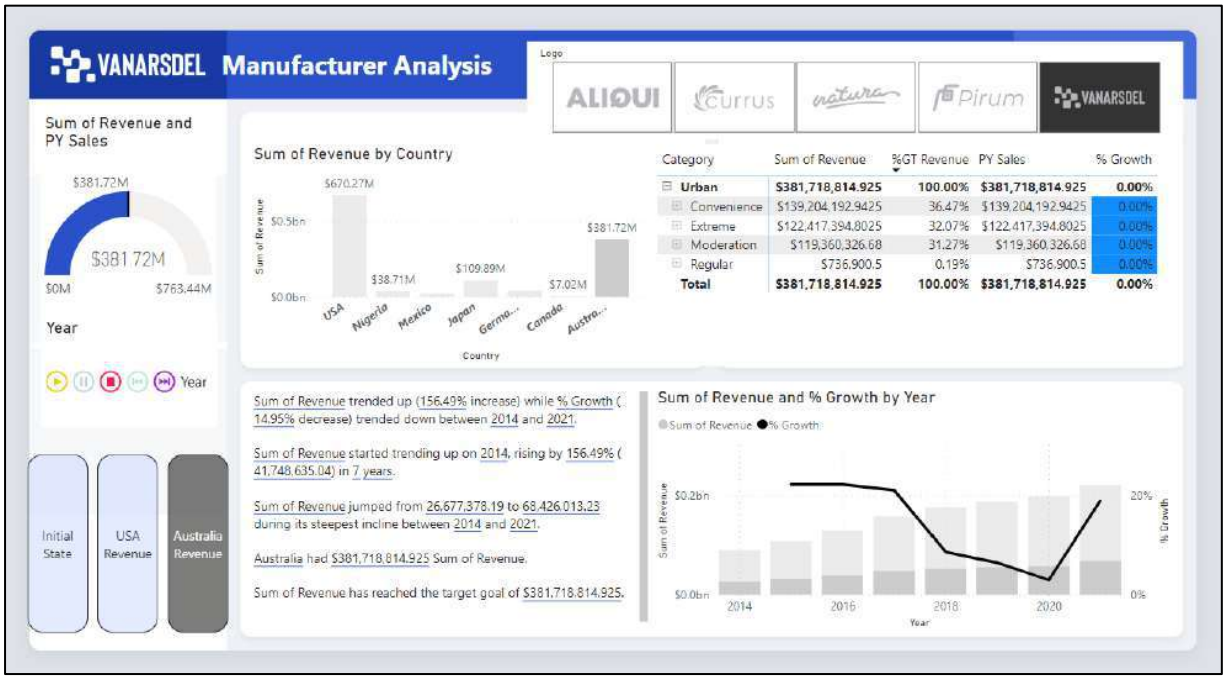
Dataset

The dataset you will you use for the Dashboard in a Day class is a sales and **market share analysis**. This type of analysis is very common for a Chief Marketing Officer (CMO). Unlike the Chief Financial Officer (CFO), a CMO is focused not only on the company's performance internally (how well do our products sell) but also externally (how well do we do against competing products).

The company, VanArsdel, manufactures expensive retail products that can be used for fun as well as work. This company sells their products directly to consumers nationwide as well as in several other countries.

> ***Please note:*** *There is a problem with the Nigeria International Sales data; this is by design so that users can learn how to shape data.*

By the end of the class, you will build a report which will look like the screenshot below. The CMO can use this report to analyze VanArsdel's performance.



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Introduction

Today you will learn about various key features of the Power BI service. This is an introductory course intended to teach you how the author builds reports using the Power BI Desktop, create operational dashboards, and share content via the Power BI Service.

By the end of this lab, you will have learned:

- How to load data from Microsoft Excel and Comma-Separated Values (CSV) sources
- How to manipulate the data to prepare it for reporting
- How to prepare the tables in Power Query and load them into the model

Learning these steps will prepare you for the modeling exercises in Lab 2. Additionally, the results of this lab will be the starting point for Lab 2.

Power BI Desktop

Power BI Desktop – Accessing Data

In this section, you will import VanArsdel's and its competitors' USA sales data. You will then import and merge sales data from other countries.

Power BI Desktop – Get Data

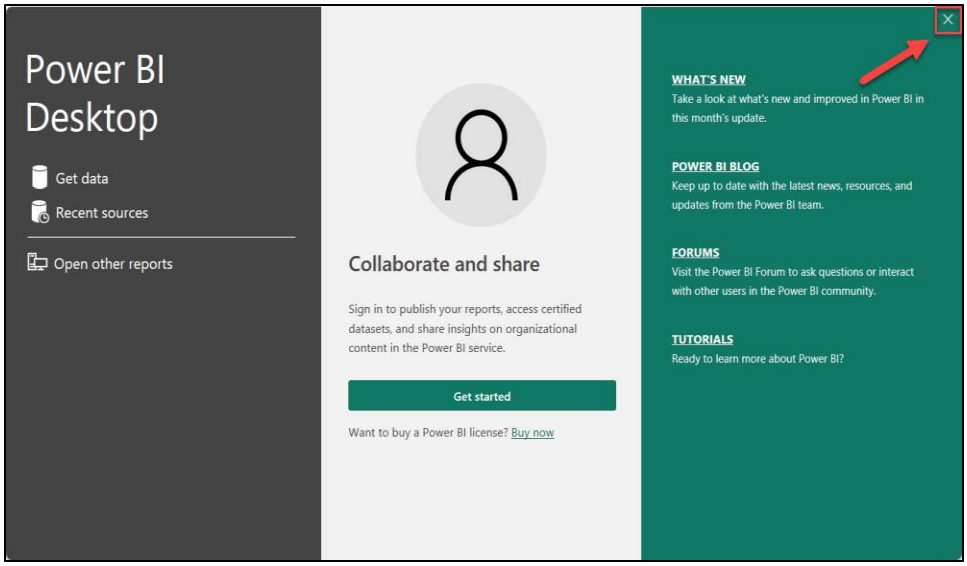
The dataset for this course contains sales data of VanArsdel and other competitors. We have seven years of transaction data by day, product, and zip code for each manufacturer. We are going to analyze data from seven countries.

USA sales data is in a CSV file located in the Usages subfolder within the Data folder (/Data/USSales).

Sales of all other countries is in the InternationalSales subfolder within the Data folder (/Data/InternationalSales). Each country's sales data is in a CSV file in this folder.

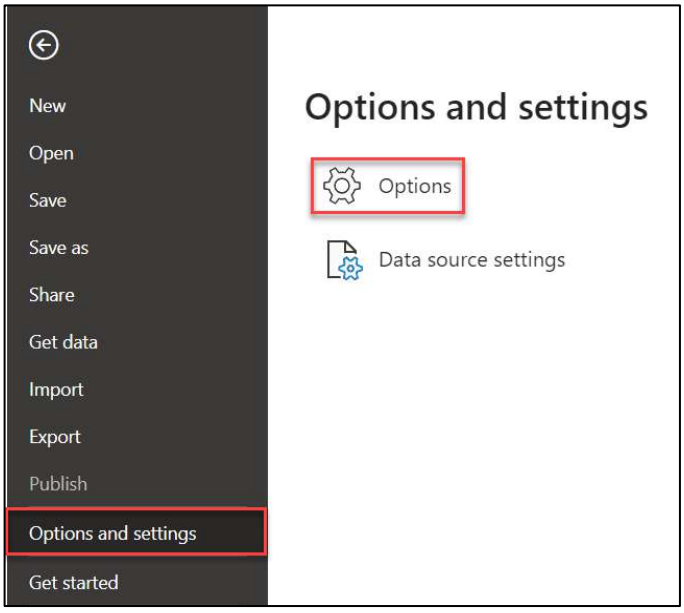
Product, Geography, and Manufacturer information is in a Microsoft Excel file called bi_dimensions.xlsx in the USSales subfolder within the Data folder (/Data/USSales/).

1. If you don't already have the **Power BI Desktop** open, launch it now.
2. If you have not signed into the **Power BI Desktop**, select the **Get started** option.
3. **Sign in** using your Power BI credentials.
4. You will see the startup screen open. Select the **X** in the top right corner of the dialog box to close it.

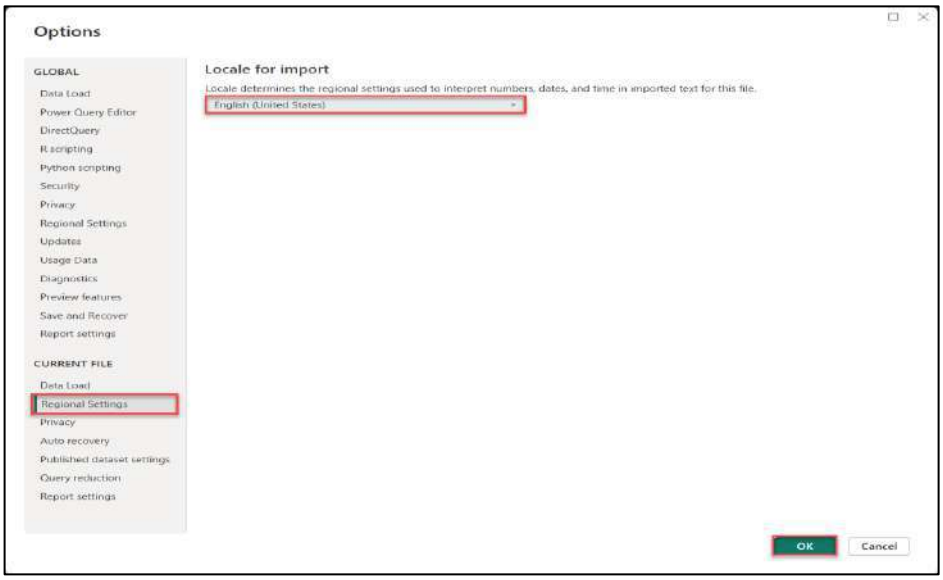


Next, let's set the **Locale** to US English to make it convenient in the rest of this lab.

5. From the ribbon, select **File**, then choose **Options and settings**. Then, select **Options**.

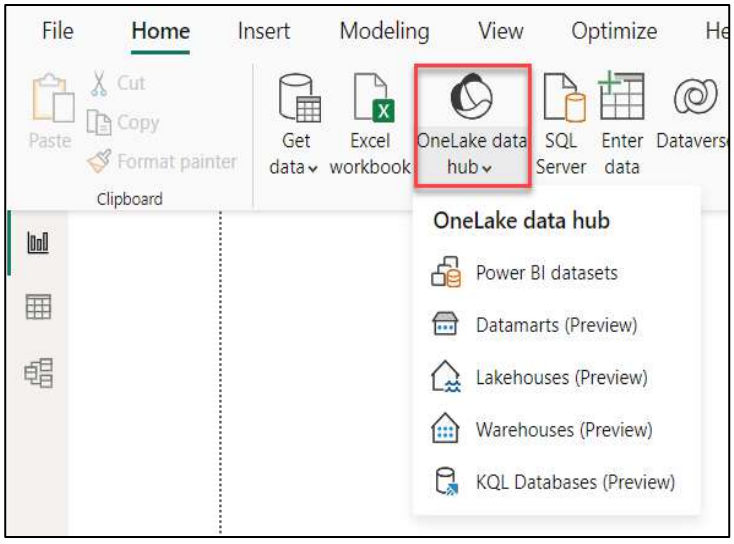


6. Within the pane to the left of the **Options** dialog box, select **Regional Settings** under **Current File**.
7. From the **Locale** drop-down, select **English (United States).**
8. Then, select **OK** to close the dialog box.



The next step is to load data into the **Power BI Desktop**.

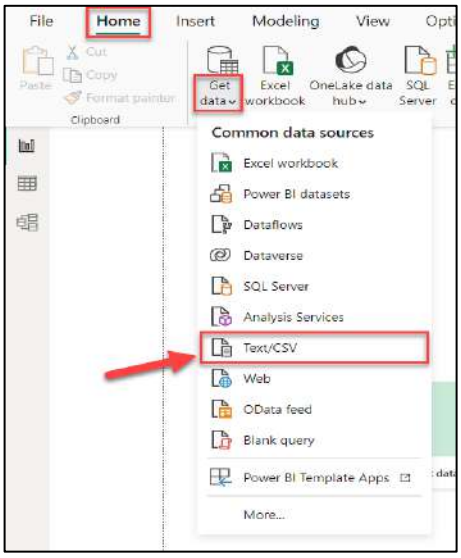
Note: *Power BI Desktop has the capability to connect to 300+ data sources. The newest sources are part of Microsoft Fabric's OneLake data hub. You will not be using OneLake in today's class but to learn more read here:* *https://learn.microsoft.com/en-us/power-bi/fundamentals/fabric-get-started*



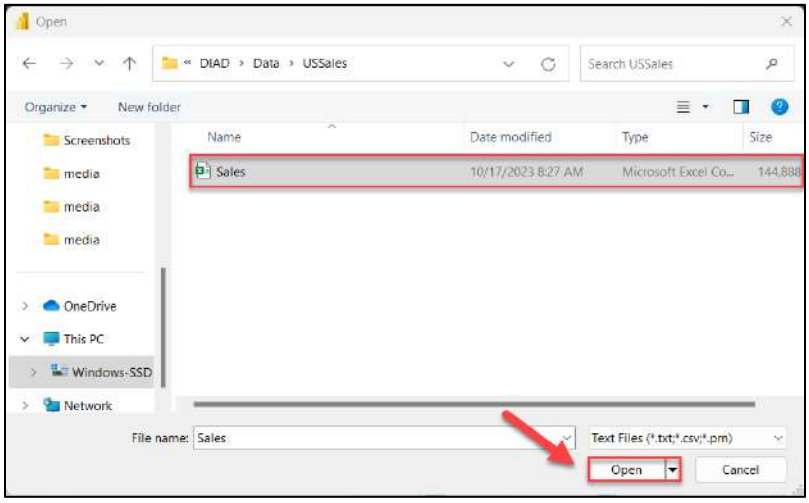
We are using CSV and Excel data files in this lab for simplicity. If you would like a full list of data sources, please visit this link: https://docs.microsoft.com/en-us/power-bi/connect-data/desktop-data-sources

Start by loading **USA Sales data**, which is in a CSV file.

9. From the ribbon at the top of the screen, select the **Home** tab. Then, choose the **Get Data** drop-down (*not the icon*).
10. Select **Text/CSV** from the options list.



11. Browse to the **DIAD** folder (this folder may be called **diad-student-english** if you did not rename it in Lab 0), double-click **Data**, double-click the **USSales** folder, and then select the **Sales.csv** file.
12. Then, select the **Open** button.



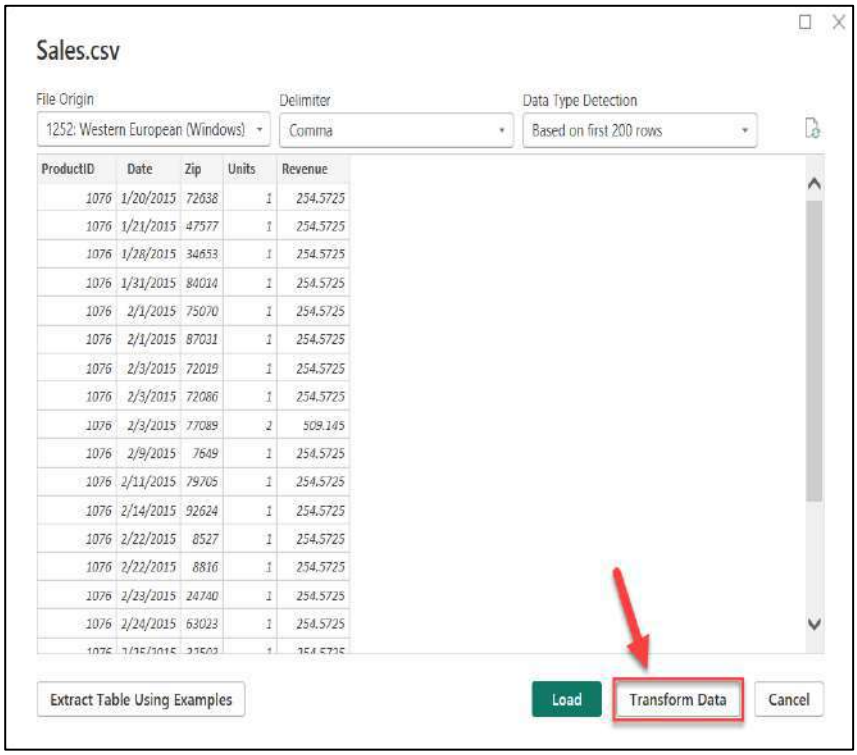
> ***Note**: If your folder appears empty then this likely means you forgot to unzip your class files. Navigate to your location where you saved the class files and unzip the files by right-clicking on the .zip file, then select **Extract All**.*

Power BI detects the data type within each column. There are options to detect the data type based on the first 200 rows, based on the entire dataset or to not detect the data. Since our dataset is large and it will take time and resources to scan the complete dataset, we will leave the default option of selecting the dataset based on the first 200 rows.

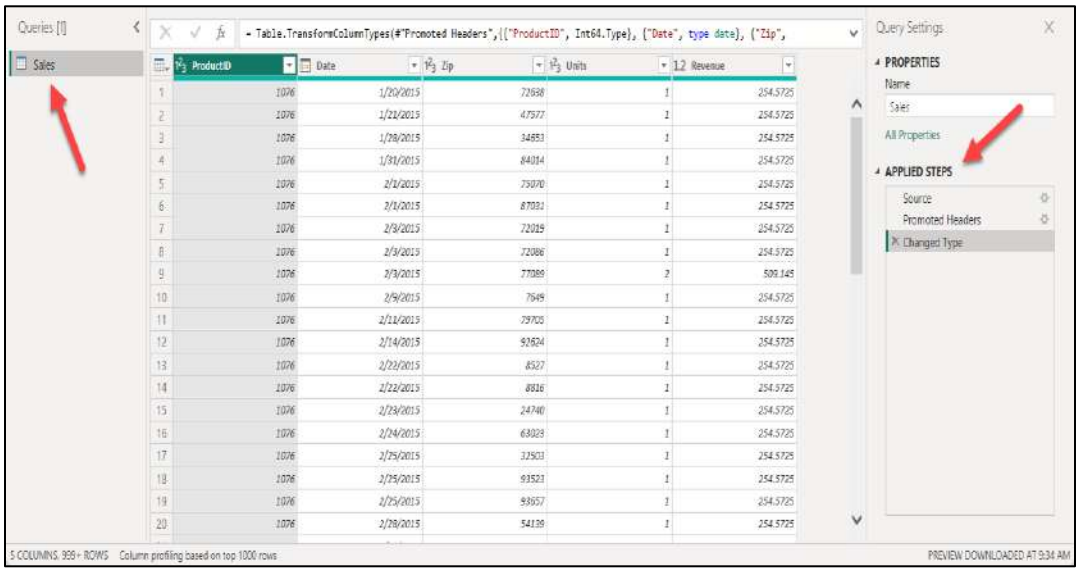
After completing your selection, you have three options – Load, Transform Data or Cancel.

- **Load** adds the data from the source into Power BI Desktop for you to start creating reports.
- **Transform Data** allows you to perform data shaping operations such as merging columns, adding additional columns, changing data types of columns as well as bringing in additional data.
- **Cancel** returns you back to the main canvas.

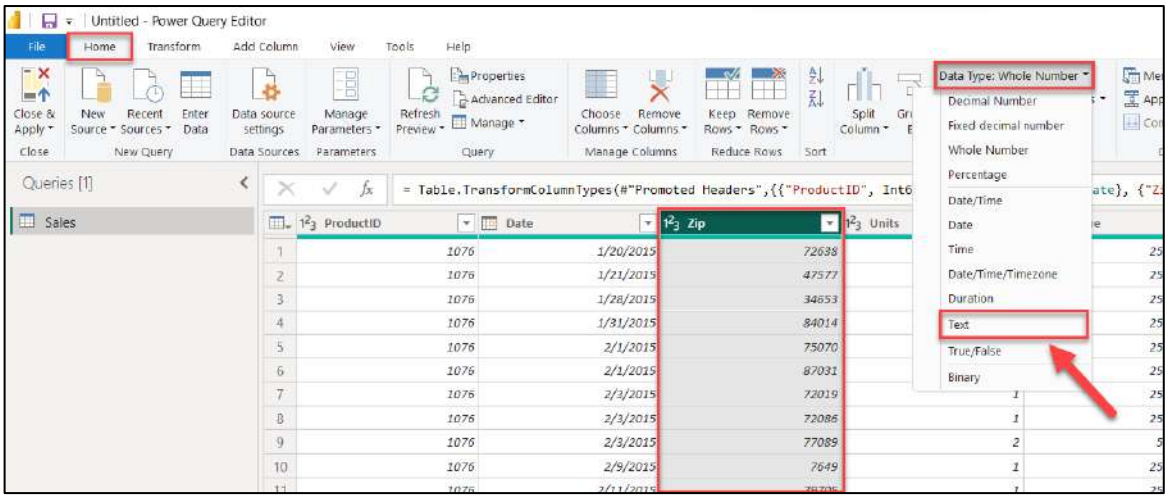
12. Within the **Sales.csv** dialog window, select the **Transform Data** button.



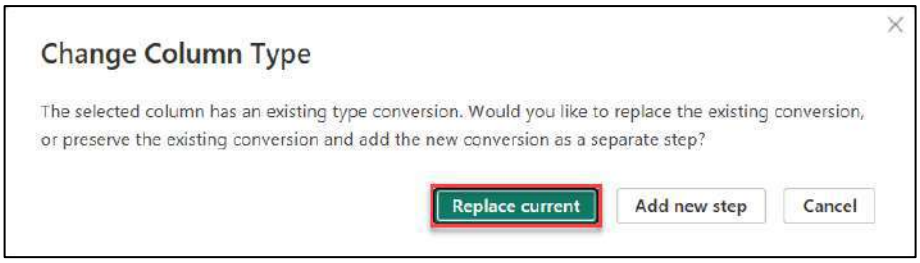
You should be in the Query Editor window as shown in the screenshot below. The Query Editor is used to perform data shaping operations. Notice that the sales file you connected shows as a query in the pane to the left of the screen. You can see a preview of the data in the center pane. Power BI predicts the data type of each field (based on the first 200 rows) as indicated by the icons to the right of each column header. Within the pane to the right of the screen, steps that the Query Editor performs are recorded within the **APPLIED STEPS** section.



13. Notice that Power BI has set the **Zip** column to the data type **Whole Number**. To ensure that the leading zero is not dropped from Zip codes that start with zero, we will format them as **Text**. To do this, select the **Zip** column. Then, from the ribbon, select the **Home** tab. From the menu at the top of the screen, within the **Transform** group, select the **Data Type** drop-down and choose the **Text** option.



14. The **Change Column Type** notification box opens. Select the **Replace current** button which overwrites Power BI's predicted data type.

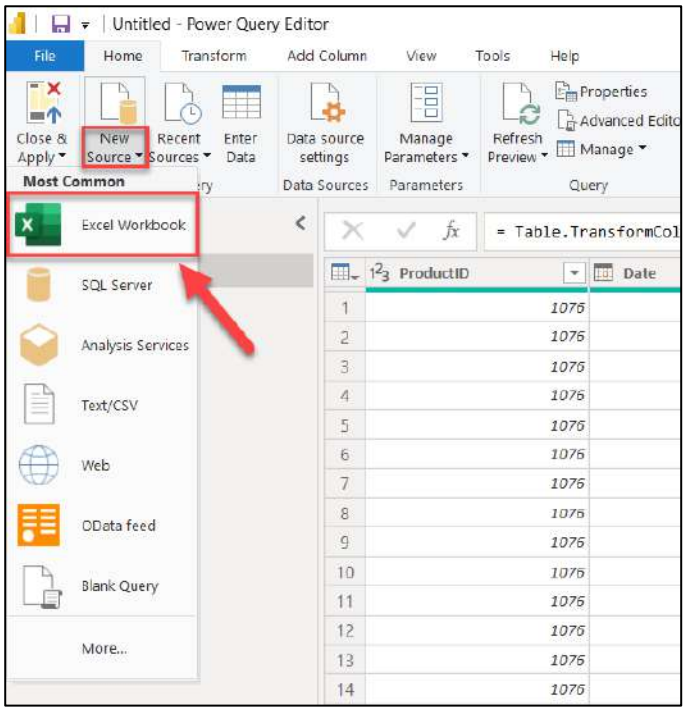


IMPORTANT!

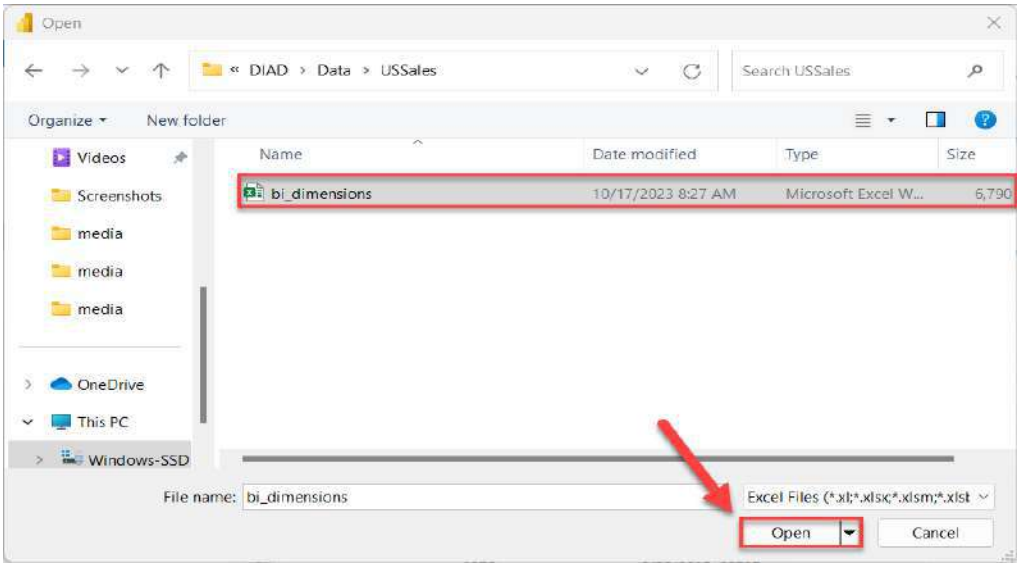
Missing these last two steps can impact your experience later.

Now, let's get the data that is in the Excel source file called **bi_dimensions.xlsx**.

15. From the ribbon at the top of the screen, select the **Home** tab, choose the **New Source** drop-down (*not the icon*), and then select **Excel Workbook.**

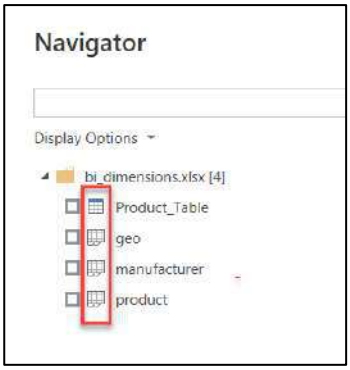


16. Browse to the **DIAD** folder, double-click **Data**, double-click the **USSales** folder, and then select **bi_dimensions.xlsx**.
17. Then, select the **Open** button. The **Navigator** dialog box will appear.

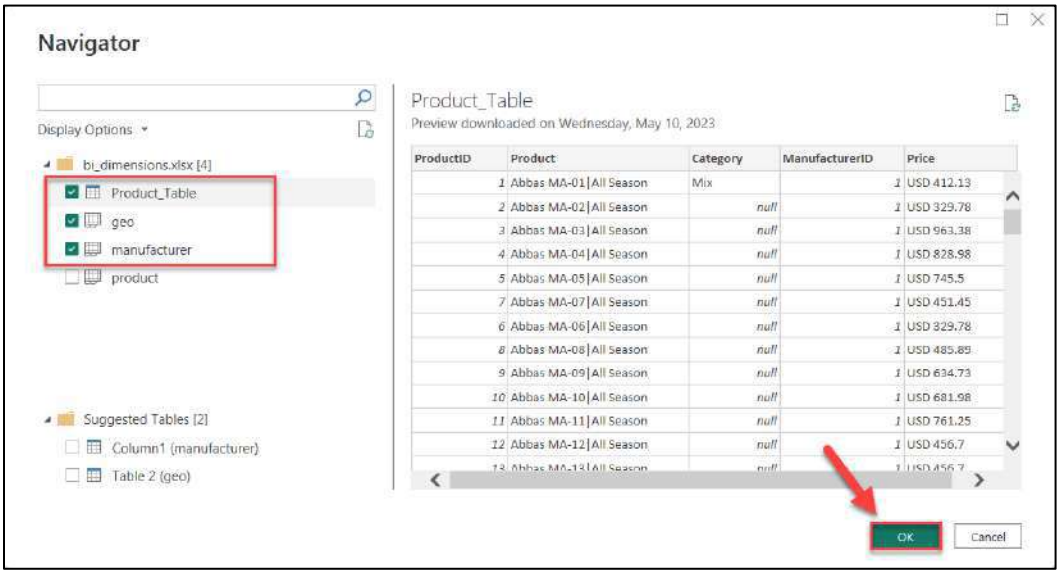


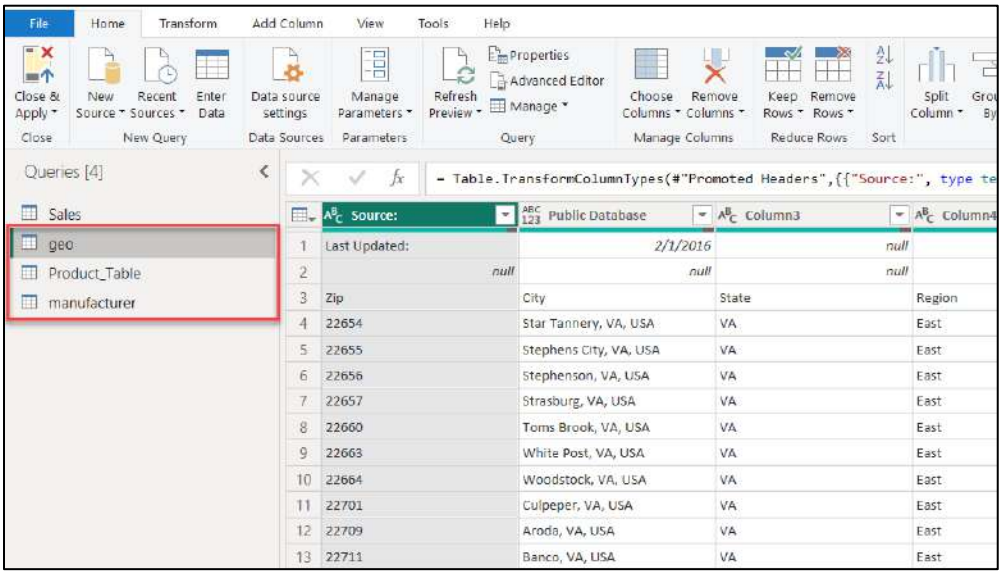
The **Navigator** dialog will open. Within the list to the left of the dialog, you will see three sheets listed that are within the Excel workbook. It also lists the **Product_Table** which is a pre-defined Excel table.

***Note**: Excel Tables are differentiated from Worksheets by using different icons.*



18. From the list to the left of the dialog, select the checkbox for **geo**. In the preview pane, notice that the first few rows are headers and are not part of the data. We will remove them shortly.
19. Select the checkbox for **manufacturer**. In the preview pane, notice that the last couple of rows are footers and are not part of the data. We will remove them shortly.
20. Select the checkbox for **Product_Table**. Notice the different icon indicates that this data is stored in an Excel table.
21. Make sure that **Product_Table**, **geo** and **manufacturer** are selected within the pane to the left, and then select **OK**. Notice that three sheets are added as queries in the Query Editor





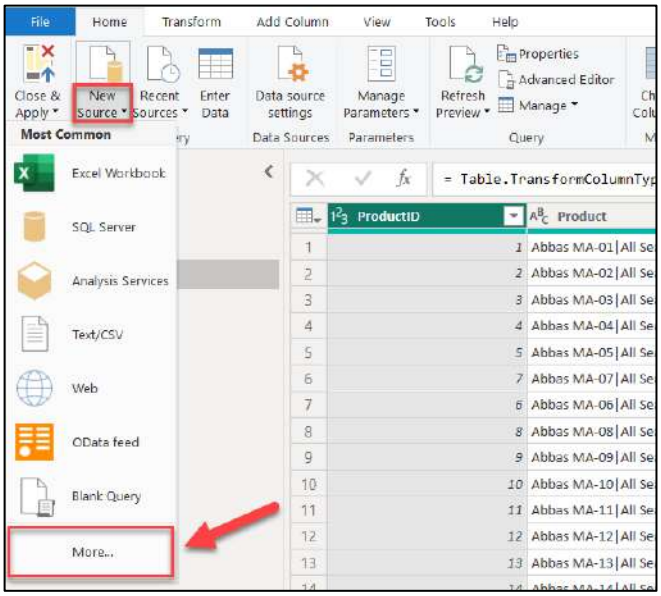
Power BI Desktop – Adding additional data

In this scenario, the international subsidiaries have agreed to provide their sales data so that the company's sales can be analyzed together. You've created a folder where they each put their data.

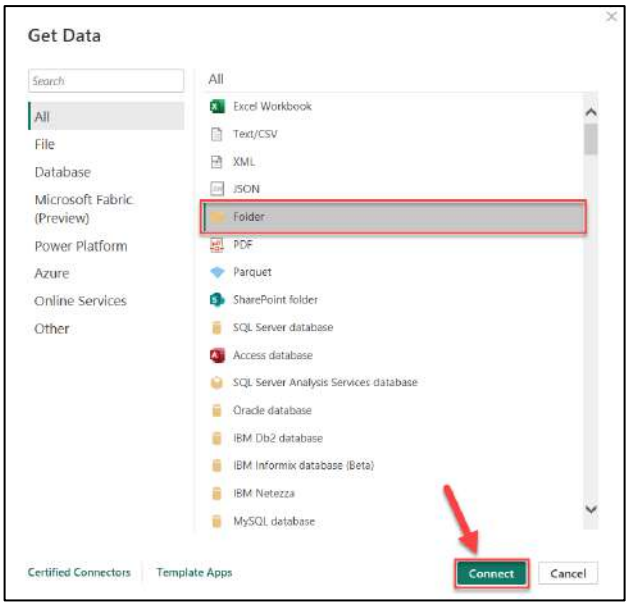
To analyze all the data together, you need to import the new data from each of the subsidiaries and combine it with the US Sales you loaded earlier.

You can load the files one at a time, like you loaded the US Sales data, but Power BI provides an easier way to load all the files in a folder together at once.

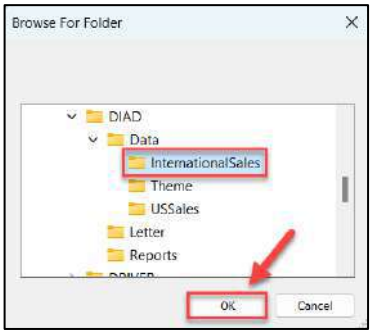
22. From the **Home** tab of the Query Editor, select the **New Source** drop-down (*not the icon*).
23. Select **More…** from the options list. The **Get Data** dialog will open.



24. Within the **Get Data** dialog box, select **Folder** from the **All** list.
25. Then, select the **Connect** button and the **Folder** dialog box will open.



26. Within the Folder dialog box, select the **Browse…** button.
27. In the **Browse For Folder** dialog, navigate to the location where you **unzipped** the class files.
28. Open the **DIAD** folder, then open the **Data** folder. Select the **InternationalSales** folder.
29. Select **OK** to close the **Browse for Folder** dialog box. Then, select **OK** to close the **Folder** dialog box.

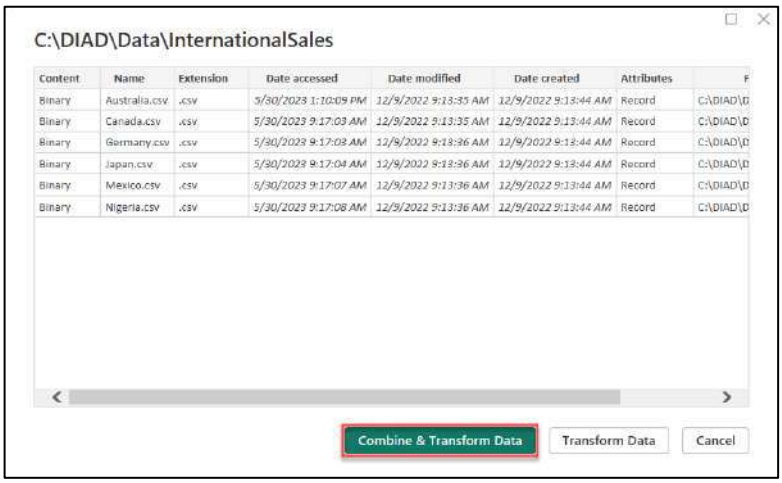




***Note**: This approach will load all the files located in the folder. This is useful when you have a group that puts files on an FTP site each month and you are not always sure of the names of the files or the number of files. All the files must be of the same file type with columns in the same order.*

The selected folder dialog box will display the list of files within the folder.

30. Select the **Combine & Transform Data** button at the bottom of the dialog box.

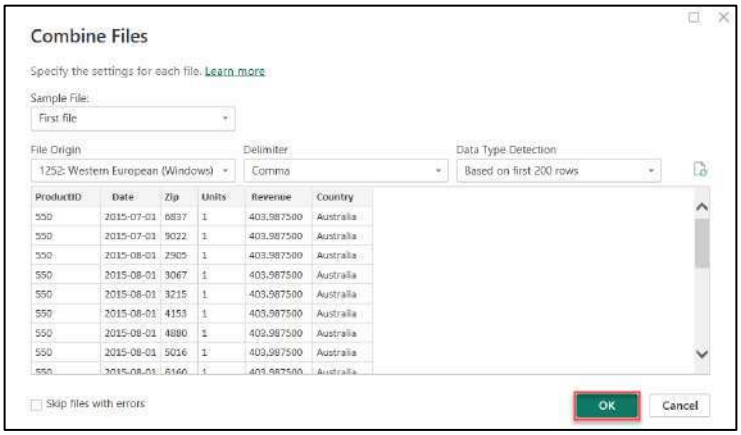


> ***Note**: The data in your file for **Date accessed**, **Date modified**, and **Date created** might be different than the dates displayed in the screenshot above.*

The **Combine Files** dialog box will open. By default, Power BI will again detect the data type based on the first 200 rows. Notice there is an option to select various file Delimiters. The file we are working with is Comma delimited, so let's leave the default **Delimiter** option as **Comma**.

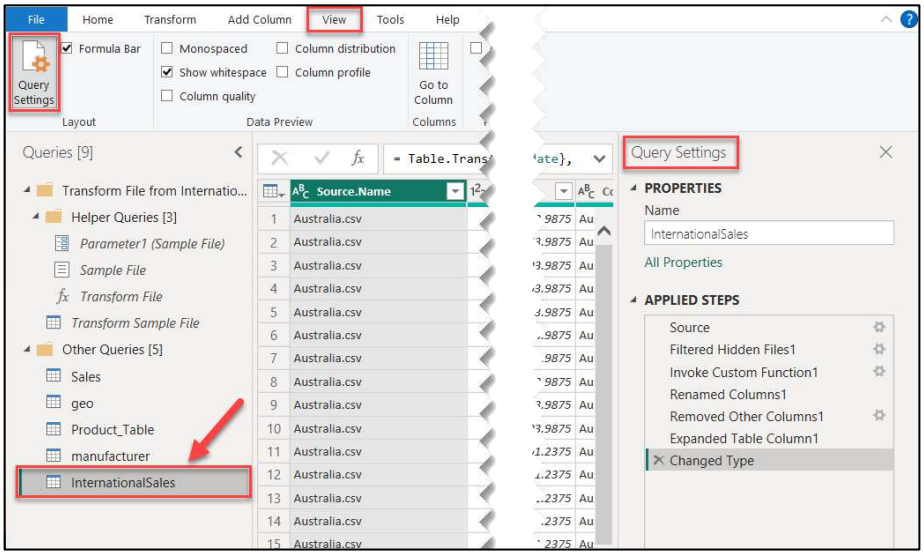
There is also an option to select each individual file in the folder (using **Example File** drop-down) to validate the format of the files.

31. Select the **OK** button located at the bottom of the dialog window.



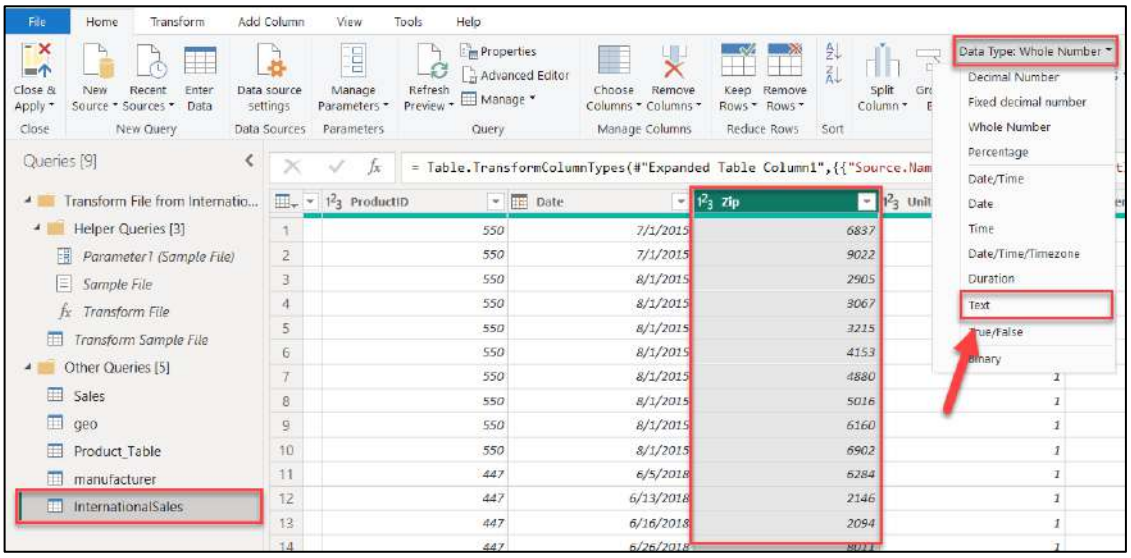
You will now be in the **Power Query Editor** window with a new query named **InternationalSales**.

32. If you do not see the **Queries** pane to the left of the screen, select the **>** (greater than) icon to expand and now view the Queries pane.
33. If you do not see the **Query Settings** pane on the right of the screen, select the **View** tab in the ribbon and choose **Query Settings** to view the pane.
34. Select **InternationalSales** from the query pane on the left.



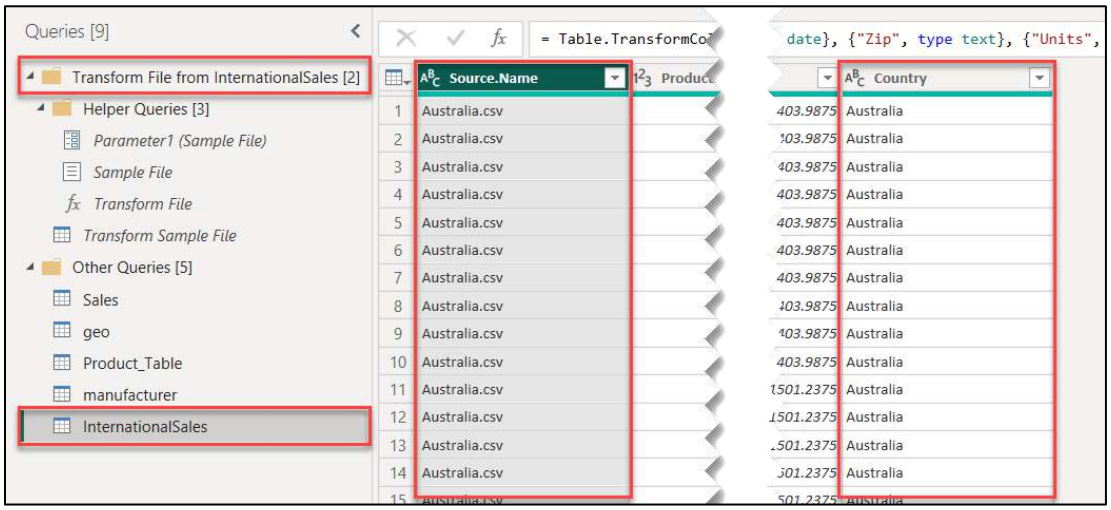
Notice that the **Zip** column is of the **Whole Number** type. Based on the first 200 rows, Power BI thinks the Zip column consists of whole numbers. But zip code could be alpha numeric in some countries or regions or contain leading zeros. If we do not change the data type, we will receive an error when we load the data shortly. So, let's change the Zip column to data type **Text**.

35. Select the **Zip** column within the **InternationalSales** query, and then change the **Data Type** to **Text** using the drop-down under the **Home** tab.

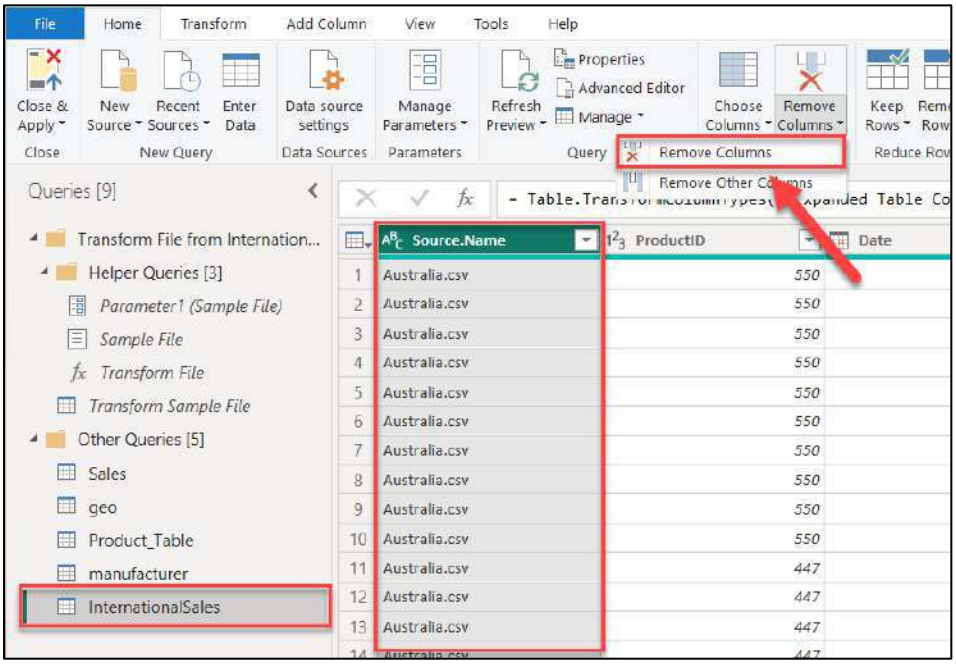


36. The **Change Column Type** dialog box will open. Select the **Replace Current** button when prompted.

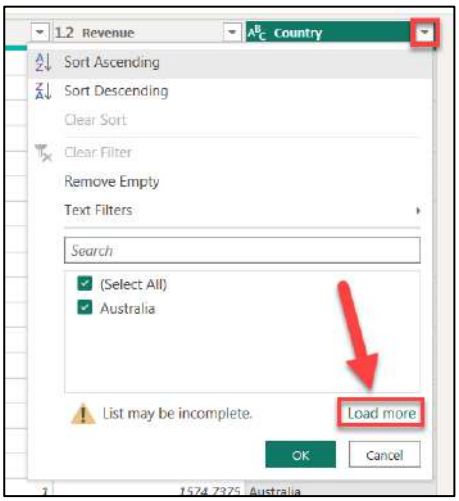
Within the **Queries** pane, notice that a **Transform File from the InternationalSales** folder is created. This contains the function used to load each of the files from the folder.
If you compare the **InternationalSales** and the **Sales** table, you will see the **InternationalSales** table contains two new columns: **Source.Name** and **Country**.



37. We do not need the **Source.Name** column within the **InternationalSales** query. Select the **Source.Name** column and from the ribbon, select the **Home** tab. Choose the **Remove Columns** drop-down (*not the icon*), and then select **Remove Columns** again.

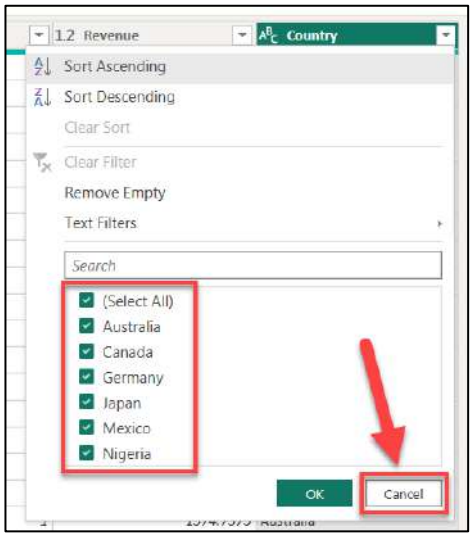


***Note**: You may find that Australia is the only country displayed. This due to the **Power Query Editor** displaying only the first 1000 rows of any data source. To validate you have the data from all country files you can optionally select the drop-down menu next to the **Country** column, then select **Load more**.*



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*You will now see that **Australia**, **Canada**, **Germany**, **Japan**, **Mexico**, and **Nigeria** are all selected.*



*If you did this optional step, select **Cancel**.*

Power BI Desktop – Data Preparation

In this section, we will explore methods to transform data. Transforming the data by renaming tables, updating data types, and appending tables together ensures that the data is ready to be used for reporting. In some instances, this means cleaning the data up so that similar sets of data can be combined. In other instances, groups of data are renamed so that they are more easily recognized by end users and report writing is simplified.

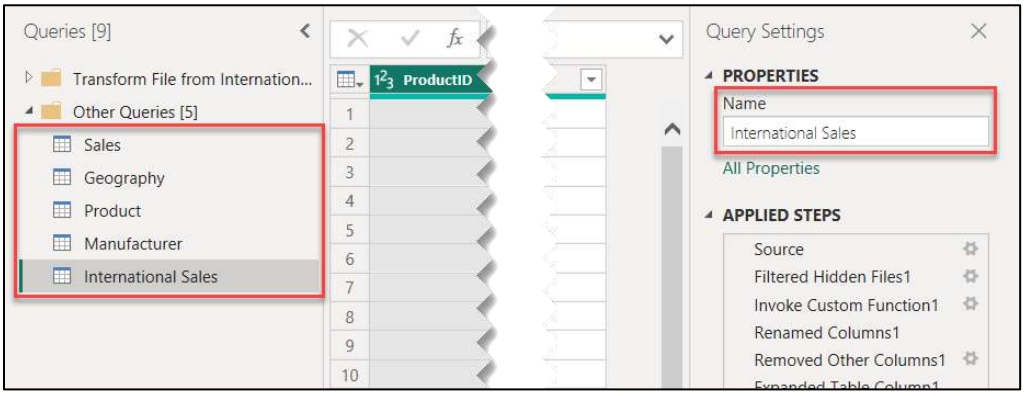
Power BI Desktop – Renaming tables

The Query Editor window should appear as shown below.

- If **formula bar** is disabled, you can turn on the formula bar from the **View** ribbon. This enables you to see the "M" code generated by each click within the ribbons.
- Select the options available within the ribbon - **Home**, **Transform**, **Add Column**, and **View** - to review the various features available.

38. Within the **Queries** pane, minimize the folder called **Transform Files from InternationalSales**.
39. Next, **rename** the queries listed within the **Queries** pane. Using the text field within the **Properties** section of the **Query Settings** pane, use the new names listed below to change the name of each of the queries listed. After entering the new name within the text field, hit **Enter** on your keyboard to save the new name of the query.

Initial Name	Final Name
Sales	Sales
geo	Geography
manufacturer	Manufacturer
Product_Table	Product
InternationalSales	International Sales

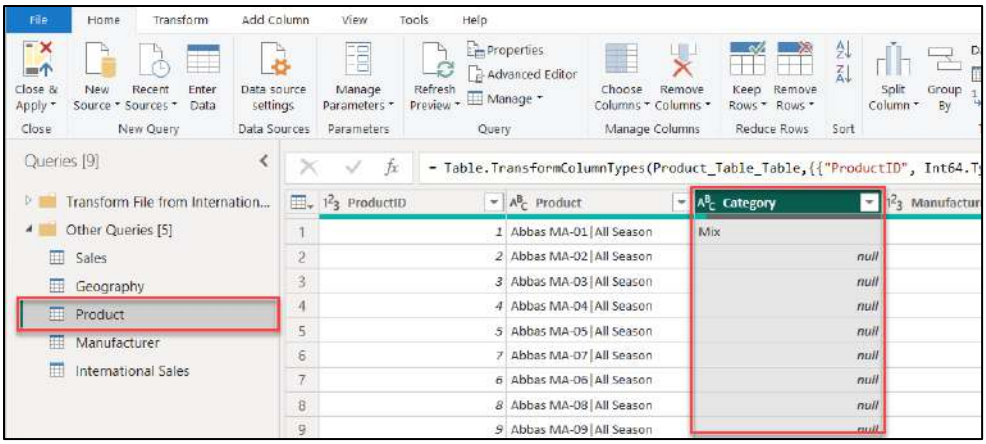


***Note**: It is a best practice to provide descriptive query and column names. These names are used in visuals and in the Q&A section of Power BI, which is covered in a later lab.*

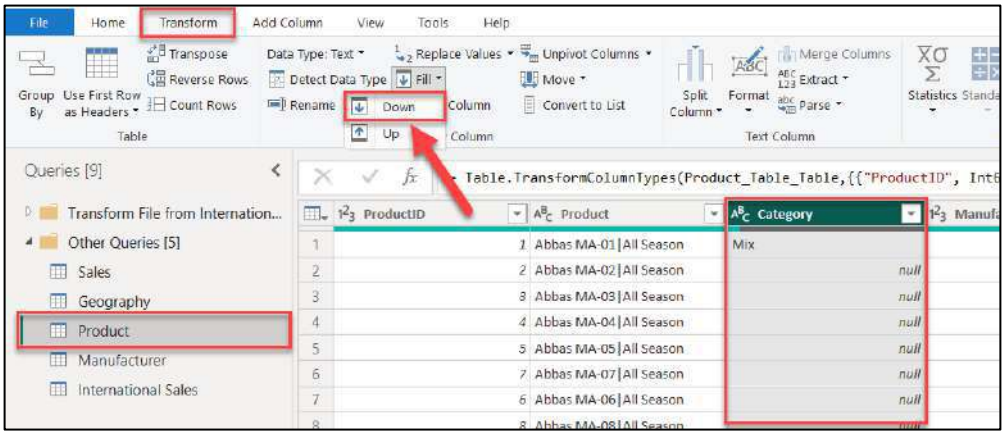
Power BI Desktop – Filling empty values

In our scenario, some of the data is not in the right format. Power BI provides extensive transformation capabilities to clean and prepare data to meet your needs. Let's start by selecting the **Product** query from the **Queries** pane.

Notice that the **Category** column has a lot of **null** values. Hover over the green/gray bar (known as the quality bar) below the column header. This allows you to easily identify errors and empty values in your data previews. It looks like there are values in the Category column only when the value changes. We need to provide data in this column so there are values in each row.



40. With the **Product** query selected from the **Queries** pane, select the **Category** column.
41. From the ribbon, select the **Transform** tab, choose the **Fill** drop-down, and then select the **Down** option.



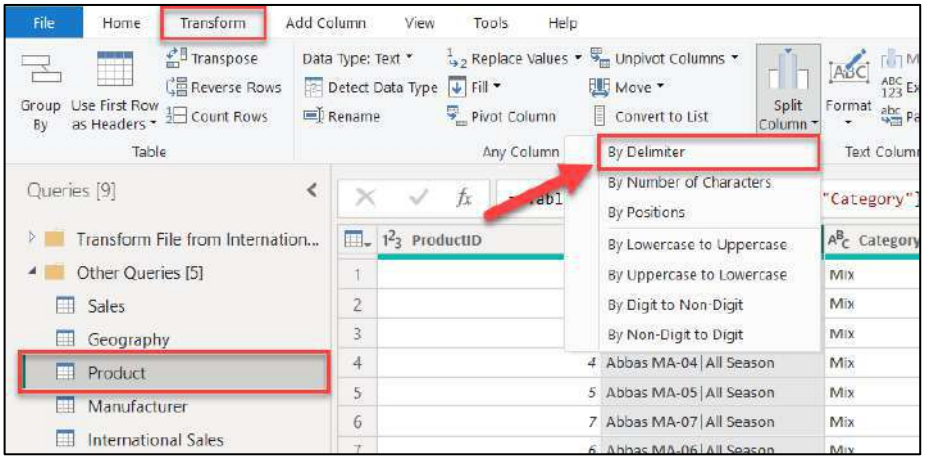
Notice how all the null values are filled with the appropriate Category values.

> ***Note**: The fill down operation takes a column and traverses through the values in it to fill any null values in the next rows until it finds a new value. This process continues on a row-by-row basis until there are no more values in that column.*

Power BI Desktop – Splitting columns

In the **Product** query, notice the **Product** column. It looks like the product name and product segment are concatenated into one field with a pipe (|) separator. Let's **split** them into **two** columns. This will be useful when we build visuals so we can analyze based on both fields.

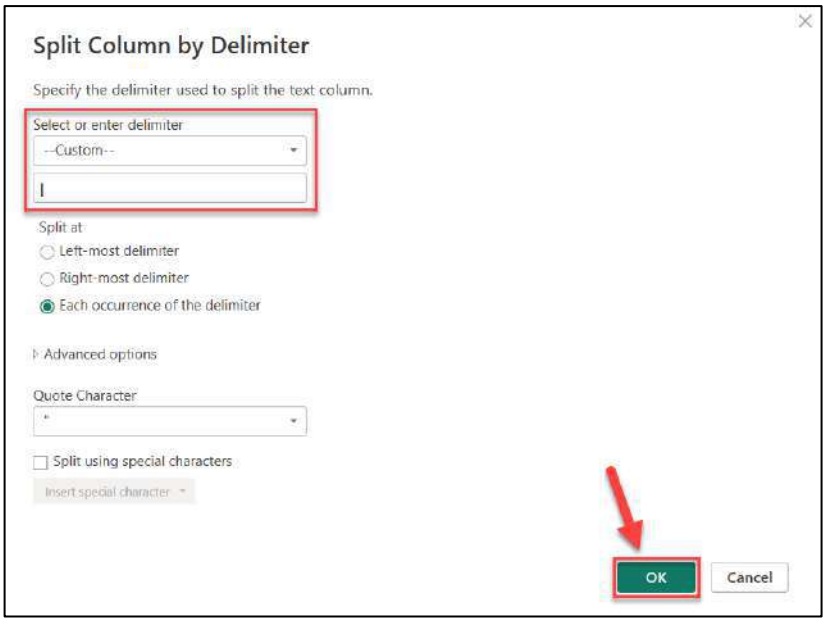
42. From the **Queries** pane to the left, ensure that the **Product** query is selected.
43. Select the **Product** column from the query table.
44. From the ribbon, select the **Transform** tab, expand the **Split Column** drop-down, and then select **By Delimiter**. The **Split Column by Delimiter** dialog box opens.



45. Within the dialog box, ensure that **Custom** is selected in the **Select or enter delimiter** drop-down menu.

> ***Note**: The **Select or enter delimiter** drop-down menu has some of the standard delimiters like comma, colon, and so on.*

46. Notice that within the text box, there is a **hyphen** (-). Power BI assumes we want to split by hyphen. **Remove** the hyphen symbol and enter the **pipe symbol** (|). Then, select **OK**.

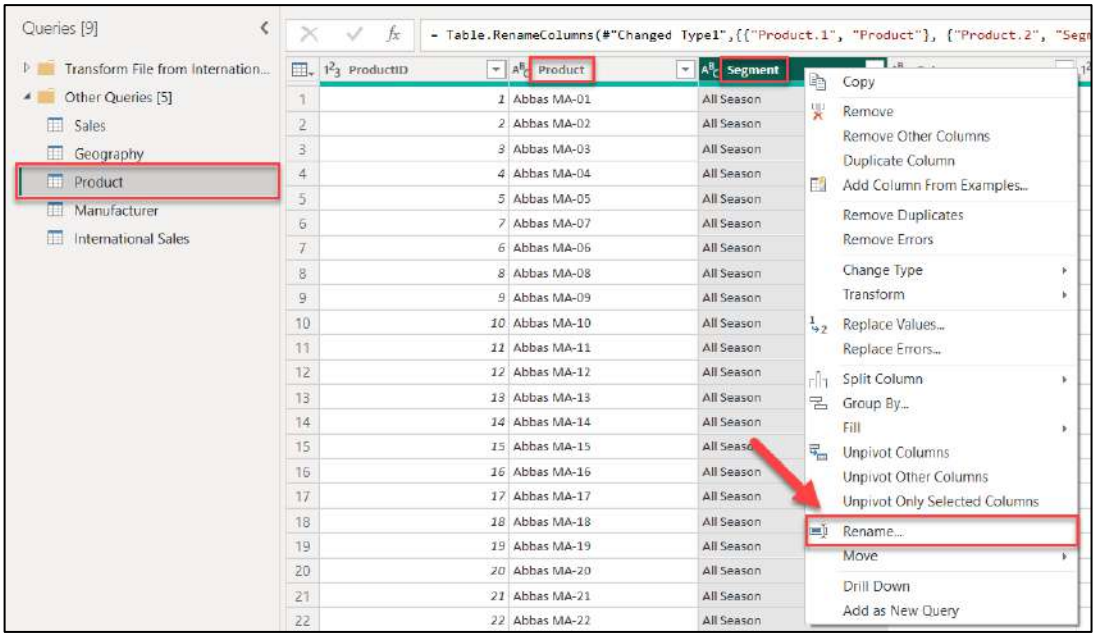


***Note**: If the delimiter occurs multiple times, the **Split at** section provides the option to split only once (either left most or right most) or the option to split the column on each occurrence of the delimiter.*
In this scenario, the delimiter occurs only once, therefore the Product column is split into two columns.

Power BI Desktop – Renaming columns

Let's rename the columns now to something more user friendly.

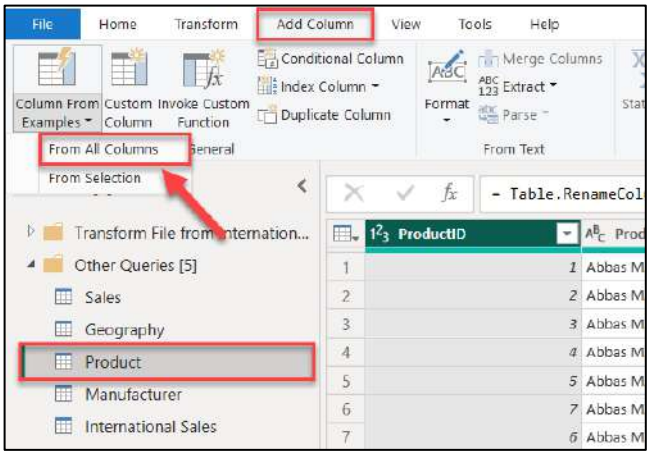
47. Select the **Product.1** column, and then right-click next to the column name.
48. Choose **Rename…** from the options menu.
49. **Rename** the field to **Product**.
50. Use the same steps to rename **Product.2** to **Segment**.



Power BI Desktop – Using Column From Examples to split columns

In the **Product** query, notice that the **Price** column has price and currency concatenated into one field. To do any calculations we only need the numeric value. Therefore, we need to split this field into two columns. We can use the split feature like earlier or we can use **Column From Examples**. **Column From Examples** is handy in scenarios where the pattern is more complex than simply a delimiter.

51. From the **Queries** pane to the left of the screen, ensure that the **Product** query is selected.
52. From the ribbon at the top of the screen, select the **Add Column** tab, choose the **Column From Examples** drop-down, and then select **From All Columns**.

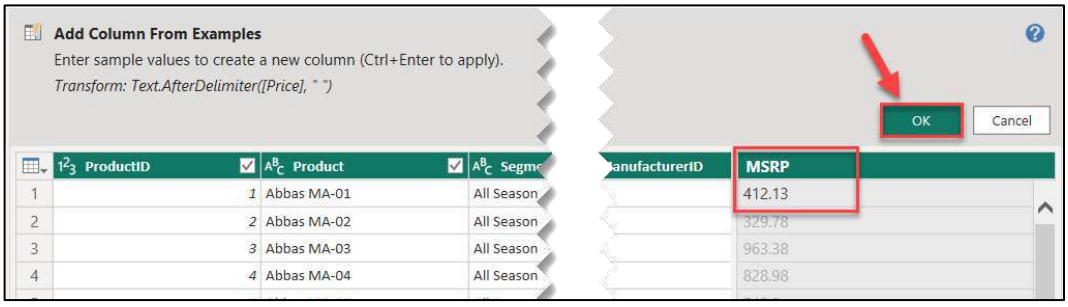


53. Within the **first row** of the newly added **Column1,** enter the first **Price** value, **412.13**, and hit **Enter** on your keyboard.

Notice after you hit Enter, Power BI knows that you want to split the **Price** column. The formula Power BI uses is displayed as well.

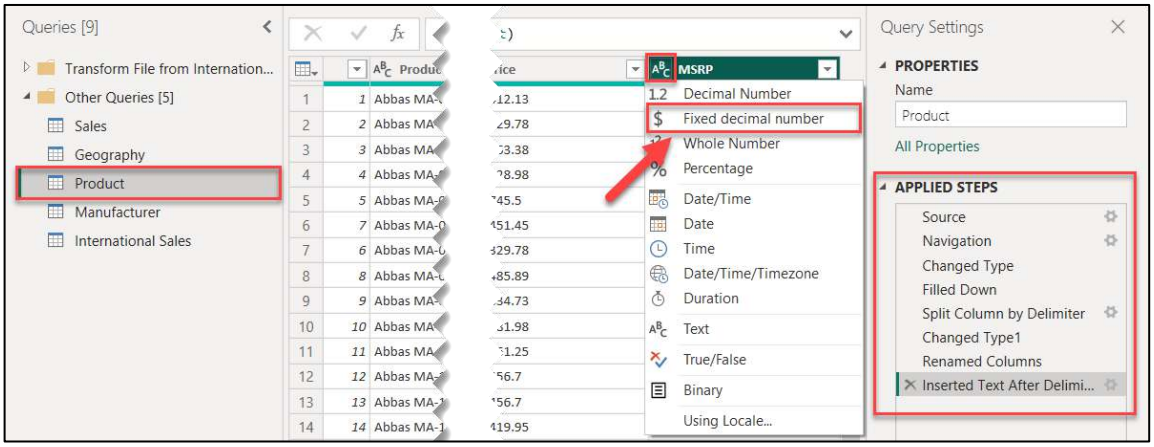
> ***Note**: A common mistake that can occur here is the **Column From Example** feature may attempt to auto-type **USD 412.13** with the Intellisense feature**.** DO NOT accept this auto-typed value.*

54. Double-click the column header of the newly added column within the query table.
55. **Rename** the column to **MSRP** and select **OK** to apply the changes.



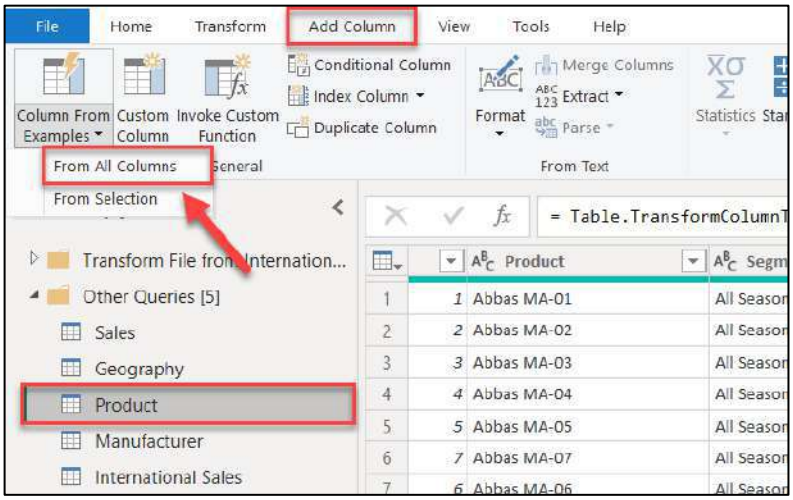
Notice that the **MSRP** field has a Data Type of **Text**. The Data Type that it needs to be is decimal. Let's change it.

56. Select the **ABC** icon to the left of the **MSRP** column header.
57. From the menu, select **Fixed Decimal Number**. Notice that all the steps we performed on the Product query are being recorded under **APPLIED STEPS** in the right panel.

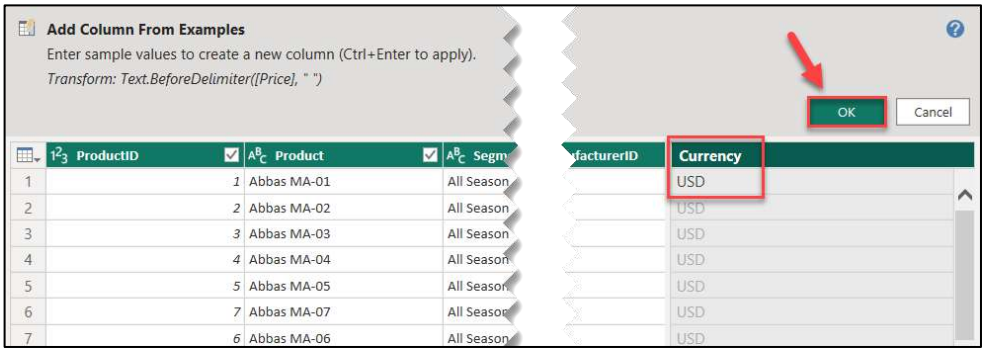


Now let's create a **Currency** column in the same way.

58. With the **Product** query selected, from the ribbon, select the **Add Column** tab, choose the **Column From Examples** drop-down, and then select **From All Columns**.



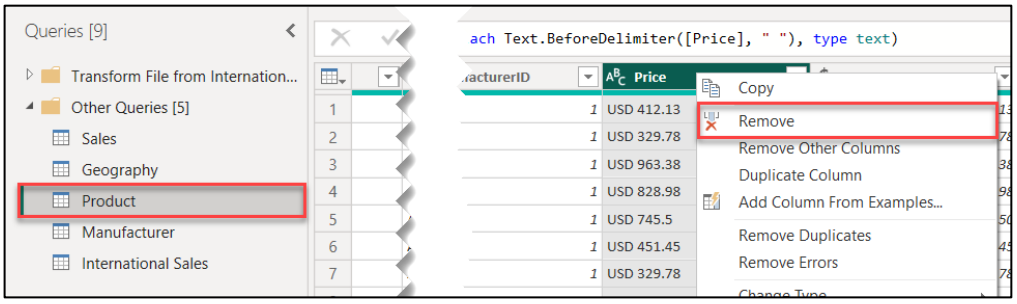
59. Within the **first row** of the newly added **Column1** enter the first **Currency** value as **USD** and then hit **Enter** on your keyboard.
60. **Rename** the column header from **Column1** to **Currency**.
61. Select **OK** to apply the changes.



Notice that after you hit **Enter**, Power BI knows you want to split the **Price** column. The formula it uses is displayed above as well.

Now that we have split the **Price** column into the **MSRP** and **Currency** columns, we no longer need the original **Price** column. Let's remove it.

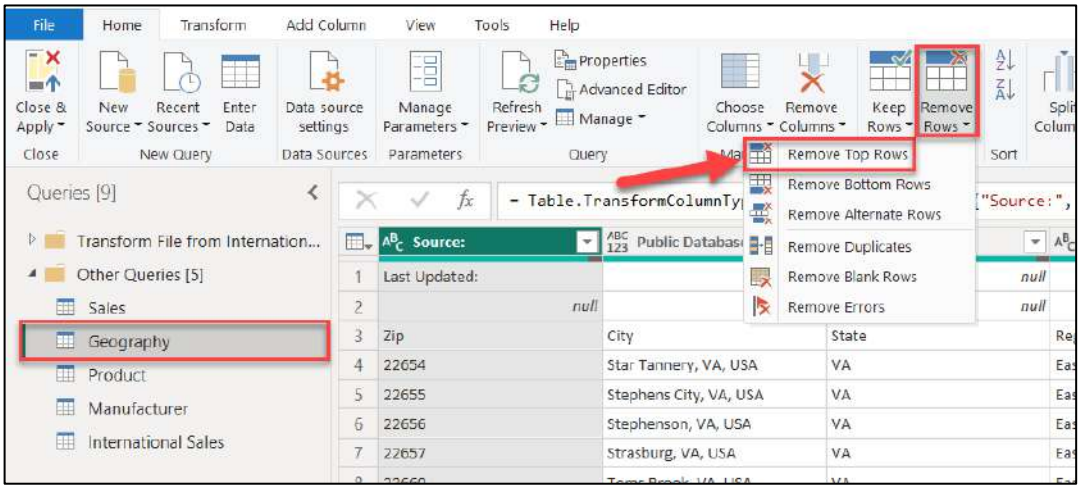
62. Ensure that you are still viewing the Product query. Right-click on the **Price** column.
63. Select **Remove** from the options menu.



Power BI Desktop – Removing unwanted rows

In the **Geography** query, notice that the first two rows are informational. They are not part of the data. Similarly, in the Manufacturer query, the last couple of rows are not part of the data. Let's remove them so we have a clean dataset to work with.

64. Within the Queries pane to the left of the screen, select the **Geography** query.
65. From the ribbon, select the **Home** tab, choose the **Remove Rows** drop-down, and then select **Remove Top Rows**.



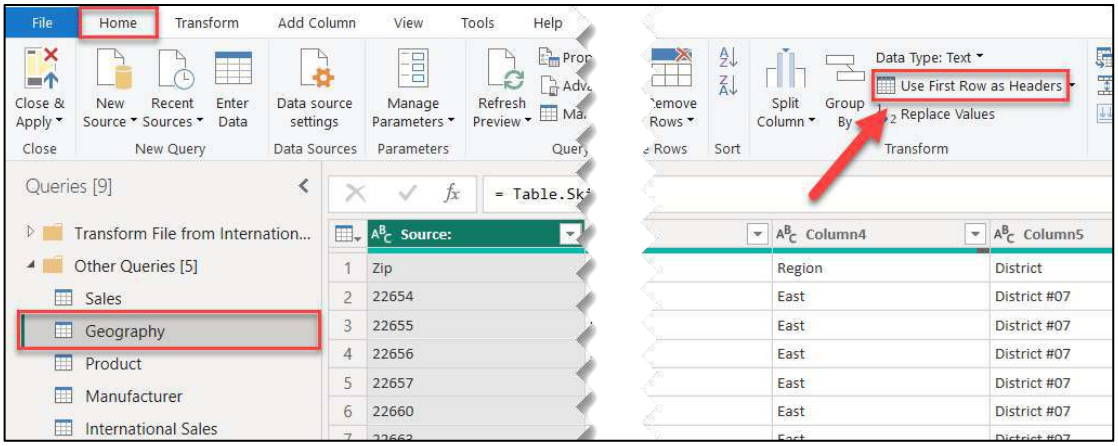
66. The **Remove Top Rows** dialog box opens. Enter **2** in the text box since we want to remove the top informational data row and the blank second row.
67. Then, select **OK**.



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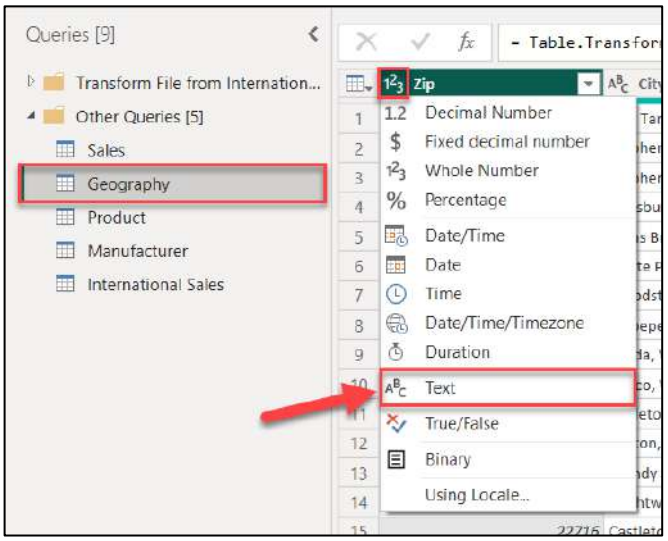
Notice the first row in the Geography query contains the column headers. Let's move them into the column header position.

68. Ensure that the **Geography** query is still selected within the Queries pane. From the ribbon at the top of the screen, select the **Home** tab, and then choose **Use First Row as Headers** (*not the drop-down*).

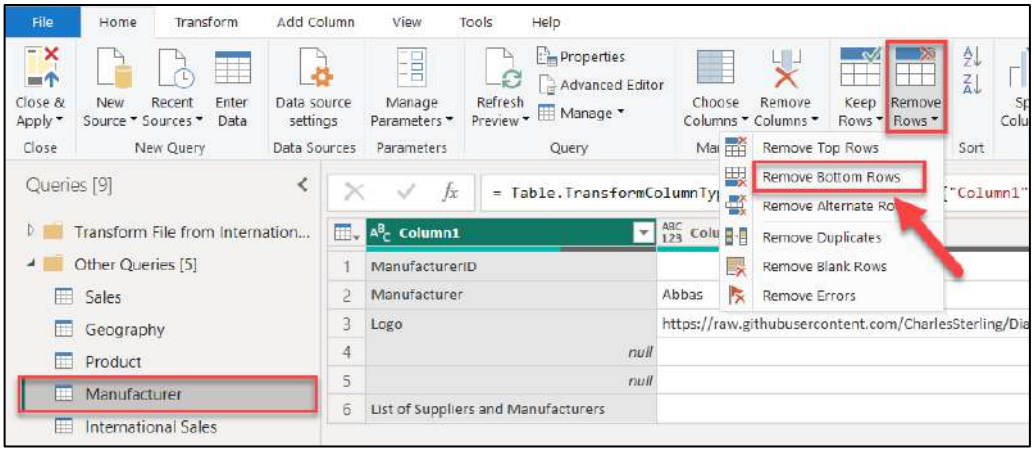


With that step, Power BI will predict the data type of each field again. Notice that the column **Zip** was changed to the **Number** Data Type. Let's change it to **Text** again as we did earlier. If we don't, we will see errors when we load the data.

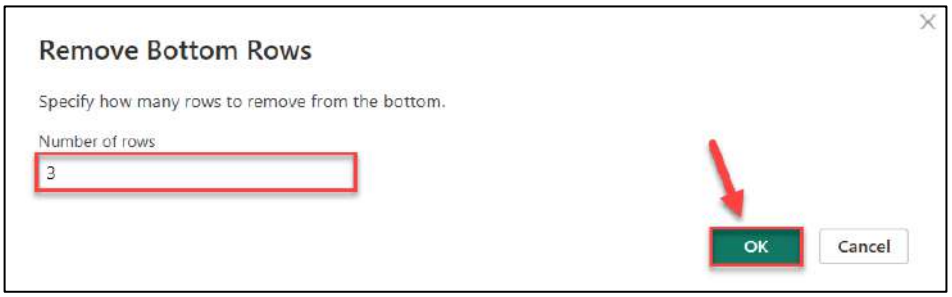
69. Select the **data type** icon to the left of the **Zip** column header. From the options menu, select **Text**.



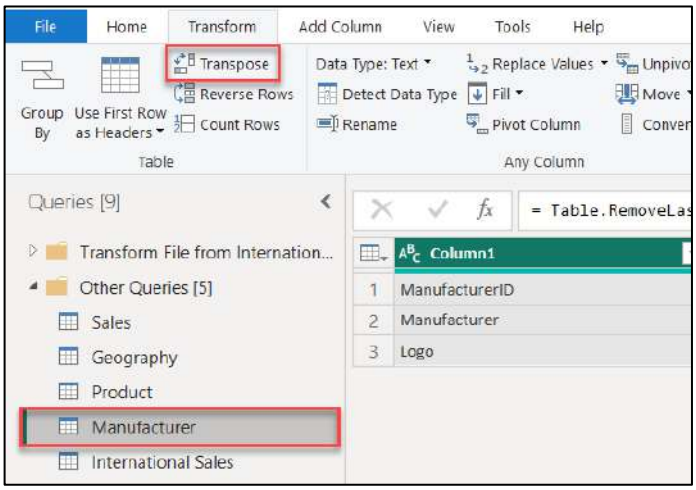
70. Select **Replace Current** in the **Change Column Type** dialog box.
71. From the **Queries** pane, select the **Manufacturer** query. Notice the bottom three rows are not part of the data. Let's remove them.
72. From the ribbon, select the **Home** tab, choose the **Remove Rows** drop-down, and then select **Remove Bottom Rows.**



73. The **Remove Bottom Rows** dialog box opens. Enter **3** in the **Number of rows** text box.
74. Then, select **OK**.

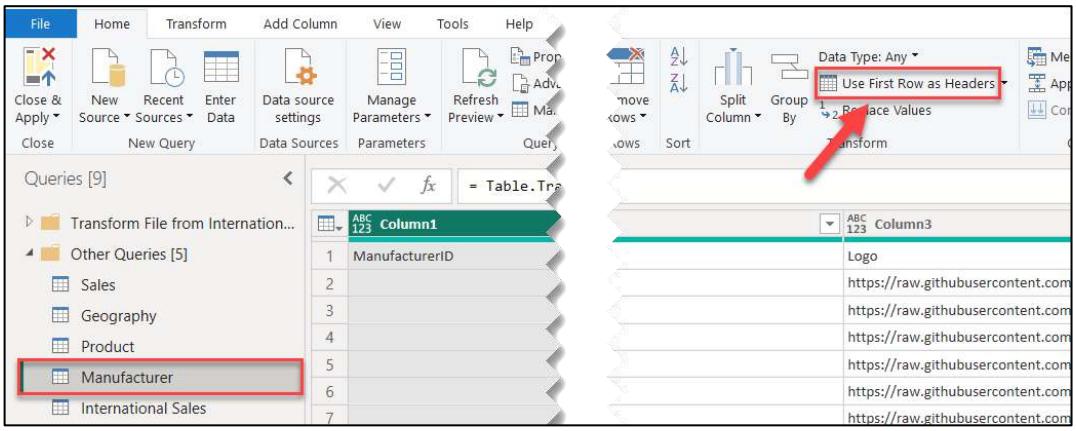


75. From the Queries pane to the left of the screen, select the **Manufacturer** query. Notice that the **ManufacturerID**, **Manufacturer**, and **Logo** data are laid across in rows. Also notice that the header is not useful. We need to transpose the table to meet our needs.
76. From the ribbon at the top of the screen, select the **Transform** tab, then choose **Transpose**.

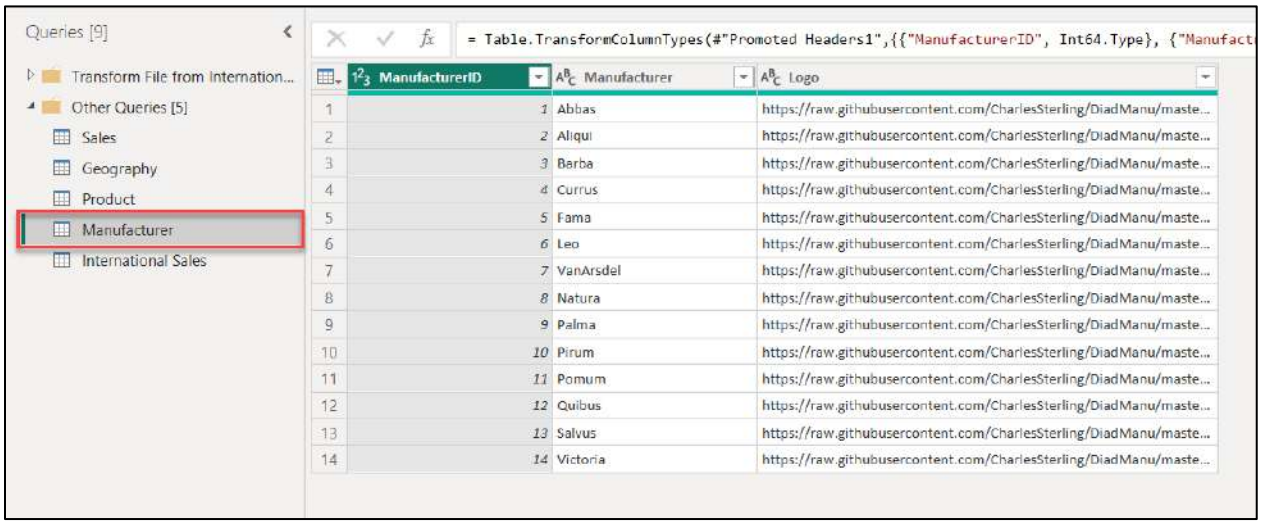


Notice that this transposes the data into columns. Now we need the first row to be the header.

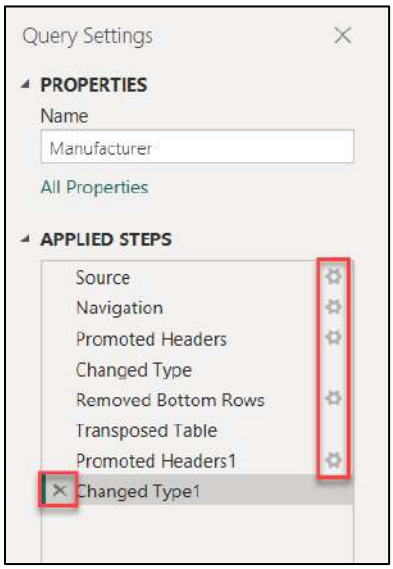
77. From the ribbon at the top of the screen, select the **Home** tab, and then choose the **Use First Row as Headers** button (*not the drop-down*).



Notice that now the **Manufacturer** table is laid out the way we need it with a header and values along columns.



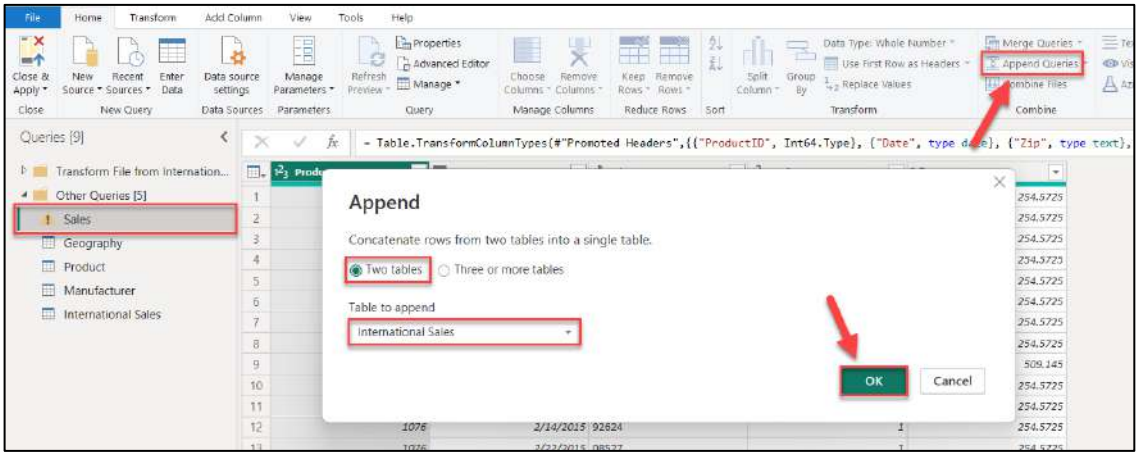
Also, notice that with the **Query Settings** pane, under **APPLIED STEPS**, you will see the list of transformations and steps that have been applied. You can navigate through each change made to the data by selecting the step. Steps can also be deleted by choosing the **X** that appears to the left of the step. The properties of each step can be reviewed by selecting the **gear** to the right of the step.



Power BI Desktop – Appending queries

To analyze the sales of all countries, it is convenient to have a single **Sales** table. To do this, you need to append all the rows from the **International Sales** query to the **Sales** query.

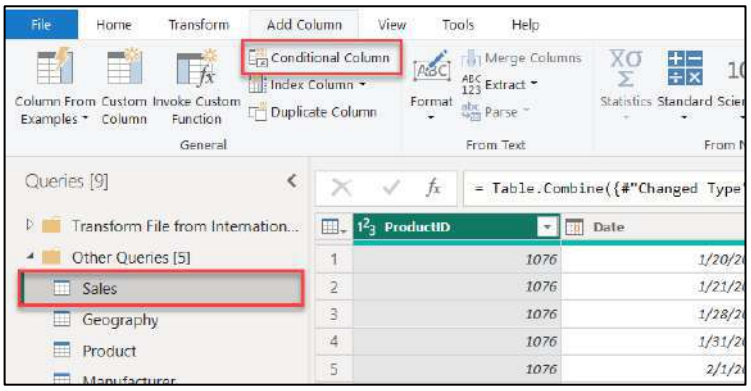
78. Within the **Queries** pane to the left of the screen, select the **Sales** query.
79. From the ribbon at the top of the screen, select the **Home** tab, and then choose **Append Queries** button (*not the drop-down*).
80. The **Append** dialog box opens. There is an option to append **Two tables** or **Three or more tables**. Leave **Two tables** selected since we are appending just two tables.
81. From the **Table to append** drop-down, select **International Sales**. Then, select **OK**.



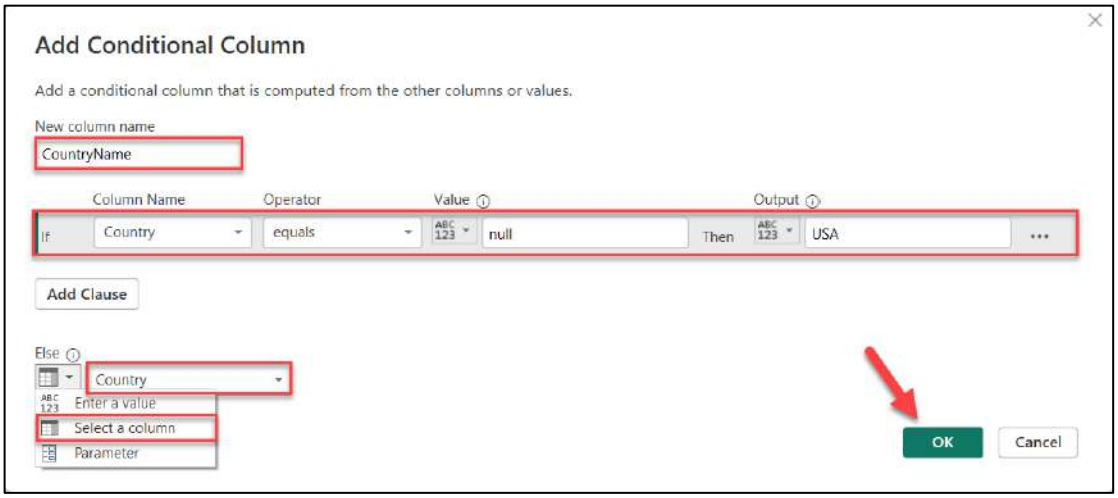
You will now see a new column in the **Sales** table called **Country**. Since the **International Sales** query had the additional column for **Country**, the Power Query Editor added the **Country** column to the newly updated **Sales** table when it loaded the values from the **International Sales** query.

You may also notice that there are **null** values within the **Country** column by default for the **Sales** table rows. This is because that column did not exist for the table with USA data. We will now add the value **USA** as a data shaping operation.

82. From the ribbon at the top of the screen, select the **Add Column** tab, and then choose the **Conditional Column** button.



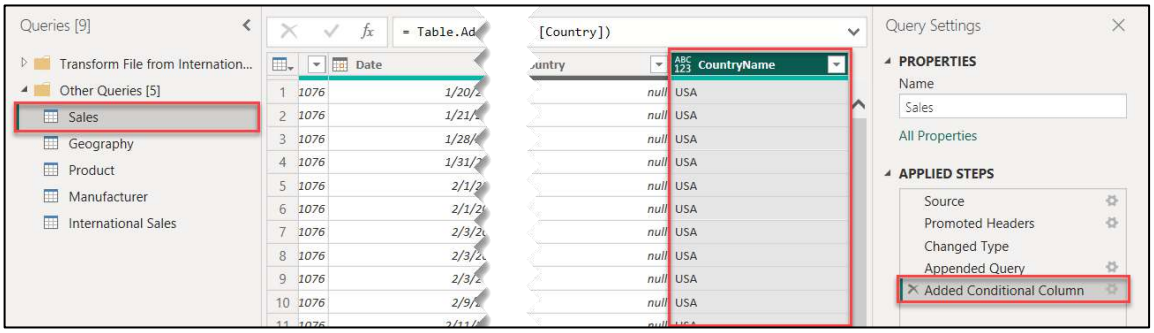
83. In the **Add Conditional Column** dialog box, enter the name of the column as **CountryName**.
84. Select **Country** from the **Column Name** drop-down menu.
85. Choose **equals** from the **Operator** drop-down menu.
86. Enter **null** in the **Value** text box.
87. Enter **USA** in the **Output** text box.
88. Select the  drop-down menu under **Else** and then choose the **Select a column** option.
89. Choose **Country** from the column drop-down menu.
90. Then select **OK**.



This reads: If the current Country value is equal to null, then the value should return USA; otherwise, if the value is not null, then use the current Country value.

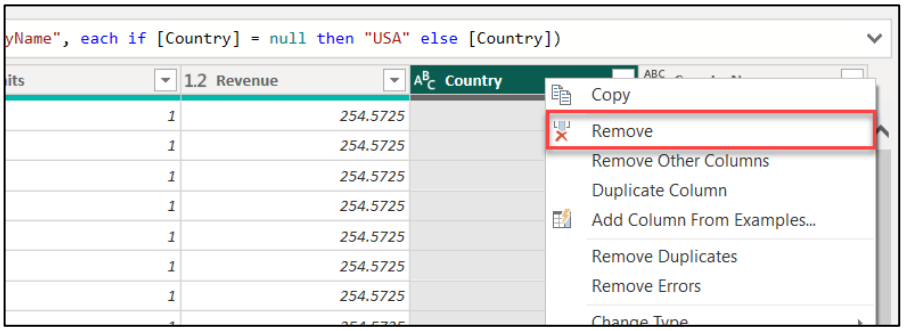
> ***Note**: A common mistake on the previous step is that the **Else** may not being set correct. Please double check your **Else** part of the conditional column matches the screenshot above.*

91. You will see the **CountryName** column in the Query editor window. Notice that within the **APPLIED STEPS** list, it has added to the list the action you just completed.



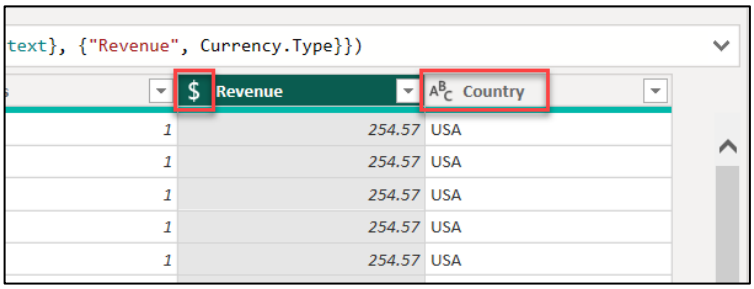
The original **Country** column containing the null values is no longer needed and can be removed from the final table for analysis.

92. Right-click on the **Country** column within the **Sales** query, and select **Remove** from the options menu.



With this column now removed, we can now **rename** the **CountryName** column to **Country**.

93. Right-click on the **CountryName** column within the **Sales** query, and **rename** it to **Country**.
94. Select the **Data Type** icon to the left of the **Country** column header and change the **Data Type** to **Text**.
95. Next, select the **Data Type icon** to the left of the **Revenue** column header and change the **Data Type** to **Fixed decimal number**. We do this because it is a currency field.

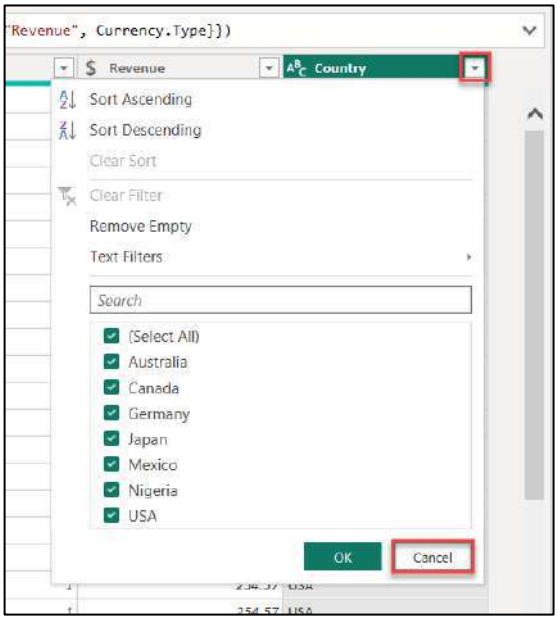


***Note**: The difference between a Fixed decimal number and a Decimal number is related to the length and precision of the decimal places. https://learn.microsoft.com/en-us/power-bi/connect-data/desktop-data-types#number-types*

When the data is refreshed, it will process through all the **APPLIED STEPS** that you have created.

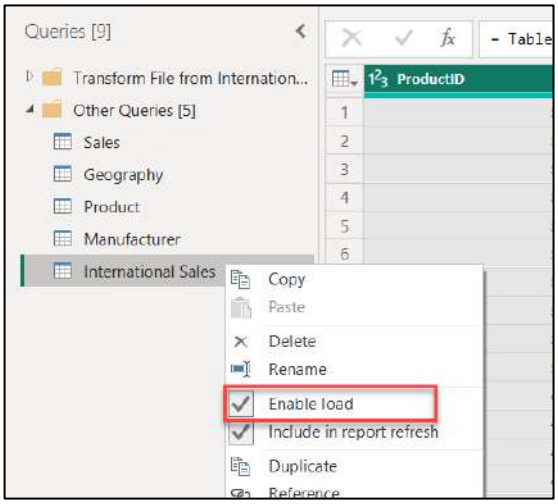
The newly named **Country** column will have names for **all countries**, including the USA. You can validate this by selecting the drop-down menu next to the **Country** column to see the unique values.

96. At first, you will only see USA data. Select the **drop-down arrow** to the right of the **Country** column header. Select **Load more** to validate your data from all seven countries.
97. Select **Cancel** to close this filter. You ***do not*** need to apply this filter to the data.



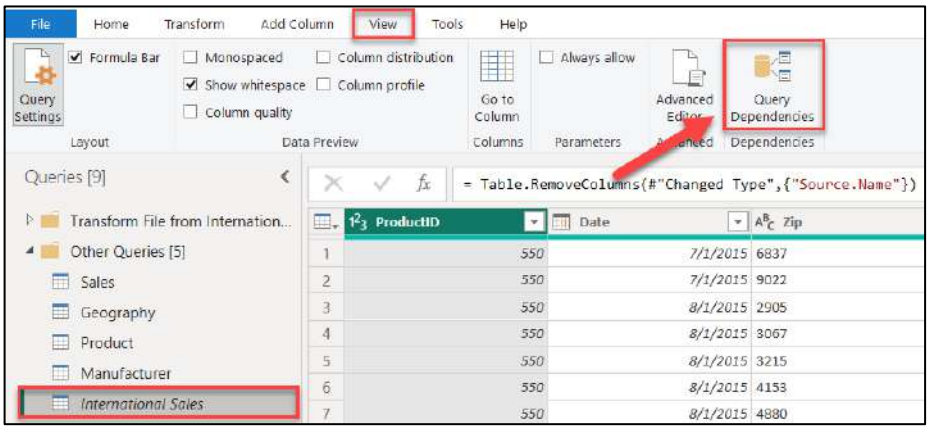
Now that the **International Sales** data is appended to the **Sales** query, in order to avoid duplicating data we should suppress the **International Sales** table from loading into the data model.

98. From the **Queries** pane to the left of the screen, select the **International Sales** query.
99. Right-click on the **International Sales** query within the Queries pane, and then choose **Enable Load** to **deselect** this setting. This will disable loading of the International Sales query into the data model. (*You should see the name of this query become italicized in the Queries pane after deselecting the Enable load option*)



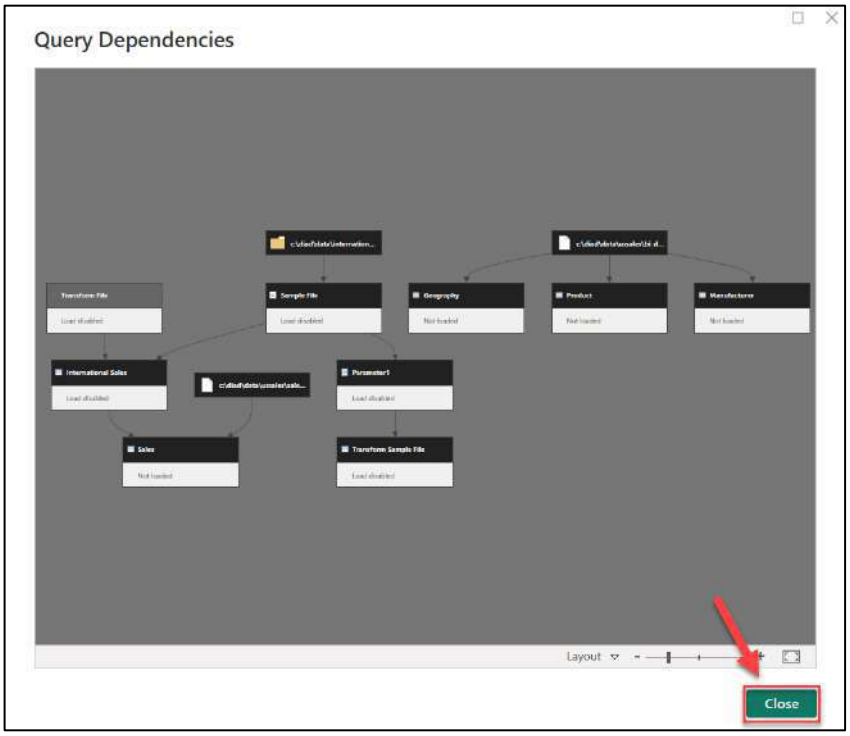
> ***Note:*** *The appropriate data from the International Sales table will load onto the Sales table each time the model is refreshed. By removing the International Sales table, we are preventing duplicate data from loading into the model and increasing its file size. In some instances, storing very large amounts of data affects the data model performance.*

100. You *may* receive a message about **Possible Data Loss Warning**. If so, select **Continue** when this warning appears.
101. Next, while the International Sales query is still selected, choose the **View** tab from the ribbon and then select the **Query Dependencies** button.



This opens the **Query Dependencies** dialog box. The dialog box shows the source of each query and its dependencies. For example, we see that the **Sales** query has a **CSV file source** and a dependency on the **International Sales** query. This is a useful information to share knowledge with your team members.

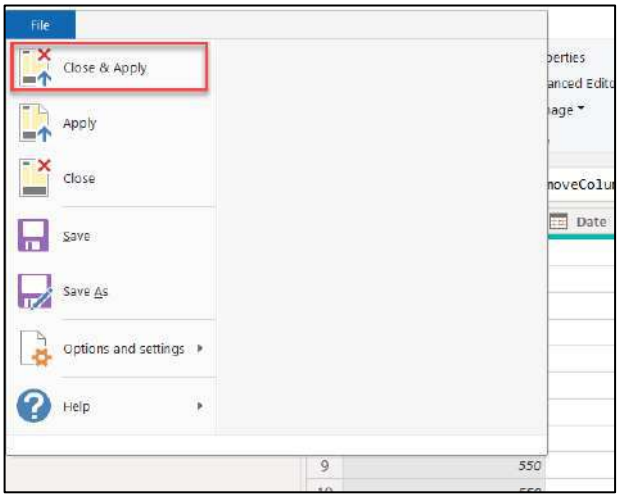
102. Select **Close** at the bottom of the dialog box.



> ***Note:*** *That you can zoom in and out of the* ***Query Dependencies*** *view as needed.*

You have now successfully completed import and data shaping operations and are ready to load the data into the Power BI Desktop data model to visualize the data.

103. From the ribbon at the top of the screen, select the **File** tab, then choose **Close & Apply**. This will close out the power query window and apply all changes.

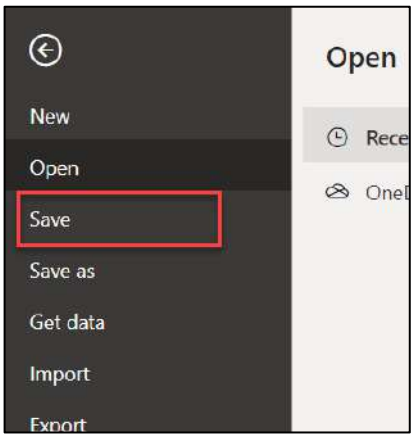


All the data will be loaded in memory in the Power BI Desktop. You will see the progress dialog box with the number of rows being loaded in each table as shown in the Figure. Once the load completes the results of this Power BI Desktop file will be used in Lab 02.

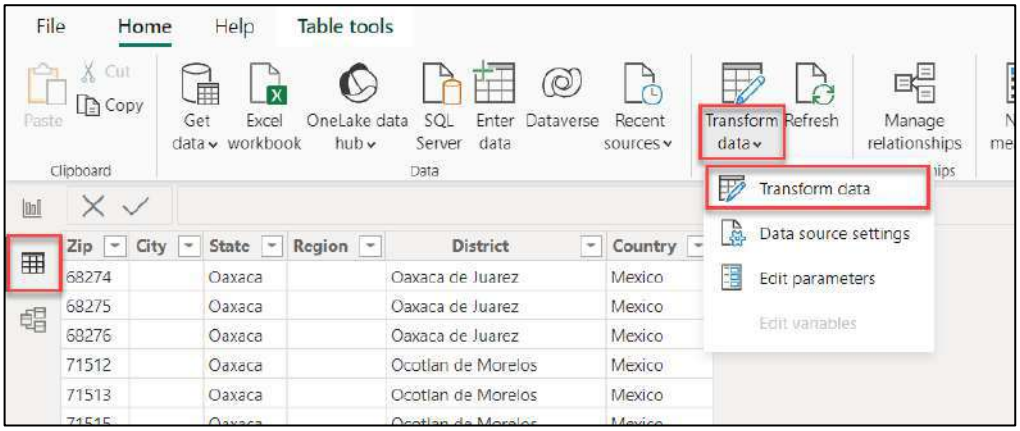


> ***Note:*** *It may take several minutes to load all the tables.*

104. Once the data has finished loading, select the **File** tab from the ribbon at the top of the screen.
105. Then, from the options menu to the left, select **Save** to save the file. Name the file as **MyFirstPowerBIModel**. Save the file within the **DIAD Reports** (**\DIAD\Reports**) folder.

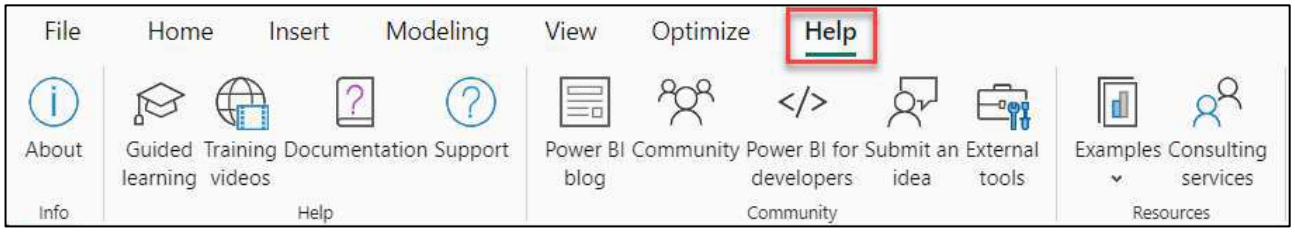


106. Within the **navigation pane** to the left of the screen, select the **Data** icon to view the data that was loaded. If you need to return to the **Power Query editor** again, navigate to **Home → Transform Data → Transform data**.



References

Dashboard in a Day introduces you to some of the key functions available in Power BI. In the ribbon of the Power BI Desktop, the Help section has links to some great resources.



Here are a few more resources that will help you with your next steps with Power BI.

- Getting started: http://powerbi.com
- Power BI Desktop: https://powerbi.microsoft.com/desktop
- Power BI Mobile: https://powerbi.microsoft.com/mobile
- Community site https://community.powerbi.com/
- Power BI Getting started support page: https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi
- Support site https://support.powerbi.com/
- Feature requests https://ideas.powerbi.com/forums/265200-power-bi-ideas
- New ideas for using Power BI https://aka.ms/PBI_Comm_Ideas
- Power BI Courses http://aka.ms/pbi-create-reports
- Power Platform https://powerplatform.microsoft.com/en-us/instructor-led-training/
- Power Apps Business Apps | Microsoft Power Apps
- Power Automate Power Automate | Microsoft Power Platform
- Dataverse What is Microsoft Dataverse? - Power Apps | Microsoft Docs

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DISCLAIMER

This demo/lab contains only a portion of new features and enhancements in Microsoft Power BI. Some of the features might change in future releases of the product. In this demo/lab, you will learn about some, but not all, new features.

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Introduction

This is lab two out of five labs in total. **Please continue to use your file after completing Lab 1.** If you are joining the DIAD at this point or were unable to complete Lab 1, please start this lab with the "Lab 1 solution.pbix" file you can find in the **Reports** folder.

In this lab you will learn how to:

- create a range of different charts.
- highlight and cross-filter.
- create new groups and hierarchies.
- add new measures to the model to do additional analysis.

The lab includes steps for the user to follow along with associated screenshots that provide a visual aid. In the screenshots, sections are highlighted with red or orange boxes to indicate the area the user needs to focus on.

> ***Note:*** *This lab uses real, anonymized data provided by ObviEnce, LLC. Visit their site to learn about their services. This data is the property of ObviEnce, LLC and has been shared to demonstrate Power BI functionality with industry sample data. Any use of this data must include this attribution to ObviEnce, LLC.*

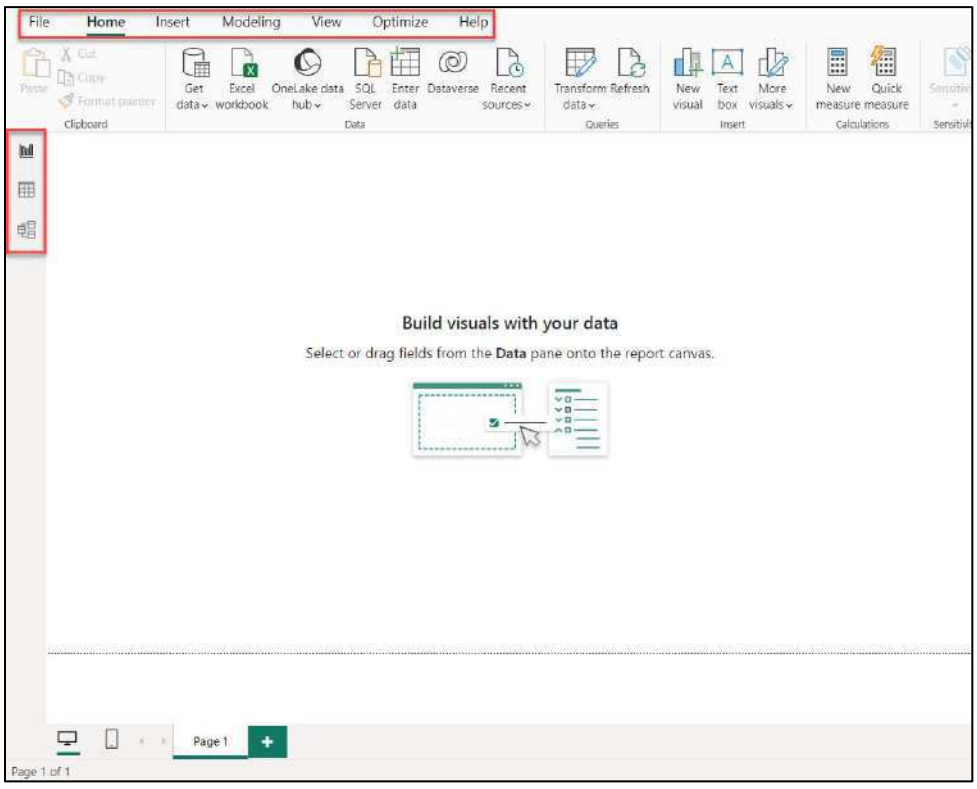
Power BI Desktop – Data Modeling and Exploration

In this section, we will learn about the key parts of the Power BI desktop. We will model and explore the data and build visuals.

Power BI Desktop - Layout

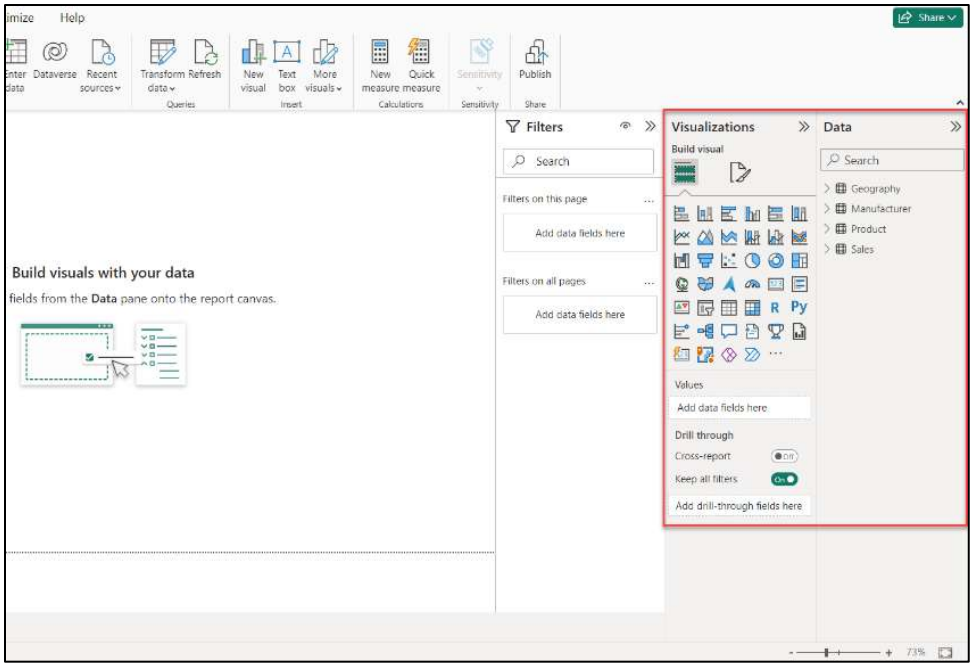
Let's start with the main **Power BI Desktop** window of your file entitled **MyFirstPowerBIModel** *(This is the file that we saved at the end of Lab 1; refer back to the Introduction)* and become familiar with the distinct sections available.

1. At the top of the window within the ribbon, you will see the **Home** tab where the most common operations you perform are available.
2. The **Insert** tab in the ribbon allows you to insert shapes, a text box or new visuals.
3. The **Modeling** tab in the ribbon enables additional data modeling capabilities like adding custom columns and calculating measures.
4. The **View** tab has options to format the page layout.
5. The **Help** tab provides self-help options like guided learning, training videos and links to online communities, partner showcases and consulting services.
6. On the left side of the window, you have three icons within the **Navigation** menu: **Report View, Table View** and **Model View**. If you hover over the icons, you can see the **tooltips**. Switching between these allow you to see the data and the relationships between the tables.
7. The center **white space** is the canvas where you will be creating visuals.

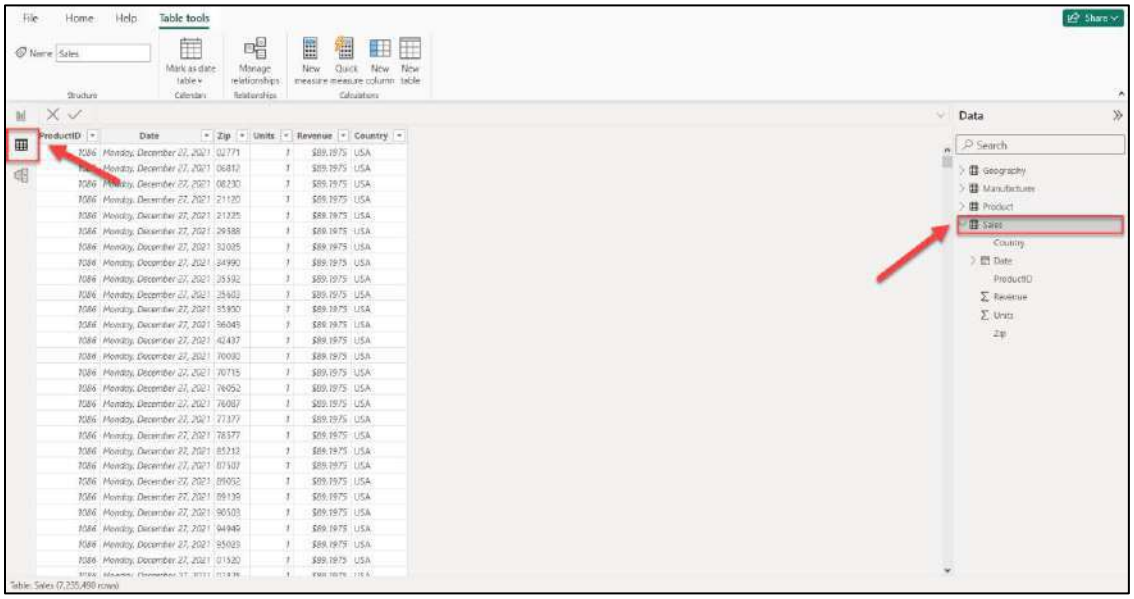


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8. The **Visualizations** pane on the right-side of the window allows you to select visualizations, add values to the visuals, and add columns to the axis or filters.
9. The **Data** pane is where you see the list of tables which were generated from the queries. By selecting the arrow next to a table name, you can expand the list of fields for that table.



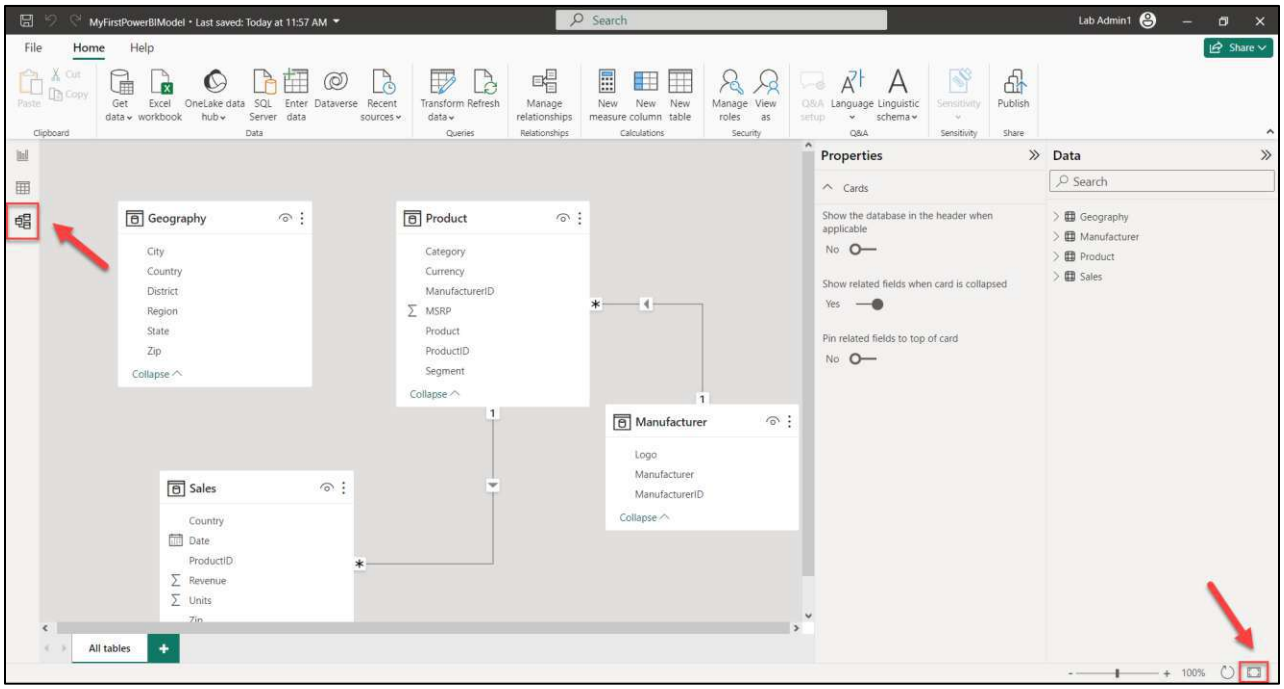
10. Select the **Table** view icon within the **Navigation** menu to the left side of the screen. Select and expand the **Sales** table within the **Data** pane as shown in the figure below. Scroll up and down to notice how fast you can navigate through over three million rows.



11. Select the **Model** view icon within the **Navigation** menu to the left side of the screen. You will see the tables you have imported along with Relationships. The Power BI Desktop can often automatically infer relationships between the tables.
    - A relationship is created between the **Sales** and **Product** tables using the **ProductID** column.
    - A relationship is created between the **Product** and **Manufacturer** tables using the **ManufacturerID** column.

Power BI supports multiple types of relationships:

- 1 to many
- 1 to 1
- Many to many



In this lab, we will be using the 1 to many type of relationship, the most common type of relationship. This means one of the tables involved in the relationship should have a unique set of values. We will create additional relationships later in this lab.

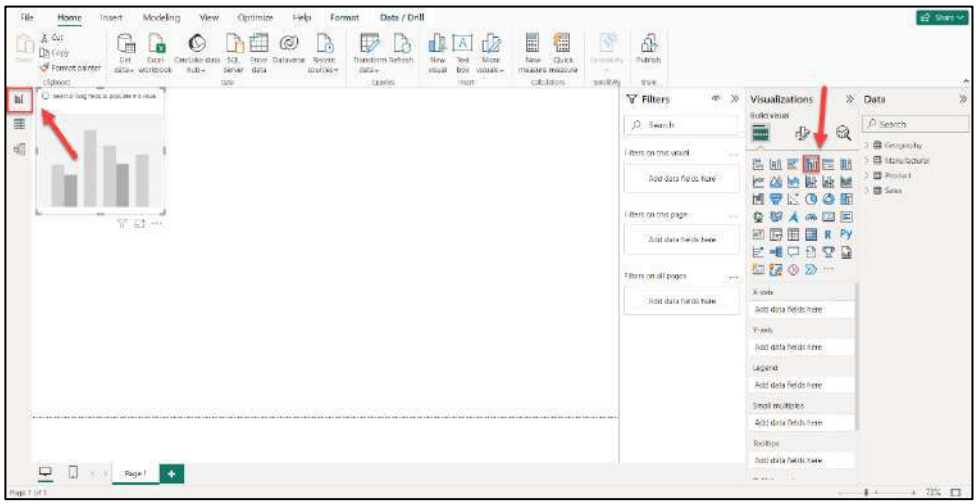
Drag, **resize,** and **move** the tables to appear like those shown in the figure above:

***Note**: Tables may not appear as shown in the figure. You can zoom in and out of the **Relationship** models by dragging the zoom slider in the bottom right corner of the window. Also, if you want to ensure you are seeing all the tables, use the **Fit to Screen** icon. You can resize the tables by selecting the boarders of the tables and dragging.*

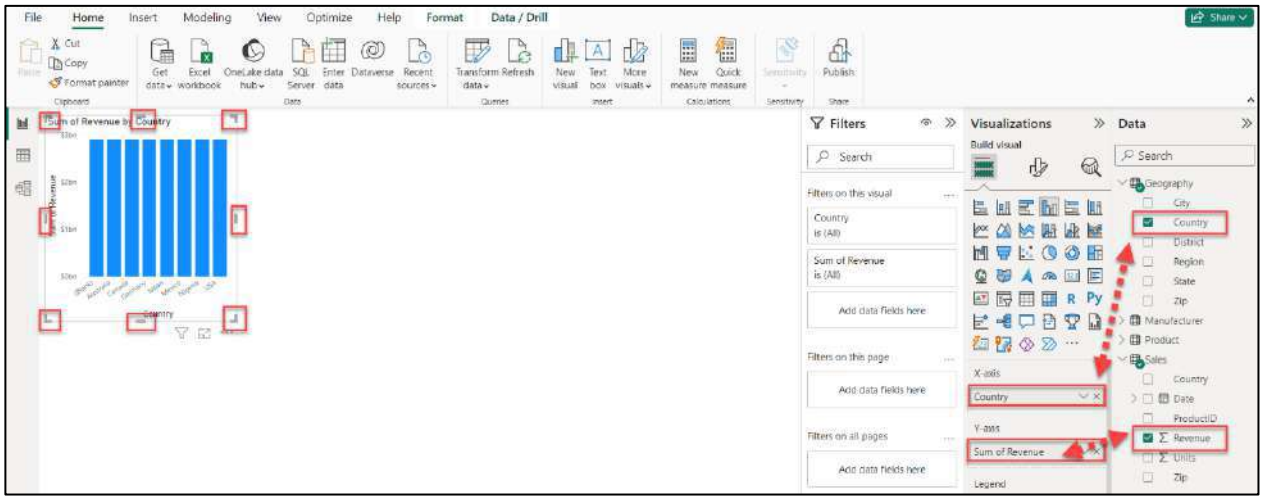
Power BI Desktop – Data Exploration

Now that we have loaded data, let's start with analyzing sales by country.
Ensure that you are currently viewing the report you created and titled MyFirstPowerBIModel in the previous lab.

1. Select the **Report** view icon from the **Navigation** menu to the left side of the Power BI Desktop.
2. Select the **Clustered column chart** visual from the **Visualizations** pane.



3. From the **Data** pane to the right of the screen, expand the **Geography** table and then select the **checkbox** next to the **Country** field. Notice that the **Country** field is placed within the **X-axis** box within the **Visualizations** pane.
4. From the **Data** pane again, expand the **Sales** table and then select the **checkbox** next to the **Revenue** field. Notice that the **Revenue** field is placed within the **Y-axis** box within the **Visualizations** pane.
5. **Resize** the visual as needed by dragging the anchor points around the edges of the visual as shown below.

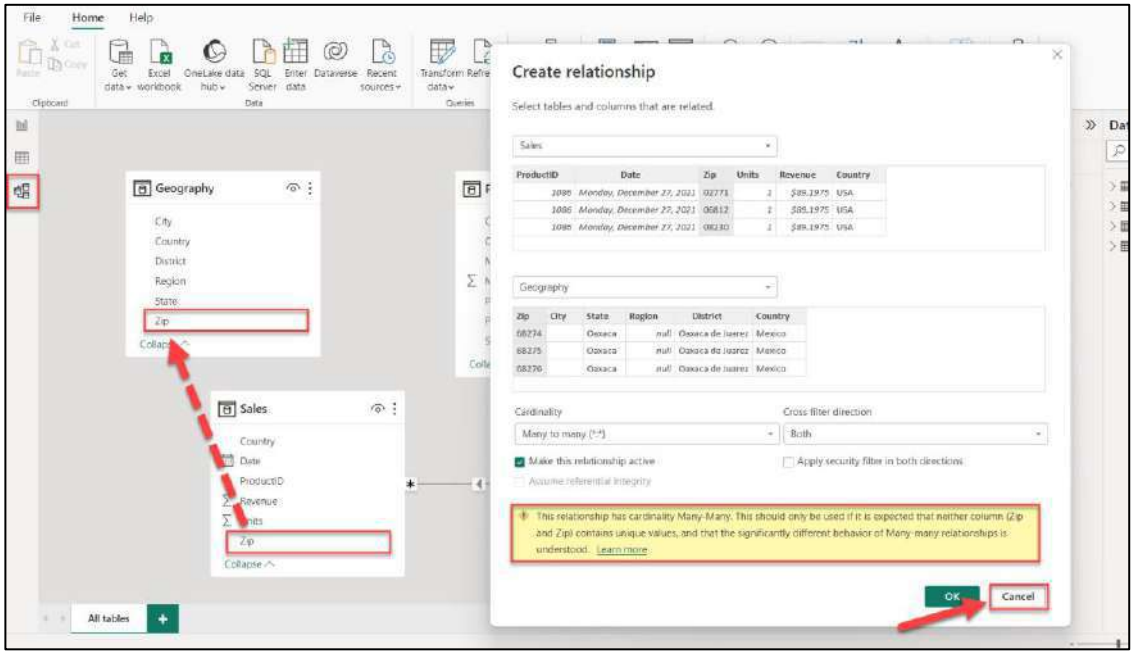


Notice that the **Sum of Revenue** of each country is the same. This is because there is currently no relationship between the tables used in the visual.

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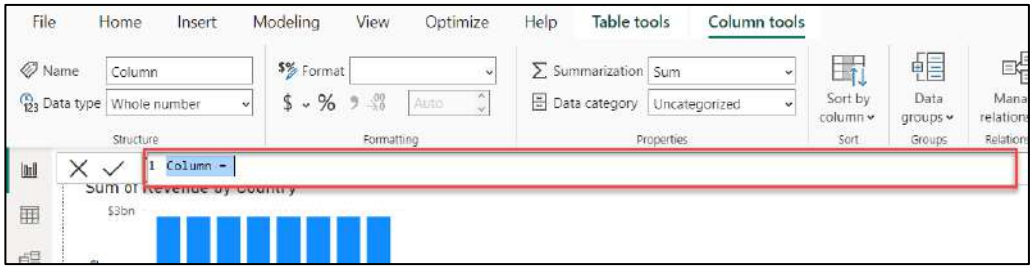
Next, we will create a relationship between the Sales and Geography tables.

6. Select the **Model** icon within the **Navigation** menu to the left side of the Power BI Desktop to navigate to the **Model** view.
7. Our sales data is by Zip code, so we need to connect the **Zip** column from the **Sales** table with **Zip** column in the **Geography** table. To do this, select, drag, and drop the **Zip** field in the **Sales** table to on top of the **Zip** field in the **Geography** table.
   You will notice the **Create relationship** dialog opens with a warning message at the bottom stating the relationship has a many-many cardinality. The reason for the warning is that we don't have unique Zip values in the **Geography** table. This is because multiple countries could have the same Zip code. Let's concatenate the **Zip** and **Country** columns to create a unique value field.
8. Select the **Cancel** button at the bottom of the **Create relationship** dialog box.



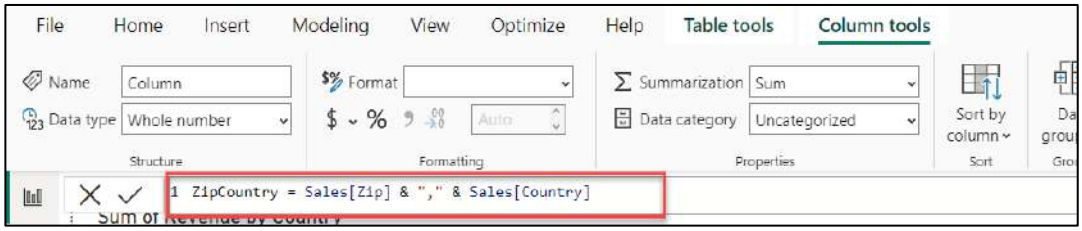
We need to create a new column in both the **Geography** table and the **Sales** table that combines the **Zip** and **Country** columns. Let's start by creating a new column in the **Sales** table.

9. Select the **Report** icon from the **Navigation** menu to the left of the screen to navigate to the **Report** view.
10. Within the **Data** pane, hover over the **Sales** table name, then select the **ellipses** (**…**) to the right of the table name. Choose **New Column** from the options menu. You will then see a formula bar appear, as shown in the figure below, to help create this new column.



11. Now we are ready to combine the **Zip** and **Country** columns into a new column called **ZipCountry**, separated by a comma. To create this column called **ZipCountry**, type the following calculation in the formula bar:

```
ZipCountry = Sales[Zip] & "," & Sales[Country]
```



12. Once you are done entering the formula in the formula bar, press **Enter** on your keyboard or select the **checkmark** on the left side of the formula bar.

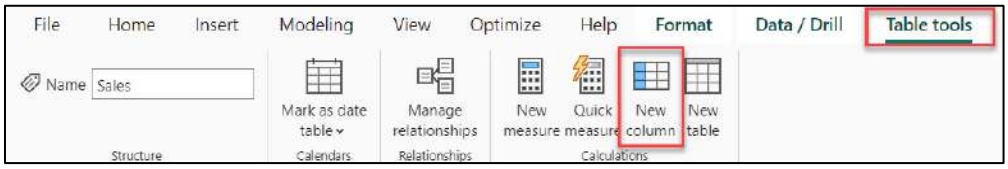
You will notice that IntelliSense appears guiding you to choose the correct column. The language you used to create this new column is called **Data Analysis Expression (DAX)**. We are connecting columns (Zip and Country) in each row by using the "&" symbol. The icon with an (fx), near the new column ZipCountry, indicates that you have a column containing an expression, also referred to as a calculated column.

IMPORTANT!

If you get an error creating a new column, make sure your Zip column is the Text Data Type.

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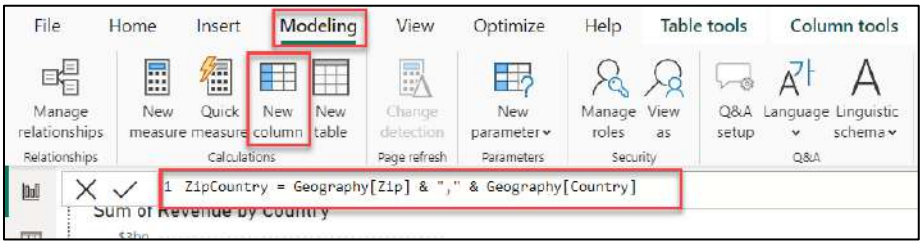
***Note**: An alternative way to add a new column is by selecting the table from the **Data** pane, selecting the **Table Tools** or **Modeling** tab, and then choosing **New Column** from the menu.*



Let's use this method to create a **ZipCountry** column in the **Geography** table.

13. From the **Data** pane, select the **Geography** table. Then from the ribbon, choose **Modeling**, and then select **New Column** as shown in the figure below:
14. A formula bar now appears. Enter the following DAX expression in the formula bar:

ZipCountry = Geography[Zip] & "," & Geography[Country]

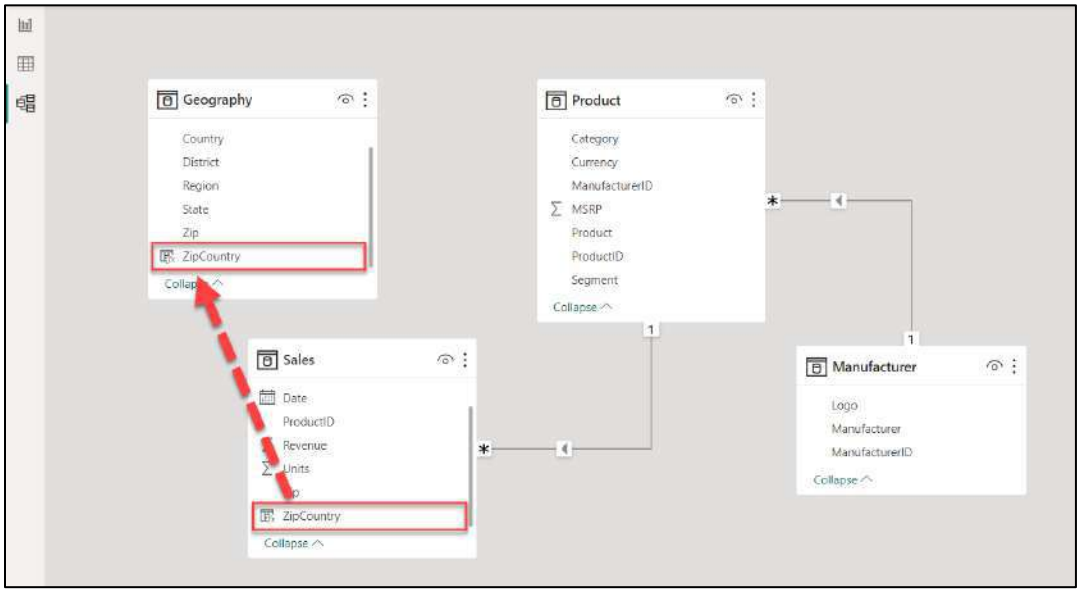


You will see a new column, **ZipCountry**, in the **Geography** table. The final step is to set up the relationship between the two tables using the newly created **ZipCountry** columns in each of these tables.

15. Select the **Model** icon in the Navigation menu to the left of the Power BI Desktop to navigate back to the **Model** view.

16. Drag and drop the **ZipCountry** field from the **Sales** table to on top of the **ZipCountry** field in the **Geography** table.

> ***Note:*** If you do not see the **ZipCountry** column you may need to scroll down on the list of columns in each table.



Now we have successfully created a relationship. The number "1" next to **Geography** indicates it is on the one side of the relationship and the "*" next to **Sales** indicates it is on the many side of the relationship.

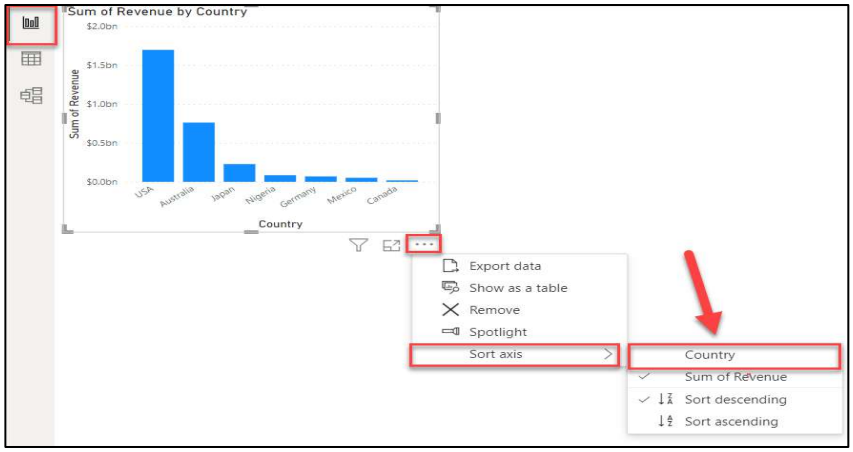
17. Select the **Report** icon within the **Navigation** menu to the left of the Power BI Desktop to navigate back to the **Report** view.

Notice the clustered column chart that we created earlier. It shows different sales for each country or region. USA has the most sales, followed by Australia and Japan.

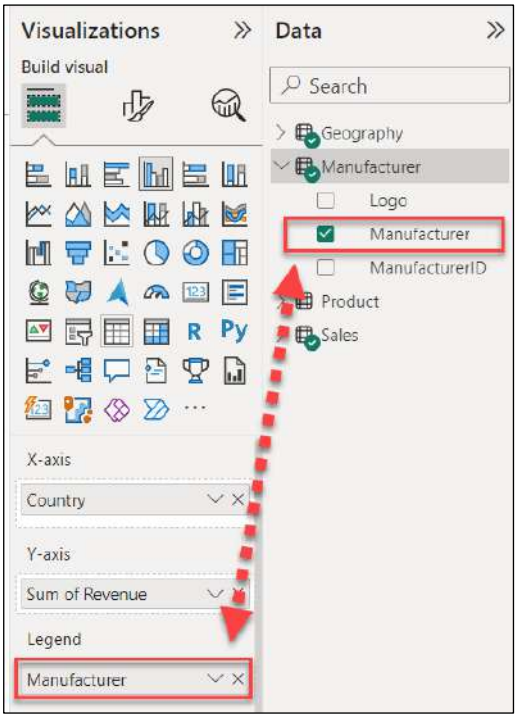
> ***Note:*** If your clustered column chart is missing countries then you may need to double check that you completed step 99 on lab 1 correctly.

By default, the chart is sorted by **Revenue**. In this next section we will begin to use the data model we have designed by exploring several data visualization components.

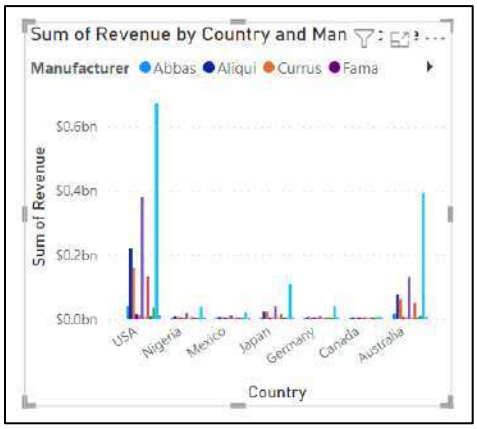
18. Select the **Clustered Column Chart** visual. Select the **ellipses** (**…**) located near the top right corner of the visual (alternatively, the ellipse may be at the bottom of the chart). Notice there is an option to **Sort axis** by **Country**. Do not make any changes for now. Select the background of the report to close out the options menu.



19. Select the **Clustered column Chart** again. Then, from the **Data** pane, expand the **Manufacturer** table, and then drag and drop the **Manufacturer** column to the **Legend** section of the **Visualizations** pane.

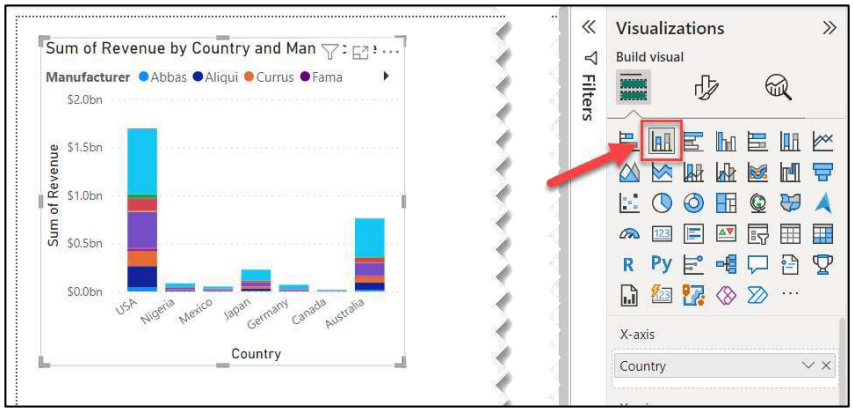


20. **Resize** the visual as needed within the canvas.
Now we can see the top manufacturers by country.

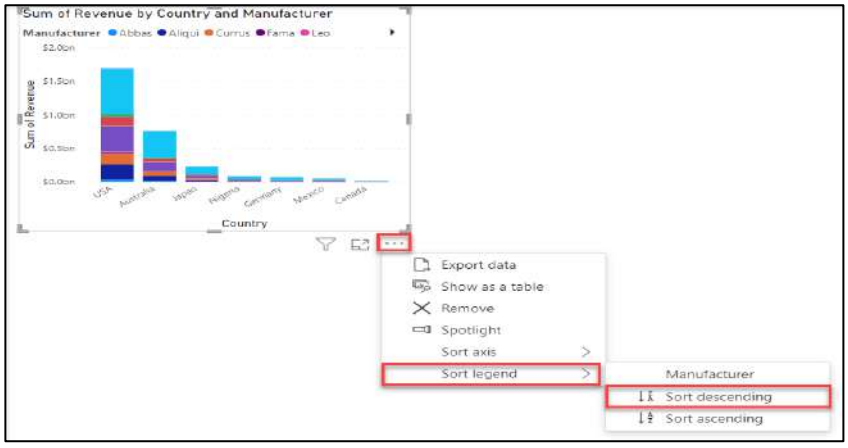


Now let's try different visuals to see which chart represents the data the best.

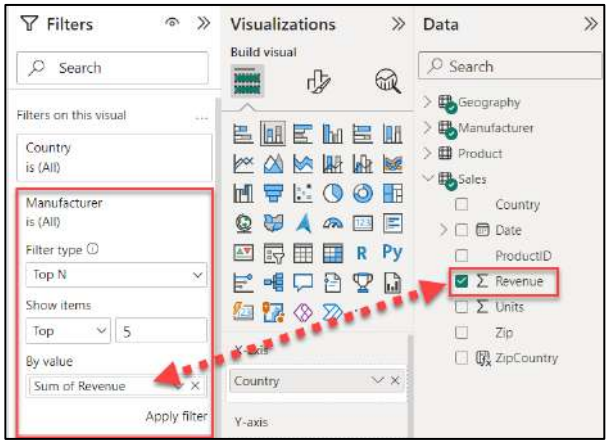
21. With the **Clustered column Chart** visual selected in the design space, select and change the chart to a **Stacked column chart** by choosing the visual type within the **Visualizations** pane.



22. Sort the **legend** in **descending** order using the same method you learned previously (*selecting the ellipsis in the corner of the visual*).



23. If the **Filters** pane is not yet expanded, select the **<<** at the top of the collapsed pane to expand it. Within the **Filters** pane, expand **Manufacturer** under the **Filters on this visual** section. A drop-down arrow will appear for you to expand when you hover your mouse over Manufacturer.
24. Using the **Filter type** dropdown menu, select **Top N**.
25. Enter **5** in the text box next to **Top**.
26. From the **Sales** table, drag and drop the **Revenue** field into the **By value** section.
27. Select **Apply filter** at the bottom of the **Manufacturer** section within the **Filters** pane to activate the filter.

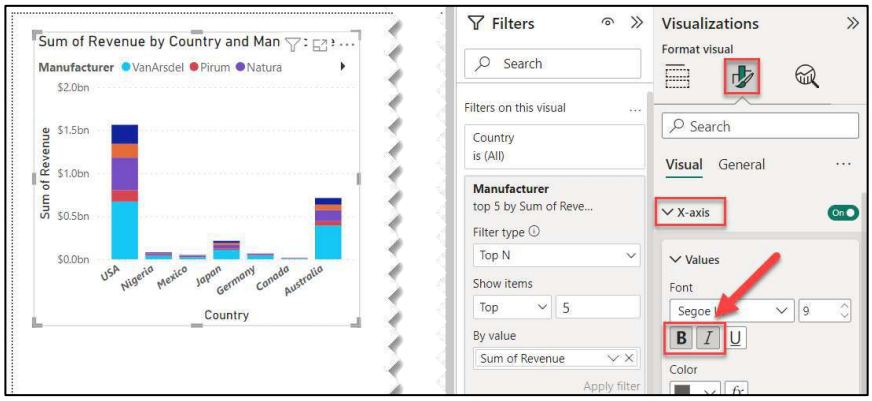


Notice that the visual is filtered to display the top five manufacturers by **Sum of Revenue**. We see that the manufacturer VanArsdel has a higher percentage of sales in Australia compared to other countries or regions.

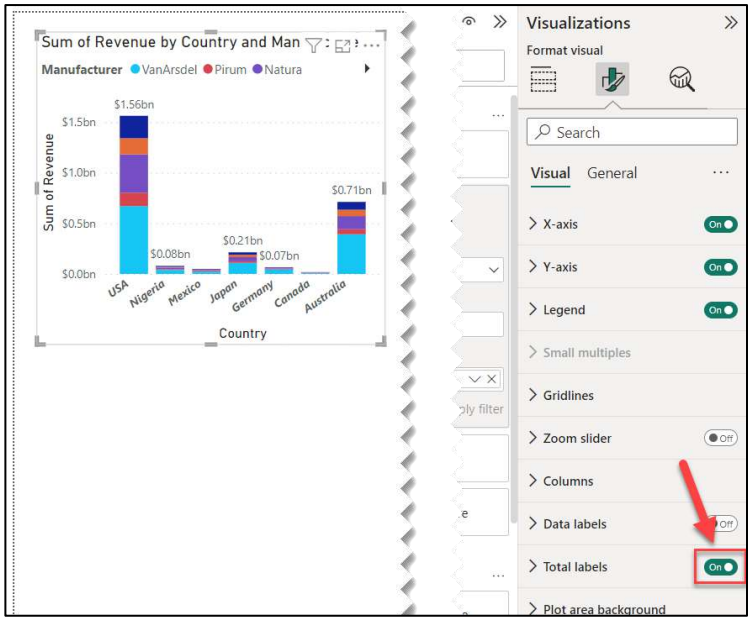
If you desire, you can now collapse the Filters pane until it is needed.

We can now add total labels to the stacked visuals. Let's explore font formatting options.

28. Select the **Format visual** (*the paintbursh icon*) tab at the top of the **Visualizations** pane, and then expand the **X -axis** section.
29. Select the **Bold** and **Italic** options – feel free to try different formatting options in different areas. For the purpose of this lab, we will turn on Bold and Italic.



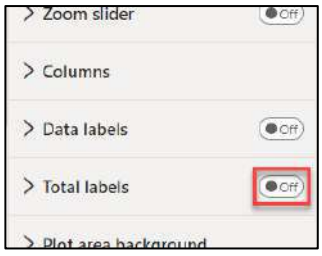
30. Navigate to the **Total labels** section within the **Visualizations** pane and switch the setting to **On**.



Notice the total labels now appearing above each of the columns within the Stacked column chart. Any of these properties can very easily be changed or turned on/off whenever you like.

Now let's **remove** the total labels.

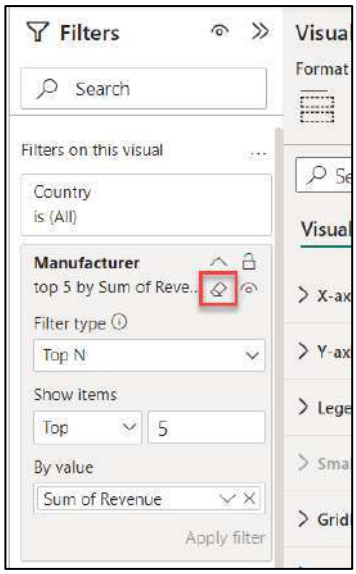
31. Select the **On/Off** toggle setting next to **Total labels** to switch the setting to **Off** again.



We are interested in the **top five** competitors by revenue. Let's group them so we don't have to add a filter to every visual. Before we do that, we'll remove the **Top 5** visual level filter we added earlier.

32. Begin with the **Stacked column chart** selected in the canvas.

33. Hover over and select the **Clear filter** icon (eraser) next to the **Manufacturer** field in the **Filters** pane. *(You may need to expand the Filters pane if you previously collapsed it)*

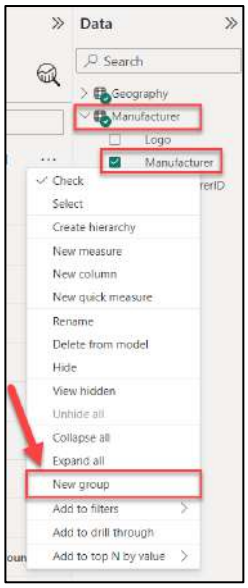


> ***Note**: You will only see the eraser icon when you hover your mouse over the Manufacturer filter section.*

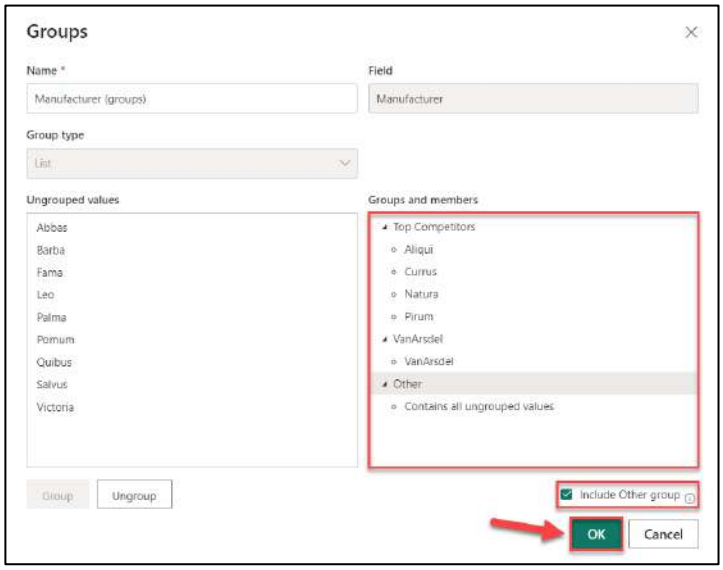
34. From the **Data** pane, expand the **Manufacturer** table and right-click on the **Manufacturer** field.

> ***Note:** Do not select the checkbox.*

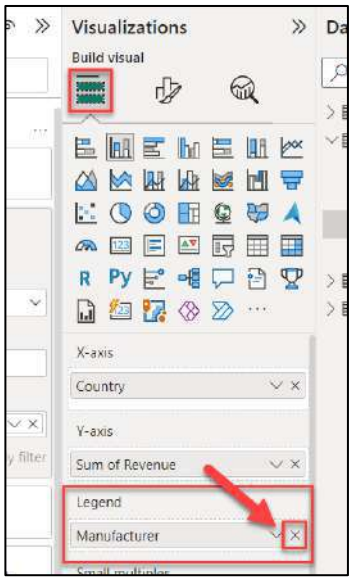
35. Select **New Group** from the options menu.



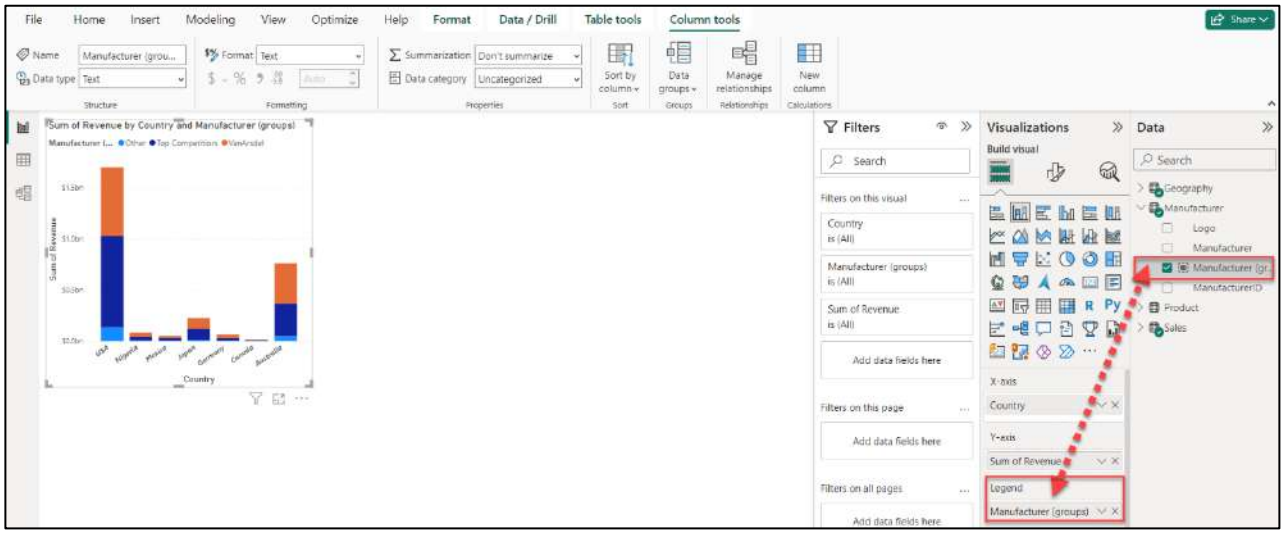
36. In the **Ungrouped values** section of the **Groups** dialog, using the **CTRL** key (to multi-select), choose **Aliqui, Currus, Natura**, and **Pirum**.
37. Select the **Group** button. Notice a new group is added in the **Groups and members** section.
38. Double-click the newly created group and rename it **Top Competitors**.
39. Select **VanArsdel** from the **Ungrouped values** section and select the **Group** button to create the **VanArsdel** group.
40. Select the checkbox **Include Other group**. This will create another **Other** group that includes all the other manufacturers.
41. Select **OK** to close the **Groups** dialog.



42. Navigate back to the **Build visual** tab of the **Visualizations** pane. With the **Stacked column chart** selected in the canvas, select the **X** next to **Manufacturer** in the **Legend** section of the **Visualizations** pane. This will **remove** the Manufacturer field from the Legend.

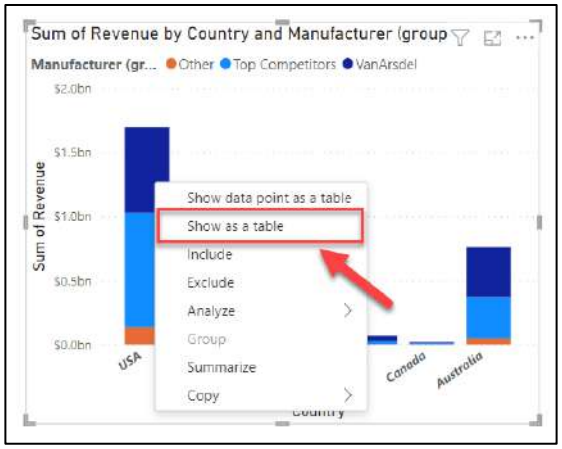


43. From the **Data** pane, drag and drop the newly created **Manufacturer (groups)** to the **Legend** section of the **Visualizations** pane. Now we can see that VanArsdel has nearly 50% share in Australia.

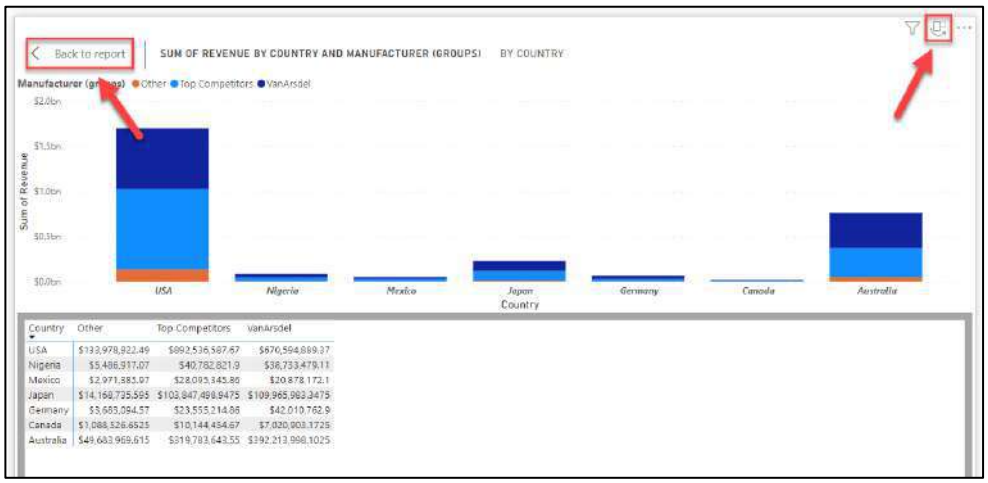


> ***Note**: It is ok if you notice that the colors used in your column chart are in a different order than what appears here. This can be adjusted by changed the Legend sort order as you saw in step 34.*

44. Hover over one of the columns in the **Stacked Column Chart** and right-click.
45. Select **Show as a table** from the context menu. You will now be in **Focus** mode with the chart displayed on top and the data displayed below. Notice that VanArsdel has a large percent of the Australian market.



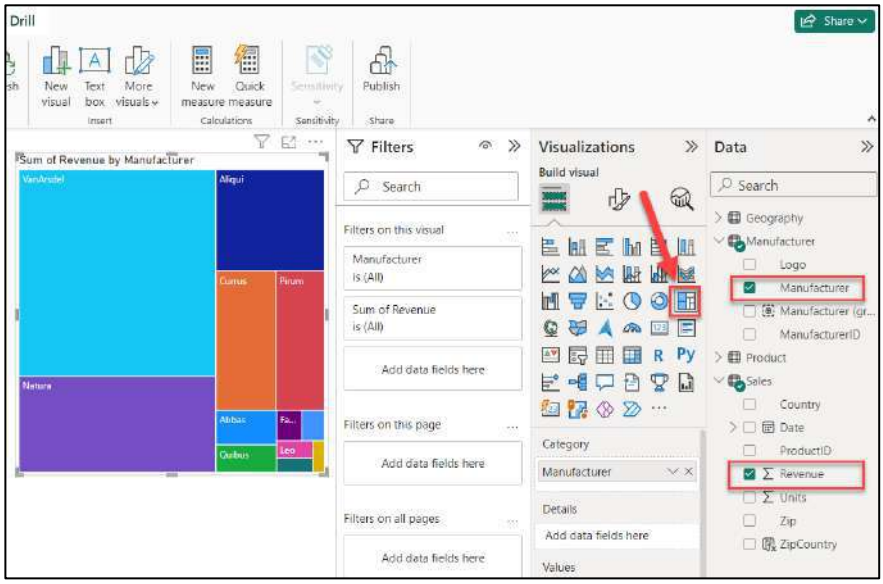
46. Use the **orientation icon** in the top right corner of the chart to switch to the **vertical layout**. In this layout, you view the chart on the left and the data on the right in two separate panels.
47. Switch back to the horizontal layout and select **Back to Report** to navigate back to the **Report** canvas.



***Note**: You can similarly right-click on a column in the chart and select **Show data point as a table** to see records for a specific data point.*

Now let's create a **Revenue by Manufacturer** visual.

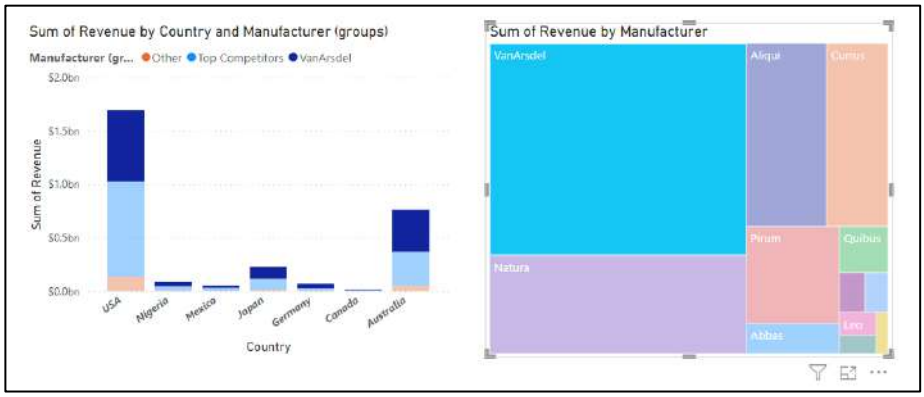
48. Select the white space in the canvas to **deselect** the **Stacked column chart** visual. From the **Data** pane, select the checkbox next to the **Revenue** field in the **Sales** table.
49. From the **Data** pane, select the checkbox next to the **Manufacturer** field in the **Manufacturer** table.
50. From the **Visualizations** pane, select the **Treemap** visual.



We now have **Sum of Revenue by Manufacturer**.

Let's turn our attention to the interaction between the **Stacked Column Chart** and the **Treemap** visuals.

51. Within the **Treemap** visual, select **VanArsdel** and notice that the **Stacked column chart** is highlighting only the values related to **VanArsdel**. This confirms that VanArsdel has a large percentage of the Australian market.



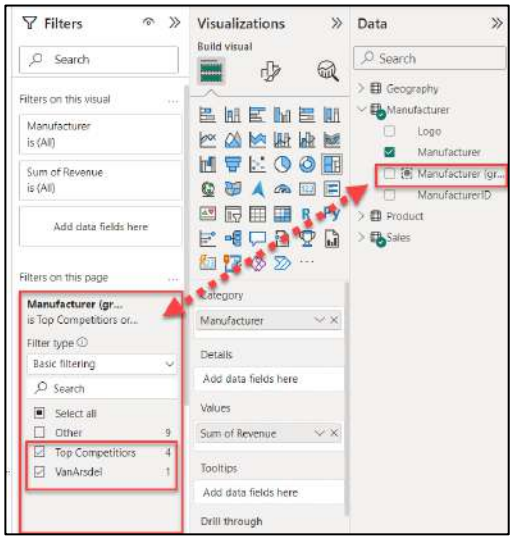
52. To **remove** the highlighting, select **VanArsdel** again.

This interaction between visuals is called **cross-highlighting**.

Previously, we added a **Top 5 Visual level** filter. Now let's add a filter to the **Page level**, so we are working with the Top Competitors and VanArsdel, and so we can filter out the other manufacturers.

Page-level filters apply to all visuals on the page. Visual-level filters apply only to the visual. Ensure the **Filters** pane is expanded/open.

53. Ensure that the **Treemap** visual is still selected. From the **Data** pane, drag and drop **Manufacturer (groups)** from the **Manufacturer** table to the **Filters on this page** box in the **Filters** pane**.**
54. Select both **Top Competitors** and **VanArsdel**.

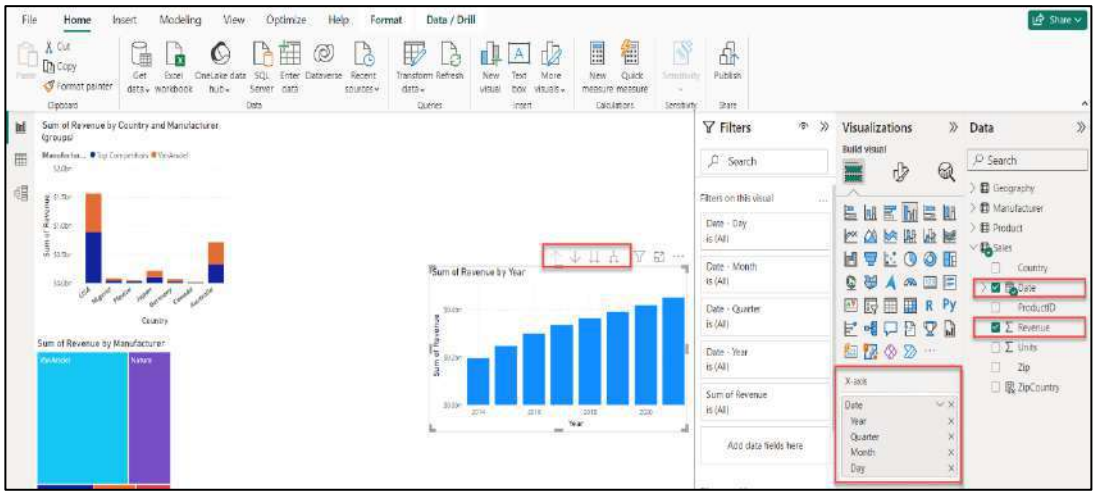


Now, let's add a visual that provides sales information over time.

55. Begin by selecting the **white space** in the **canvas** to ensure that nothing is selected.
56. Select the checkbox next to the **Date** field in the **Sales** table. Notice that a **Date Hierarchy** is created if you have **Auto date/time** turned on.

> ***Note:*** *If you do not see the data hierarchy go to* ***File -> Options and settings -> Options -> Current file -> Data load -> Auto date/time)*** *to turn it on.*

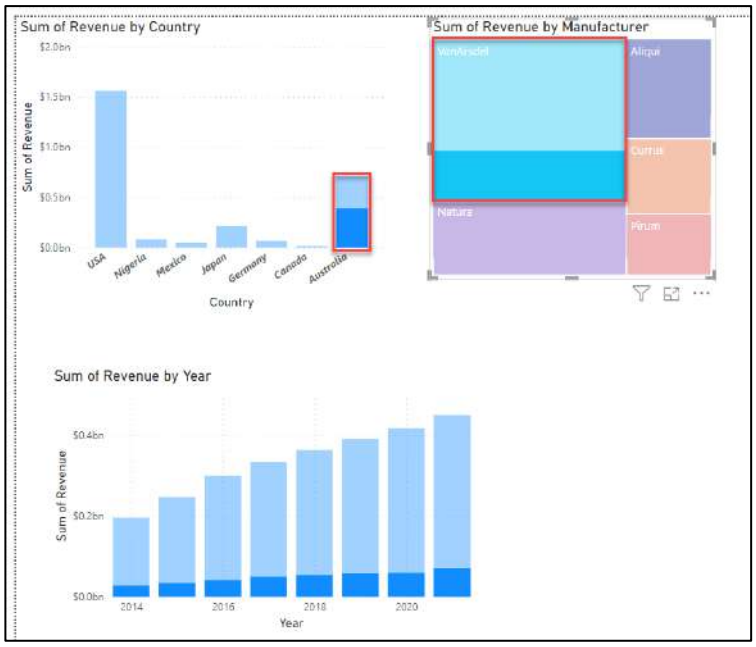
57. Select the checkbox next to the **Revenue** field in the **Sales** table.
58. Change the newly created visual to a **Clustered column chart**. Notice in the **X-axis** section, a date hierarchy is used. There are arrows on the visual header which are used to navigate through the hierarchy.



We have already noticed that VanArsdel has a large share of the market in Australia. Let's see how VanArsdel has done over time in Australia.

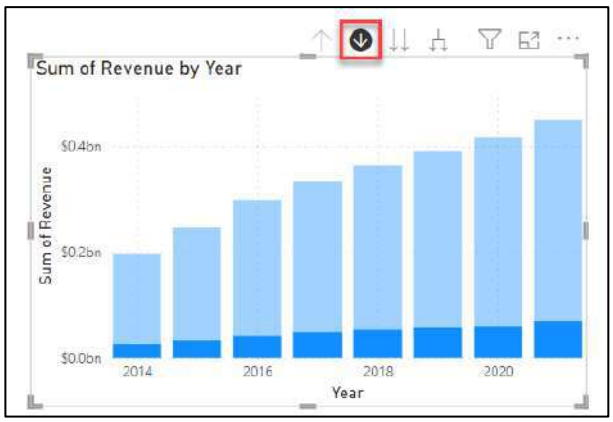
59. Select the **Sum of Revenue by Country and Manufacturer (groups)** chart and remove **Manufacturer (groups)** from the **legend** within the **Visualizations** pane by selecting the **X**.
60. Select **VanArsdel** in the **Sum of Revenue by Manufacturer** visual (Treemap).

61. Then hold the **CTRL** key (to multi-select) and select **Australia** within the **Sum of Revenue by Country** visual. This will multi-select and highlight both values.

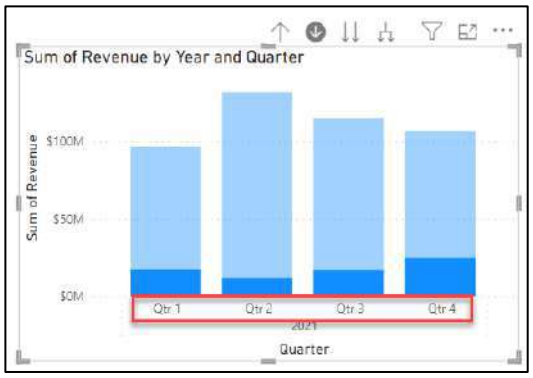


With both **VanArsdel** and **Australia** selected we can see a spike in 2021 sales for VanArsdel in Australia. This spike in sales is intriguing, so let's investigate further.

62. Hover over the Sum of Revenue by Year visual. Select the **down arrow** at the top of the **Sum of Revenue by Year** visual to enable the **drill-down** capability.



63. Select the **2021** column within the **Sum of Revenue by Year** visual.
    Notice that you have drilled down to the **quarter** level of 2021. There was a big spike in the fourth quarter. Let's dig further.



64. Select the **double down-arrow icon** at the top of the **Sum of Revenue by Year and Quarter** visual. This **drills down** to the next level of the hierarchy, which is the **month** level.



65. Select the **up-arrow icon** at the top of the **Sum of Revenue by Month** visual to **drill back up** to the **Quarter** level again.
66. Select the **drill up icon** a second time to go all the way back up to the **Year** level.
67. Select the **split arrow icon** at the top of the **Sum of Revenue by Year** visual. This expands down to the next level of the hierarchy, which is quarters for ***all*** the years; not just 2021. Resize the visual as needed.



Notice that the fourth-quarter sales have always been high, but in 2021 there was a larger sales spike in the fourth quarter than usual.

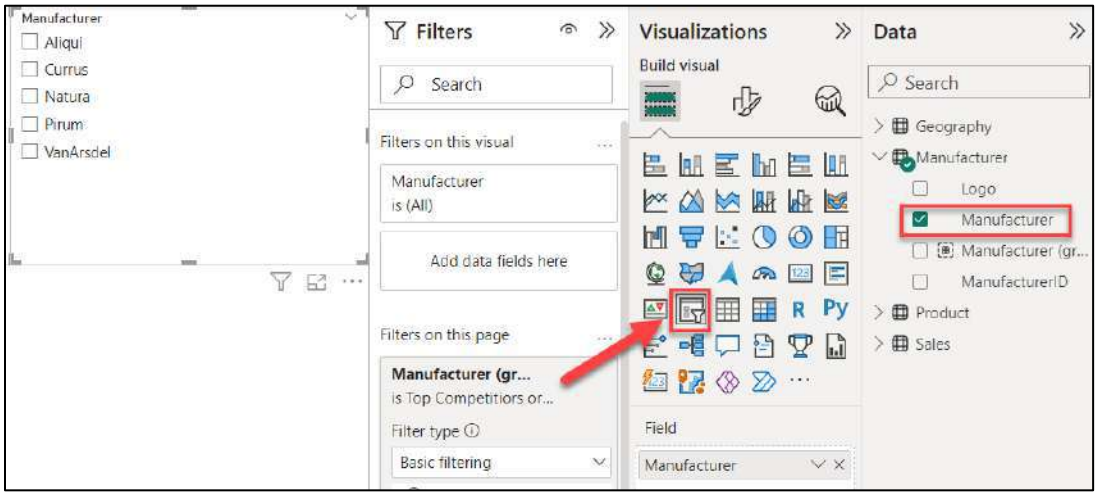
68. Now let's expand down one more time to the **month** level. Select the **split arrow icon** for the **Sum of Revenue by Year and Quarter** visual again. This drills down to the next level of the hierarchy; this now shows revenue for **months** for all the years.



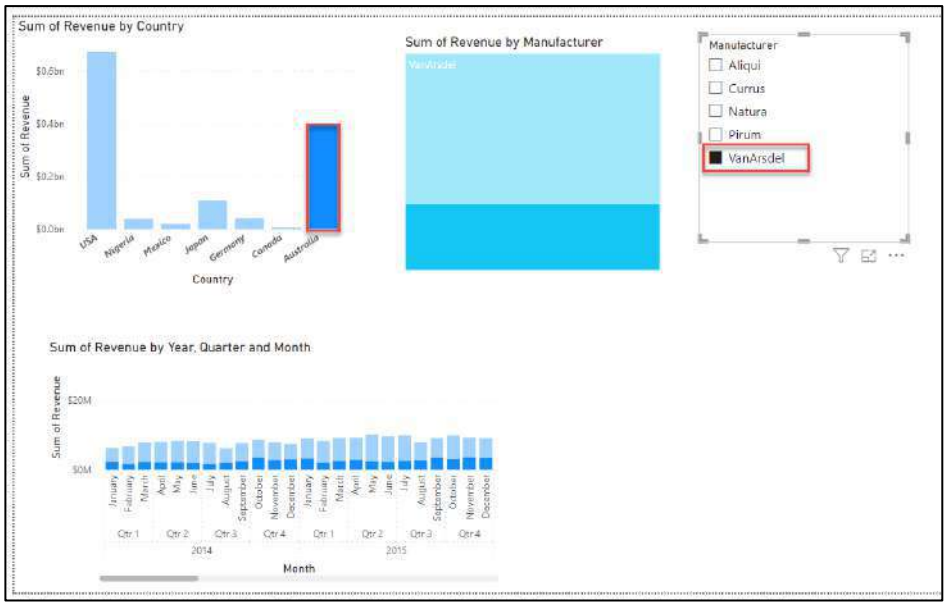
Power BI Desktop – Data Exploration Continued

Now that we've explored the data, let's add a **slicer** so we can filter by the manufacturers.

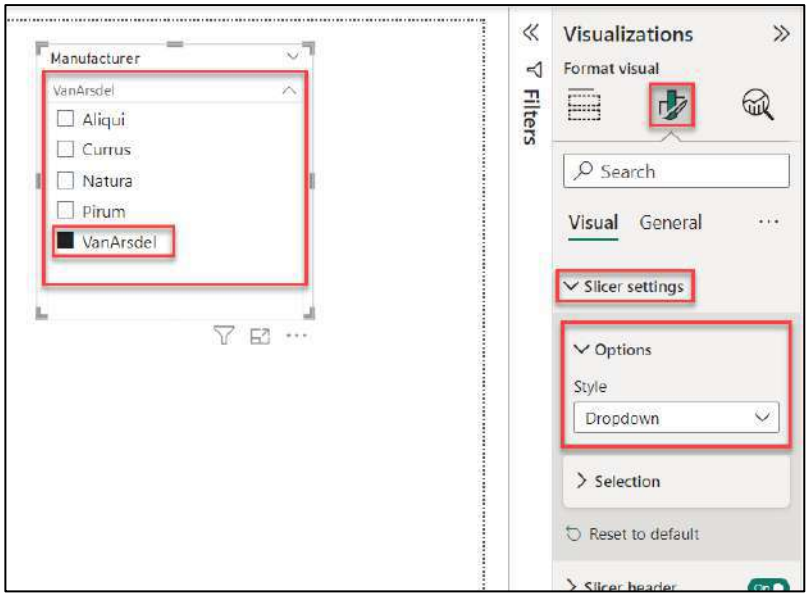
69. Start by ensuring there are no filtered or highlighted values. To ensure no values are currently selected in your report visuals select the blank space of the **Sum of Revenue by Country** visual. This will clear any currently selected values.
70. Select the white space in the canvas. From the **Data** pane, select the checkbox next to the **Manufacturer** field in the **Manufacturer** table**.**
71. From the **Visualizations** pane, select the **Slicer** visual.



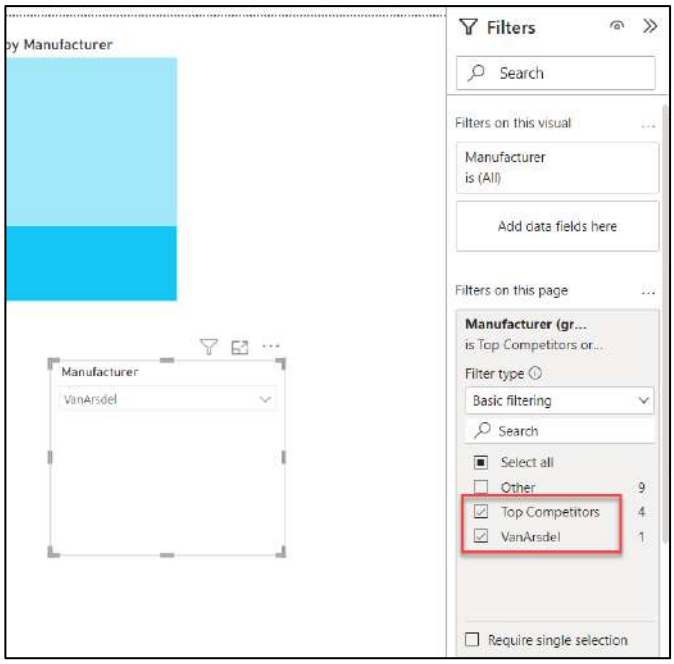
72. Here you will see a list of Manufacturers. Select **VanArsdel** and notice that all the visuals are filtered based on your selection. Also, re-select **Australia** in the **Sum of Revenue by Country** visual.



73. With the **Slicer** visual still selected, navigate to the **Format visual** tab of the **Visualizations** pane. Expand the **Slicer settings** menu. Then, expand the **Options** menu within the **Slicer settings**.
74. Select the drop-down for the **Style** section within the **Options** menu. From the drop-down, select **Dropdown**.
75. Then, within the **Slicer** visual, select **VanArsdel** from the Manufacturer dropdown.



76. Confirm **Top Competitors** and **VanArsdel** are still selected in the **Manufacturer (groups)** filter in the **Filters** pane.



> ***Note:*** *There is a box for* ***Filters on all pages*** *in the* ***Filters*** *pane. If you have more than one report page, this is how you sync a filter for the whole file.*

Now let's use the **Manufacturer** slicer to analyze one manufacturer at a time.

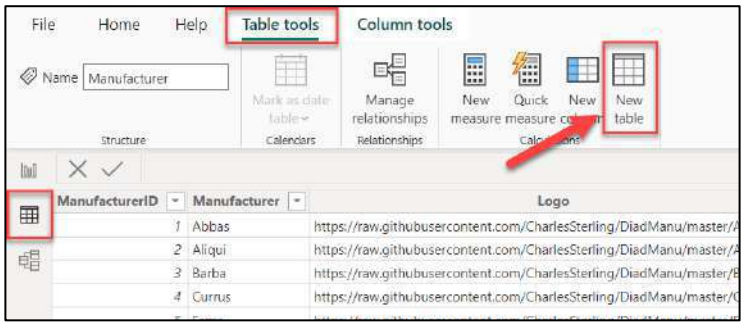
77. First, de-select the **Australia** column within the **Sum of Revenue by Country** visual so the report is no longer filtered by country.
78. Next, select the **Sum of Revenue by Manufacturer** (Treemap) visual.
79. From the **Visualizations** pane, select the **Card** visual.



The card visual gives us the **Sum of Revenue** as we filter and cross-filter the visuals.

Notice that all key dimensions are in tables with related attributes, except for the date. For example, **Product** attributes are in the **Product** table. **Manufacturer** attributes are in the **Manufacturer** table. Now let's create a **Date** table.

80. Navigate to the **Table** view by selecting the **Table** icon within the **Navigation** menu to the left of Power BI Desktop.
81. From the ribbon at the top of the screen, select the **Table Tools** tab, then choose **New Table** from the menu at the top of the screen.

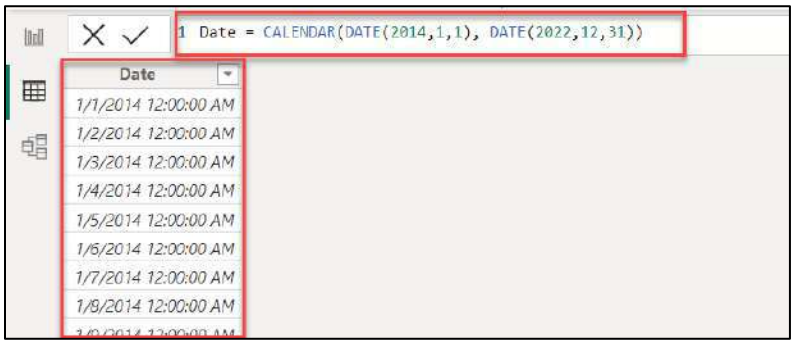


Notice that a new table called "Table" is created in the **Data** pane to the right of the Power BI Desktop and the formula bar opens at the top of your screen.

82. Enter the following formula in the formula bar, then hit **Enter** on your keyboard:

Date = CALENDAR(DATE(2014,1,1), DATE(2022,12,31))

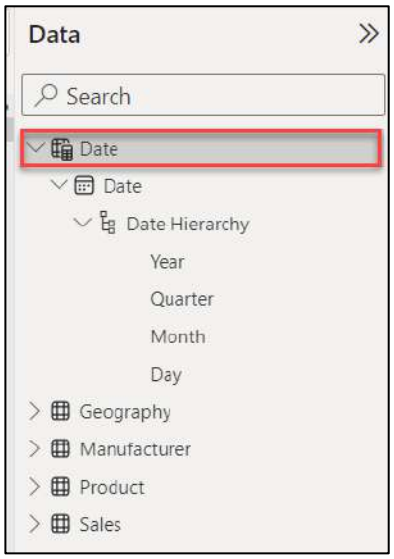
A **Date** table with a **Date** column is created.



We are using two DAX functions: the **CALENDAR** function, which accepts the start and end data, and the **DATE** function, which takes the **year**, **month**, and **date** Fields.

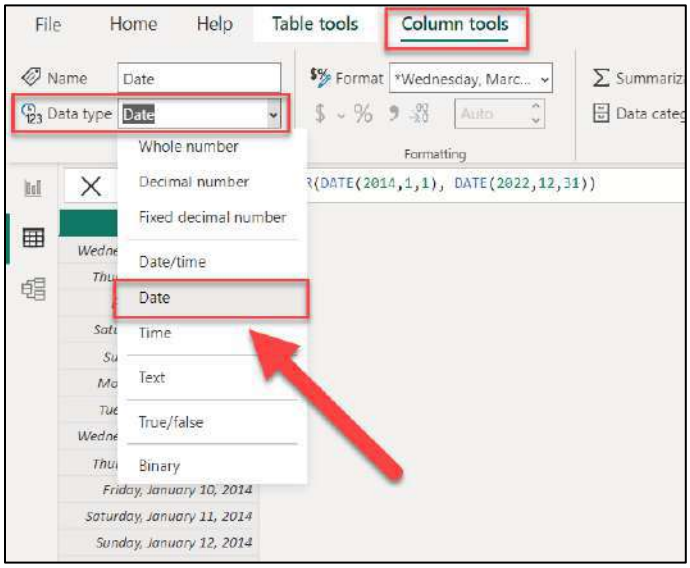
For this lab, we will create dates from **2014 to 2021** (since we have data for those years). We can also add more **Fields** - such as **Year**, **Month**, **Week**, etc. - to this table by using additional DAX functions.

83. Within the **Data** pane to the right of the screen, select the **Date** field in the **Date** table.



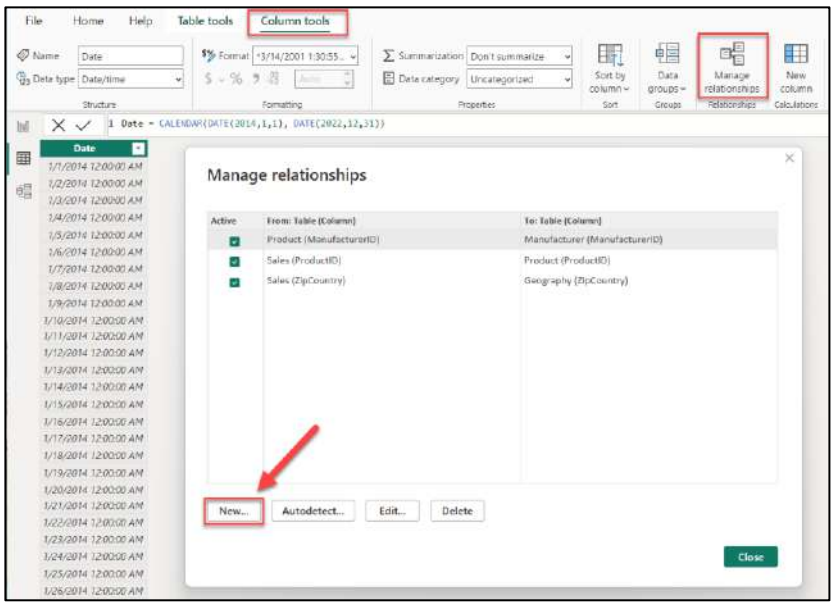
Notice that the **Date** field is of the data type **Date/Time**. Let's change it to the **Date** data type.

84. From the ribbon, select the **Column Tools** tab, choose the **Data type** drop-down, and then select **Date**.

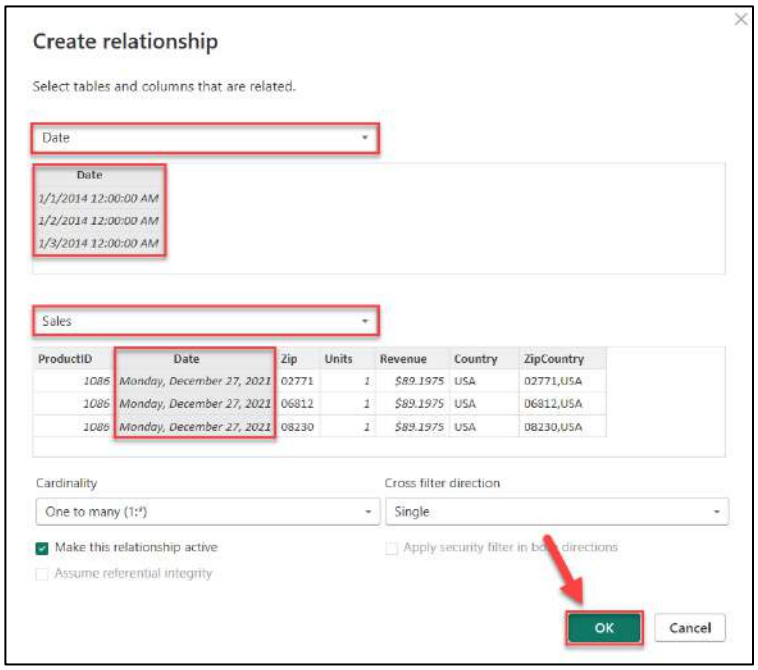


Next, we need to create a relationship between the newly created **Date** table and the **Sales** table.

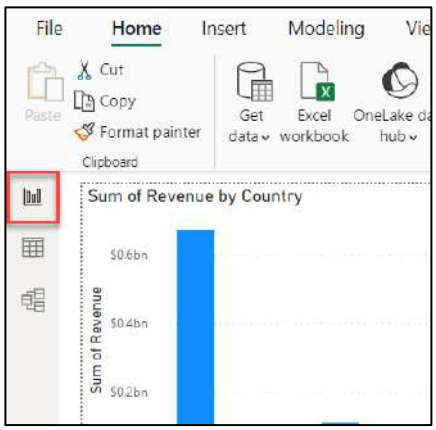
85. From the ribbon, select the **Column Tools** tab, and then choose **Manage Relationships**.
86. A **Manage Relationships** dialog box opens. Select the **New** button.



87. A **Create Relationship** dialog box opens. Select **Date** from the **top** dropdown menu.
88. Select **Sales** from the second dropdown menu.
89. Highlight the **Date** field in **both tables** by multi-selecting (using your **Ctrl** key on your keyboard).
90. Then, select **OK** to close the **Create relationship** dialog box.

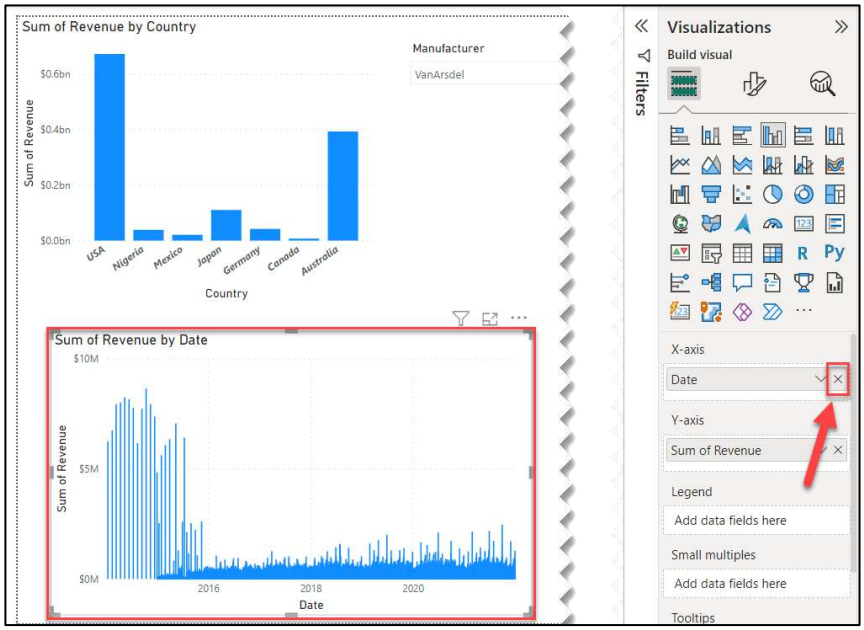


91. Select the **Close** button to close the **Manage relationships** dialog box.
92. Navigate to the **Report** view by selecting the **Report** icon within the **Navigation** menu to the left of the Power BI Desktop.

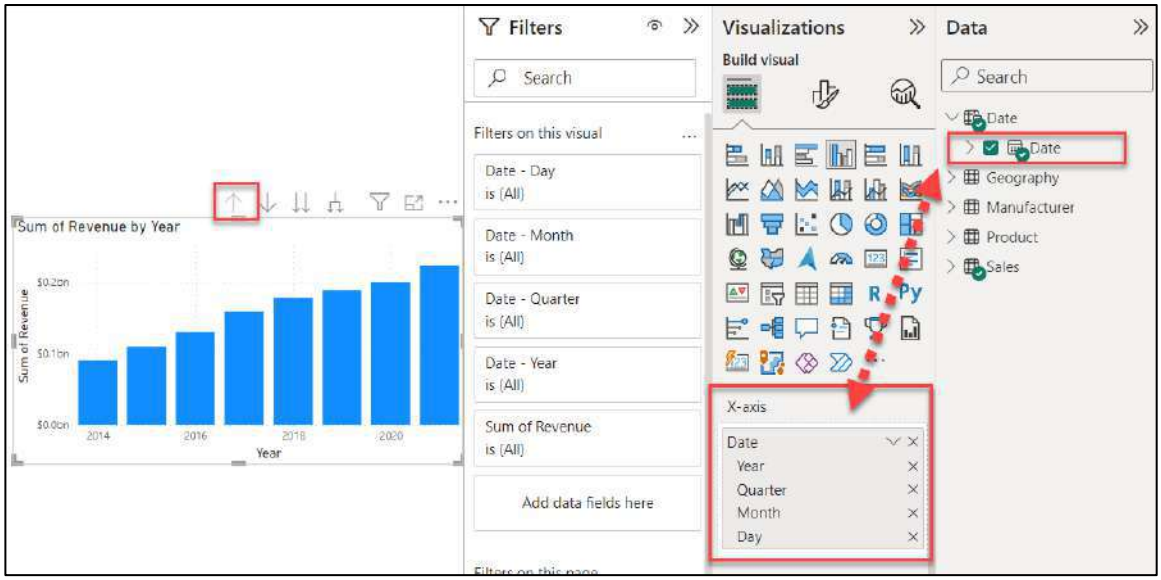


Notice that the **Sum of Revenue by Date** chart looks different now. Let's fix it.

93. Select the **Sum of Revenue by Date** visual.
94. From the **X-axis** section within the **Visualizations** pane, select the **X** to remove the **Date** field.



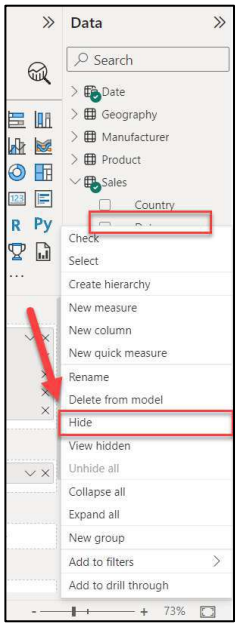
95. From the **Data** pane, expand the **Date** table.
96. Now, drag and drop the **Date** field from the **Date** table to the **X-axis** section within the **Visualizations** pane.
97. Select the **Drill up** button above the visual, that you learned about previously, until the visual appears to be at the **Year** level.



Notice that the new **Date** field behavior is like it was previously.

Since there are now two **Date** fields, it may be confusing to know which one to use. To accommodate this, let's hide the **Date** field in the **Sales** table.

98. From the **Data** pane, hover over and select the **ellipses** (**…**) to the right of the **Date** field in the **Sales** table. Then, select **Hide** from the options menu.

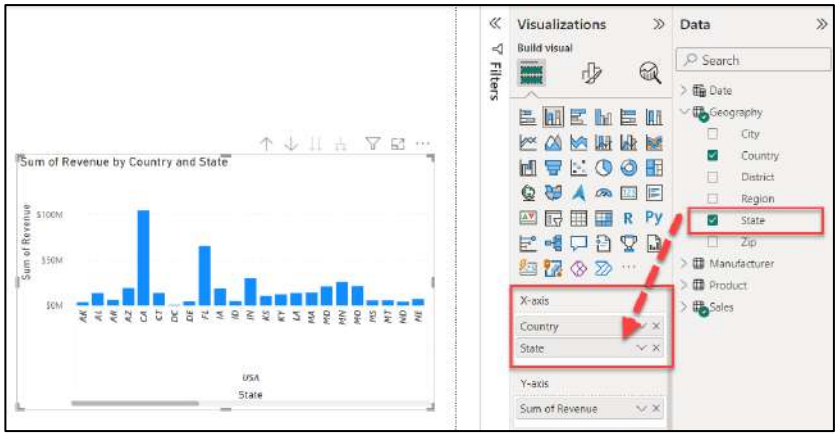


99. Using the same process as in the previous step, hide **Country**, **ProductID**, **Zip**, and **ZipCountry** within the **Sales** table as well. All that should remain within the **Sales** table is the **Revenue** and **Units** fields.
100. Next, hide **ZipCountry** from the **Geography** table.
101. Then, hide **ManufacturerID** from the **Manufacturer** table.
102. Hide **ProductID** and **ManufacturerID** from the **Product** table.

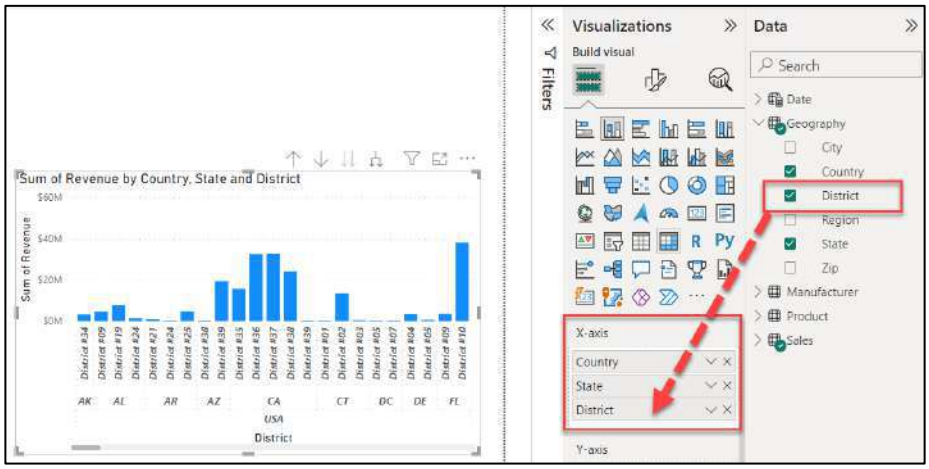
> ***Tip**: It is a best practice to hide fields that are not used in your report visuals. These fields are the basis of our relationships between each table so we should not delete them.*

Now let's get back to our data story, Australia, VanArsdel and 2021. Let's check if the spike occurred in a specific region in Australia.

103. Select the **Sum of Revenue by Country** visual.
104. From the **Data** pane, drag and drop the **State** field from the **Geography** table ***below*** the **Country** field within the **X-axis** section of the **Visualizations** pane.

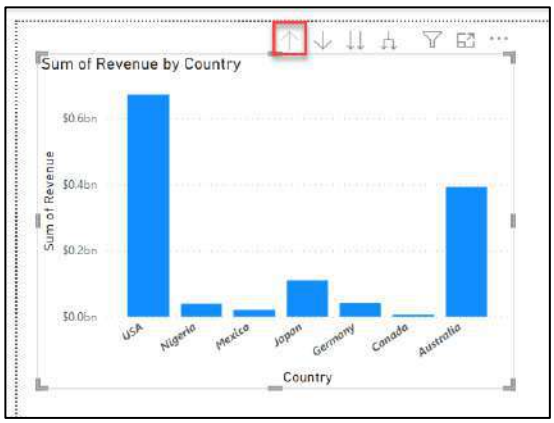


105. Drag and drop the **District** field from the **Geography** table ***below*** the **State** field in the **X-axis** section of the **Visualizations** pane.

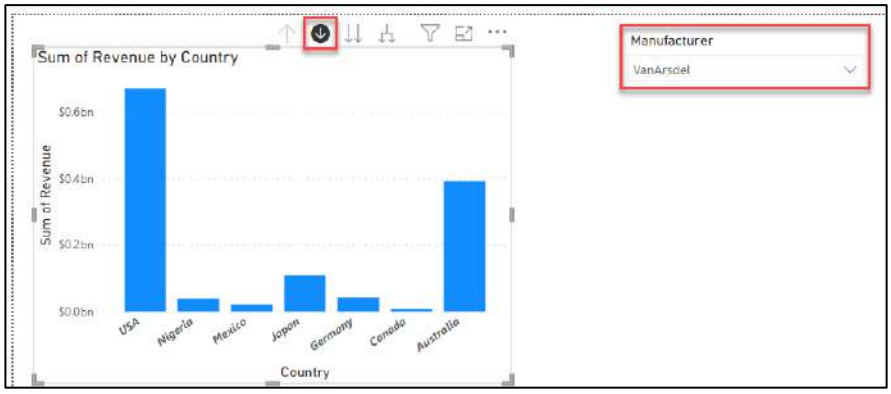


We have just created a hierarchy.

106. Select the **up arrow** within the **header** area of the visual **twice** to **Drill up** to the **top level** of the hierarchy again.



107. Ensure that **VanArsdel** is still selected within the **Manufacturer slicer**.
108. Enable **Drill down mode** by selecting the **down arrow** of the **Sum of Revenue by Country** visual once.



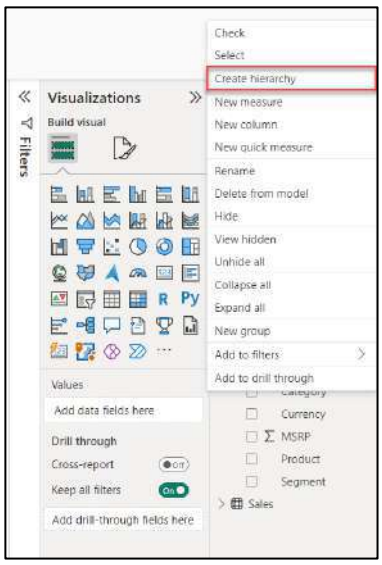
109. Select **Australia** to drill down to the **State** level.
110. From the **Sum of Revenue by Year** visual, select **2021** and notice what happens to the **Sum of Revenue by Country**.

> ***Tip**: If you notice this step performs a drilldown into a table of data select Back to report and then Data / Drill and disable Data point table in the ribbon.*

111. Now, **Drill up** to the **Country** level again.
112. Select **2021** again in the **Sum of Revenue by Year** visual to undo the cross-highlighting.
113. **Disable** drill mode by selecting the down arrow again on the **Sum of Revenue by Country** visual.

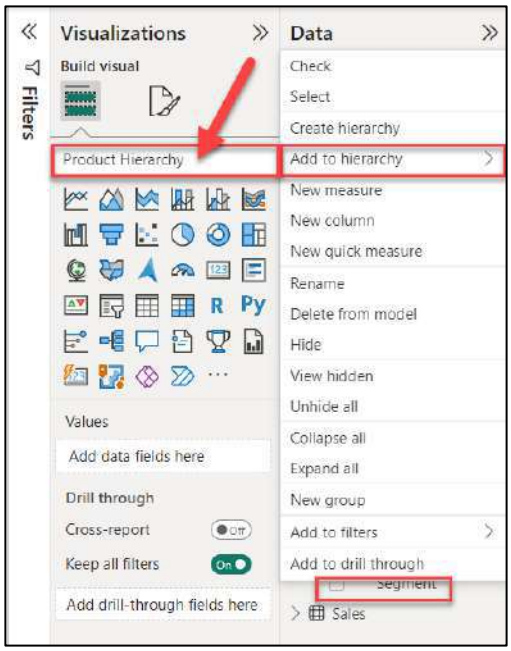
Now let's analyze the data by product. We'll start by creating a product hierarchy.

114. Ensure that no visuals are selected within the design canvas. From the **Data** pane, select the **ellipses** (**…**) to the right of the **Category** field in the **Product** table.
115. Select **Create Hierarchy**.

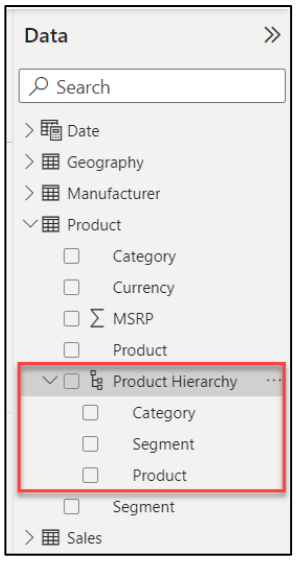


Notice that a new object called **Category Hierarchy** is created inside the **Product** table.

116. Double-click **Category Hierarchy** and **rename** it to **Product Hierarchy**.
117. Select the **ellipses** (**…**) to the right of the **Segment** field within the **Product** table.
118. Select **Add to Hierarchy**, and then choose **Product Hierarchy**.



119. Using the same steps, add the **Product** field from the **Product** table to the **Product Hierarchy**. We have now created a **Product Hierarchy** with the fields **Category**, **Segment**, and **Product**.



120. Select the white space within the canvas de-select any visual that may be selected. From the **Visualizations** pane, select **Clustered bar chart**.

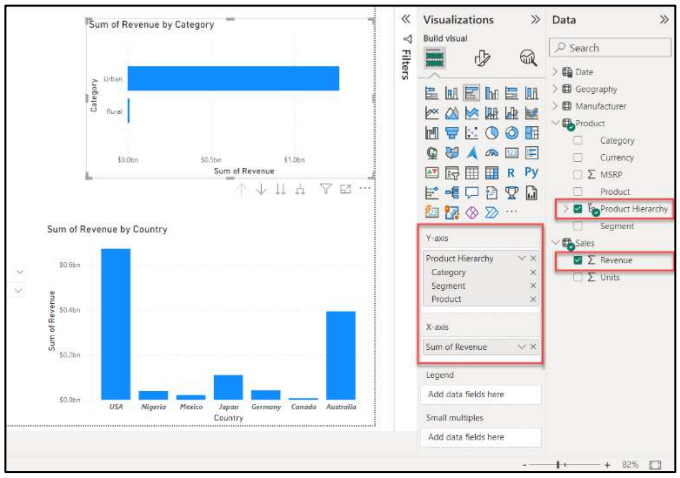


121. With the **Clustered bar chart** still selected, from the **Data** pane, expand the **Product** table.
122. Select the **checkbox** to the left of the **Product Hierarchy**. Notice the complete hierarchy is selected.
123. From the **Data** pane, expand the **Sales** table.

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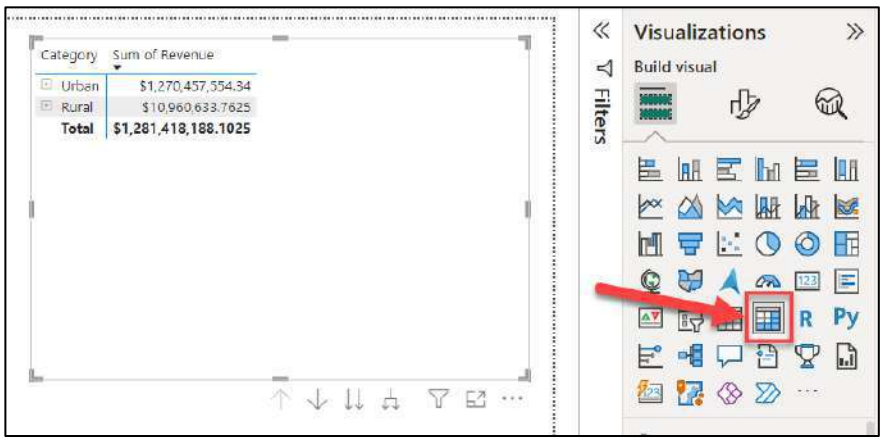
124. Select the **checkbox** to the left of the **Revenue** field.

Notice that the Product Hierarchy is added to the Y-axis field and Sum of Revenue is added to the X-axis field within the Visualizations pane. You will see the visual within the canvas change and update as you select these different fields.

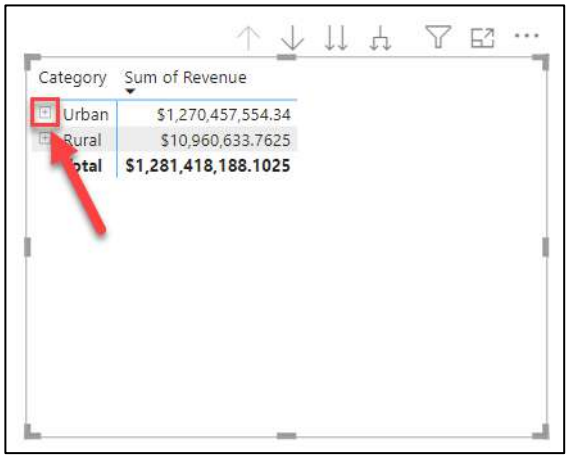


Now let's add a Matrix visual so we can view the data in rows and columns. We can apply conditional formatting to the matrix visual to highlight the outliers.

125. Select the **Sum of Revenue by Category** Clustered bar chart and change it to a **Matrix** visual.

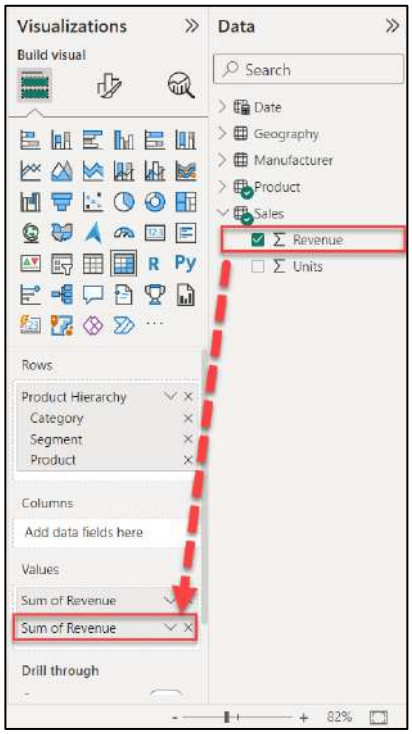


126. Select the **+** (plus sign) to the left of the **Urban** row to drill down.

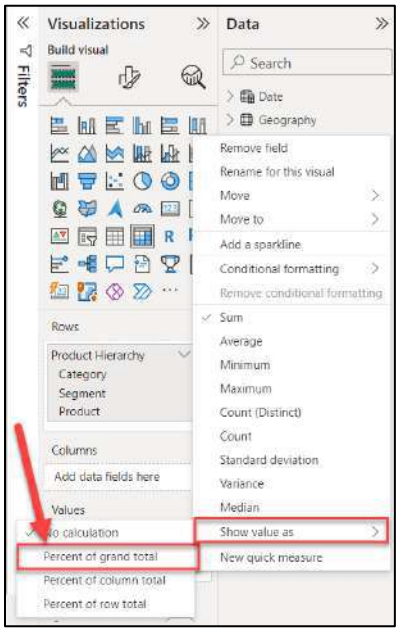


Let's add the percentage of the total field to the visual to give us a better perspective on the data.

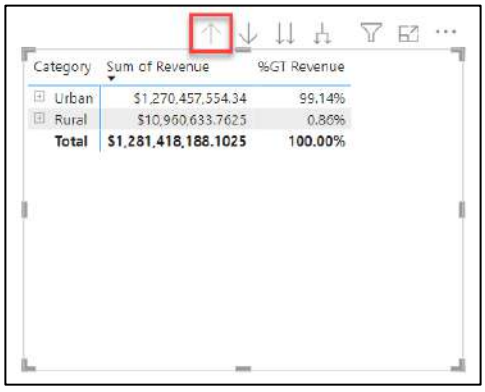
127. With the **Matrix** selected, navigate to the **Data** pane.
128. From the **Data** pane, drag and drop the **Revenue** field from the **Sales** table to below the existing **Sum of Revenue** field in the **Values** section of the **Visualizations** pane. It will look like you have **Sum of Revenue** twice in the **Values** section.



129. Select the **down arrow** to the right of the newly added **Sum of Revenue** field in the **Values** section.
130. From the visual field menu, hover over **Show value as** and then select **Percent of grand total**.

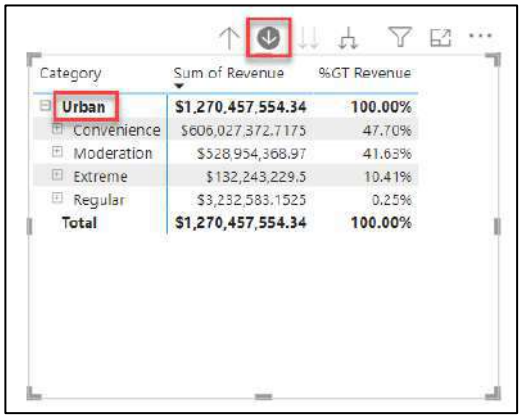


131. Right-click on the newly created field and select **Rename for this visual**. Name the field **%GT Revenue**.
132. Drill back up to **Category** level if you are not already there within the **Matrix** visual.

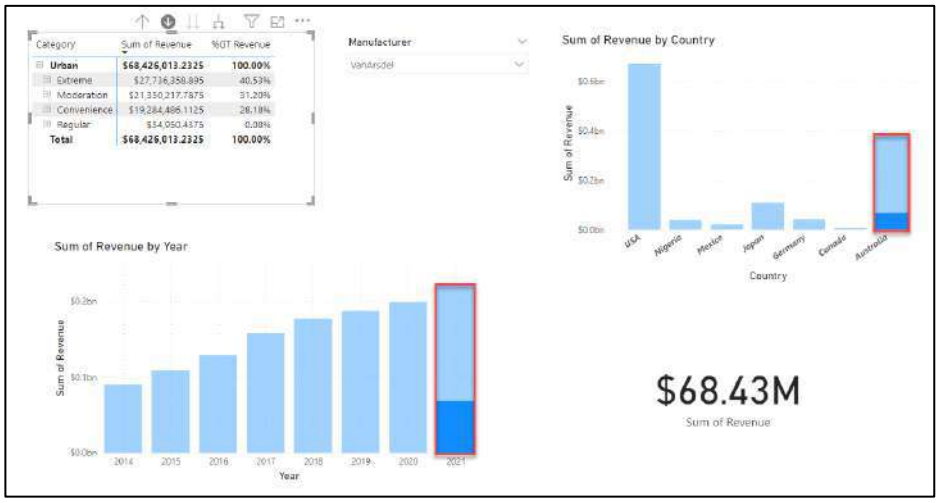


133. Then, select **Enable drill down mode** within the header of the **Matrix** visual

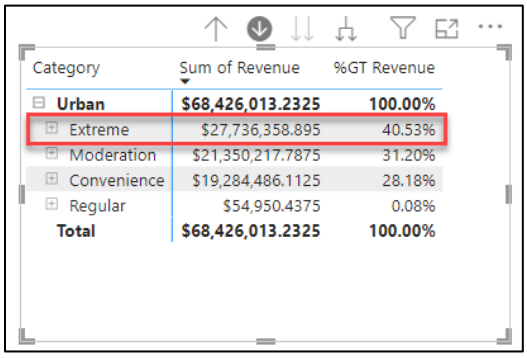
134. Now, select **Urban** (the *word*, not the + sign)



135. Ensure that the **Matrix** visual is still selected. Then, using the **Ctrl** key on your keyboard, multi-select the **2021** column within the **Sum of Revenue by Year** visual and the **Australia** column within the **Sum of Revenue by Country** visual.

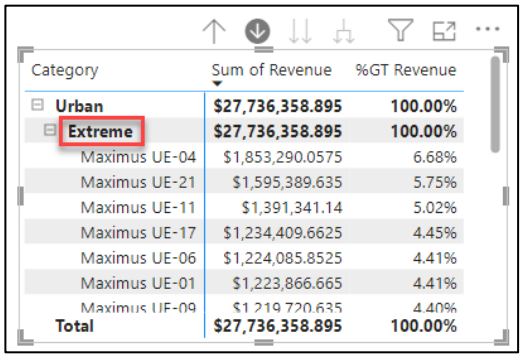


Now let's look at the **Extreme** category for Australia over time.
Notice that the **Extreme** segment has around **40%** of the grand total.

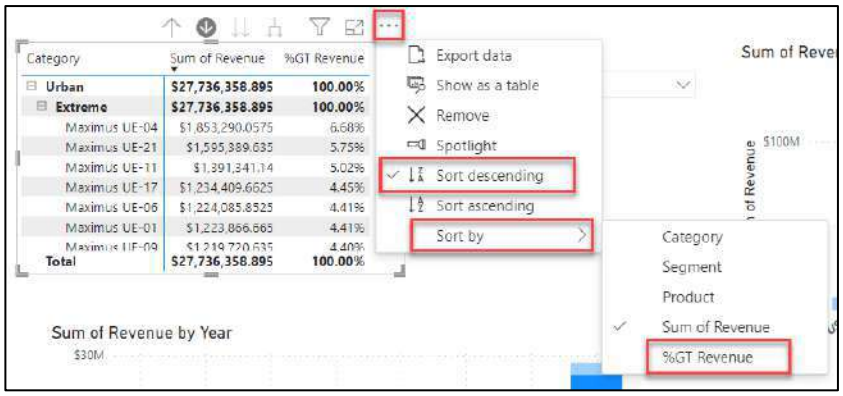


Now let's **drill down** into the **Extreme Segment** to determine if a Product stands out.

136. Within the **Matrix** visual, select the **Extreme** row (the *word*, not the + sign) to **drill down** to the **Product** level.
137. Resize the visual as needed.



138. Select the **ellipses** (**…**) in the top right corner of the matrix visual header.
139. Select **Sort By > %GT Revenue** and ensure that **Sort Descending** is also selected (this should be the default).



We can now see the top Products.

140. Ensure **2021** is selected in the **Sum of Revenue by Year** visual, and **Australia** in the **Sum of Revenue by Country** visual. Notice that **Maximus UE-04** and **Maximus UE-21** are the top products. Also, notice that Product **Maximus UE-04** has nearly **7%** of the grand total.

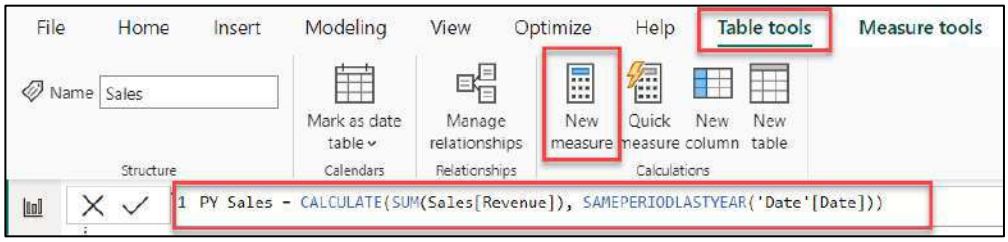


Earlier we created a calculated column named **ZipCountry** using DAX. Now let's create a **Percent Growth** calculated measure so we can compare sales over time. We are going to do this in two steps.

But first, what's the difference between a measure and a calculated column?

- A **Calculated column** is evaluated row by row. We extend a table by adding calculated columns.
- A **Measure** is used when we want to aggregate values from many rows in a table.

141. Within the **Data** pane, select the **Sales** table.
142. From the ribbon at the top of the screen, select the **Table Tools** tab, then select **New Measure**. A formula bar will appear.
143. Enter **PY Sales = CALCULATE(SUM(Sales[Revenue]), SAMEPERIODLASTYEAR('Date'[Date]))**

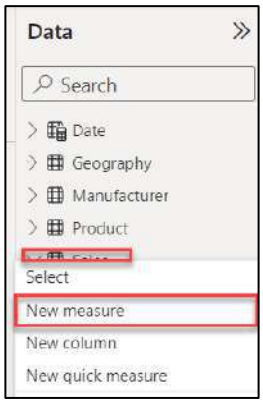


144. Select the **checkmark** to the left of the formula bar or hit **Enter** on your keyboard. You will see the **PY Sales** measure is created within the **Sales** table.



Let's create another measure using a different method.

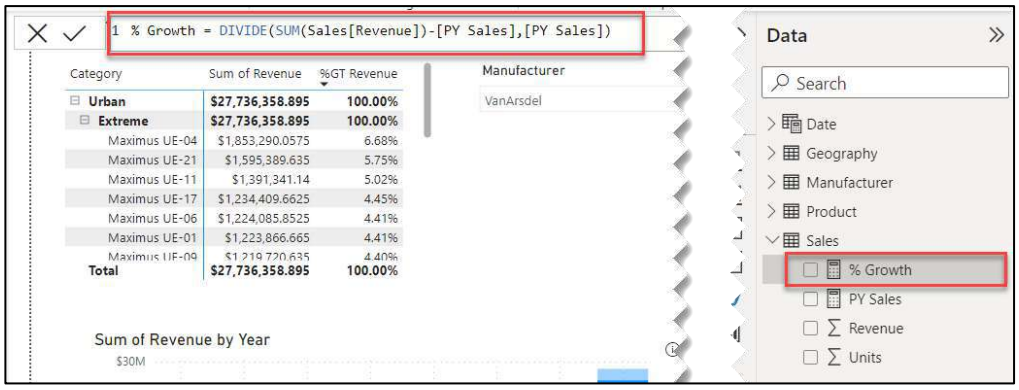
145. In the **Data** pane, hover over the **Sales** table.
146. Select the **ellipses** (**…**) to the right of the table name.
147. Select **New Measure** from the options menu. A formula bar opens.



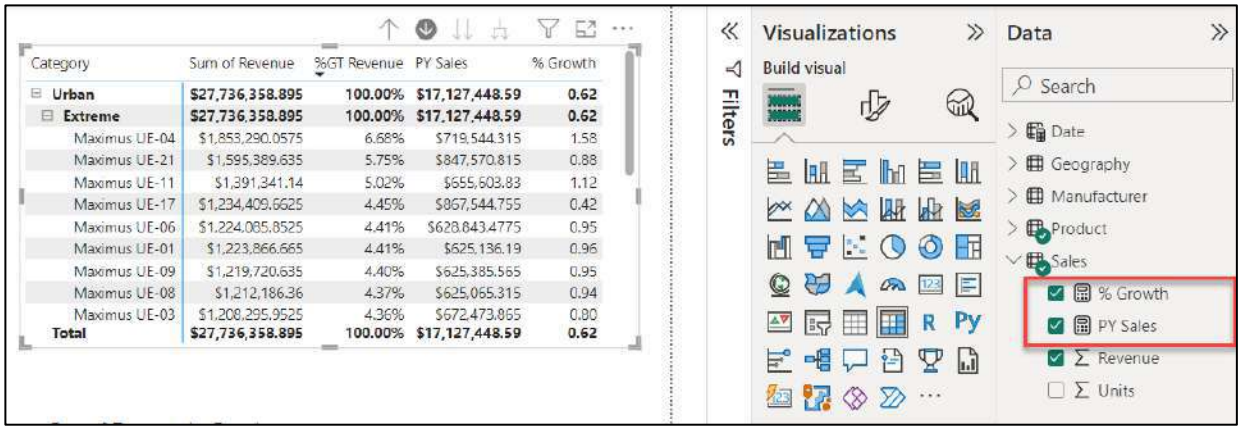
148. Within the formula bar, enter the following formula:

```
% Growth = DIVIDE(SUM(Sales[Revenue])-[PY Sales],[PY Sales])
```

149. Select the **checkmark** next to the formula bar or hit **Enter** on your keyboard. You will see the **% Growth** measure added to the **Sales** table.



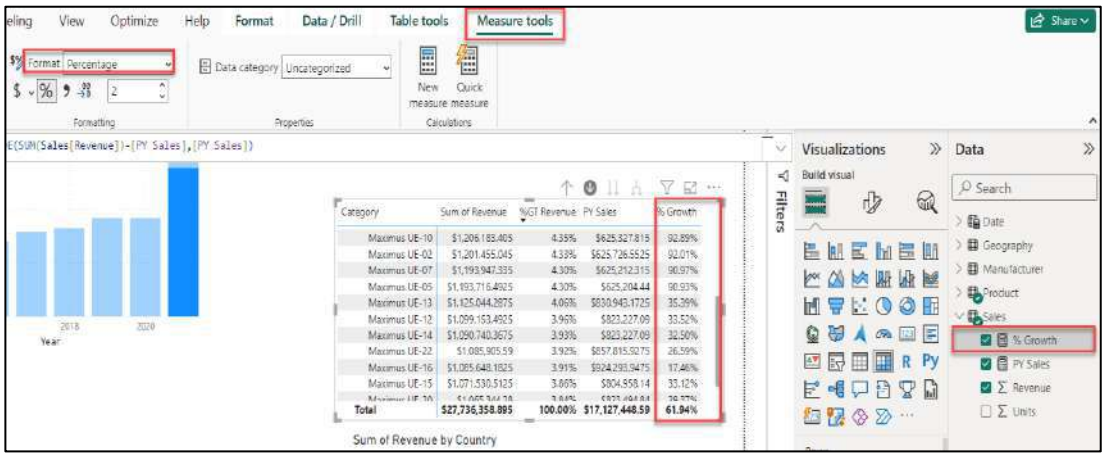
150. Ensure that the **Matrix** visual is still selected. If not, select the **Matrix** visual and also ensure that you still have the **Australia** and **2021** columns selected in the other visuals.
151. In the **Data** pane, select the **checkbox** next to the newly created **PY Sales** and **% Growth** measures within the **Sales** table. These measures should be added to the **Values** section of the **Matrix**.
152. Resize the **Matrix** to see these newly added fields. *(You may also have to adjust the size of the other visuals where needed)*



Notice that the fields need to be formatted.

153. From the **Data** pane, select the **% Growth** field (the *name*, not the checkbox) within the **Sales** table.

154. From the ribbon at the top of the screen, select the **Measure Tools** tab, choose the **Format** drop-down, and then select **Percentage**.



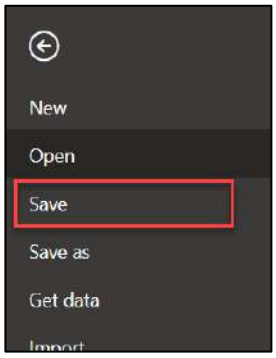
***Tip**: If your **% Growth** calculated measures shows as 0.00% at any point, double check that you still have **2021** and **Australia** selected as filters from the other visuals.*

155. Similarly, from the **Data** pane, select the **PY Sales** field (the *name*, not the checkbox) within the **Sales** table.
156. From the ribbon at the top of the screen, select the **Measure Tools** tab, choose the **Format** drop-down, and then select **Currency** (if it isn't already formatted to **Currency**).
157. Then, from the **Data** pane, select the **Revenue** field within the **Sales** table.
158. Using the same process, choose the **Format** drop-down under the **Table tools** tab, and then select **Currency** (if it isn't already formatted to **Currency**).

159. Ensure that **Australia** is still selected within the **Sum of Revenue by Country** visual, and the **2021** column is still selected within the **Sum of Revenue by Year** visual. Notice that **Maximus UE-04** has nearly **158%** growth compared to last year.



160. Select the white space within the canvas to **deselect** any of the possible selected visuals. Then, from the ribbon at the top of the screen, select **File** and choose **Save** from the menu to the left of the screen.

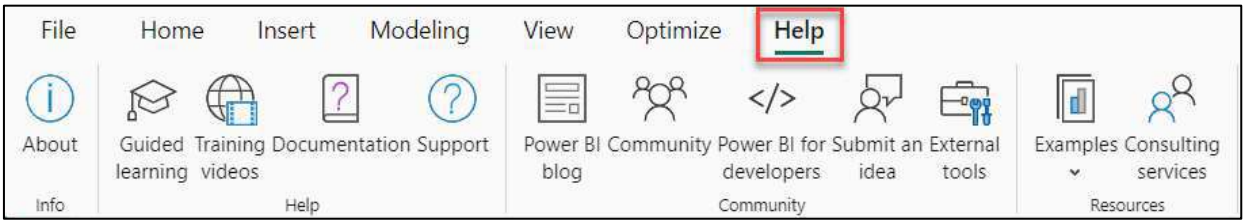


Congratulations! You have now completed Lab 2!

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References

Dashboard in a Day introduces you to some of the key functions available in Power BI. In the ribbon of the Power BI Desktop, the Help section has links to some great resources.



Here are a few more resources that will help you with your next steps with Power BI.

- Getting started: http://powerbi.com
- Power BI Desktop: https://powerbi.microsoft.com/desktop
- Power BI Mobile: https://powerbi.microsoft.com/mobile
- Community site https://community.powerbi.com/
- Power BI Getting started support page: https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi
- Support site https://support.powerbi.com/
- Feature requests https://ideas.powerbi.com/forums/265200-power-bi-ideas
- New ideas for using Power BI https://aka.ms/PBI_Comm_Ideas
- Power BI Courses http://aka.ms/pbi-create-reports
- Power Platform https://powerplatform.microsoft.com/en-us/instructor-led-training/
- Power Apps Business Apps | Microsoft Power Apps
- Power Automate Power Automate | Microsoft Power Platform
- Dataverse What is Microsoft Dataverse? - Power Apps | Microsoft Docs

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This demo/lab contains only a portion of new features and enhancements in Microsoft Power BI. Some of the features might change in future releases of the product. In this demo/lab, you will learn about some, but not all, new features.

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Introduction

This document is lab three out of five total labs.

Please continue to use your file after completing Lab 2. If you are joining the Dashboard in a Day at this point or were unable to complete previous labs, please start this lab with the provided **Lab 2 solution.pbix** file found in the Reports folder.

At the end of this lab, you will have completed a full report that is ready to be published to the Power BI Service. In the report, you will have learned how to do conditional formatting, add a logo to the manufacturer filter, import a custom visual, and apply a custom theme to the report. By the end of this lab, you will have also learned how to add bookmarks to tell a story about the report.

The flow of this document includes screenshots to provide a visual aid for the users and a text description of the steps the user needs to follow. In the screenshots, sections are highlighted with red or orange boxes to indicate the action or area on which a user needs to focus.

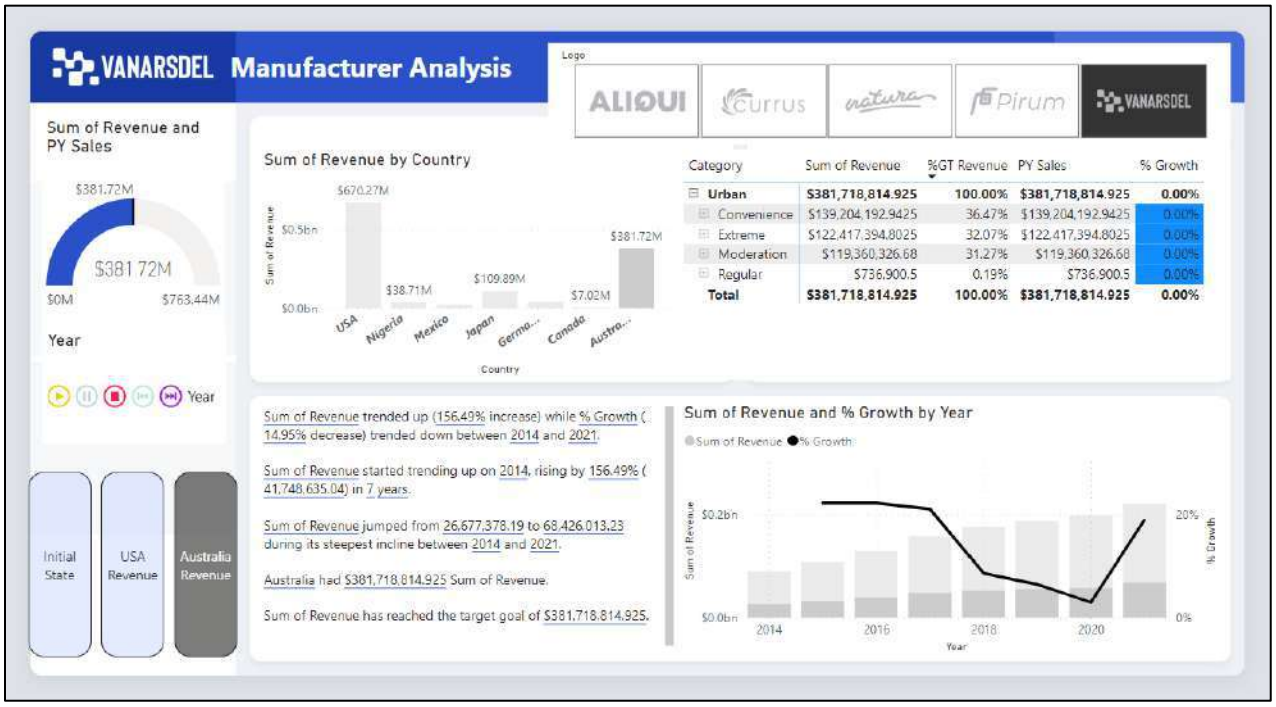
NOTE: *This lab uses real, anonymized data provided by ObviEnce, LLC. Visit their site to learn about their services: www.obvience.com. This data is the property of ObviEnce, LLC and has been shared to demonstrate Power BI functionality with industry sample data. Any use of this data must include this attribution to ObviEnce, LLC.*

Power BI Desktop

Power BI Desktop – Data Visualization

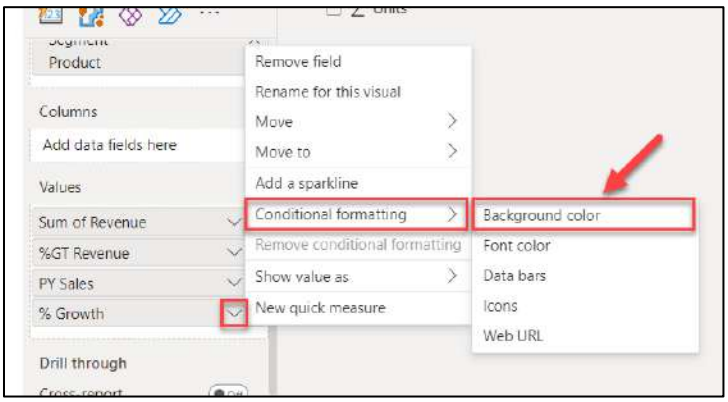
Now that we've completed data exploration and visualization in Labs 1 and 2, you have good insights to share with your team. In this section, you create a professional report for the benefit of you and your entire team.

At the end of this section, you will build a report like the one shown in the figure below.

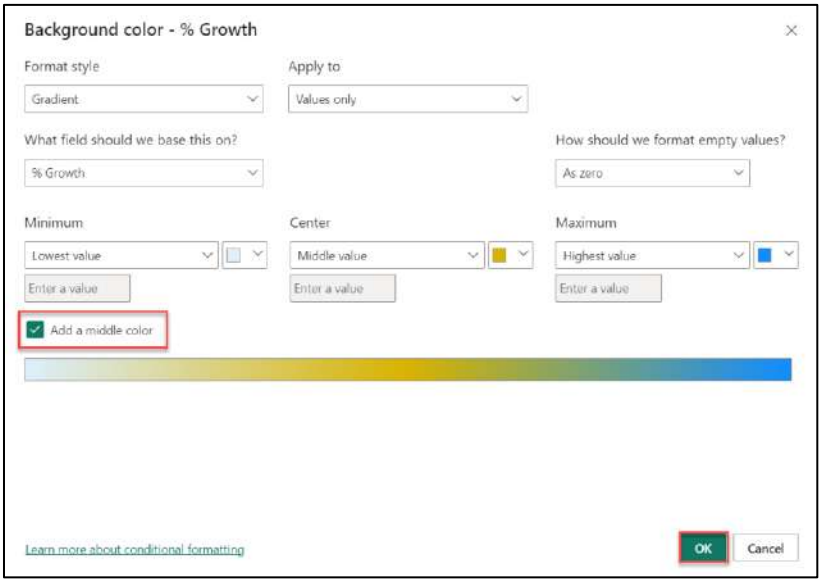


Now let's get started. We will pick up where we left off at the end of **Lab 2** within the report you saved entitled **MyFirstPowerBIModel**.

1. With the **Matrix** visual selected, navigate to the **Values** section in the **Visualizations** pane and select the arrow to the right of **% Growth**.
2. Select **Conditional Formatting** and then choose **Background color**. The **Background color** dialog box opens. This dialog provides options to format the report background color using either rules or diverging colors.

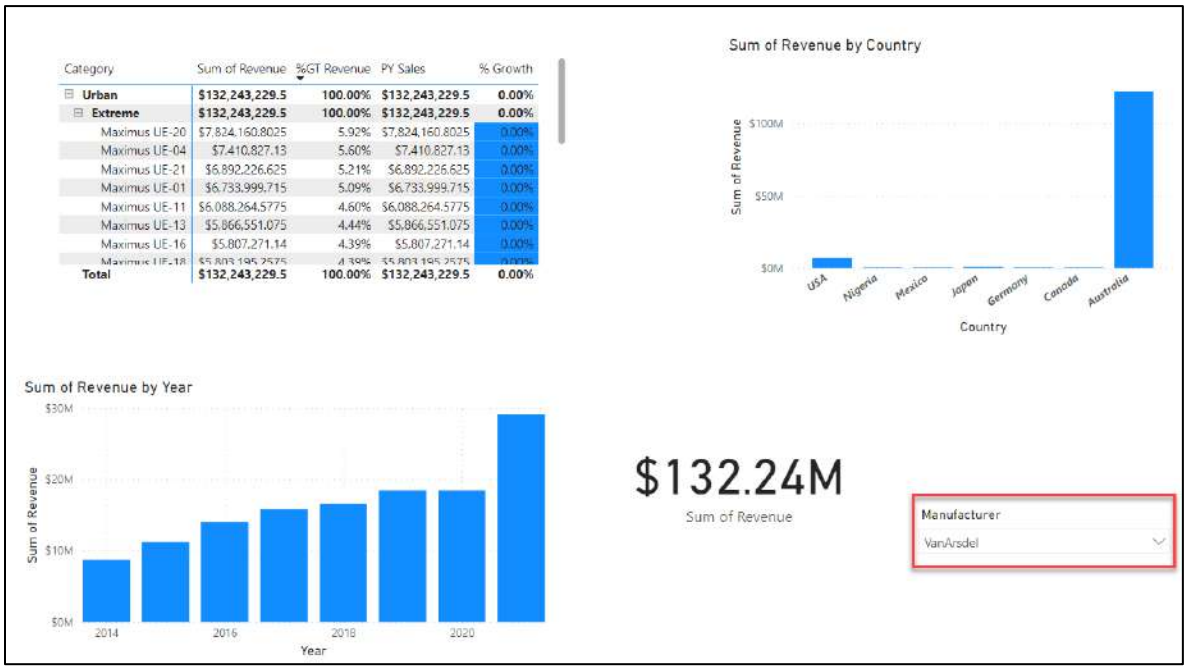


3. Within the **Background color - % Growth** dialog box, select the **Add a middle color** checkbox.
4. Then, select **OK**.

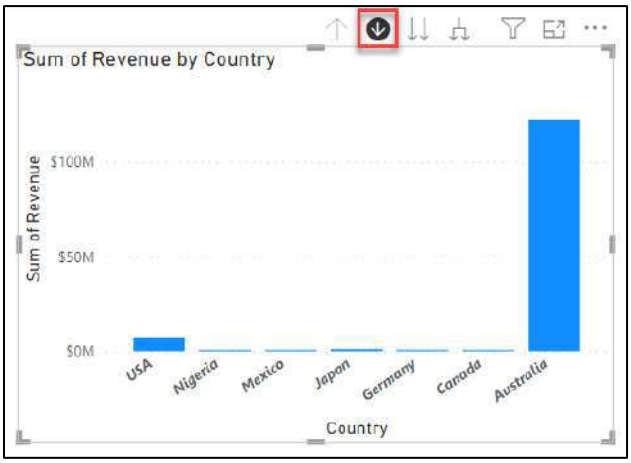


Note: *Conditional formatting can also be based on another column using the* ***Color based on*** *option from the drop-down menu.*
Note: *As a reminder if you see 0.00% for every value in the* ***% of Growth*** *column in the Matrix then you likely need to multi-select* ***Australia*** *and* ***2021*** *like you did in* ***lab 2****.*

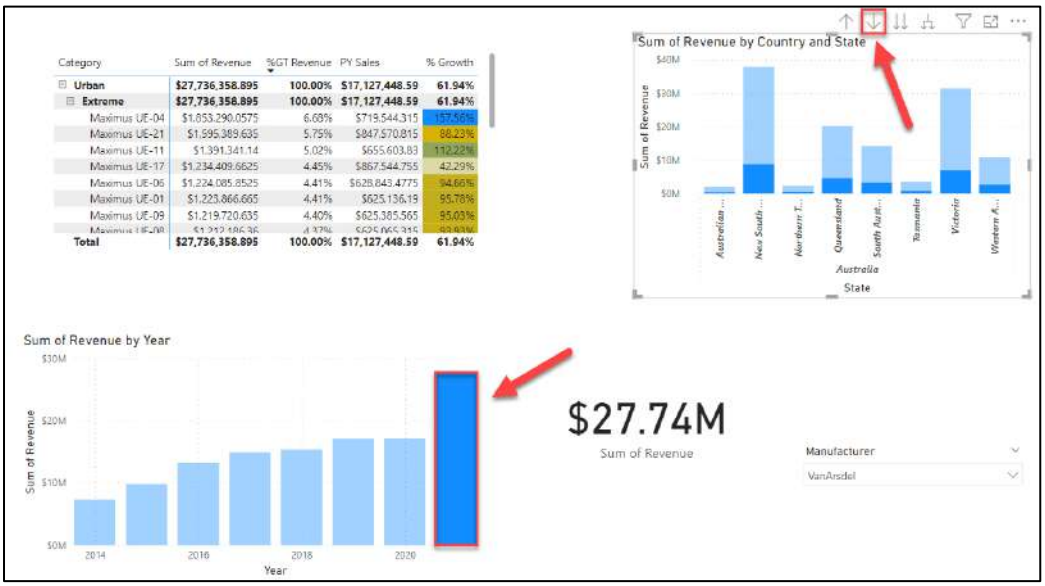
Make sure the report is filtered by **VanArsdel** using the **Manufacturer** slicer. Remove all other filters.



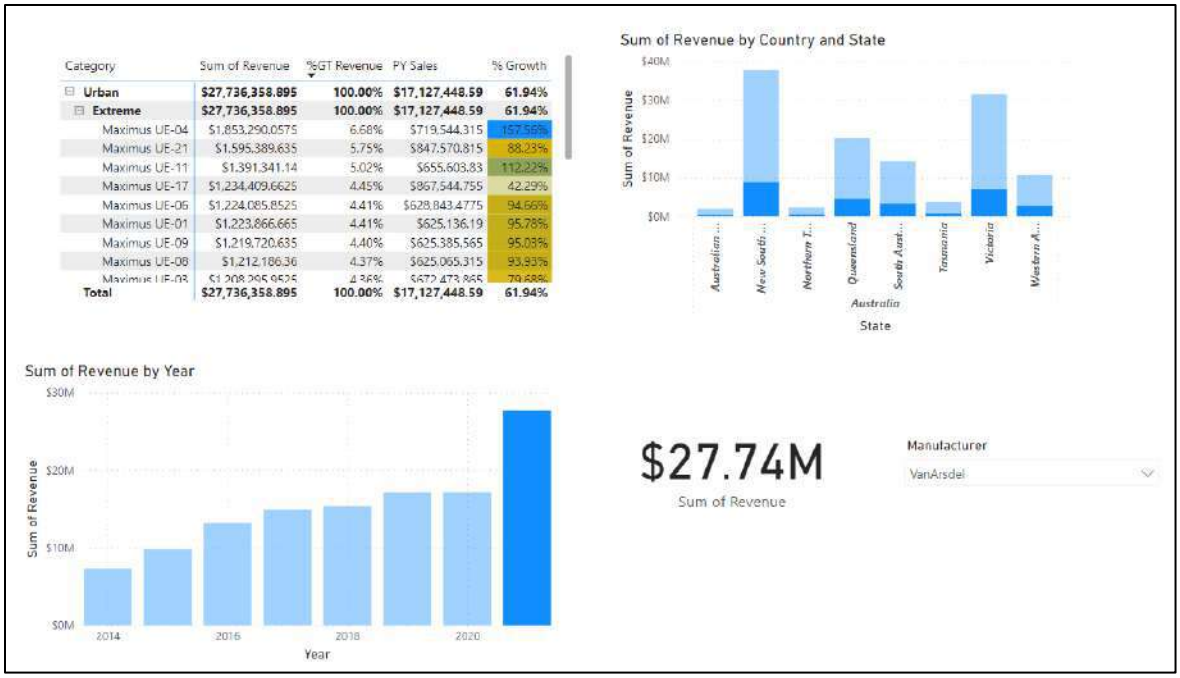
5. Enable **drill down** mode on the **Sum of Revenue by Country** visual by selecting the **down arrow** within the header of the visual *(this may alternatively be located at the bottom of the visual based on how you have the visual placed within the canvas)*.



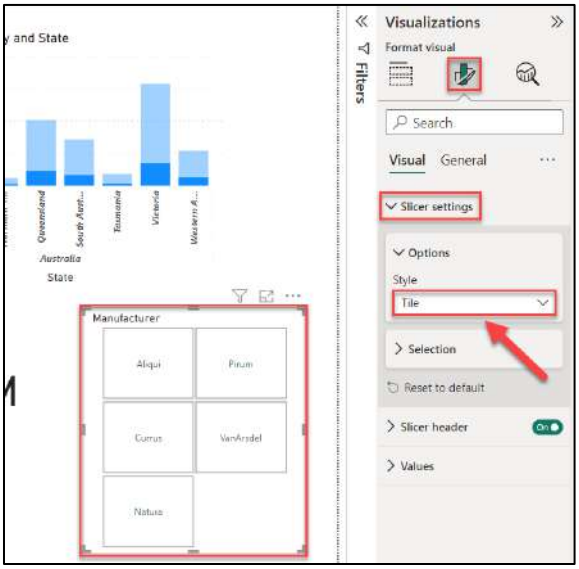
6. Within the visual, select the **Australia** column to drill down to the **State** level.
7. **Disable** drill down mode on the **Revenue by Country and State** visual.
8. Ensure you still have the year **2021** selected in the **Sum of Revenue by Year** visual. If you do not, hold down the **Ctrl** key on your keyboard and select the **2021** column.



At this point, your canvas and visuals should look similar to those in the figure below. You can resize and move visuals as you need:

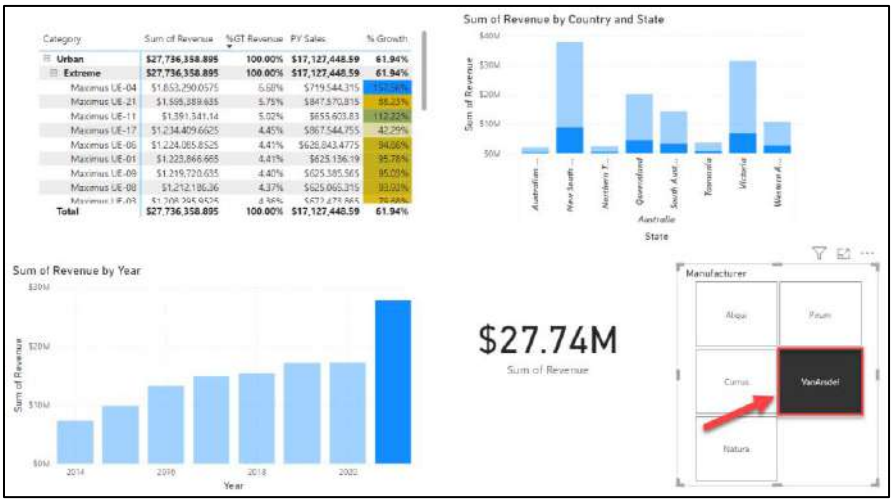


9. Select the **Manufacturer slicer** visual within the canvas.
10. Within the **Visualizations** pane, switch to the **Format visual** tab. Then, expand the **Slicer settings** section, then the **Options** section.
11. From the **Style** drop-down, select **Tile**. Notice that the Manufacturer slicer visual changes to a tile style. You may need to **resize** your visual so that you can view **all** of the Manufacturers at once within the list.



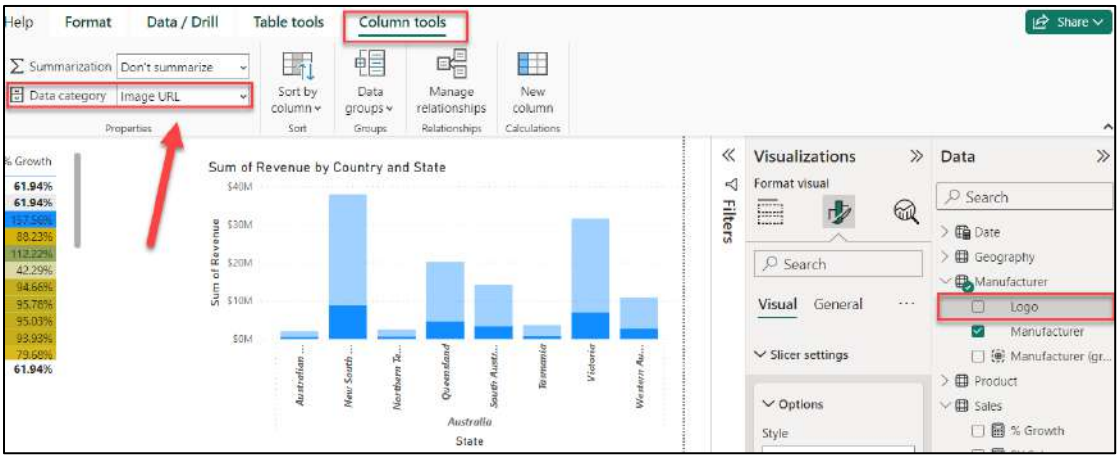
***Note**: There are other options that can optionally be changed here to modify the outline color, weight, and more. There is an option to enable the **Select All** option in the visual. There is also an option to make the slicer **multi-select**. Feel free to explore other formatting options.*

12. Select **VanArsdel** within the **Slicer** visual.

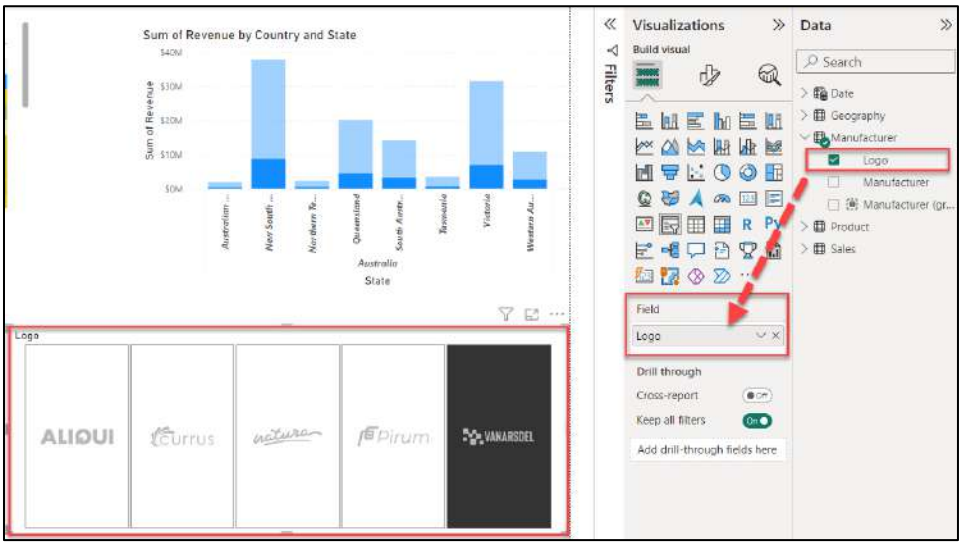


Now it would be nice to add logos of the manufacturer to the slicer instead of just text. Let's do it.

13. Ensure that the **Manufacturer** slicer visual is still selected. From the **Data** pane, select the **Logo** field from the **Manufacturer** table. (*Do not* select the checkbox; only select the *name* of the field.)
14. From the ribbon, select the **Column tools** tab, choose the **Data Category** drop down and then select **Image URL.** Setting the data category property to **Image URL** helps Power BI understand that the data in this field is a URL so it can render the image in the report.

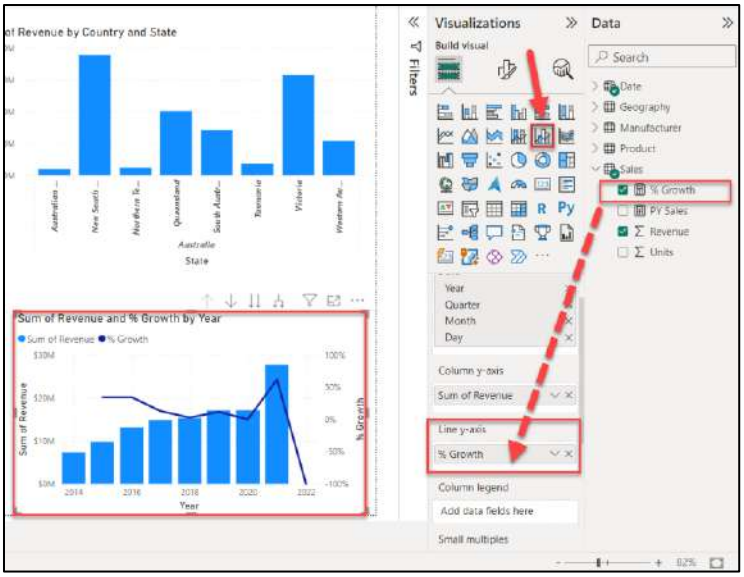


15. From the **Data** pane, drag and drop the **Logo** field from the **Manufacturer** table to below the **Manufacturer** column within the **Field** box in the **Visualizations** pane.
16. Select the **X** to the right of the **Manufacturer** field in the box so that the **Logo** field has replaced it.
17. **Resize** and **move** the visuals as needed.
18. Select the **VanArsdel** logo within the **Manufacturer** slicer visual to filter all the other visuals.



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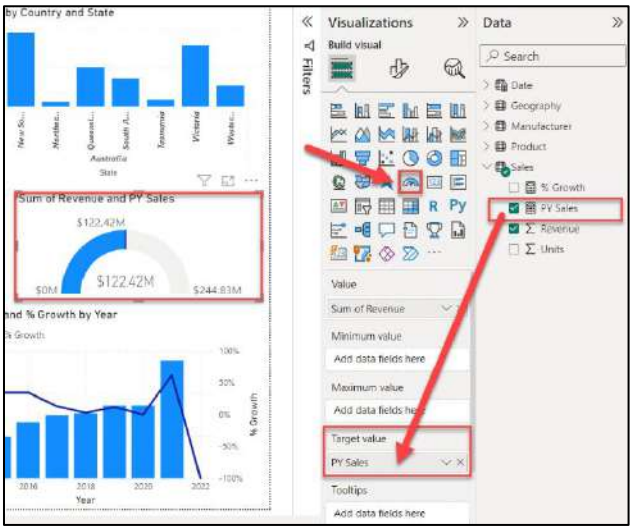
19. Select the **Sum of Revenue by Year** visual.
20. From the **Visualizations** pane, select the **Line and clustered column chart** to change the visual type.
21. From the **Data** pane, drag and drop the **% Growth** field from the **Sales** table to the **Line y-axis** box.



This provides a representation of the revenue and growth over time.

Now let's select the **Sum of Revenue** card visual so we can change it to a **Gauge** visual.

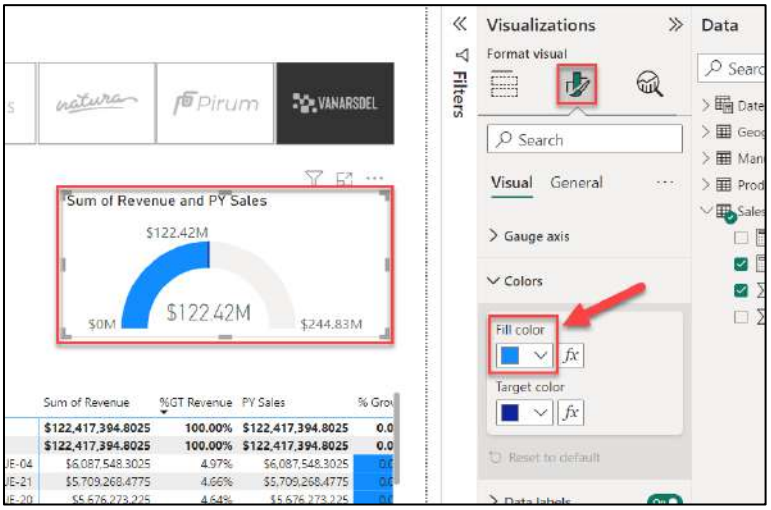
22. Ensure that the card visual is selected within the report. From the **Visualizations** pane, select the **Gauge** visual.
23. From the **Data** pane, drag and drop the **PY Sales** field from the **Sales** table to the **Target value** in the **Visualizations** pane.



Resize and **move** the visuals as needed. Now we can compare **Revenue** with the target.

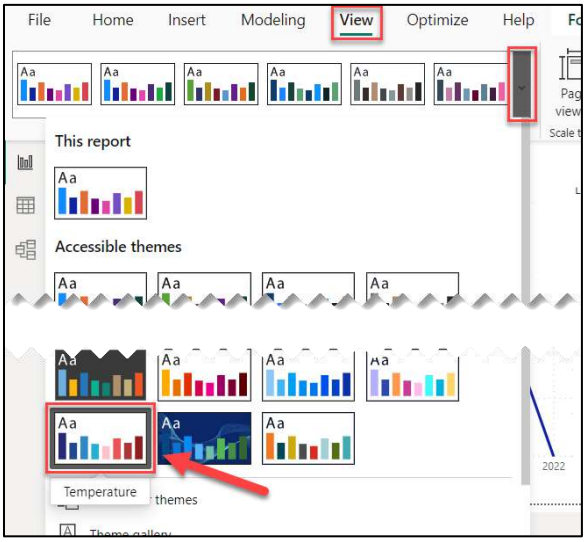
Now let's take time to select the colors for the visuals.

24. Select the **Gauge** visual.
25. From the **Visualizations** pane, select the **Format visual** tab (*the paint brush icon*).
26. Expand the **Colors** section.
27. Select the drop-down for **Fill** color.
    Notice you can pick a color from the default color palette or pick **More colors**. No need to make a change here because the next steps will standardize all the report colors used.



Let's check out some of the **themes** available.

28. Ensure that the **Gauge** visual is still selected. From the ribbon, select the **View** tab, choose the drop-down arrow within the **Themes** menu, and then select the **Temperature** theme.

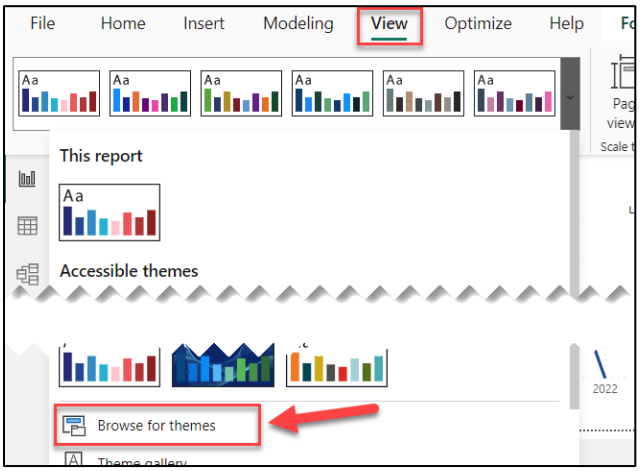


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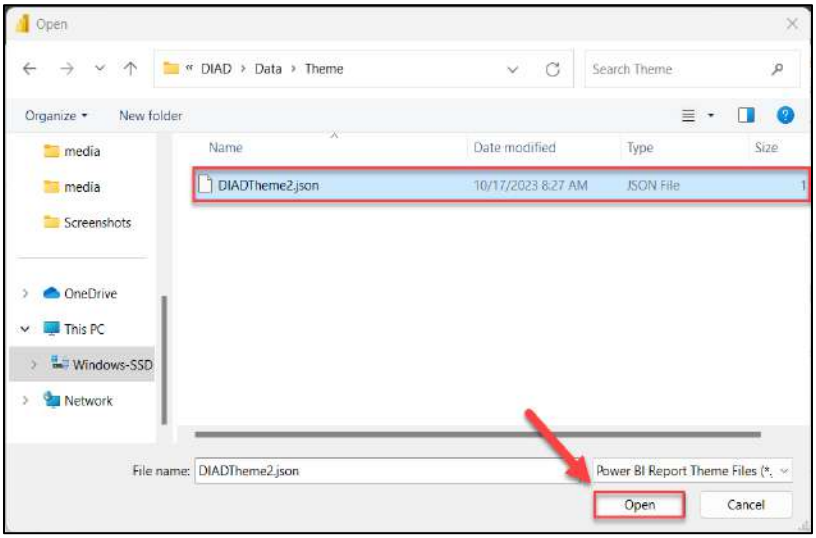
Notice that the colors on all the visuals are updated. Feel free to try the other **out-of-the-box themes**.

In our scenario, the Marketing department has provided standard color themes to be used across reports. We can use the **Report Theme** feature in Power BI by uploading a theme. The **Report Theme** requires a **JSON file** where the data colors, background, foreground, and a table of accent colors are defined. The JSON file can be used across all the reports.

29. From the ribbon, select the **View** tab, choose the drop-down within the **Themes** menu, and then select **Browse for themes**.



30. A file browser dialog box opens. Navigate to the **Data** folder, then the **Theme** folder (DIAD/Data/Theme).
31. Select the **DIADTheme2** file and then choose **Open**.



***Note**: Here you can save and add your custom themes.*

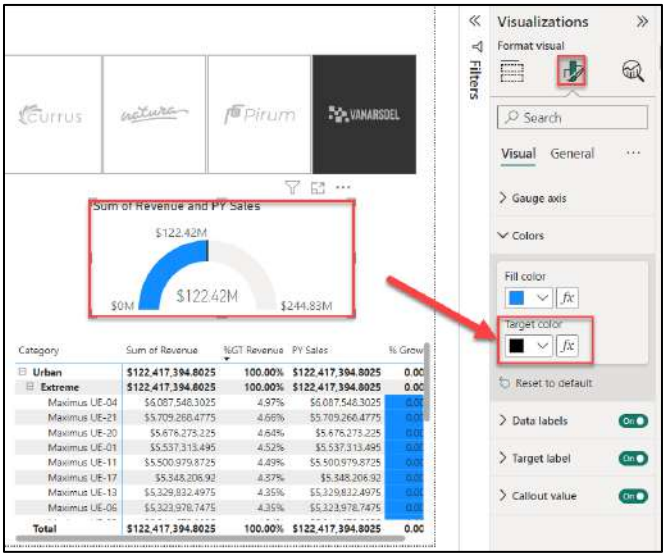
32. Once the theme is imported, a success dialog box opens. Select **Got it**.



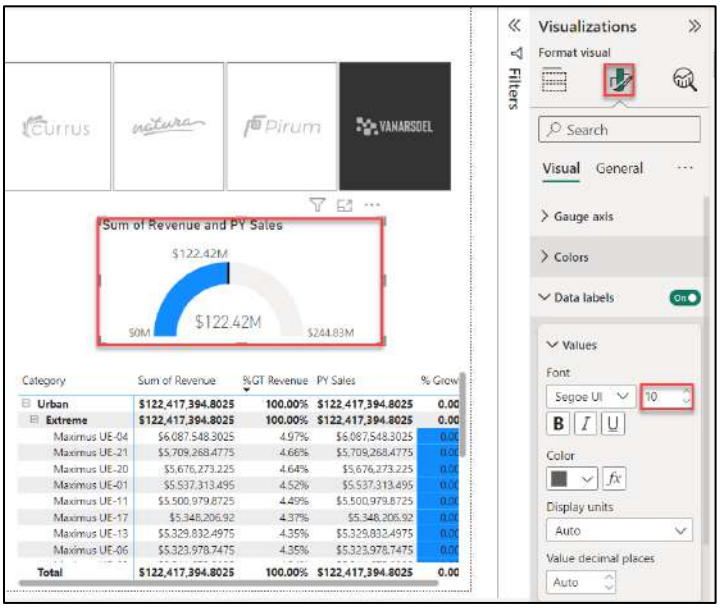
Notice colors on all the visuals are updated. Your report should look like the figure at this point. This theme looks good. Now, most of the visuals are blue, so let's add some contrast.



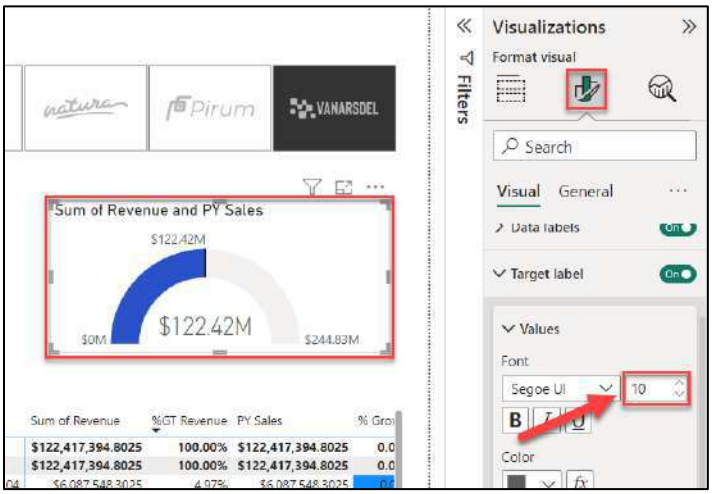
33. Select the **Gauge** visual.
34. From the **Visualizations** pane, select the **Format visual** tab (*the paint brush icon*).
35. Expand the **Colors** section.
36. Select the drop-down menu below **Target color**. Notice the color palette is different now.
37. Select the color **black**. Notice the subtle change to the target line in the visual.
38. Collapse the **Colors** section.



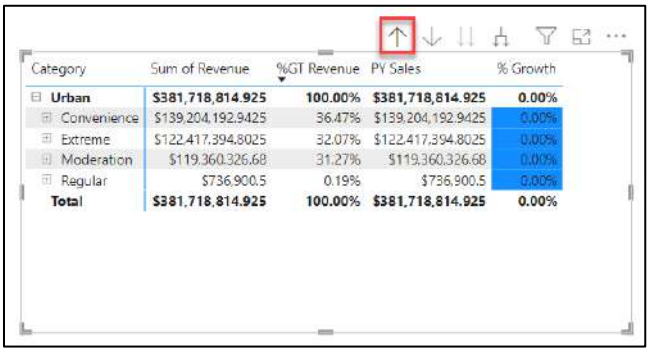
39. Within the **Visualizations** pane, under the **Format visual** tab, expand the **Data labels** section.
40. Then, expand the **Values** section and change the **Font size** to **10**.



41. While the **Gauge** visual is still selected, and still within the **Visualizations** pane, under the **Format visual** tab, expand the **Target label** section.
42. Within the **Values** section, change the **Font size** to **10**.

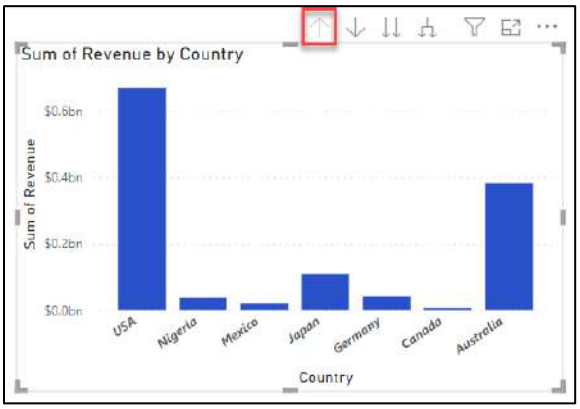


43. Select the **Matrix** visual.
44. Using the arrows within the visual header, **Drill up** to the **Segment** level.



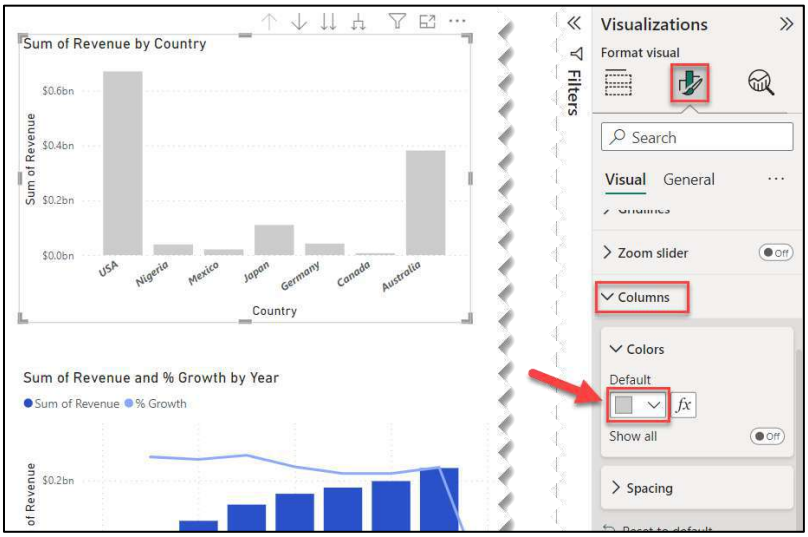
Category	Sum of Revenue	%GT Revenue	PY Sales	% Growth
Urban	**$381,718,814.925**	**100.00%**	**$381,718,814.925**	**0.00%**
Convenience	$139,204,192.9425	36.47%	$139,204,192.9425	0.00%
Extreme	$122,417,394.8025	32.07%	$122,417,394.8025	0.00%
Moderation	$119,360,326.68	31.27%	$119,360,326.68	0.00%
Regular	$736,900.5	0.19%	$736,900.5	0.00%
Total	**$381,718,814.925**	**100.00%**	**$381,718,814.925**	**0.00%**

45. Select the **Sum of Revenue by Country and State** visual.
46. Using the arrows within the visual header, **Drill up** to the **Country** level.

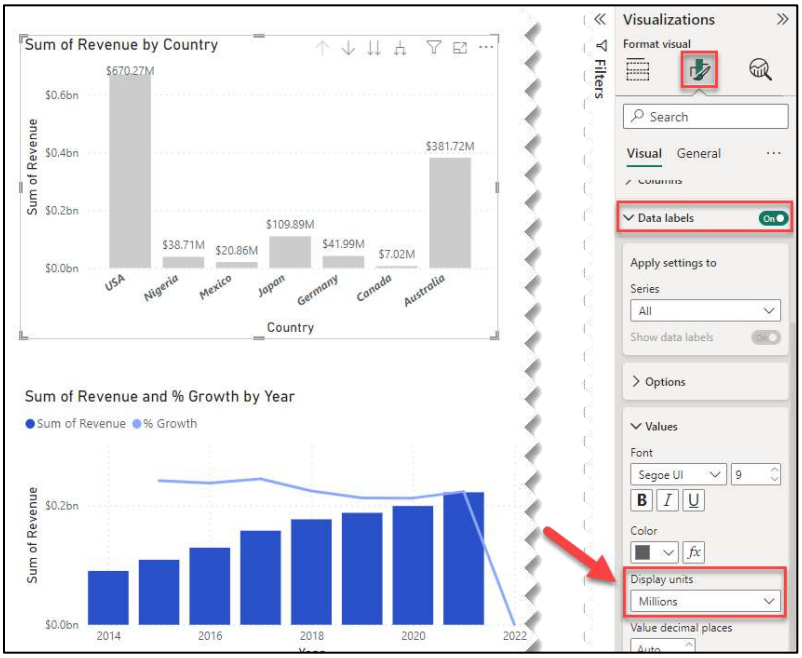


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47. While the **Sum of Revenue by Country** visual is still selected, within the **Visualizations** pane, select the **Format visual** tab (*the paint brush icon*).
48. Expand the **Columns** section, then the **Colors** section.
49. Using the drop-down menu, select a *light shade* of **gray** as the **Default color**.



50. Ensure that the **Sum of Revenue by Country** visual is still selected. Within the **Visualizations** pane, under the **Format visual** tab, turn **On** the **Data labels** and expand this section.
51. Expand the **Values** sub-section within the **Data labels** section.
52. Change the **Display units** to **Millions**.

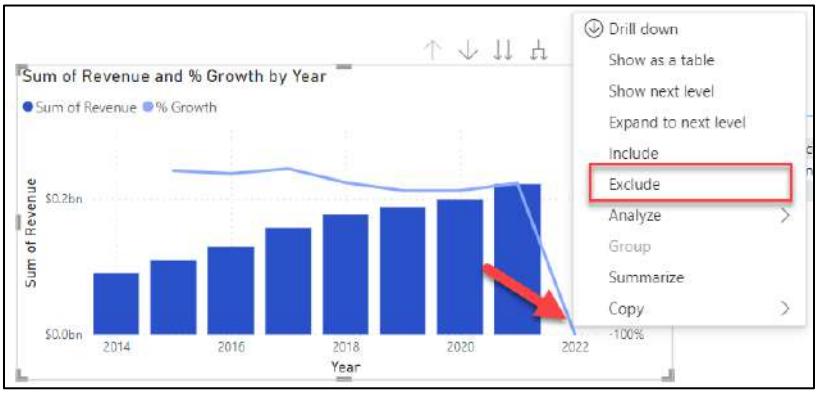


Notice that there are lot of formatting options. For example, a visual title can be changed and formatted, or you can add a border and background to the visual. Feel free to explore the options.
Let's move to another visual.

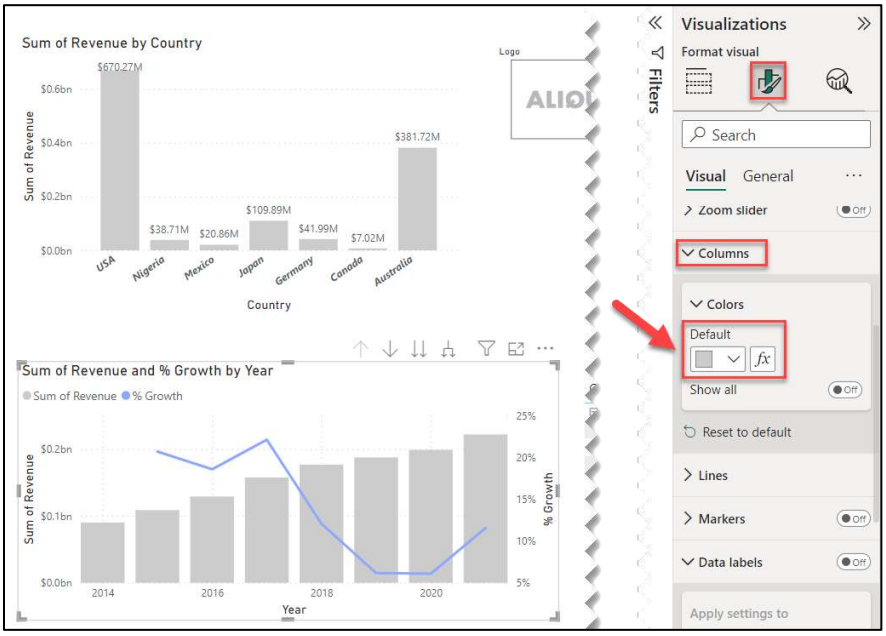
53. Select the **Sum of Revenue and % Growth by Year** visual.

> ***Note:*** *You may need to* ***move*** *and* ***resize*** *the visuals in order to see all of the information that will be needed in the next steps.*

54. Since there is no **Revenue** value in the year **2022**, right-click on the line above **2022** and select **Exclude**.



55. Next, from the **Visualizations** pane, select the **Format visual** tab (*the paint brush icon*).
56. Expand the **Columns** section.
57. Expand the **Colors** section
58. Select a *light shade* of **gray** as the **Default color**.

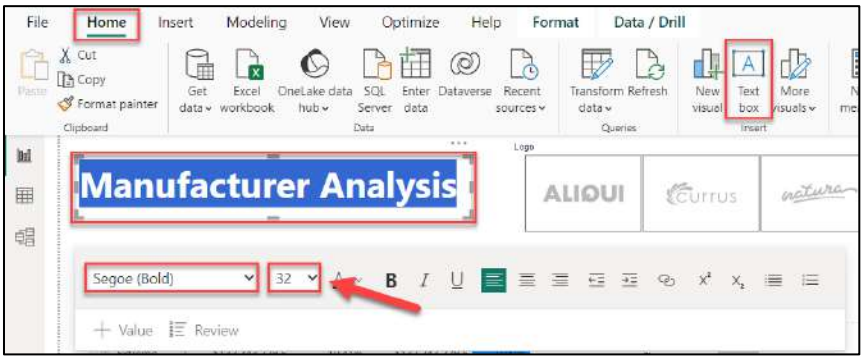


59. Ensure that the **Sum of Revenue and % Growth by Year** visual is still selected. Within the **Visualizations** pane, under the **Format visual** tab, expand the **Lines** section.
60. Then, expand the **Colors** section.
61. Set the **% Growth** color to **black**.

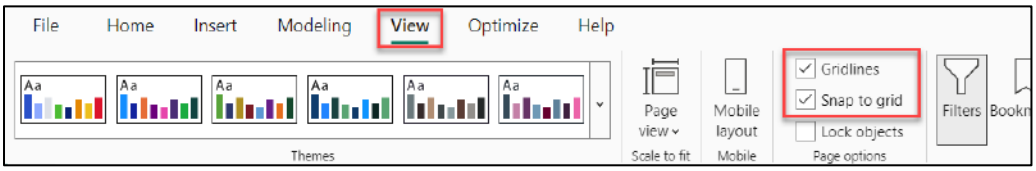


Now let's add a **report title**.

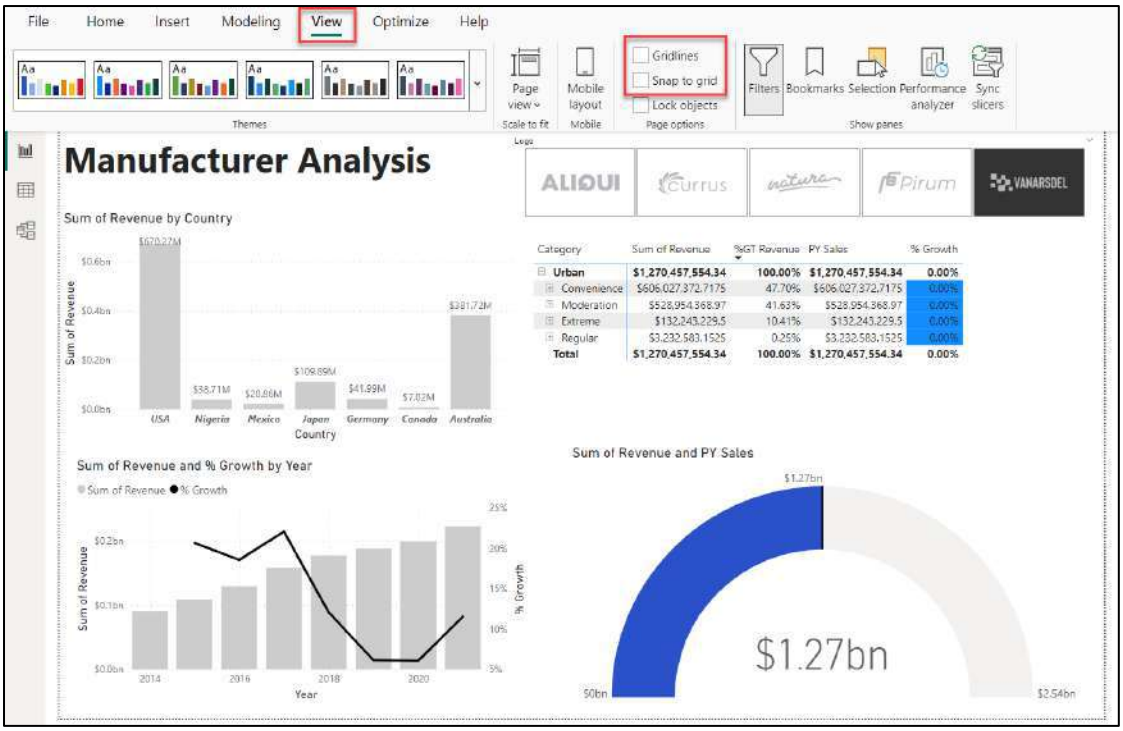
62. From the ribbon, select the **Home** tab and then choose **Text box**. Notice a text box visual is added.
63. **Resize** and move the visuals as needed.
64. Enter **Manufacturer Analysis** in the text box.
65. Highlight **Manufacturer Analysis** to format the text.
66. Select **Segoe (Bold)** as the **font**.
67. Select **32** as the **font size**.
68. **Resize** the text box as needed.
    Notice the additional formatting options that have been added are highlighted in **black** (superscript, subscript, and bulleted lists)



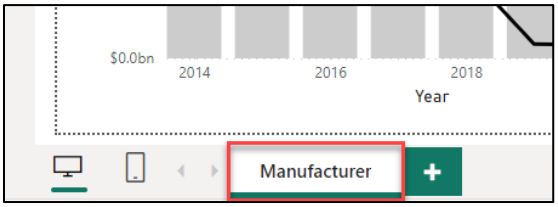
69. From the ribbon, select the **View** tab.
70. Select the **checkbox** next to **Show Gridlines** and **Snap to Grid** within the **Page options** section. This will help with aligning the visuals.



71. Now, use the **Gridlines** and **Snap to Grid** features to **position** and **resize** your visuals to appear like, or similar to, the figure below.
72. Uncheck the **Show Gridlines** and **Snap to Grid** options to disable these features once you have finished moving the visuals into the correct places.

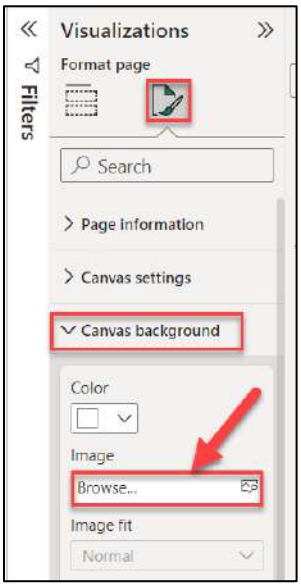


73. Right-click the page name in the lower-left corner and then select **Rename Page** from the options menu.
74. **Rename** the page to **Manufacturer**.

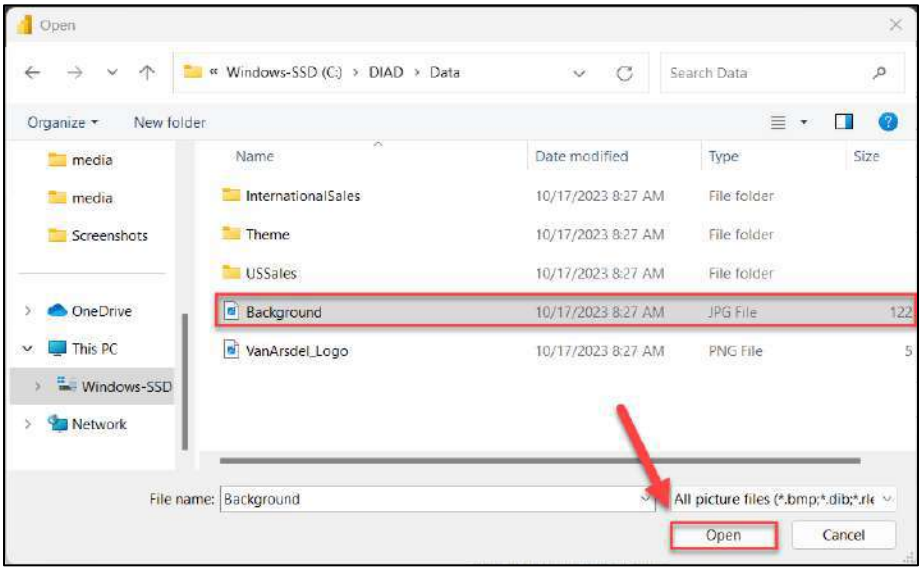


We can also use a background image to format the reports. Let's try it.

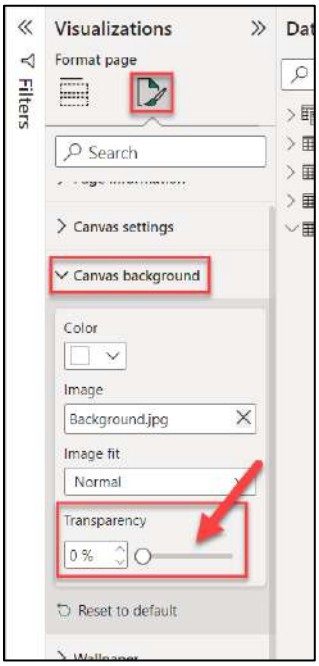
75. Select the white space in the canvas to deselect any possible selected visual(s).
76. From the **Visualizations** pane, select the **Format page** tab (*the paint brush icon*).
77. Expand the **Canvas Background** section.
78. Select the **Browse Image** button.



79. A **File** browser dialog box opens. Browse to the **DIAD** folder, then the **Data** folder (DIAD/Data).
80. Select the **Background.jpg** file.
81. Select the **Open** button.



82. Within the **Canvas background** section of the **Visualizations** pane, change and set the **Transparency** slider to **0%**.



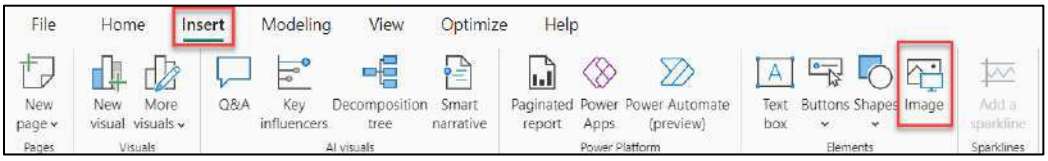
Notice we have a template which has a place for **header** and **slots** for images.

83. **Resize** and **position** the visuals as shown in the figure below:

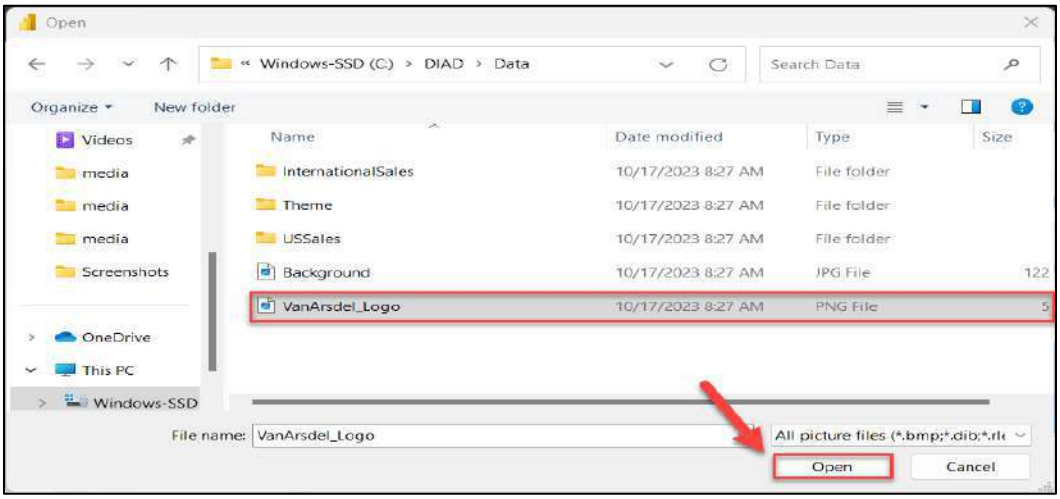


Now let's add a **logo**.

84. From the ribbon, select the **Insert** tab and then choose **Image**.



85. The **File** browser dialog opens. Browse to the **DIAD** folder then the **Data** folder (DIAD/Data).
86. Select the **VanArsdel_Logo.png** file.
87. Then, select **Open**.



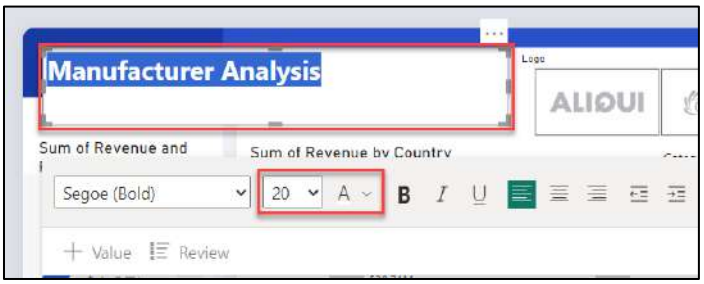
88. **Resize** and **drag** the image to the top left corner of the report.



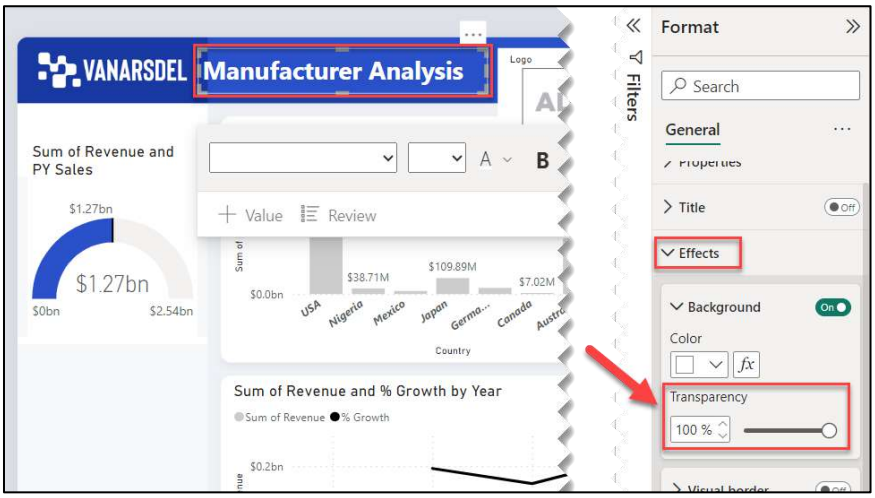
> ***Note:*** *The logo is transparent. You will need to place it on the blue background in order to see it.*

Now let's change the font color of the report title.

89. Highlight **Manufacturer Analysis** within the text box.
90. Select the drop-down arrow next to the **A** to change the font color. Select the color **white**.
91. Change the **size** of the **font** to **20**.

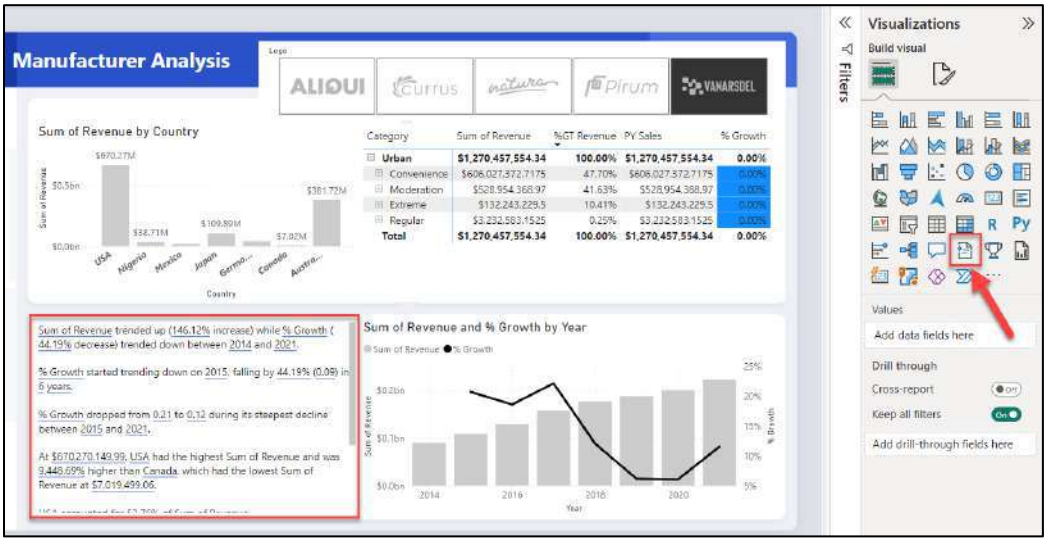


92. Expand the **Background** sub-section, within the **Effects** section, of the **Format** pane and set the **Transparency** to **100%**.
93. **Resize** and **move** the visuals around if needed making sure they are still in the same locations as before.



Now let's add a **smart narrative visual** to our report.

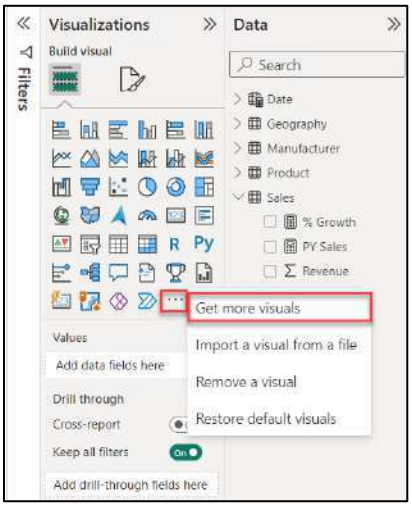
94. First, **resize** the **Sum of Revenue and % Growth by Year** visual to make space to the left of the visual at the bottom of the report.
95. Add a **Smart narrative visual** to the canvas. The smart narrative visualization helps you quickly summarize visuals and reports. It provides relevant innovative insights that you can customize.



Out of the box, Power BI has a large selection of visuals. However, there may be a use-case when you need a custom visual. To meet this requirement, the visualization engine is open-sourced. The Power BI community contributes visuals in the marketplace. You can add and use these visuals in your reports. There is also an option to create your own visual or import visuals into Power BI Desktop.

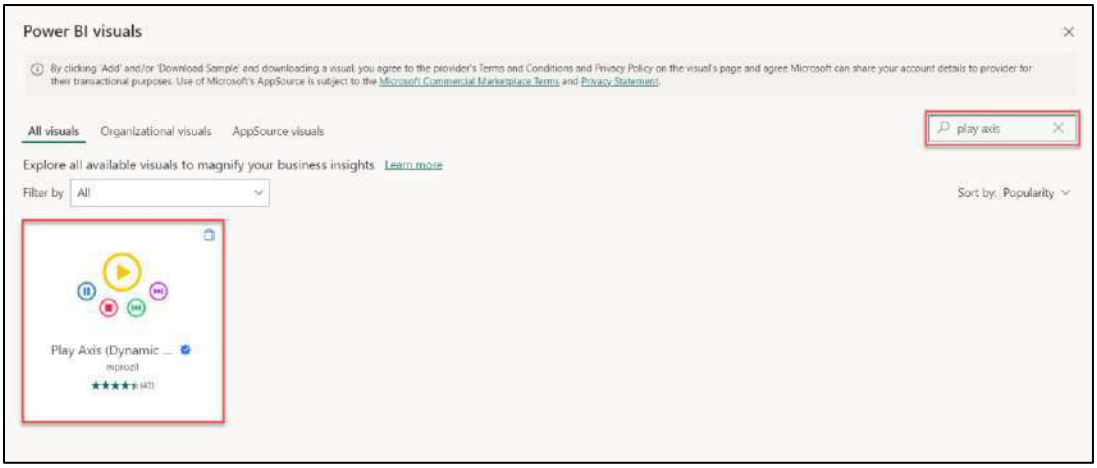
Now let's add a **custom visual**.

96. From the **Visualizations** pane, select the **ellipses** (**…**) in the last row of visuals.
97. Select **Get more visuals**.



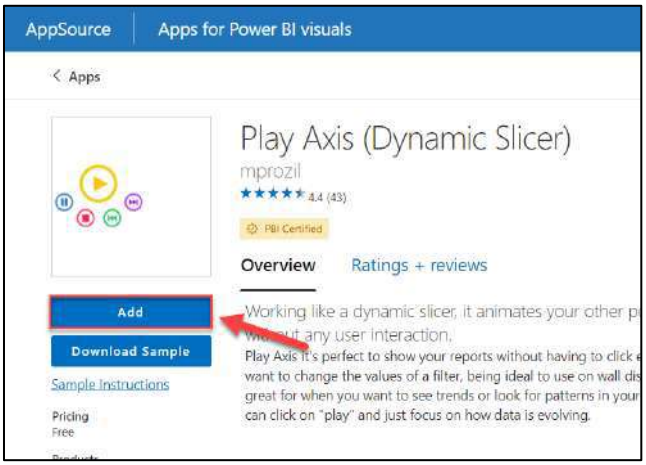
Note: *You may be prompted to sign into your Power BI account to access the custom visuals library. If you are unable to login, you can select* ***Import a visual from a file*** *and select the* ***Play Axis*** *visual that is found in the class files (/DIAD/Data).*

98. Type **play axis** in the **search box** in the top right-hand corner of the Power BI visuals dialog box and select the **Search** icon.
99. Select the **Play Axis (Dynamic Slicer)**.

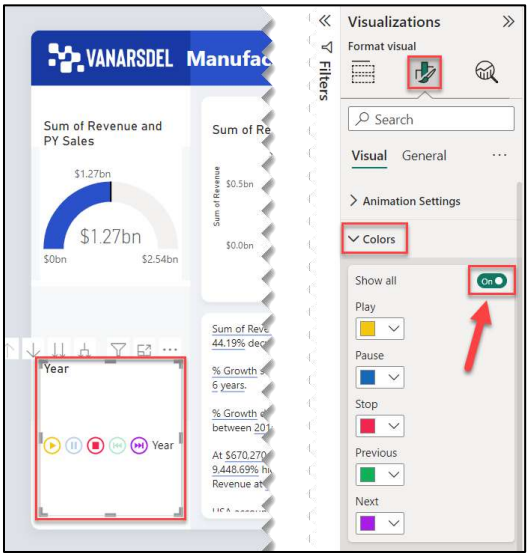


Note*: Notice the checkmark in the blue star. This image is used to identify certified custom visuals. Custom visuals that meet Power BI teams coding requirements are certified. Certified custom visuals support features like export to PowerPoint and the ability to display in subscription emails which are not supported by non-certified custom visuals.*

100. The **AppSource** dialog box will then appear. Select the **Add** button below the **Play Axis (Dynamic Slicer)** cover image.



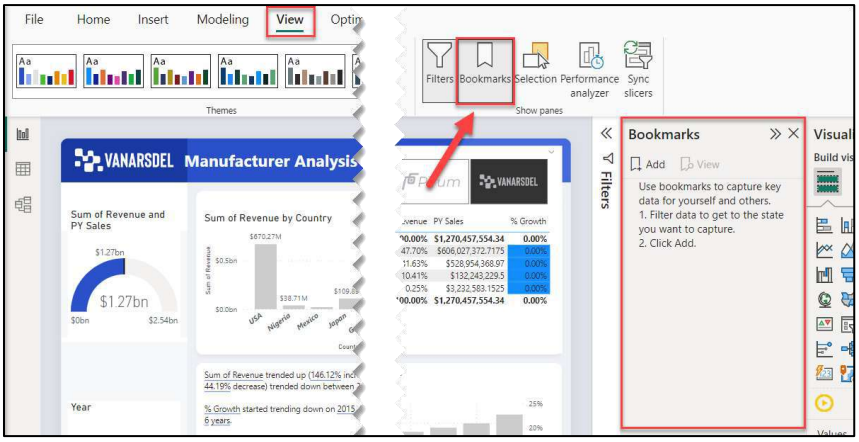
101. After a few moments you should see a notification that the visual was successfully imported. Select **OK**.
     Notice a new visual is added to the list of available visuals.
102. Select the white space in the canvas to deselect anything that may be currently selected.
103. From the **Visualizations** pane, select the newly imported **Play Axis** visual.
104. From the **Data** pane, select the **checkbox** next to the **Date** field in the **Date** table.
105. From the **Visualizations** pane, select the **Format visual** tab (*the paint brush icon*).
106. Expand the **Colors** section.
107. Enable the **Show all** option.
108. **Resize** and **position** the visual as shown in the figure below.



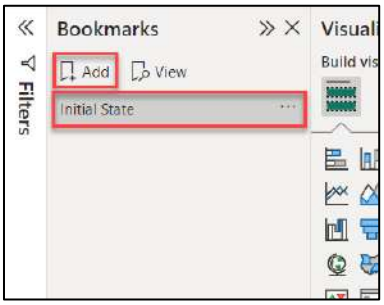
Now that we have a report ready, let's use **Bookmarks** to tell the story we discovered. Bookmarks capture the currently configured view of a report page, including filtering and the state of visuals which helps to make it easier to present the story.

109. From the ribbon, select the **View** tab.

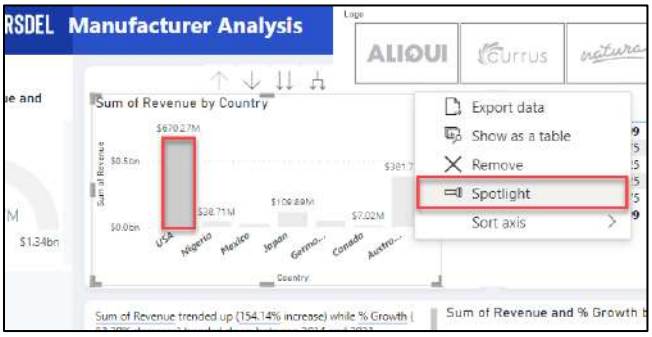
110. Select the **Bookmarks** button to *enable* Bookmarks. The **Bookmarks** pane will open.



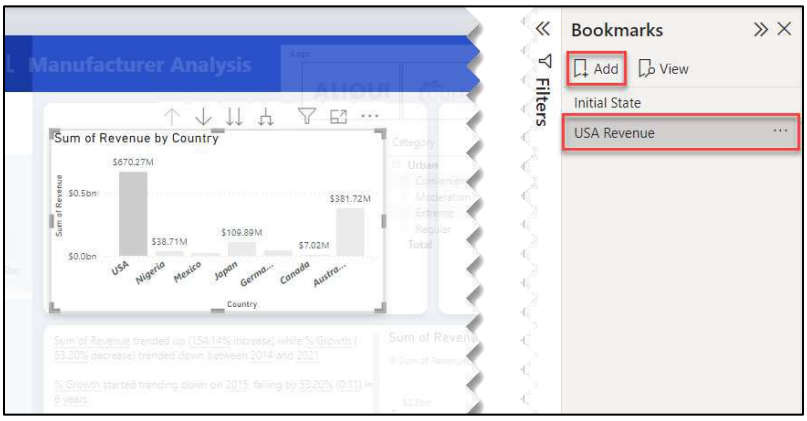
111. Select **Add** within the **Bookmarks** pane. This will add the current state of the visual to the bookmark.
112. Select the **ellipses** (**…**) to the right of the newly created **Bookmark 1**.
113. Choose **Rename** and change the name to **Initial State**.



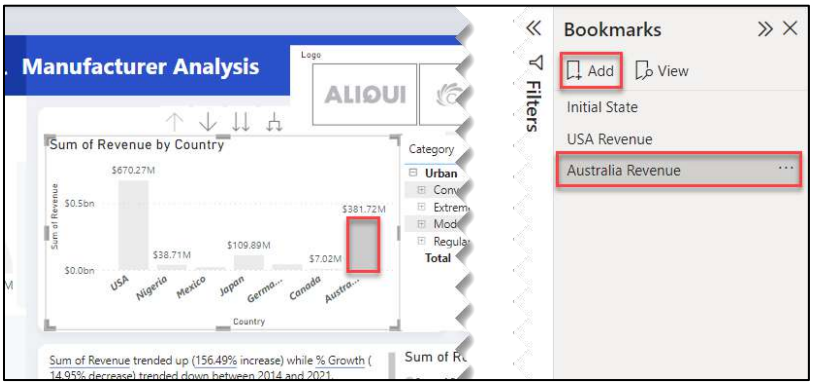
114. In the **Sum of Revenue by Country** visual, select the **USA** column.
115. Hover over the **Sum of Revenue by Country** visual and select the **ellipses** (**…**) on the top right corner.
116. Select **Spotlight**.



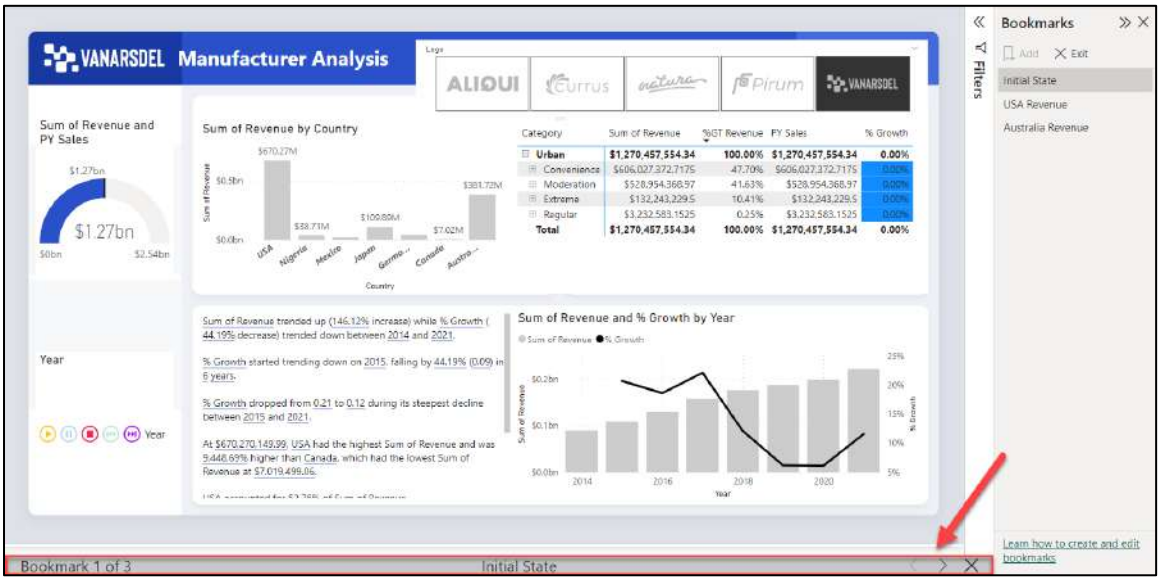
117. In the **Bookmarks** pane, select **Add**. This will add a new bookmark with the current state of the report.
118. Change the bookmark name to **USA Revenue**.



119. Select the canvas to ensure that nothing is currently selected.
120. Select **Australia** within the **Sum of Revenue by Country** visual.
121. In the **Bookmarks** pane, select **Add**. This will add a new bookmark with the current state of the report.
122. Change the bookmark name to **Australia Revenue.**



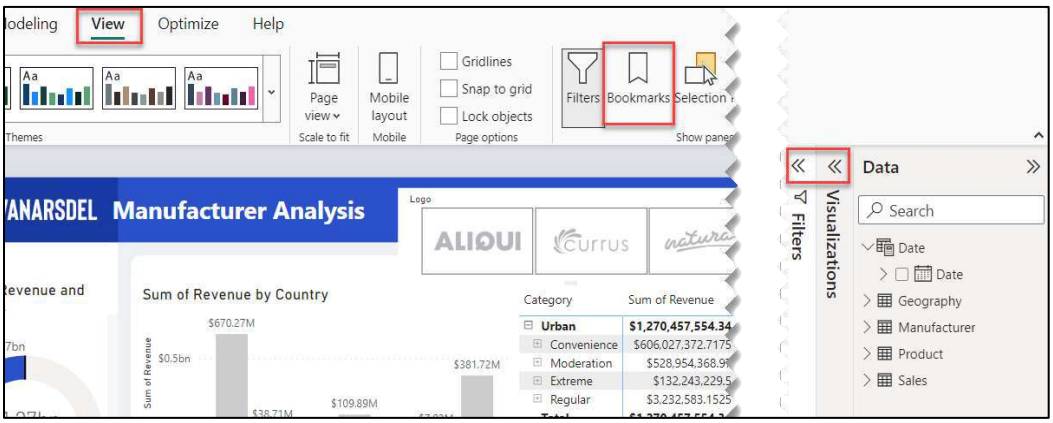
123. From the **Bookmarks** pane, select **View**. You are now in Bookmarks slide show mode. You will be in the first bookmark, which we called **Initial State**. Notice on the bottom of the report pane there is an option to navigate between bookmarks.
124. You can use the arrows to navigate between bookmarks and tell your story.



125. From the **Bookmarks** pane, select **Exit** to exit the Bookmarks slide show mode.

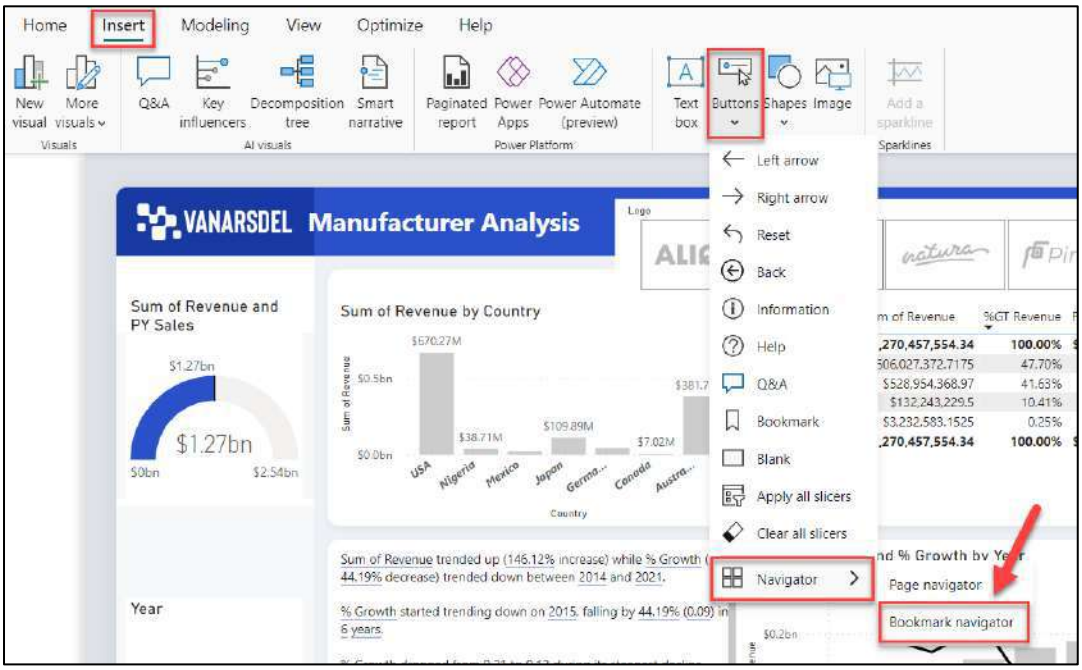
If time permits, feel free to explore other options available with Bookmarks, such as **Selected Visuals**, as you continue to build your story.

126. From the ribbon, select the **View** tab.
127. *Unselect* the **Bookmarks Pane** button.
128. Collapse the **Visualizations** and **Filters** panes by selecting the arrows to the top left corner of each pane.

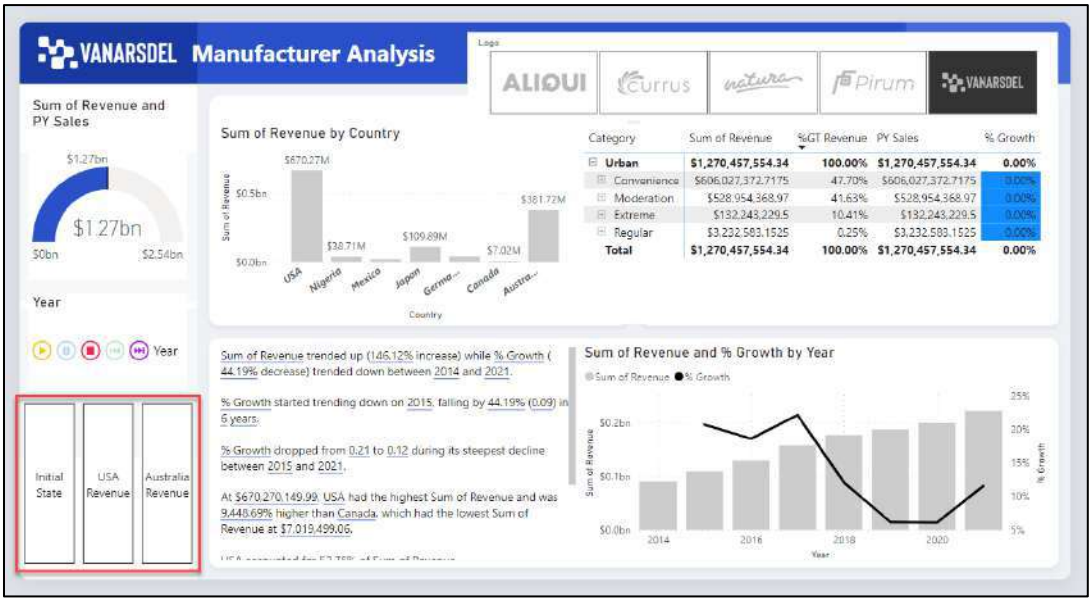


Now let's add bookmark navigator buttons to the canvas.

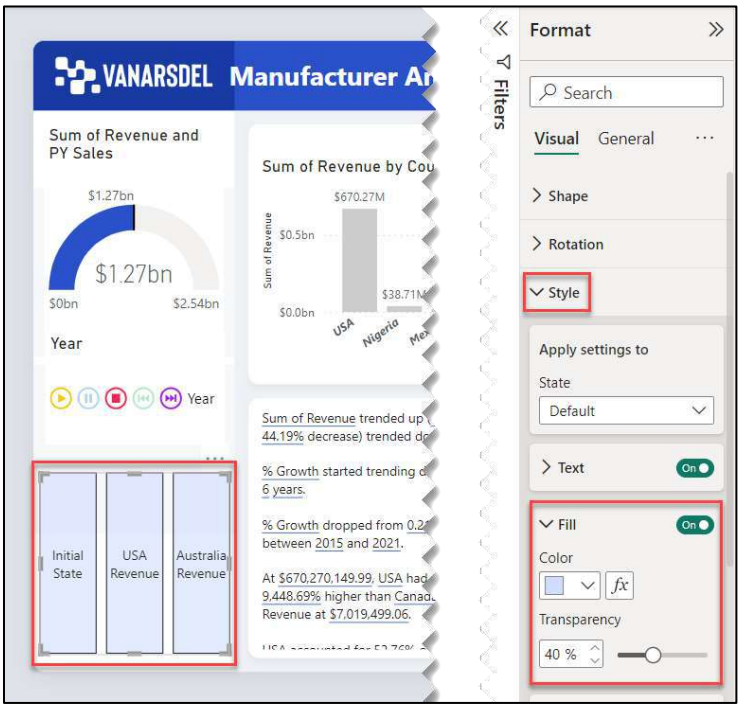
129. From the ribbon, select the **Insert** ribbon.
130. Select **Buttons** and choose **Navigator** > **Bookmark navigator**.



131. Arrange the Bookmark navigator to fit on the page as shown below in the figure:

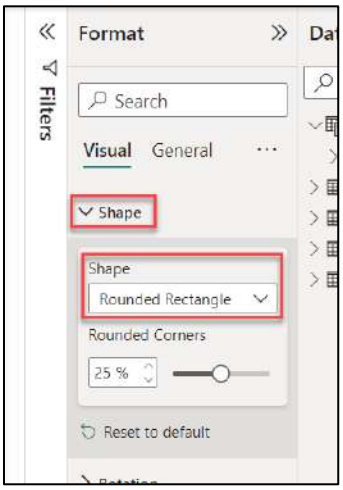


132. With the buttons visual still selected, navigate to the **Format** pane, expand the **Style** section, then expand the **Fill** section. Change the **Fill color** to a **light blue** and set the **Transparency** to **40%.**



133. While still in the **Format** pane, expand the **Shape** section. From the **Shape** drop-down menu, select **Rounded Rectangle**.

> ***Note:*** *You may need to adjust the size of the buttons within the report after changing the shape.*

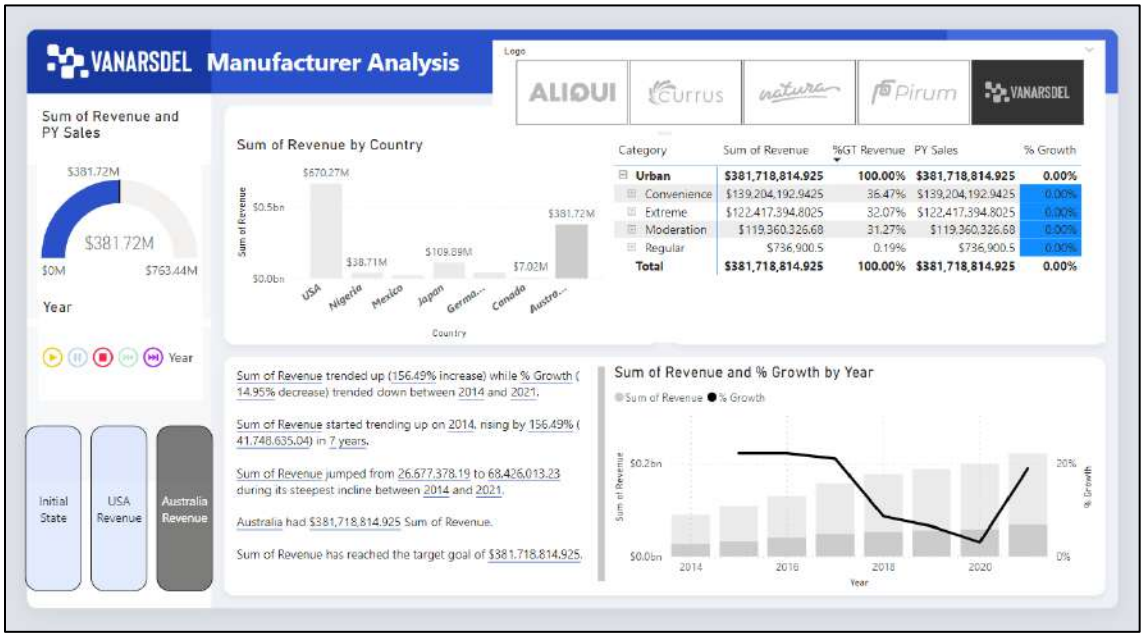


Feel free to test out the new functionality.

134. Using the **Ctrl** key on your keyboard, select the **Australia Revenue** bookmark from the visual. Notice how the data changes within the visuals in the report.

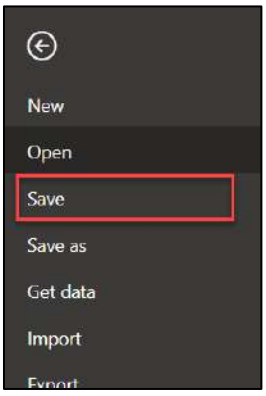
> ***Note****: To utilize the new buttons you must use CTRL + Select while inside the Power BI Desktop. After publishing the report your end users will simply select the buttons without needing to hold CTRL.*

Your report should look like the figure shown below. Now let's finish up by saving the file.



***Note**: Interacting with the report can significantly change the report appearance. For example, selecting a year from the **Sum of Revenue and % Growth by Year** will activate the conditional formatting in the matrix.*

135. From the ribbon, select the **File** tab. From the menu to the left, select **Save**.



You have built your first report!

You have successfully completed the hands-on lab by creating a report to share to your team. The next lab covers creating a dashboard from this report to share with your team. You have seen an overview of the functionality in Power BI Desktop. There are many more features for you to explore with your data!

References

Dashboard in a Day introduces you to some of the key functions available in Power BI. In the ribbon of the Power BI Desktop, the Help section has links to some great resources.



Here are a few more resources that will help you with your next steps with Power BI.

- Getting started: http://powerbi.com
- Power BI Desktop: https://powerbi.microsoft.com/desktop
- Power BI Mobile: https://powerbi.microsoft.com/mobile
- Community site https://community.powerbi.com/
- Power BI Getting started support page: https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi
- Support site https://support.powerbi.com/
- Feature requests https://ideas.powerbi.com/forums/265200-power-bi-ideas
- New ideas for using Power BI https://aka.ms/PBI_Comm_Ideas
- Power BI Courses http://aka.ms/pbi-create-reports
- Power Platform https://powerplatform.microsoft.com/en-us/instructor-led-training/
- Power Apps Business Apps | Microsoft Power Apps
- Power Automate Power Automate | Microsoft Power Platform
- Dataverse What is Microsoft Dataverse? - Power Apps | Microsoft Docs

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DISCLAIMER

This demo/lab contains only a portion of new features and enhancements in Microsoft Power BI. Some of the features might change in future releases of the product. In this demo/lab, you will learn about some, but not all, new features.

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Introduction

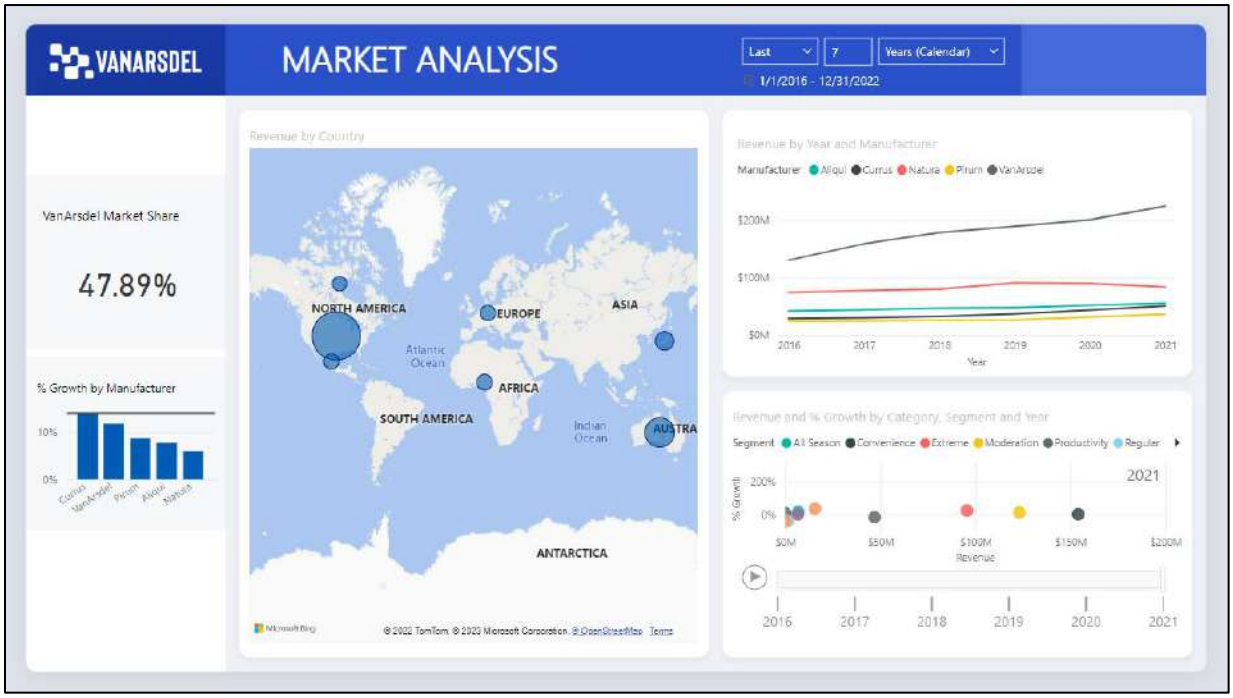
This document is lab four out of five total labs.

Please start this lab with the provided **DIAD Final Report.pbix** file located in the **Reports** folder.

The flow of this document includes screenshots to provide a visual aid for you and text descriptions of the steps you need to follow. In the screenshots, sections are highlighted with red or orange boxes to indicate the action or area on which you need to focus.

NOTE: *This lab uses real, anonymized data provided by ObviEnce, LLC. Visit their site to learn about their services: www.obvience.com. This data is the property of ObviEnce. LLC and has been shared to demonstrate Power BI functionality with industry sample data. Any use of this data must include this attribution to ObviEnce, LLC.*

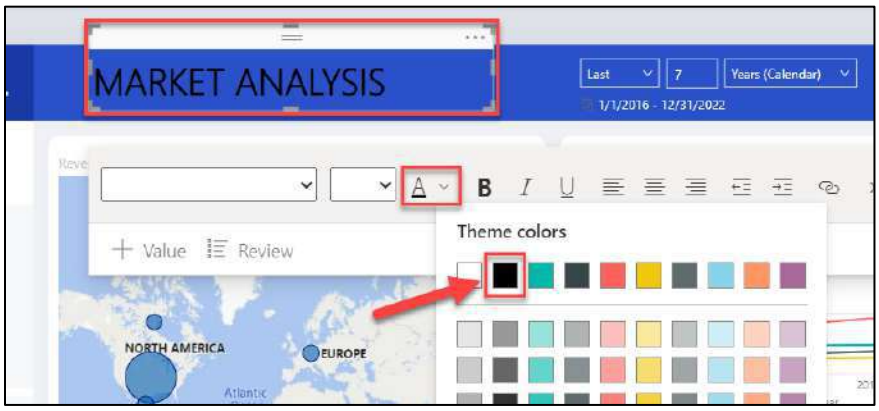
Power BI Desktop – Creating a mobile view



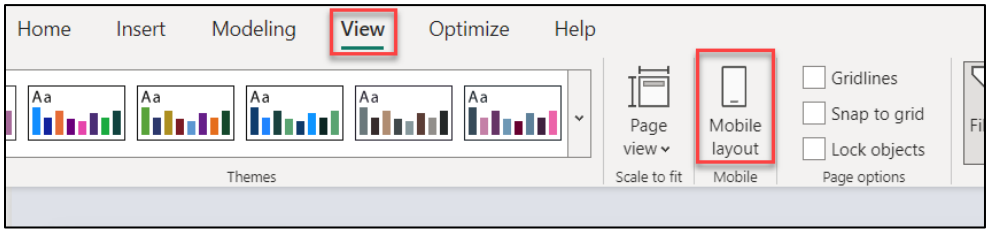
1. Navigate to the **DIAD** folder and then to the **Reports** folder (DIAD/Attendee/Reports) folder.
2. Open the **DIAD Final Report.pbix** file.

This file uses the same model that you used for the lab. We have added more visuals and performed additional formatting in the report. Feel free to explore the report.

3. Highlight the **Market Analysis** title and change the text color to **black**.

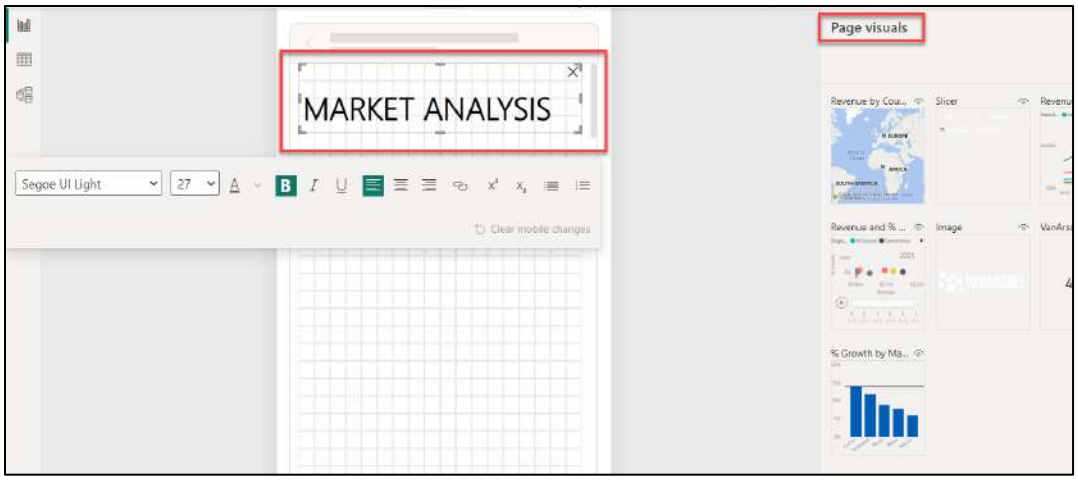


4. Select the **View** tab from the ribbon and then select **Mobile layout**.

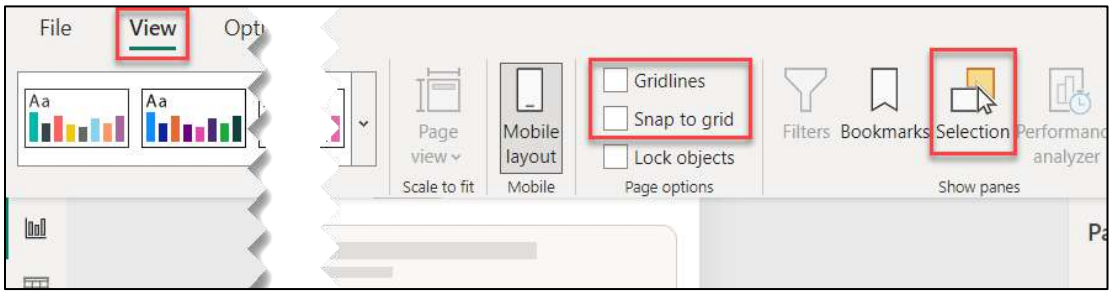


> ***Note:*** *A small pop-up window may open introducing you to the mobile-only formatting. Select* ***Try it Out*** *to continue and close out the pop-up window.*

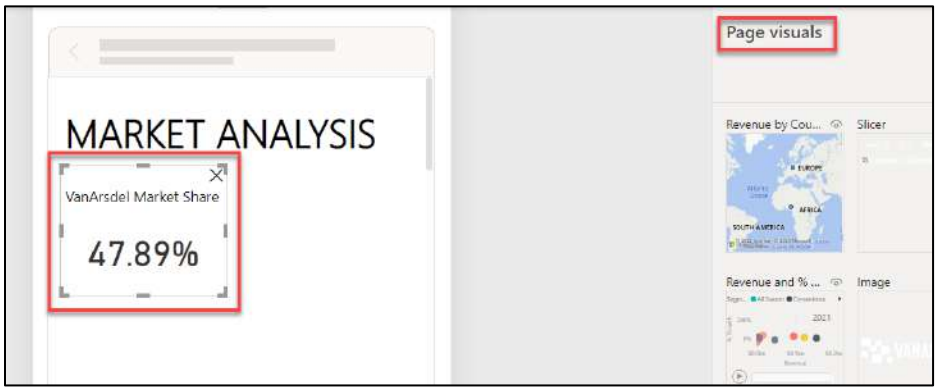
5. From the **Page visuals** pane, drag the **Market Analysis** title to the top of the phone layout. **Resize** and **move** the title to look similar to the one in the figure below. If there are any other visuals on the mobile layout remove them by hovering over the graphic and selecting the **x** in the upper right corner.



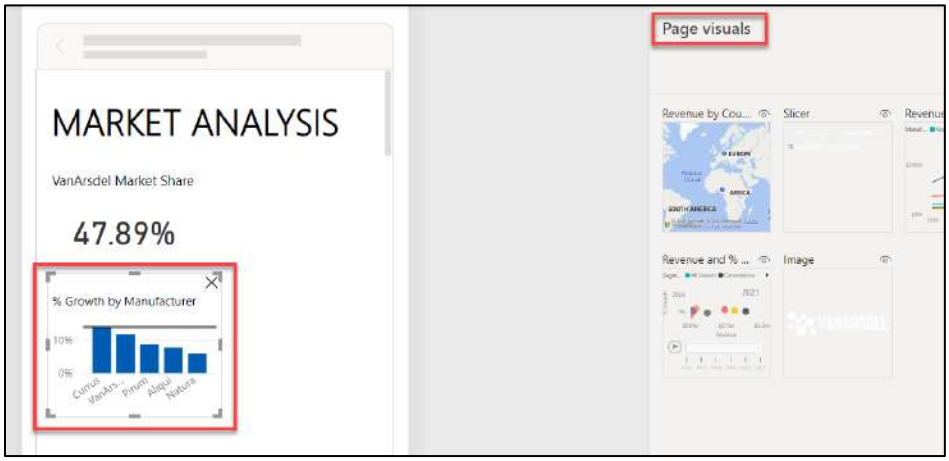
6. Select the **View** tab, then uncheck the checkboxes next to **Gridlines** and **Snap to Grid** to turn them *off*. Also, ensure that the **Selection** pane is turned *off.*



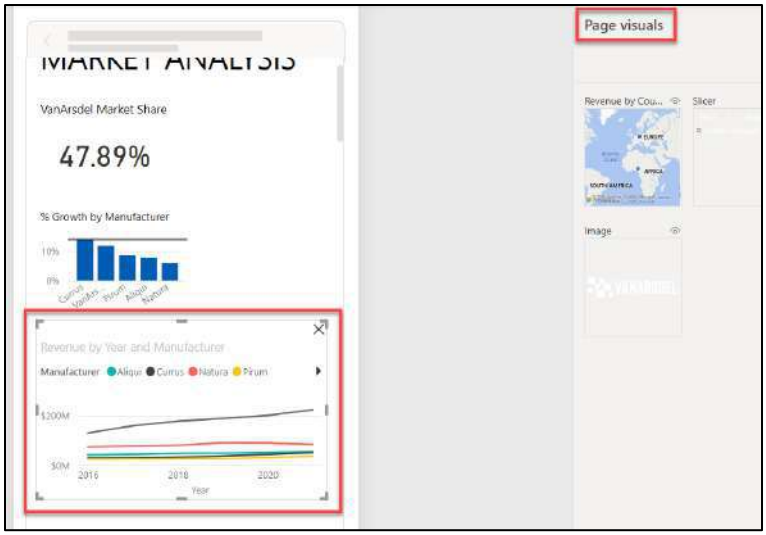
7. Drag the **VanArsdel Market Share** card from the **Page visuals** pane to *below* the **Market Analysis** title on the mobile layout. Then, **resize** the **Market Share** card to look similar to the one shown in the figure below.



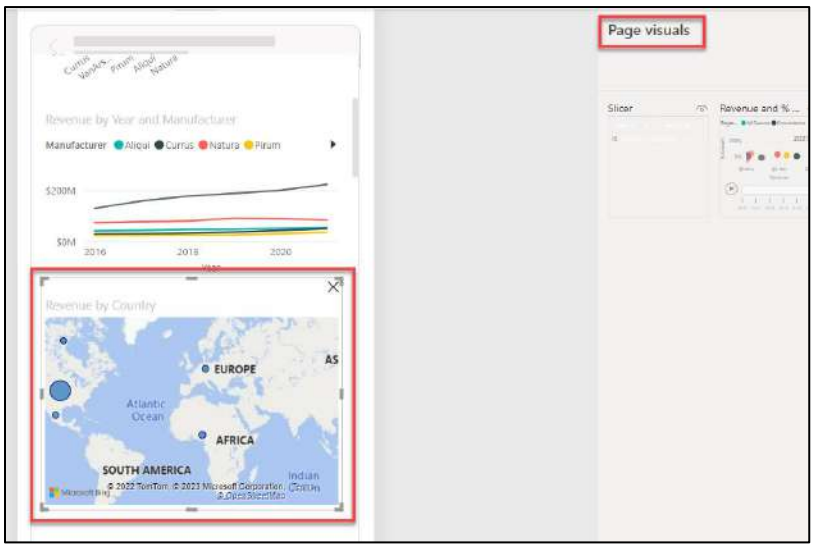
8. Drag the **% Growth by Manufacturer** column chart from the **Page visuals** pane to be placed *below* the **VanArsdel Market Share** card on the mobile layout. **Resize** the chart to look similar to the one shown in the figure below.



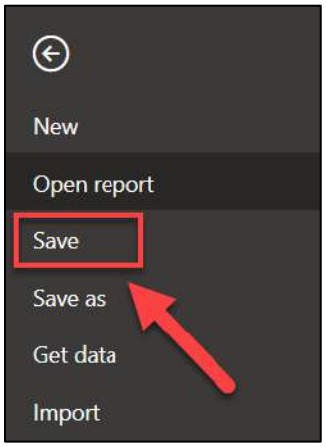
9. Drag the **Revenue by Year and Manufacturer** line chart from the **Page visuals** pane to *below* the **% Growth by Manufacturer** column chart on the mobile layout. **Resize** the **Revenue by Year and Manufacturer** line chart to stretch across the phone layout to look similar to the one shown in the figure below.



10. Drag the **Revenue by Country** map from the **Page visuals** pane to *below* the **Revenue by Year and Manufacturer** line chart on the mobile layout. **Resize** the **Revenue by Country** map to look similar to the one shown in the figure below.



11. Select the **File** tab from the ribbon. From the menu of options, select **Save** so that you workbook saves.



Power BI Service

You will now leverage a report authored using Power BI Desktop to create a dashboard for the VanArsdel data analysis team and CMO. A Power BI Desktop file with additional reports and visuals is provided. Please use this file for the next section of the lab.

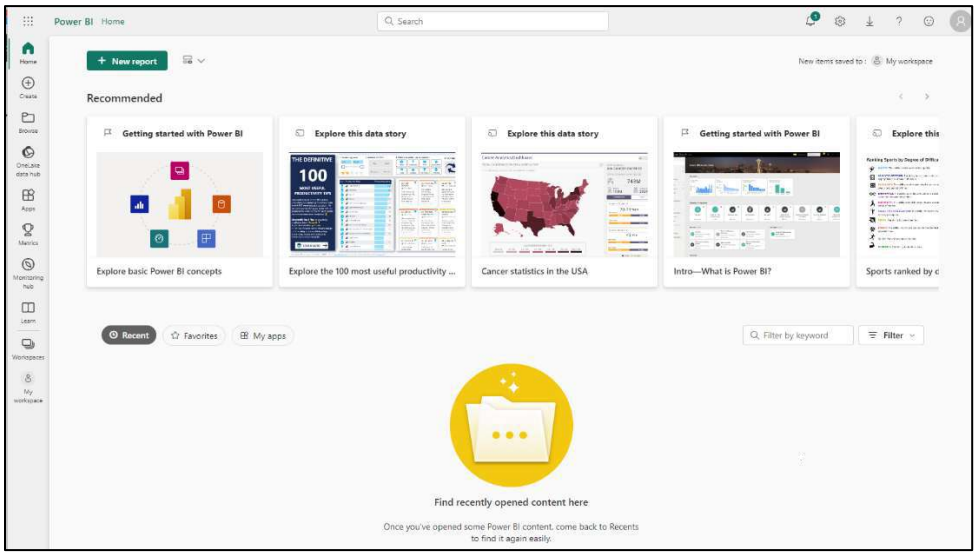
Power BI Service – Publishing Report

If you have not signed up for a Power BI account, go to http://aka.ms/pbidiadtraining and sign up for Power BI with a business email address.

12. If you have not already opened the **app.powerbi.com** page, please open a browser and navigate to http://app.powerbi.com.

> ***Note:*** *US Government customers should check here for the appropriate URL:* https://learn.microsoft.com/en-us/power-bi/enterprise/service-govus-overview#sign-in-to-power-bi-for-us-government

13. Sign-in to Power BI using your user account. Once logged in, you will be taken to the **Home** screen.



> ***Note****: If you have previously signed into Power BI, then your* ***Home*** *screen will list your* ***Favorites****, as well as recent reports and dashboards.*

14. Notice the navigation pane on the left. Let's review the items here:



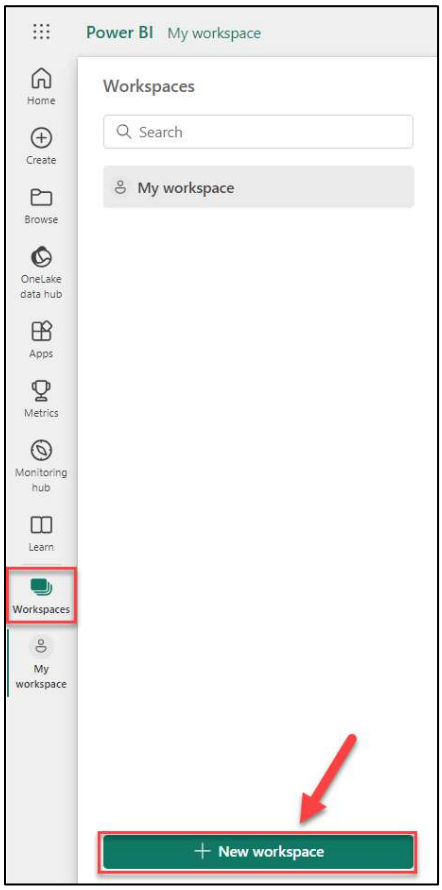
The following options are listed in the navigation pane:

- **Home**: This is a one-stop-shop for all your content. It lists your favorite and recent content such as reports, dashboards, and apps. It also shows the most recent content that was shared with you.
- **Create**: Allows you to add data manually or use an already existing semantic model.
- **Browse**: Allows you to browse all of your recently viewed Power BI collateral.
- **OneLake Data hub**: Allows you to easily navigate to all datasets that you have either created or that have been shared with you.
- **Apps**: Lists all the Power BI apps you have installed.
- **Metrics**: Allows you to curate metrics and track them against key business objectives, in a single pane.
- **Learn:** Allows the user to have access to started content, samples, and links to videos.
- **Workspaces**: Lists all the workspaces you are assigned. By default, you are assigned to *My Workspace.*
- **My workspace**: Your personal repository for Power BI collateral that can only be viewed by you.

15. Select **My Workspace**. Notice the workspace is waiting for you to add content like Dashboards, Reports, Workbooks, and Semantic Models sections. Let's import a Power BI Desktop file and create dashboards.

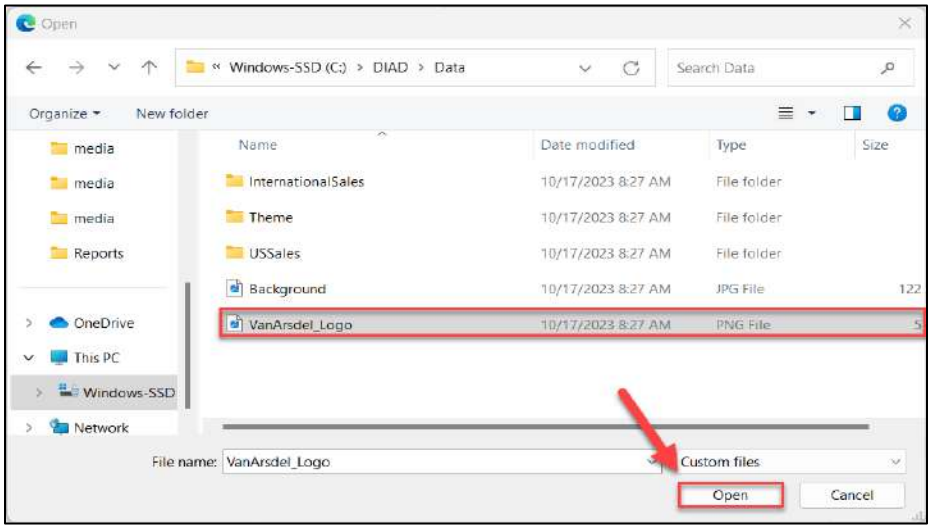
My Workspace is your personal workspace. We need to create a workspace where we can collaborate with team members and distribute content to end-users. To do this we'll create a new workspace.

16. In the pane to the left, select **Workspaces** and then choose **+ New workspace**. The **Create a workspace** dialog box opens.

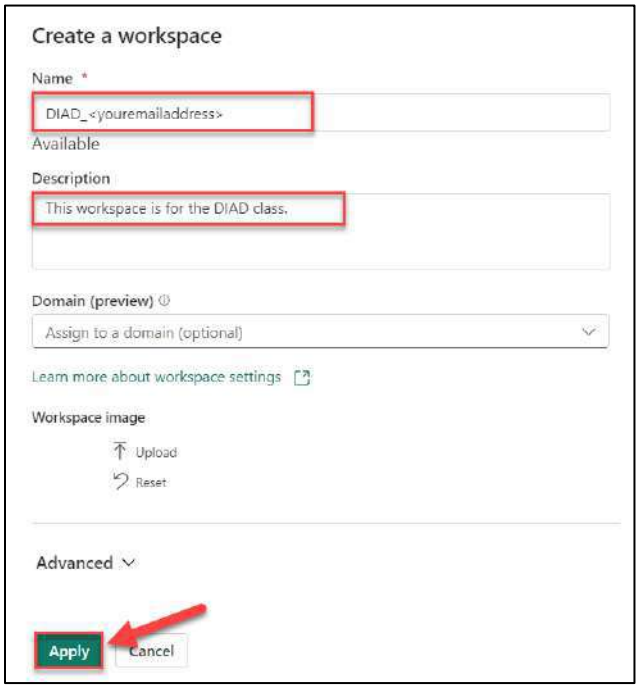


***Note**: Creating a workspace is a **Pro feature**. If you do not have a Pro license, please choose the trial option.*

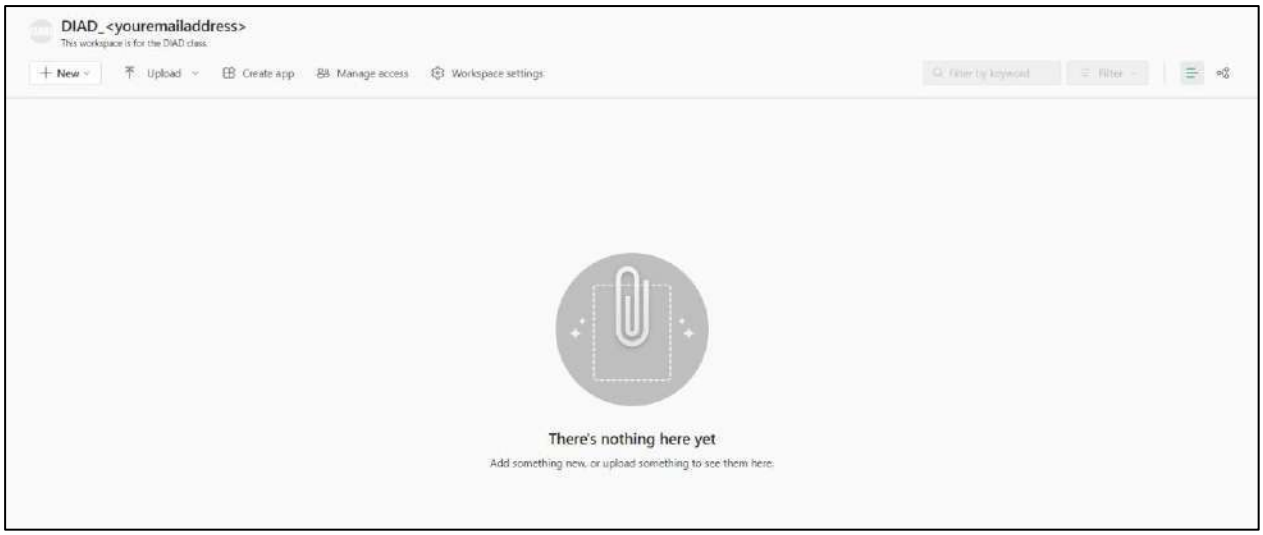
17. In the **Create a workspace** dialog box, select **Upload** to upload a Workspace image.
18. A file browser dialog box opens. Browse to the **DIAD** folder and then the **Data** folder (**DIAD/Data**). Select the **VanArsdel_Logo.png** file and then select **Open**.



19. In the **Name your workspace** text box, type **DIAD_<youremailaddress>**.
20. In the **Description** text box, type **This workspace is for the DIAD class.**
21. Select **Apply** to create the workspace.



***Note**: You are entering your email address as part of the workspace name to keep it unique.*



Notice that you have navigated from My Workspace to the workspace just created.

We are going to use the **Publish** from Power BI Desktop option.

Let's publish the report to Power BI Service and then we will come back to the browser.

22. Navigate back to the **DIAD Final Report** in the Power BI Desktop that you saved earlier.
23. Ensure **Mobile View** is **off.**
24. From the **Home** tab, select **Publish.**



25. If you have not already logged into Power BI, a **Sign in** dialog box opens. Please sign in.
26. Also, if you have not already saved your changes to the document, then a **Save Changes** dialogue box opens. Select **save** to save your changes.
27. Once you are signed in, the **Publish to Power BI** dialog box opens. Select **DIAD_<youremailaddress>** in the dialog box.
28. Choose the **Select** button in the bottom right corner.



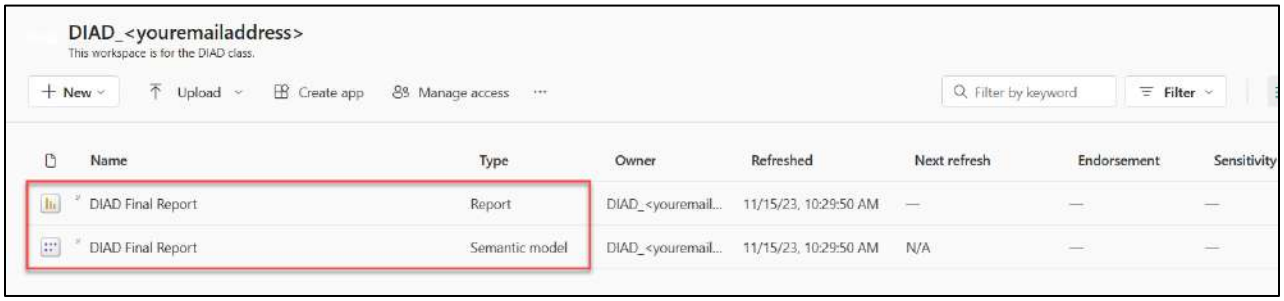
The **Publishing to Power BI** dialog box opens. Once the process is complete, a success message displays.

29. Select **Got it** to close the dialog box.



Now that we have published the report to the Power BI service, let's **navigate back to the browser** and start exploring.

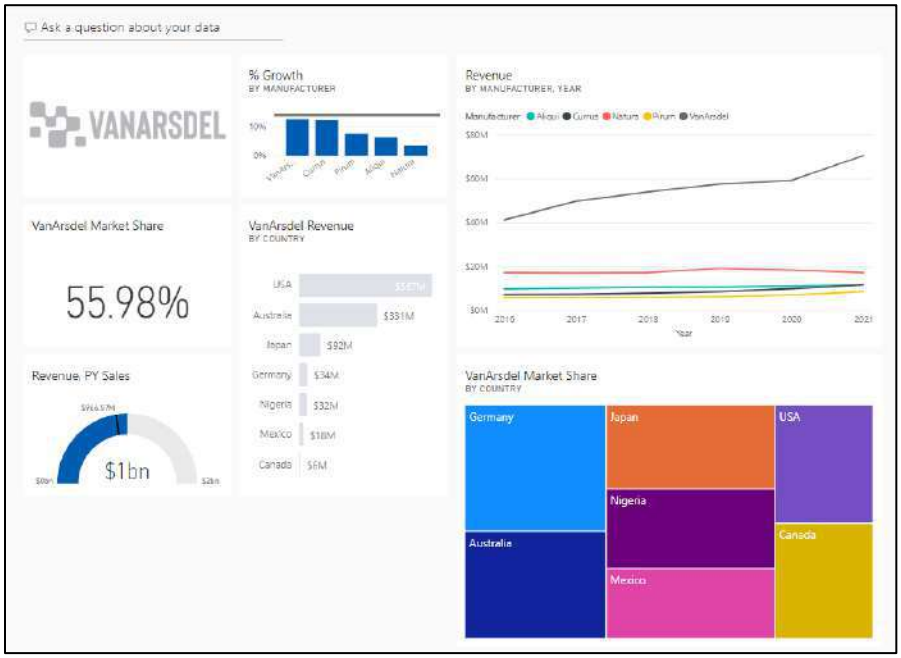
30. Once you are in the browser, navigate to the DIAD_<youremailaddress> workspace, notice that the **DIAD Final Report** semantic model and report appear.



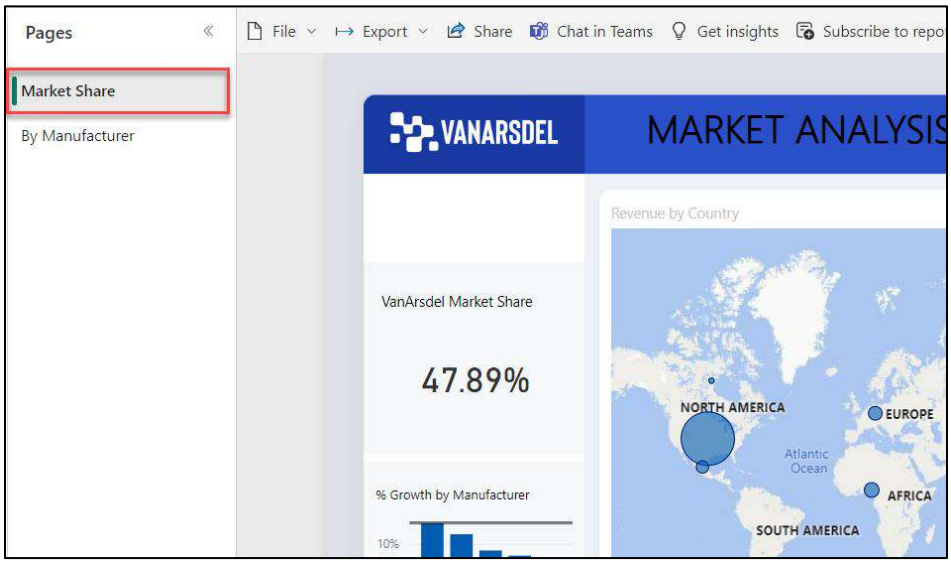
Power BI – Building a Dashboard

In this section, we will create a dashboard that combines data from the **Market Share** report.

By the end of this section, we will have created a dashboard that looks like the figure below.



31. From the newly created workspace select the *report* called **DIAD Final Report**. You will then be taken to the **Market Share** page of the DIAD Final Report.

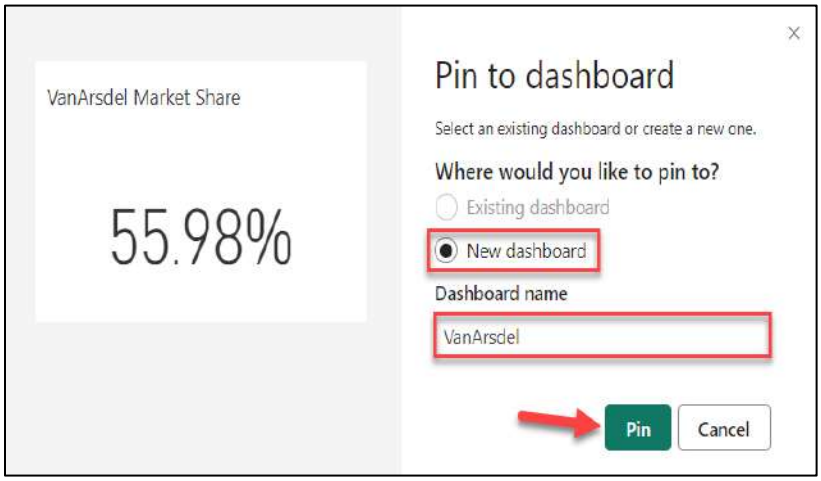


32. Within the **map visual**, enable drill-down by **hovering** over the visual and selecting the down-arrow(s) from the visual header.
33. Once you have selected the arrows, choose **Australia** to drill-down to the **State** level.



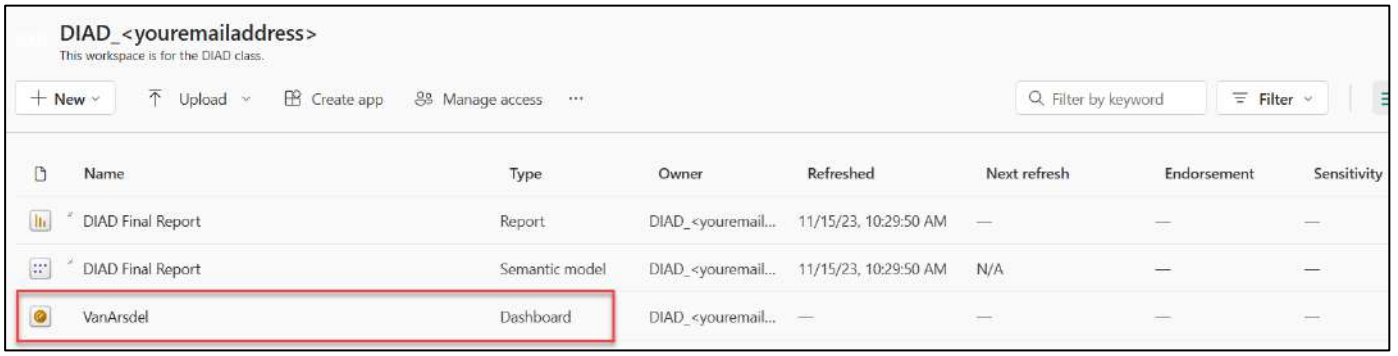
Now let's pin visuals to the dashboard.

34. Hover over the **VanArsdel Market Share** card visual.
35. Select the **pin** icon within the header of the visual. The **Pin to dashboard** dialog box opens.
36. We do not have a dashboard yet. Let's create one. With **New dashboard** selected, enter **VanArsdel** in the **Dashboard name** text box.
37. Then, select **Pin**.

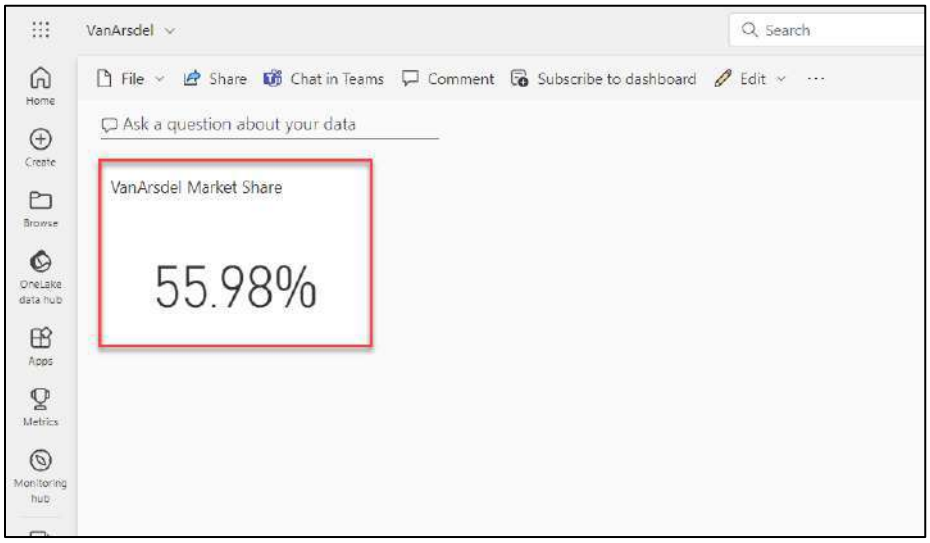


Notice that alert messages are displayed stating the dashboard is ready to view.

38. Navigate back to your workspace and select the **VanArsdel** Dashboard.



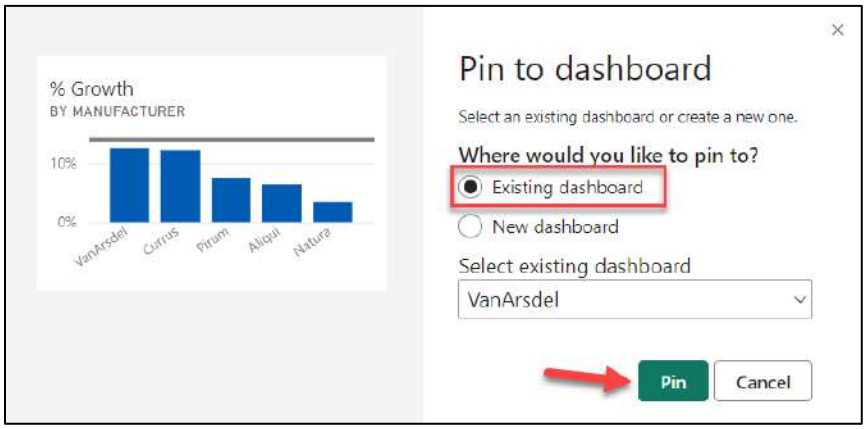
Notice the **VanArsdel Market Share** tile is pinned to the dashboard.



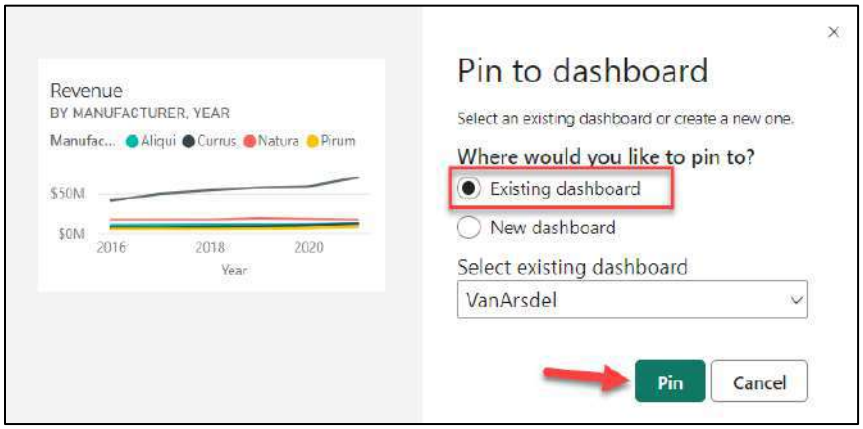
39. Select the **VanArsdel Market Share** tile. Notice that you are navigated to the **DIAD Final Report**.

> ***Note:*** *Dashboard Tiles are not interactive like report visuals we've learned about so far. You also cannot pin things like Slicers to a dashboard since the main purpose of the Slicer is to be interactive.*

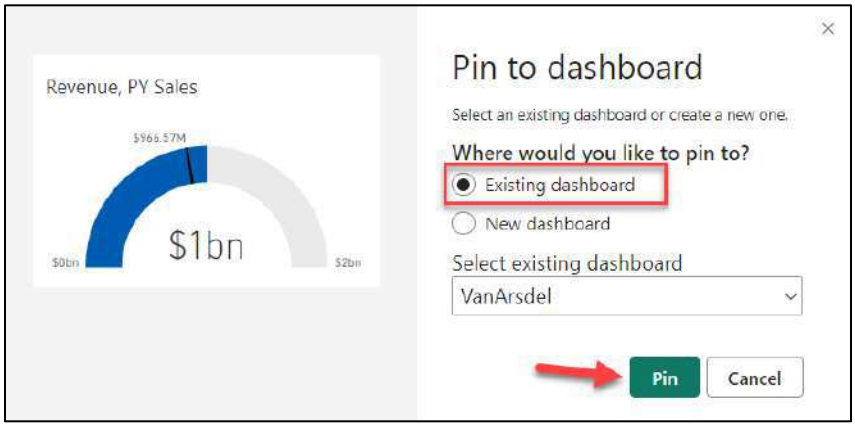
40. Within the navigation pane to the left of the screen, select the **DIAD Final Report** again to find more items to pin to your dashboard.
41. Hover over the **% Growth by Manufacturer** column chart visual.
42. Select the **pin** icon within the header of the visual. The **Pin to dashboard** dialog box opens.
43. Make sure that **Existing dashboard** and **VanArsdel** are selected.
44. Select **Pin**.



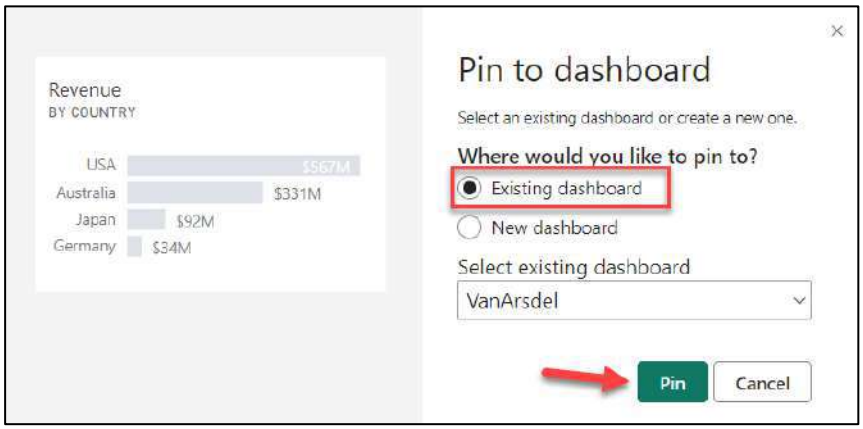
45. Close out the alert notification boxes in the top right corner of the screen.
46. Hover over the **Revenue by Year and Manufacturer** visual.
47. Select the **pin** icon from the header of the visual and repeat the steps to pin it to the existing **VanArsdel** dashboard.



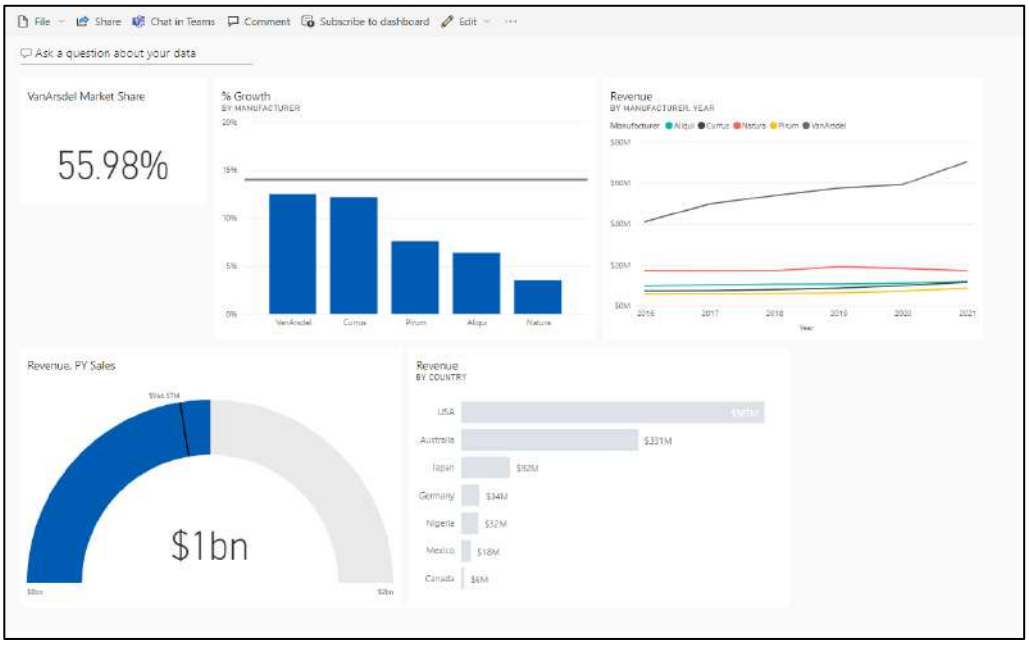
48. Close out the alert notification boxes in the top right corner of the screen.
49. Navigate to the **By Manufacturer** page using the **Pages** menu/pane to the left of the screen.
50. Using the same steps as we have previously, **pin** the **Revenue and PY Sales** gauge visual to the existing **VanArsdel** dashboard.



51. **Pin** the **Revenue by Country** bar chart visual, from the By Manufacturer page, to the **VanArsdel** dashboard.
52. Close out the alert notification boxes in the top right.



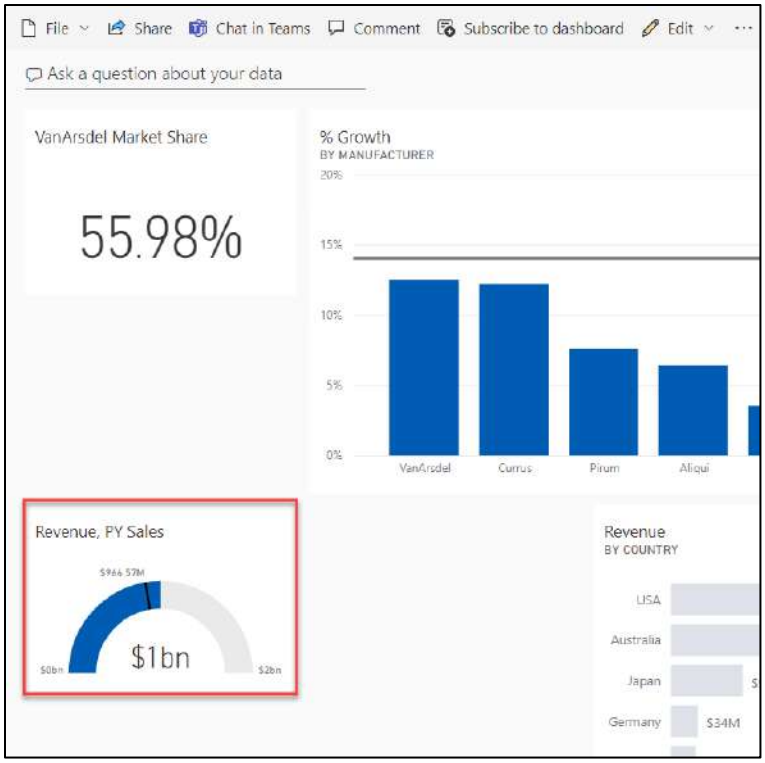
53. Navigate back to the workspace entitled **DIAD_<youremailaddress>**, and then choose the **VanArsdel** dashboard again. Notice that all the visuals are pinned as tiles to the dashboard.



You will see the visuals on the dashboard like in the figure above. Each visual on the dashboard is called a **tile**. The tiles represent the data chosen and are kept up to date as the data in the data model updates. Tiles are not interactive.

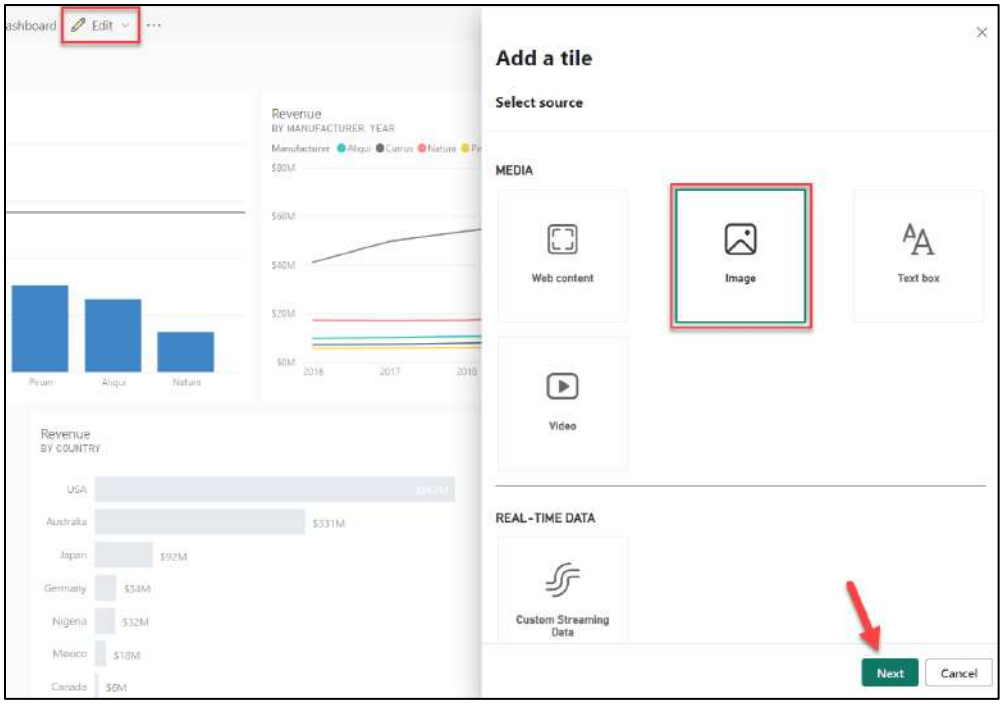
Let’s organize the dashboard.

54. Resize and move the **gauge** tile as shown in the figure below. To resize the visual, select the bottom right-hand corner and drag to the desired size.



Tiles can be of various sizes (1x1 to 5x5).. As you are dragging, note the gray shadow which indicates the size of the tile when you stop dragging.

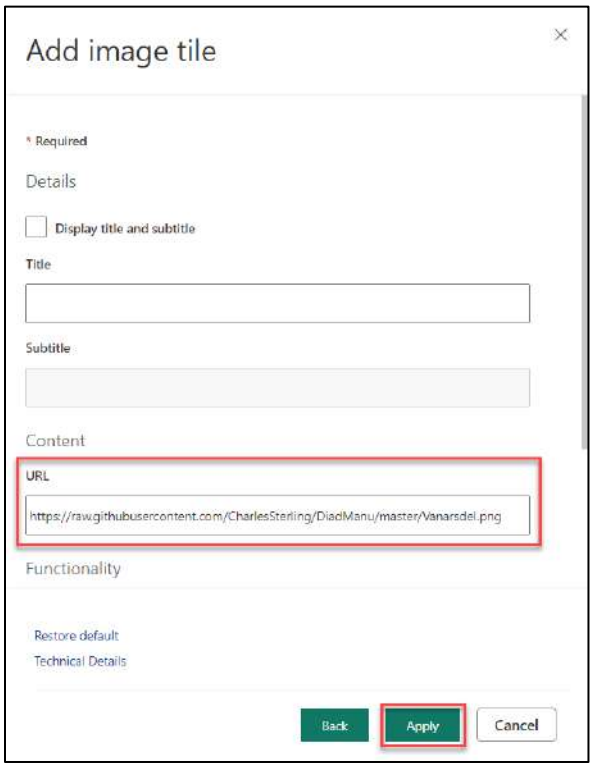
55. Select the **Edit** dropdown from the ribbon at the top of the screen and choose **Add a tile**. The **Add tile** dialog box opens.
56. Select **Image** as the source.
57. Choose **Next**.



58. In the **URL** text box of the **Add image tile** dialog, type the following URL: https://raw.githubusercontent.com/CharlesSterling/DiadManu/master/Vanarsdel.png

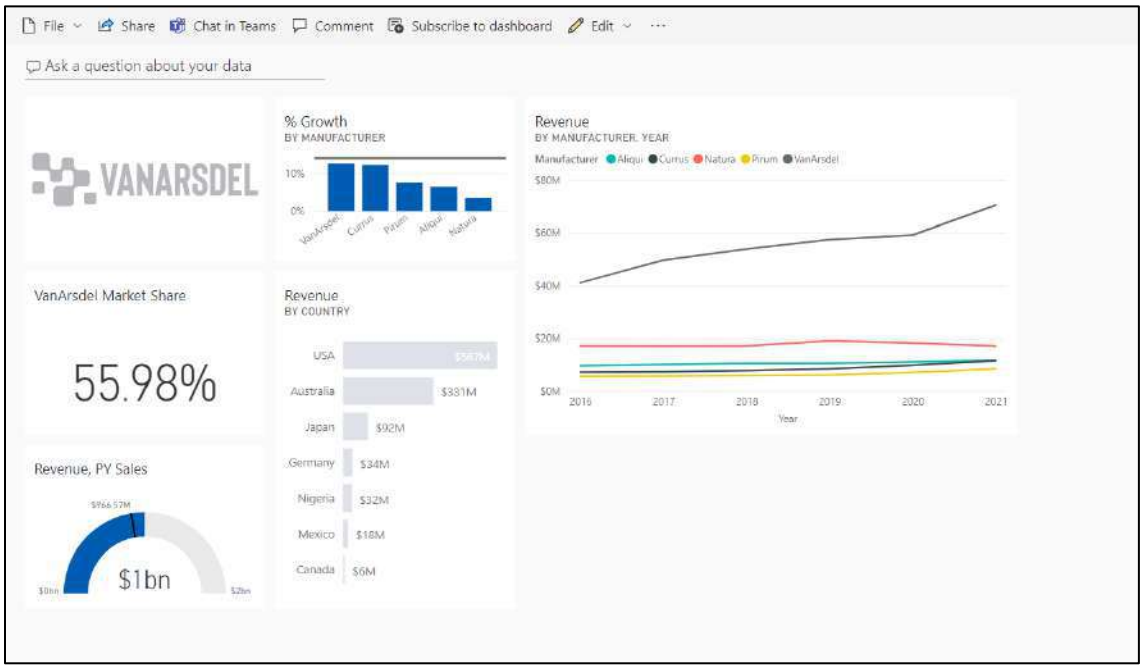
Note: *The URL is case sensitive.*

59. Then, select **Apply** at the bottom of the dialog.



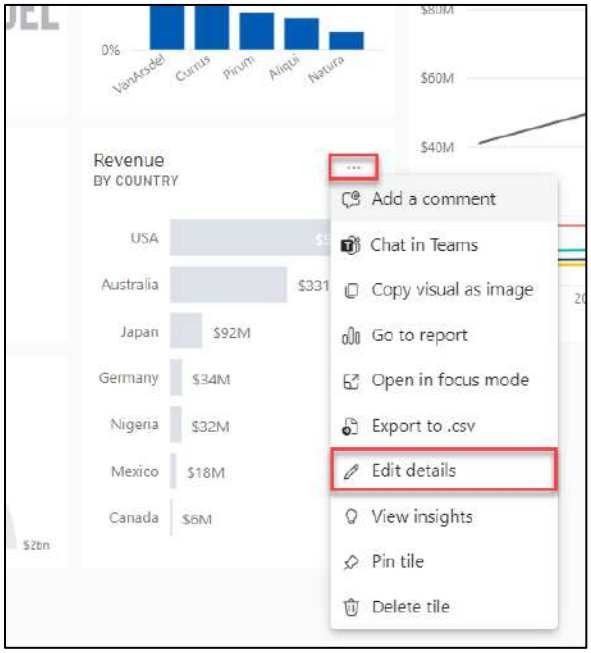
Notice that a new tile with the **VanArsdel** logo is added to the dashboard.

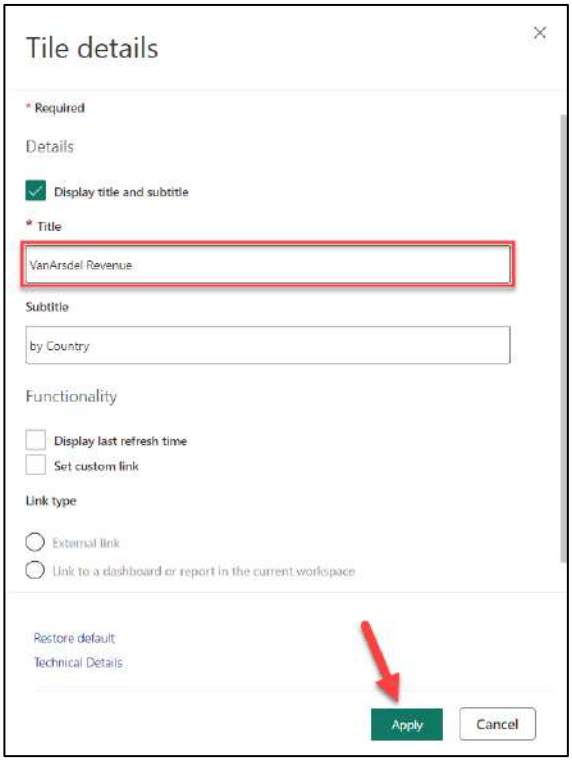
60. **Resize** and **rearrange** the tiles as shown in the figure below.



The **Revenue by Country** tile shows data for Revenue by Country for VanArsdel. Let's **rename** it.

61. Hover over the **Revenue by Country** tile.
62. Select the **ellipsis** in the top right corner of the tile.
63. Select **Edit Details**. The **Tile Details** dialog box opens.
64. Change the **Title** to **VanArsdel Revenue**.
65. Select **Apply.**

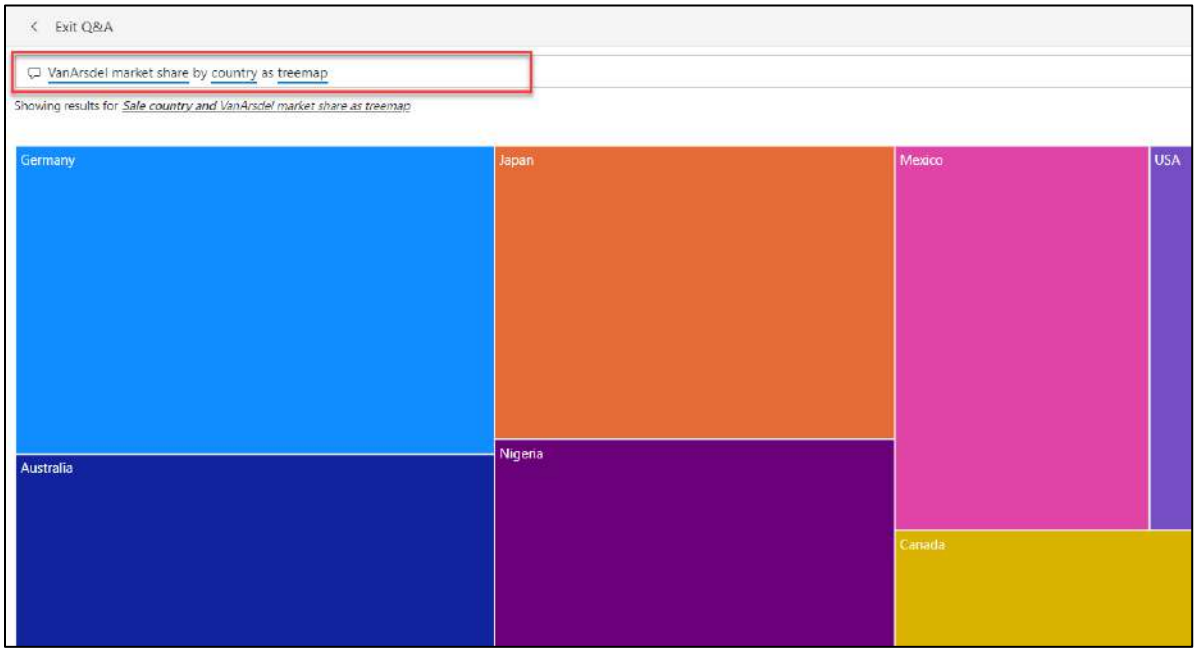




Now let's create a visual that represents **Market Share by country**.

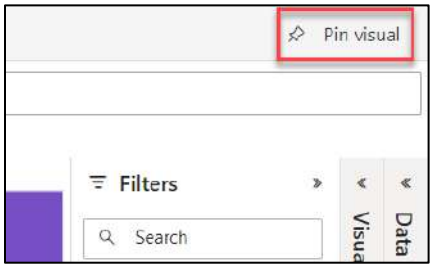
Notice on the top of the visual, there is an option to **Ask a question about your data**. This is like **Ask a question** in the desktop.

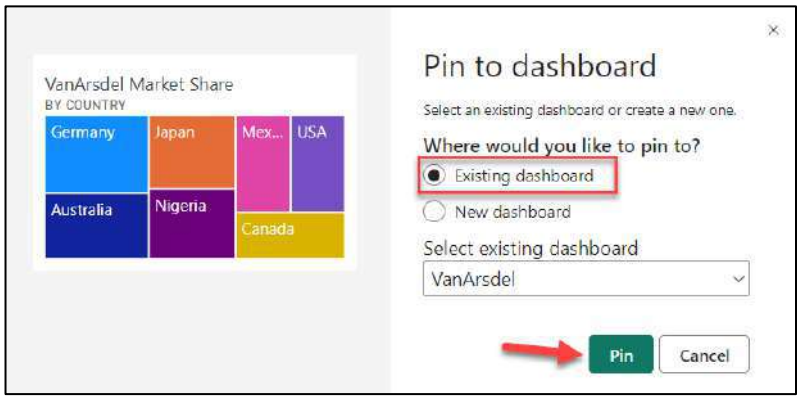
66. Select the **Ask a question about your data** text box at the top of the page. You will then be taken to a **Q&A** page; start typing **VanArsdel market share** in the text box at the top of the page. Notice that a card visual is created.
67. Continue typing **VanArsdel market share by country**. Notice that a bar chart is created.
68. Continue typing **VanArsdel market share by country as treemap**. Notice that a treemap visual is created.



***Note**: Remember that we renamed our tables. One of the reasons we did this was to make them user friendly for Q&A.*

69. In the top right corner of the screen, select **Pin Visual**.
70. The **Pin to dashboard** dialog box opens. Ensure that **Existing dashboard** is selected, then select **Pin** to pin the visual to the **VanArsdel** dashboard.

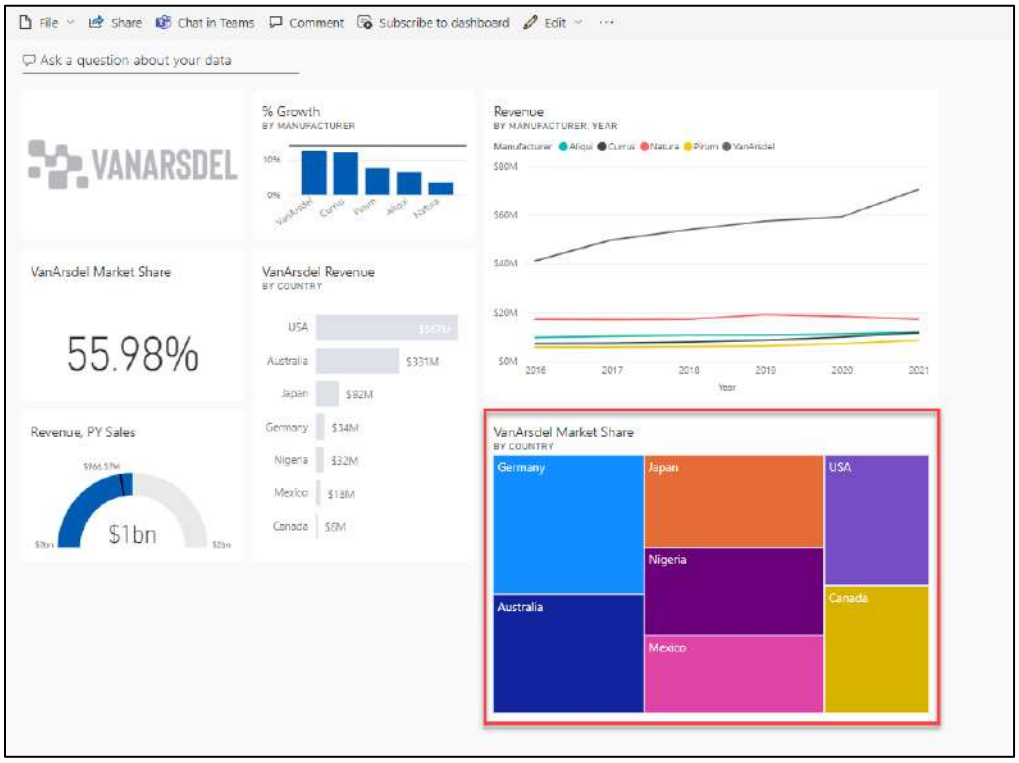




71. Close the alert dialog boxes.
72. Select **Exit Q&A** in the top left corner of the page to navigate back to the dashboard.



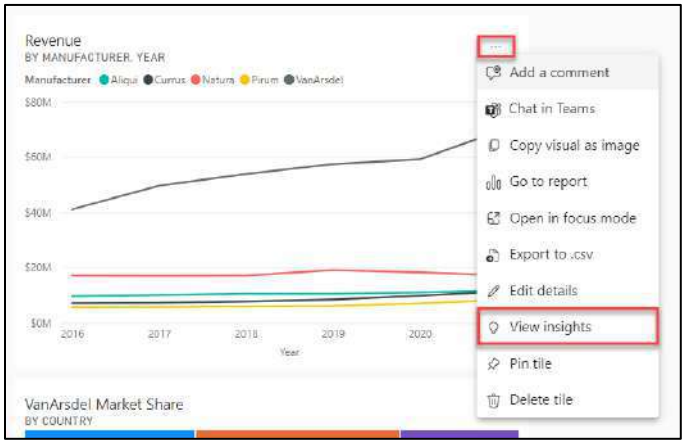
Notice that the treemap visual is added as tile to the dashboard. Selecting the treemap visual will navigate you back to the Q&A section.



Power BI quickly searches different subsets of your model while applying a set of sophisticated algorithms to discover potentially interesting insights. You can run insights against a model or a dashboard tile.

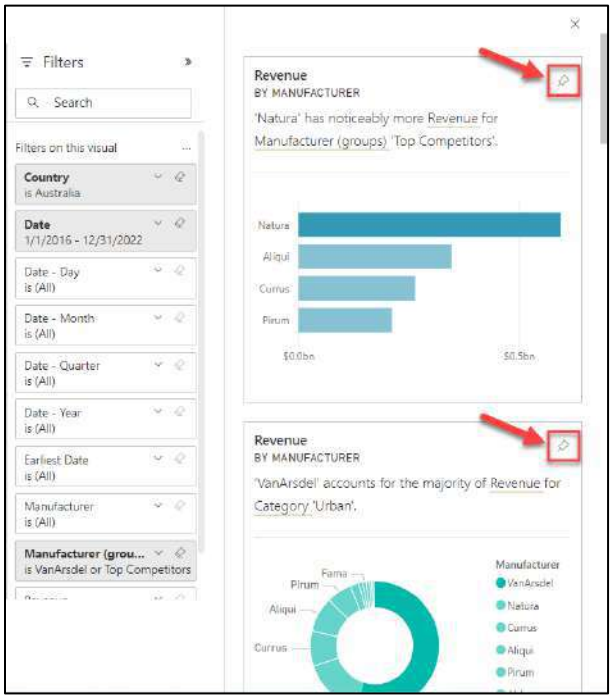
Let's generate **insights** on a dashboard tile. When we run insights on a dashboard tile, instead of searching for insights against an entire model, the search is narrowed to the data used to create a single dashboard tile. This is often referred to as scoped insights.

73. Hover over the **Revenue by Manufacturer** line chart on the dashboard.
74. Select the **ellipsis** on the top right corner of the line chart.
75. Choose **View Insights**.



You will be navigated to **Focus mode** for the line chart.

76. Scroll on the Insights pane to the right of the screen to review the various insights Power BI can generate. Notice that there is an option to pin insight visuals to the dashboard.

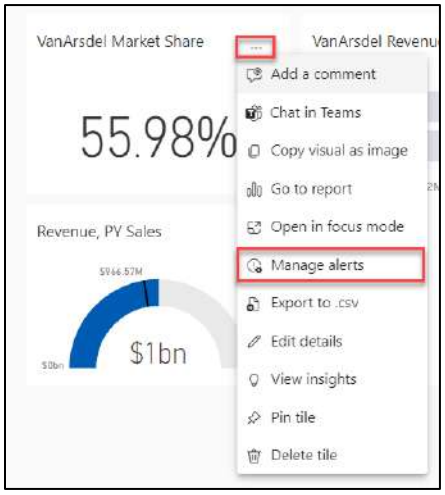


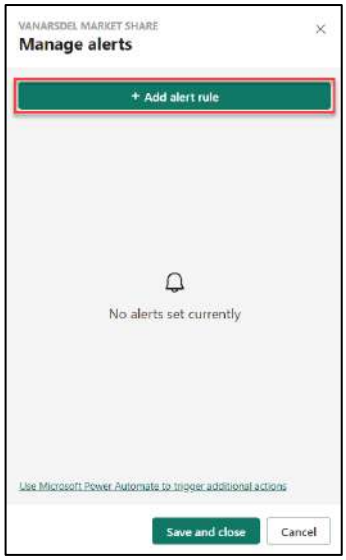
77. Select **Exit Focus mode** in the top left corner of the page to navigate back to the dashboard.



We want to be notified when **VanArsdel's Market Share** goes **above** or **below** a threshold. We can set up **alerts** to achieve this.

78. Hover over the **VanArsdel Market Share** card tile.
79. Select on the **ellipsis** in the top right corner of the tile.
80. Choose **Manage alerts**. The **Manage alerts** dialog box opens.
81. Select **Add alert rule**.



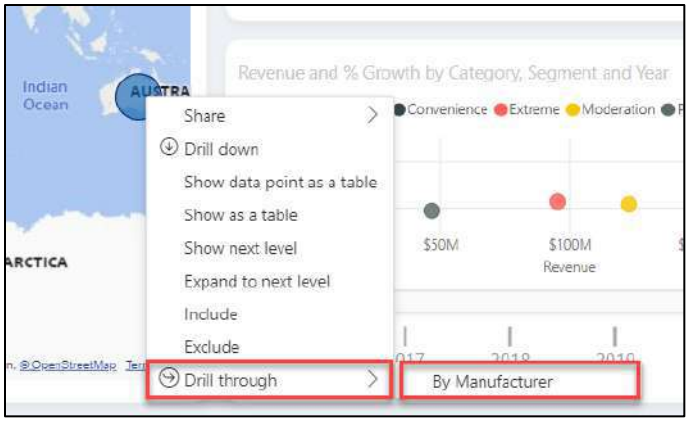


Notice that you can add **Above** or **Below threshold**. You can also set the notification frequency. This is just an introduction to managing alerts. Complete functionality is not covered in this lab.

82. Select **Cancel** to close the dialog box.
83. From the **Unsaved changes** alert dialog box, select **Don't Save**.

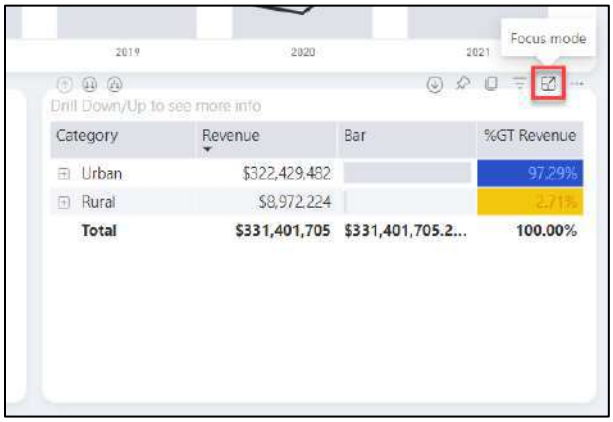


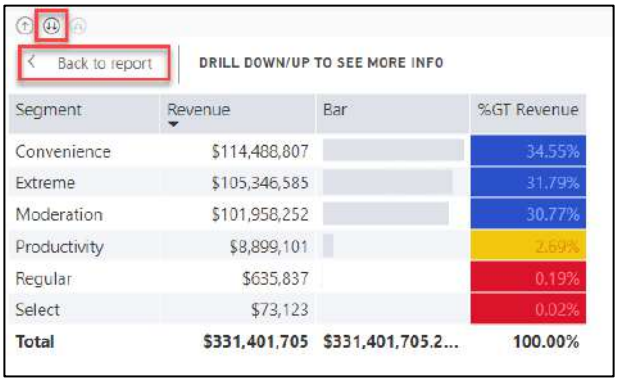
84. Select the **VanArsdel Market Share** card visual tile to navigate to the report.
85. Within the **Revenue by Country and State** map visual, ensure it is at the **Country** level (you may need to drill up from the State level to the Country level). Right-click on the **Australia** bubble within the map, then choose **Drill through**, and then select **By Manufacturer**.



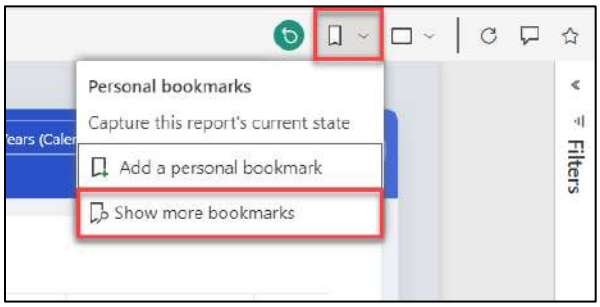
You will then navigate to the **By Manufacturer** page of the report with the **Australia** filter applied to the report page.

86. Hover over the **matrix** visual.
87. Select the **focus mode** icon on the top right corner of the visual.
88. Select the **double-down arrow** to drill down.
89. Then, select the **Back to report** button in the top left hand corner of the page.





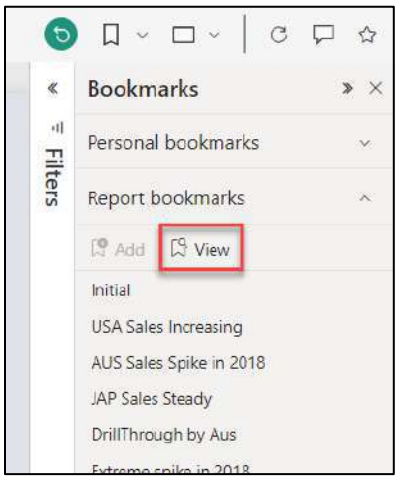
90. From the menu in the top right corner of the screen, select **Bookmarks** and then choose **Show more bookmarks**. The **Bookmark** pane opens on the right. There are two options: **Personal** bookmarks and **Report** bookmarks.

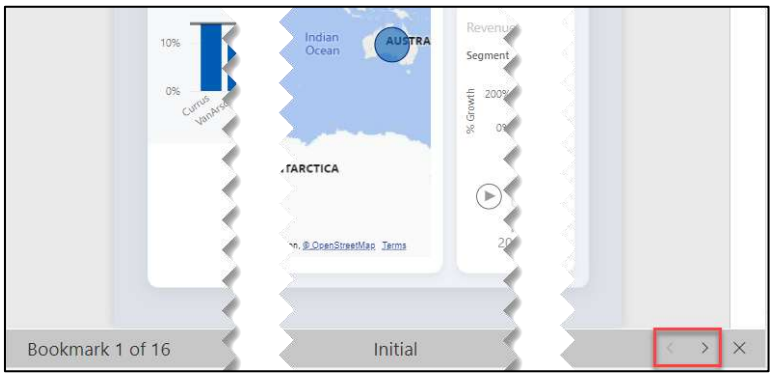


- **Personal bookmarks** on the report are ones which the consumer can create on their own.
- **Report bookmarks** are the bookmarks the report author created (we did this in Power BI Desktop).

91. Select **View** under the **Report** bookmarks section of the bookmarks pane.

Notice that you can view and navigate through the bookmarks using the **arrow** at the bottom of the screen. This behavior is like in Power BI Desktop. You can test this out later on your own.



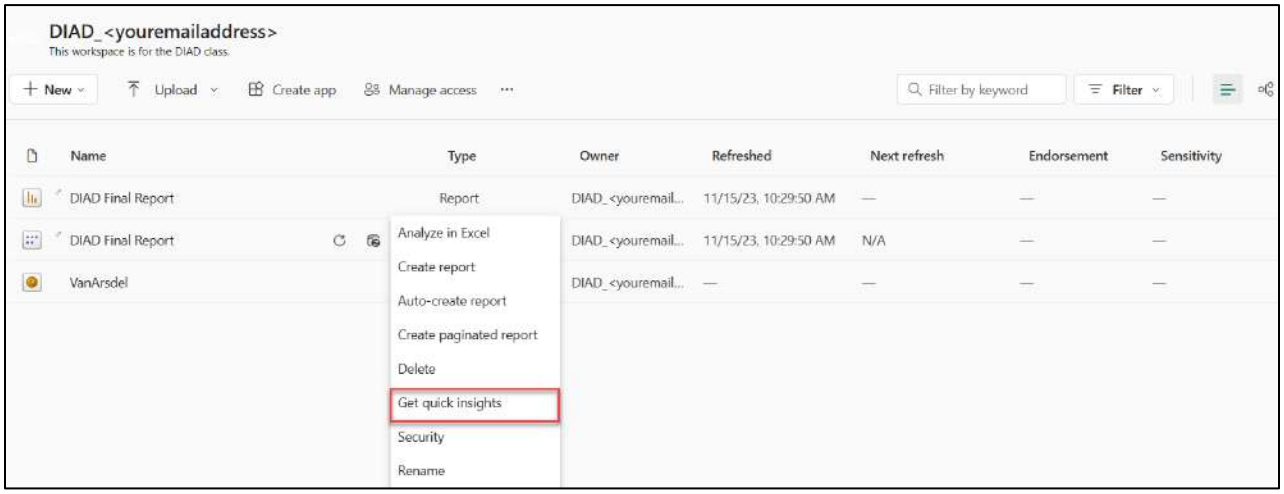


92. Select **Exit** under the **Report bookmarks** section of the pane to close it.

Power BI provides an option to get quick insights into the complete dataset or (semantic model).

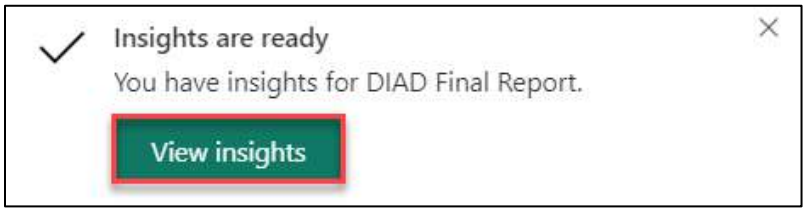
93. Navigate back to the workspace you created earlier in the lab using the navigation pane to the left of the screen.
94. Once in the workspace find the *semantic model* called **DIAD Final Report** and select the **ellipsis** (…).

95. From the menu, select **Get quick Insights**.

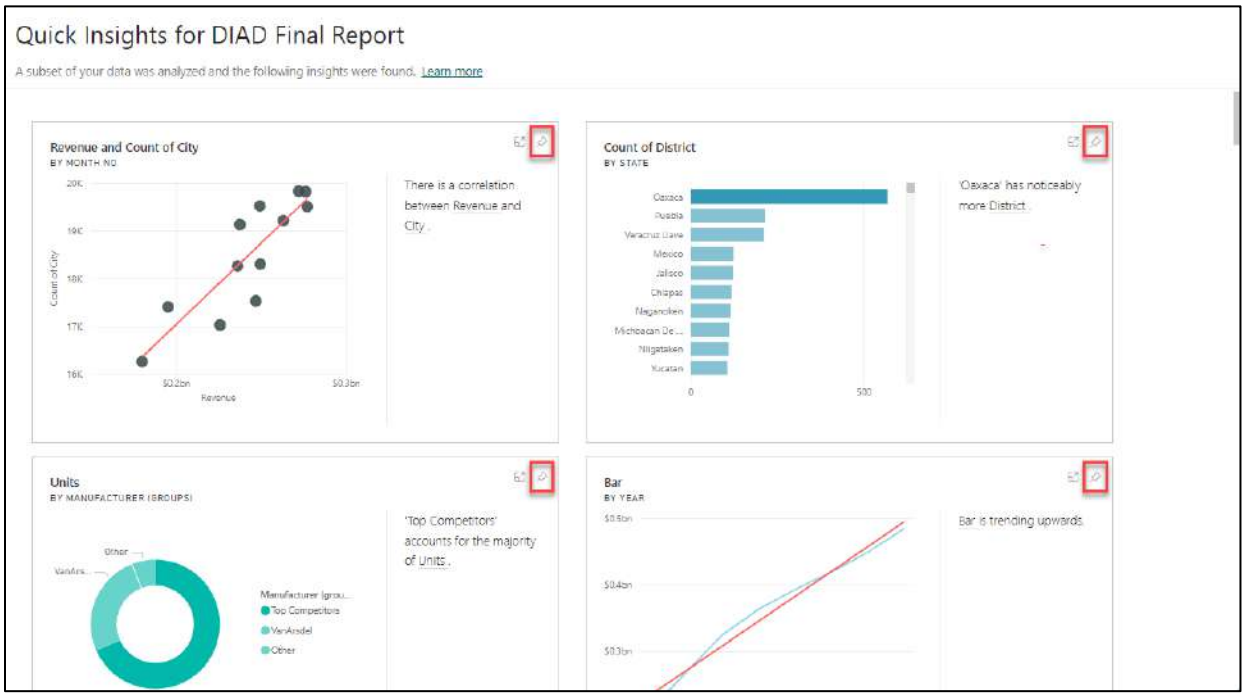


It might take a few minutes for the insights to be created. Once insights are ready, a message appears in the top right corner.

96. From the **Insights are ready** alert dialog box, select **View insights.**



A quick insights report is displayed based on the model. This provides insights into data you may have missed and helps to get a quick start on creating dashboards. Hovering over each report provides an option to **Pin it** to a dashboard.



You've now completed Lab four!

Throughout this lab, you have learned how to apply conditional formatting, add a logo to the manufacturer filter, import a custom visual, and apply a custom theme to the report. You also learned how to add bookmarks to tell a story about the report.

If you wish to further your knowledge, try the optional portion of the lab that follows to see how you can create storytelling presentations within PowerPoint using data from Power BI.

Power BI (Optional) – Storytelling with Power BI within PowerPoint

With the Power BI add-in for PowerPoint, you can enhance your data storytelling in PowerPoint with live, interactive Power BI data. Not only will the data shown in your presentations always be up to date, but also, while you're presenting, you'll be able to filter and drill down on data in response to questions and feedback from your audience without having to switch contexts.

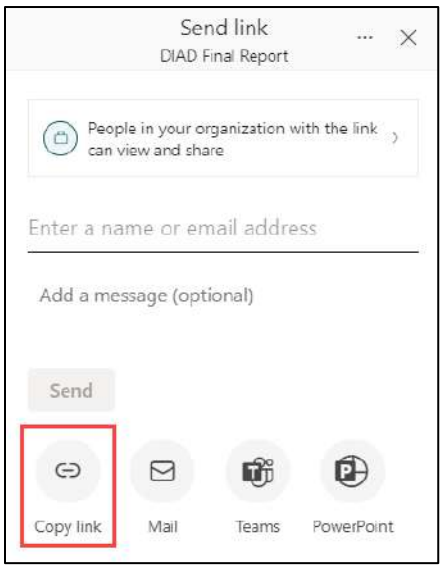
1. Within a new web browser, navigate to http://app.powerbi.com, **login** and navigate to the workspace you created earlier: **DIAD_<youremailaddress>**



2. Hover over the *report* **DIAD Final Report** listed within your workspace. Select the **Share** icon.



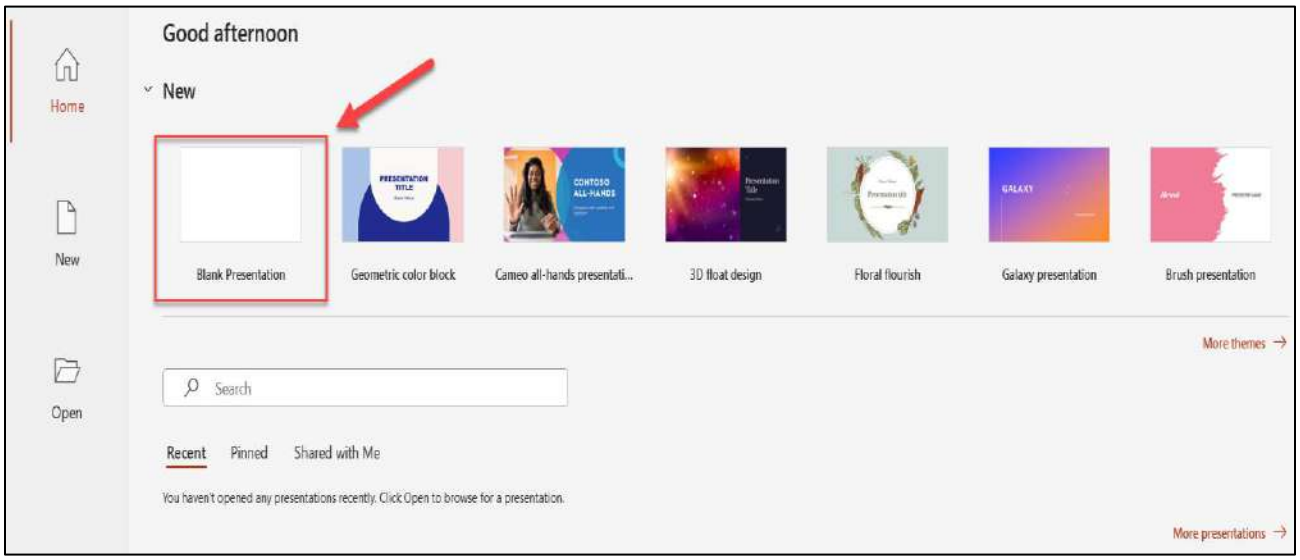
3. Within the dialog, select the **Copy link** button at the bottom.



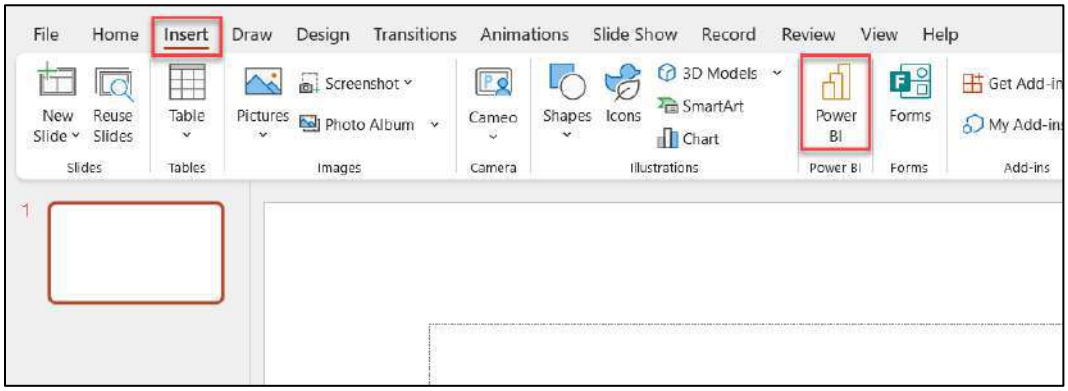
Copyright 2023 Microsoft

4. A dialog will appear confirming that the link has been copied. Now, open the Microsoft **PowerPoint** desktop app on your computer. Select **Blank** presentation from the Home page.

> ***Note:*** *You may need to download the Microsoft PowerPoint app to your desktop if it is not already downloaded.*

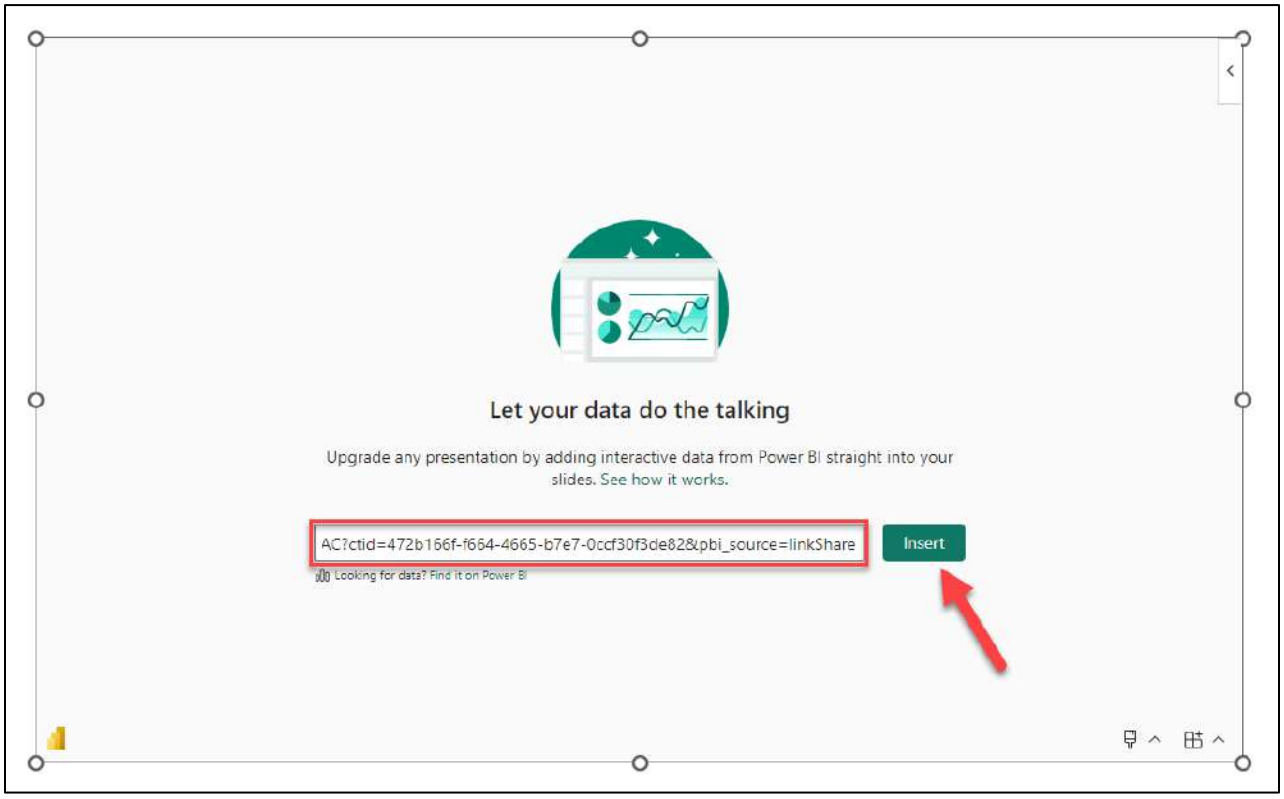


5. A new blank presentation will be created. From the top of the screen, within the ribbon, select the **Insert** tab.
6. Within the menu of options under the tab, select the **Power BI** icon button.



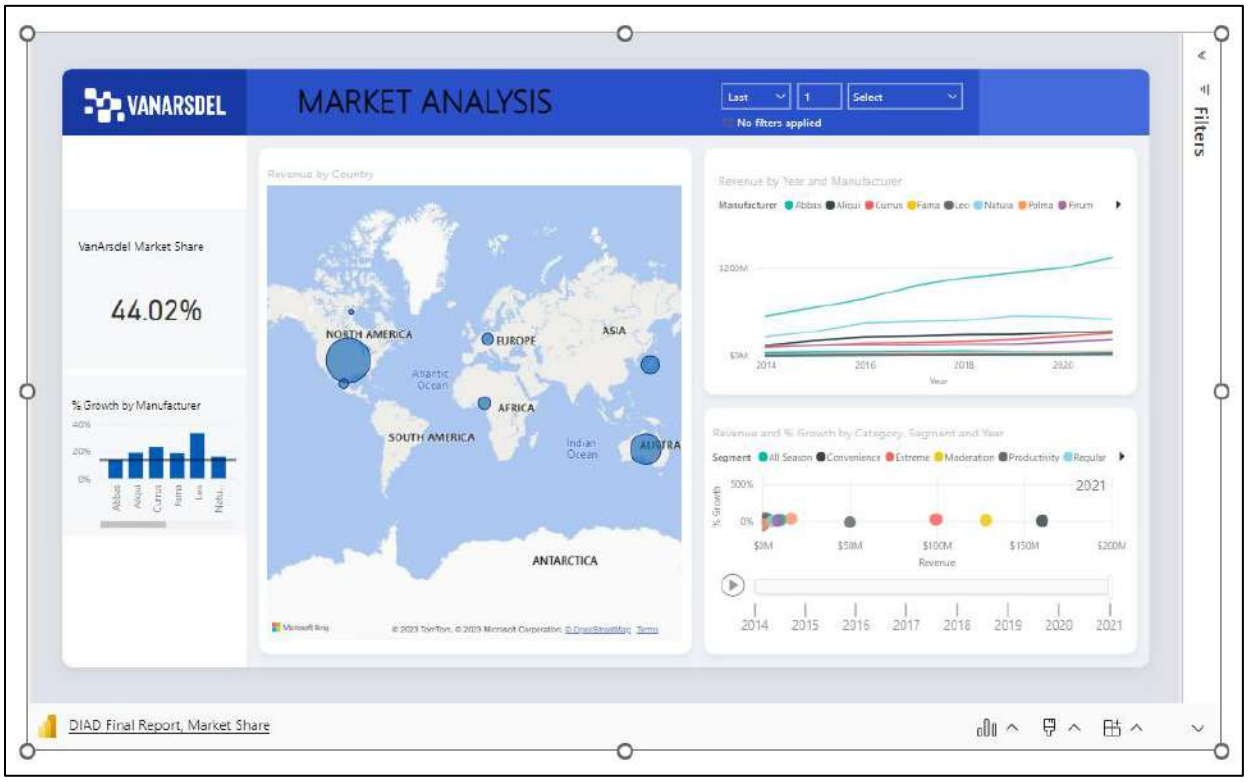
7. After selecting the Power BI button, you will notice the blank presentation slide will have a Power BI box added to the center of the slide. Within the center of the slide, select the text box that says **Paste a URL from Power BI here**.
8. Within the text box, **paste** the **URL** that we copied from Power BI within. You can either right-click within the box and choose **Paste** from the menu, or you can hit **Ctrl + V** on your keyboard.

9. Once you have pasted the URL for the Power BI report, select the **Insert** button.



After a few seconds, you will see that PowerPoint has added the Power BI report to the presentation slide.

Note that while still viewing the slide, you can interact with the different features within the report. You can use features such as to drill up and down between levels, select locations within the map, and select locations on line charts and graphs all while keeping the other data within the report relevant to what is selected and keeping it up to date. You can also use the toggles on the corners and sides of the report to change the size of the report within your presentation. The Filter pane will also display within the report on the presentation slide for more options and tools to use when presenting your data to an audience.

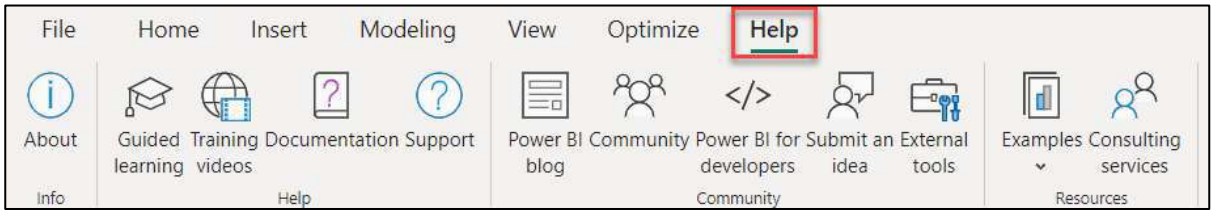


Take some time to try out the different features as you would like within the presentation and report.

> ***Note:*** *For more information on storytelling with Power BI within PowerPoint, go to [About storytelling with Power BI in PowerPoint - Power BI \| Microsoft Learn]*

References

Dashboard in a Day introduces you to some of the key functions available in Power BI. In the ribbon of the Power BI Desktop, the Help section has links to some great resources.



Here are a few more resources that will help you with your next steps with Power BI.

- Getting started: http://powerbi.com
- Power BI Desktop: https://powerbi.microsoft.com/desktop
- Power BI Mobile: https://powerbi.microsoft.com/mobile
- Community site https://community.powerbi.com/
- Power BI Getting started support page: https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi
- Support site https://support.powerbi.com/
- Feature requests https://ideas.powerbi.com/forums/265200-power-bi-ideas
- New ideas for using Power BI https://aka.ms/PBI_Comm_Ideas
- Power BI Courses http://aka.ms/pbi-create-reports
- Power Platform https://powerplatform.microsoft.com/en-us/instructor-led-training/
- Power Apps Business Apps | Microsoft Power Apps
- Power Automate Power Automate | Microsoft Power Platform
- Dataverse What is Microsoft Dataverse? - Power Apps | Microsoft Docs

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DISCLAIMER

This demo/lab contains only a portion of new features and enhancements in Microsoft Power BI. Some of the features might change in future releases of the product. In this demo/lab, you will learn about some, but not all, new features.

Microsoft Power Platform

Power BI Dashboard in a Day Lab 5

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Further Exploration – Power Platform 16
Power Apps 16
Power Automate 17
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Introduction

This document is lab five of five total labs.

Please continue to use your file after completing Lab 4. If you are joining the DIAD at this point or were unable to complete previous labs, please start this lab with the provided **DIAD Final Report.pbix** file located in the Reports folder.

At the end of this lab, you will have learned how to share your dashboard and collaborate with other users. You will also have learned how to access your dashboard on your mobile device.

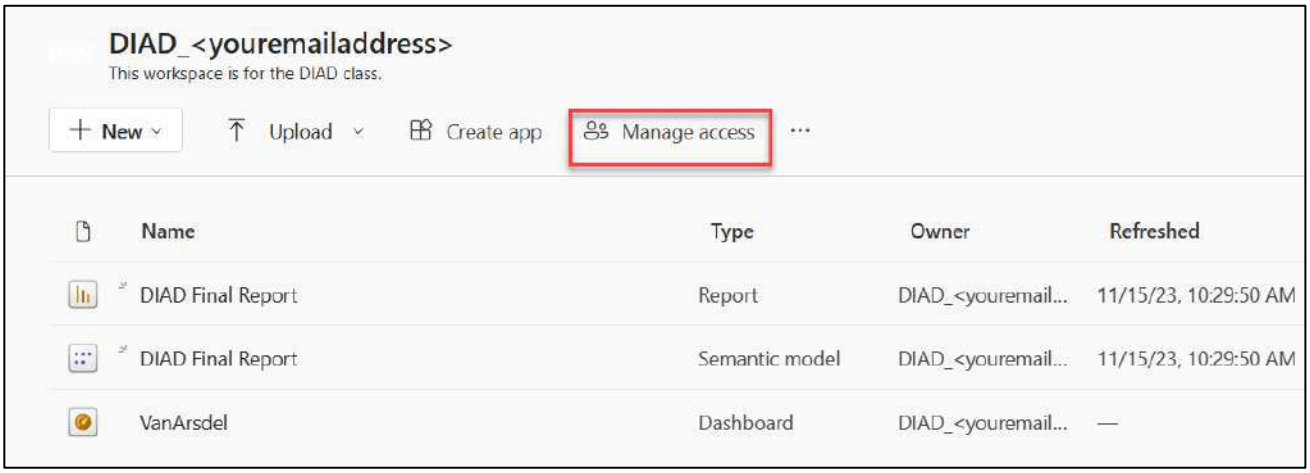
The lab includes steps for the user to follow along together with associated screenshots that provide a visual aid. In the screenshots, sections are highlighted with red or orange boxes to indicate the area the user needs to focus on.

NOTE: *This lab uses real, anonymized data provided by ObviEnce, LLC. Visit their site to learn about their services: www.obvience.com. This data is the property of ObviEnce, LLC and has been shared to demonstrate Power BI functionality with industry sample data. Any use of this data must include this attribution to ObviEnce, LLC.*

Power BI Service – Collaboration and Distribution

You have built the dashboard and are now ready to get feedback and collaborate with your team members.

1. **Sign in** to http://app.powerbi.com to access your workspace.
2. From the navigation pane to the left of the screen, select **Workspaces**.
3. Select the workspace **DIAD_<youremailaddress>** that you created previously.
4. Select the **Manage Access** button at the top of the page.

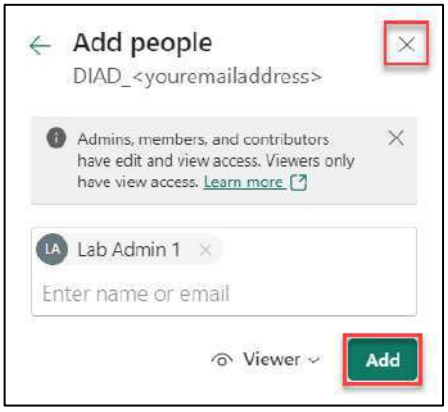


5. The **Manage Access** dialog opens, and you should select the **+ Add people or groups** button. Enter the email addresses of the colleagues with whom you want to collaborate. Each user can belong to one of three roles as follows:

Contributor	Add/edit/delete content within workspace.
Member	Everything a Contributor can do. Re-share. Publish & update Apps.
Admin	Everything a member can do. Can change/delete workspace. Can add Admins.
Viewer	View/interact Read data stored in workplace Data Flows

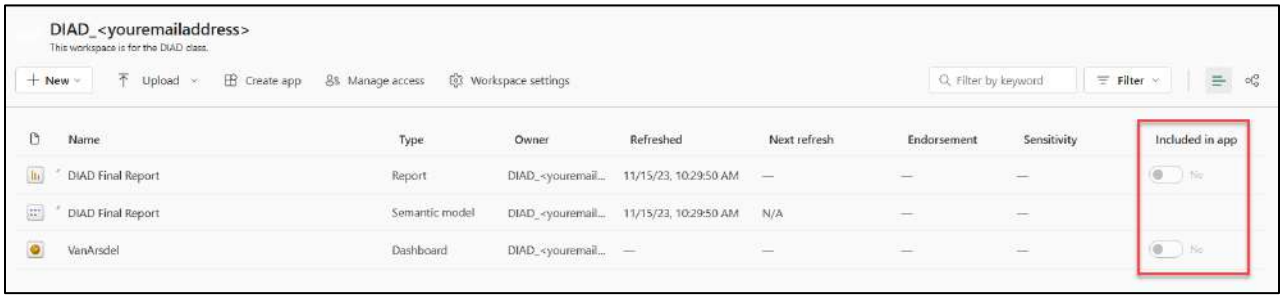
6. Select the appropriate role and then select **Add**.
7. Once you have finished adding your colleagues, select **Close** at the top right.

> ***Note**: If you don't have a colleague's email, please close without submission.*
> *If you do have a colleague's email to provide in the box, and after you have selected the **Add** button, you can ask your colleague to login and access the workspace.*



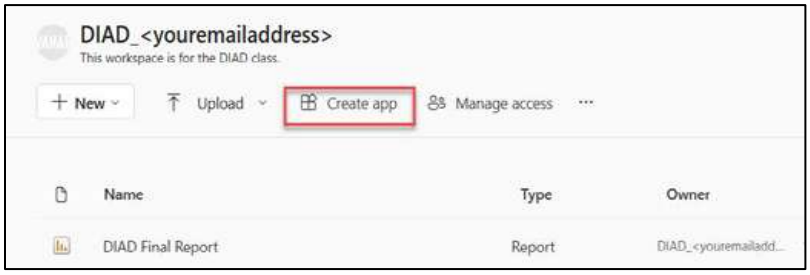
Now let's **share** the content we have created with report viewers and consumers. To start, we need to **publish** an app. An App can include multiple dashboards and reports.

8. Navigate back to your workspace called **DIAD_<youremailaddress>**.
9. On the **Workspace** page, notice there is an option named **Included in app** which can be selected to include the Dashboard in the App. Once we have created the App, the **Included in app** toggle will become enabled.

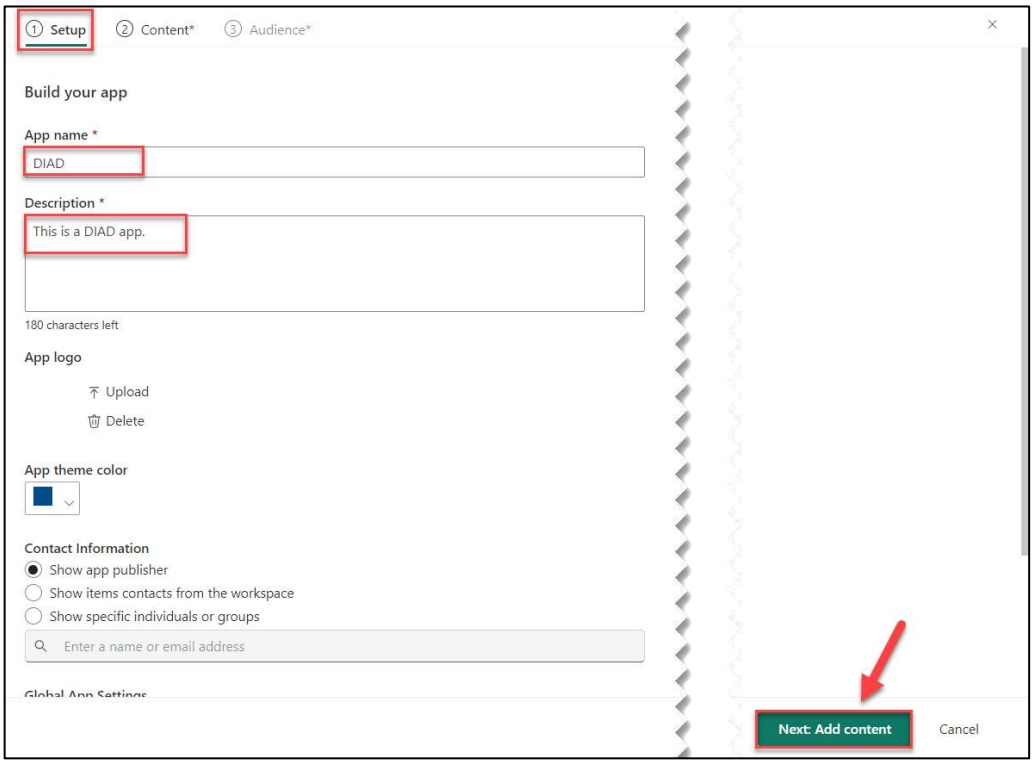


If you have reports and dashboards included in your workspace that you do not want to share with report viewers, an option will appear later to exclude these items.

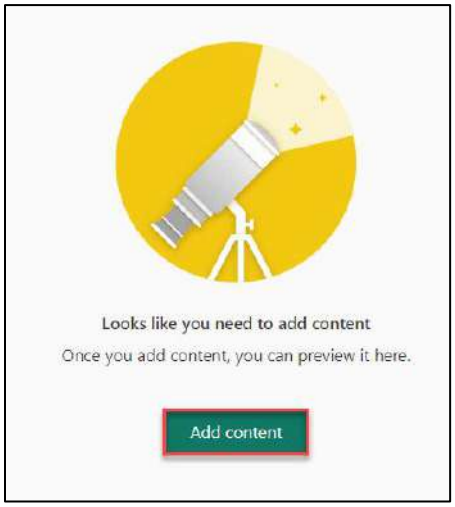
10. In the top part of your screen, select the **Create app** button.



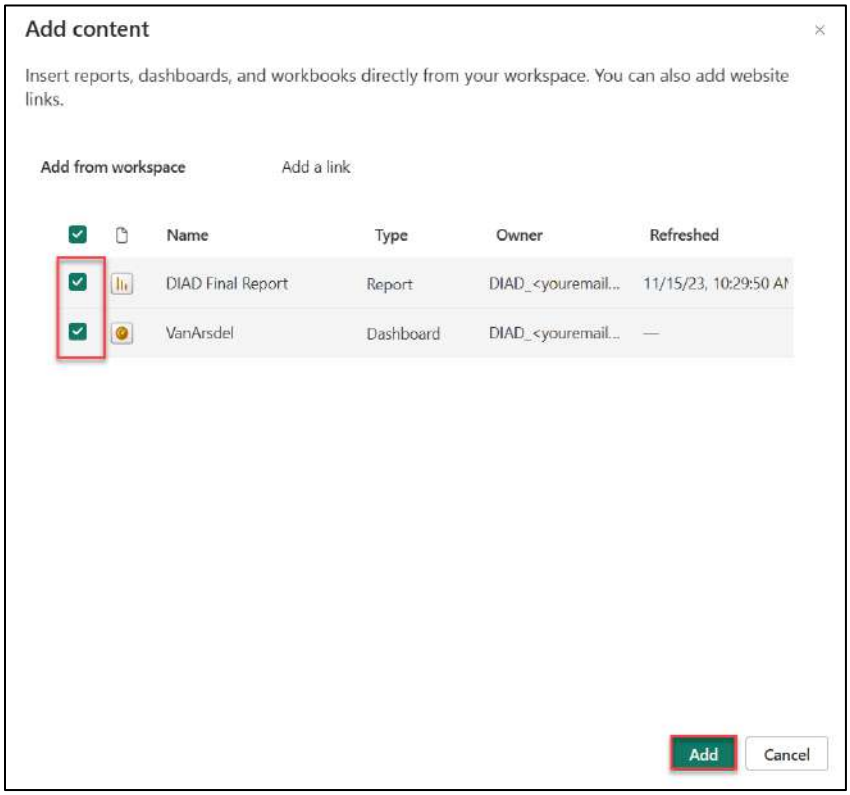
11. On the **Build your app** page, under the **Setup** tab, rename the app **DIAD**, and type **This is a DIAD app** in the **description** field.
12. Then, select the **Next: Add content** button located in the bottom right corner of the Setup page.



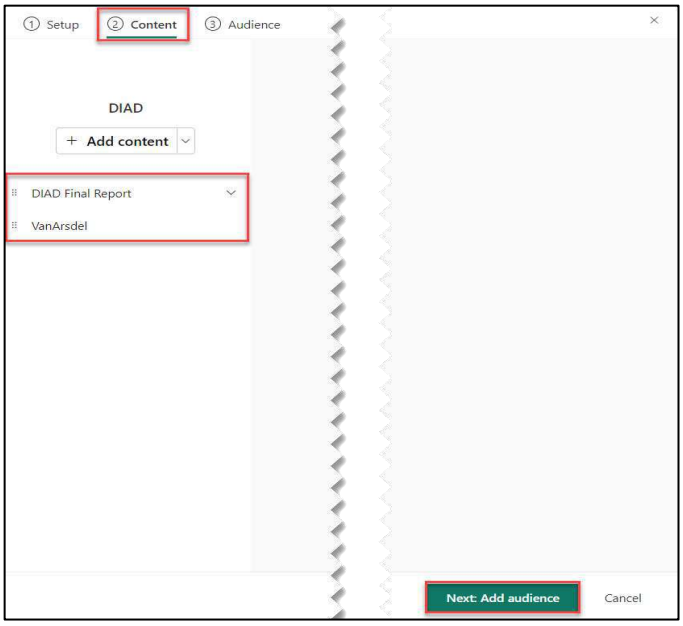
13. Select the green colored **Add content** button located in the middle of the screen.



14. In the **Add content** dialog box that appears, select **DIAD Final Report (report)** and **VanArsdel (dashboard)**. Then, select the **Add** button located in the bottom right corner of the dialog box.



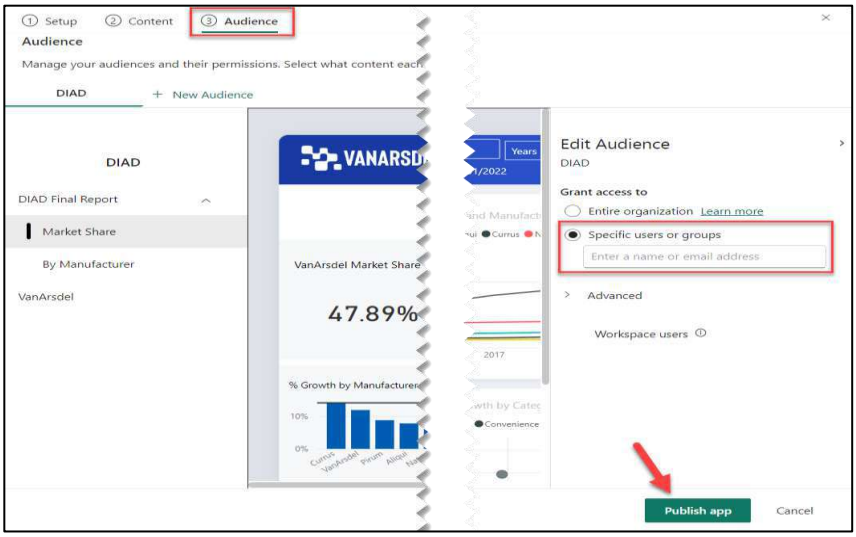
15. Notice that the newly added dashboard and report have been added to the list in the **Content** pane to the left.
16. Next, select the **Next: Add audience** button located in the bottom right corner of the Content page.



Note: When continuing to the **Audience** tab by completing step 16, a dialogue box may pop up giving information about what audiences are and how to utilize them within Power BI. Select **Next** and then **Got it** to close this pop up.

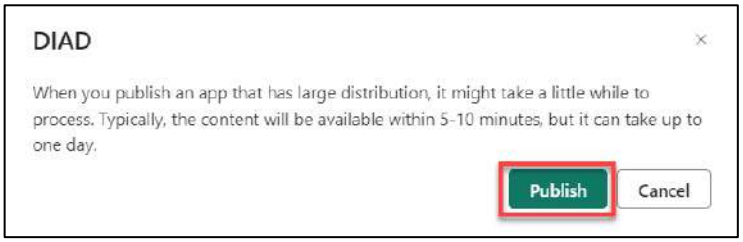
17. In the **Edit Audience** pane, enter the email(s) to whom you want to give access in **Specific users or groups** text box. Then, select the **Publish app** button located in the bottom right corner of the pane.

***Note**: If you do not have an email to share the app with, continue by selecting the Publish app button.*



With Audiences, the authors can decide which content artifact such as reports, dashboards, etc. should be shared with specific audience groups within an App using a single workspace. This allows fine-grained access permissions for the App consumers who can consume various artifacts in the App based on their group permissions and minimizes operational overhead for the App authors.

18. The **Ready to publish** dialog appears, select **Publish**.
19. Once the App is published, a success dialog will appear.

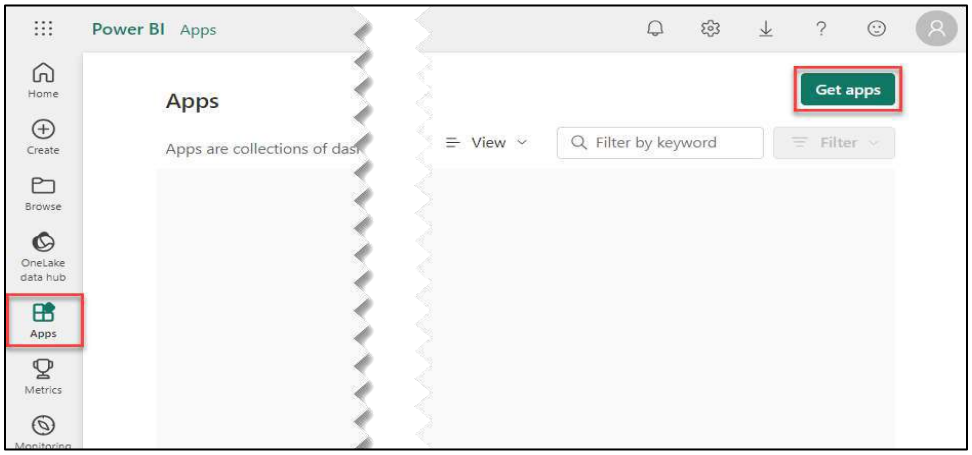


20. In the **Successfully published** dialog box, you can copy the link to the App and share it with individuals via email. Select the **Close** button.



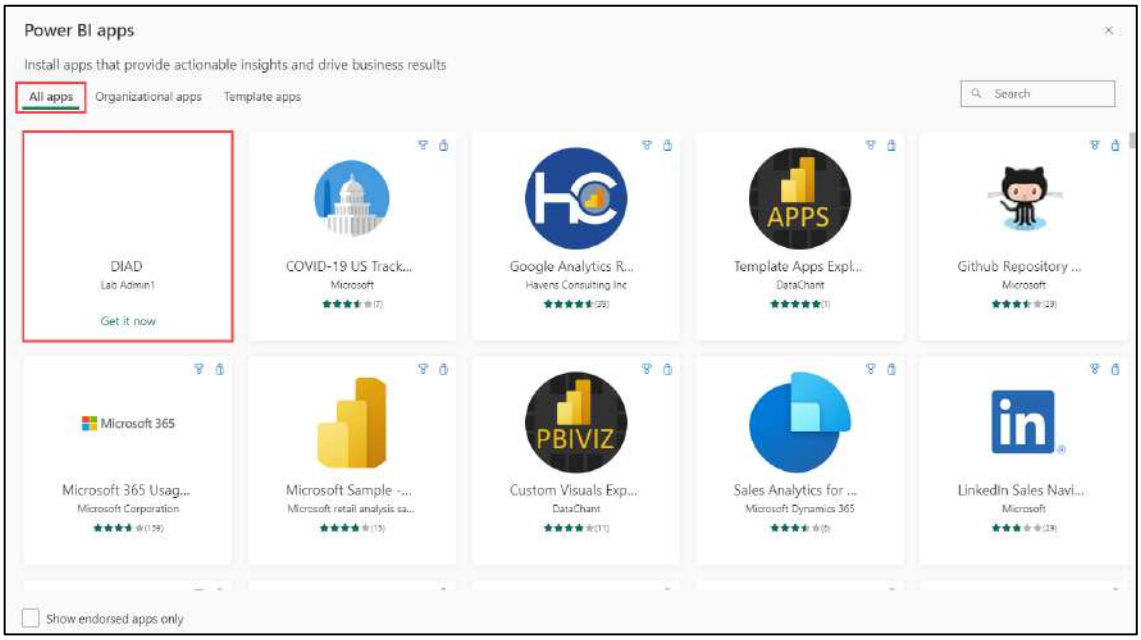
A better way for report viewers to consume the App is by logging onto Power BI Service and registering the App. Let's impersonate a report viewer:

21. From the navigation pane to the left, select **Apps**.
22. Then, select **Get apps**.

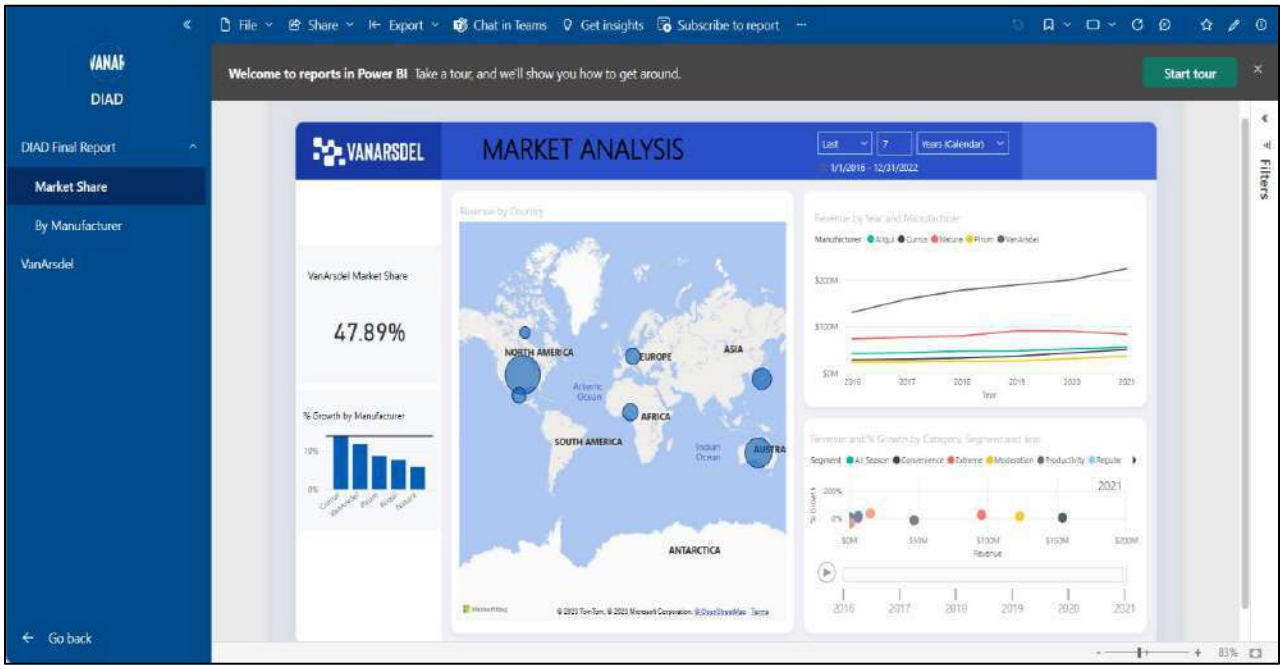


23. The **Power BI apps** dialog box opens. You will notice the **DIAD** app is listed under the **All apps** tab. Select the newly added **DIAD** app.

This is a one-time registration. Going forward, when you select **Apps** in the left pane, you will see the **DIAD** app in the list of Apps you have registered.



Your newly created DIAD app should look similar to the one in the figure below:



Power BI Mobile – Accessing Report on Mobile Device

1. Open the **Power BI Mobile app** on your mobile device.



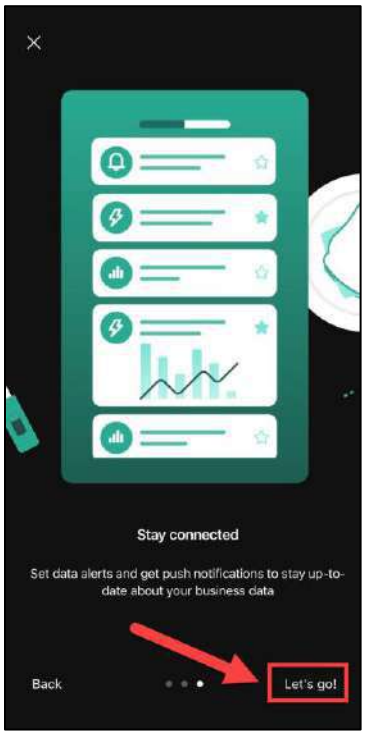
2. Select **Sign in** and follow the steps for entering your credentials.



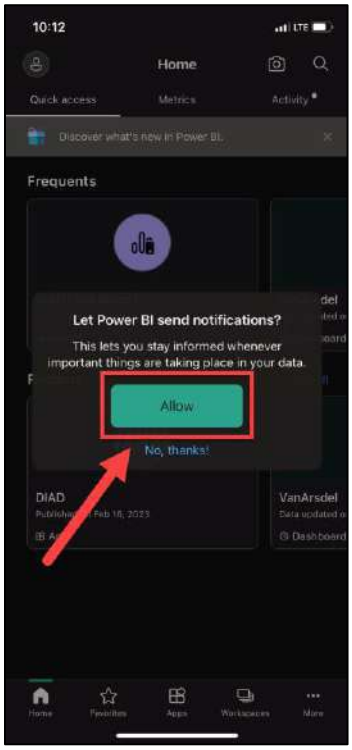
3. Once you have signed in, you will be prompted through a **walk-through of the app**. Select **Next** to continue through the app walk-though.



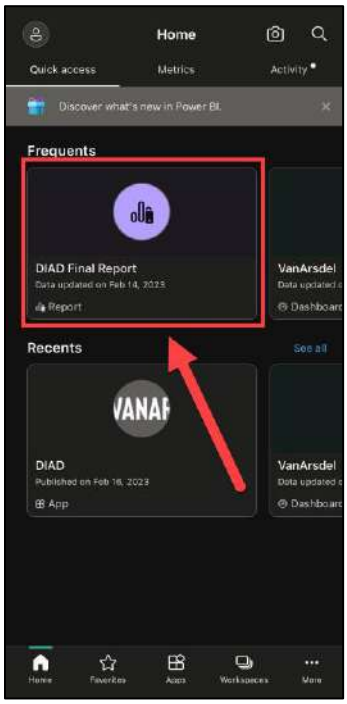
4. On the last page of the walk-through, select **Let's go!** to navigate to the **Home** screen of the mobile app.



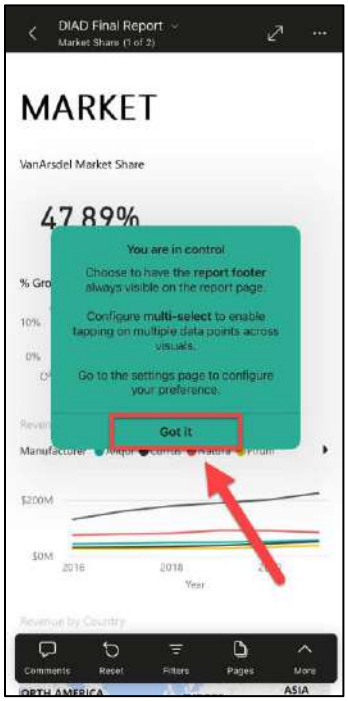
5. A dialog box will appear asking if you want to allow notifications from Power BI on your mobile app. Select **Allow** or **No, thanks!**



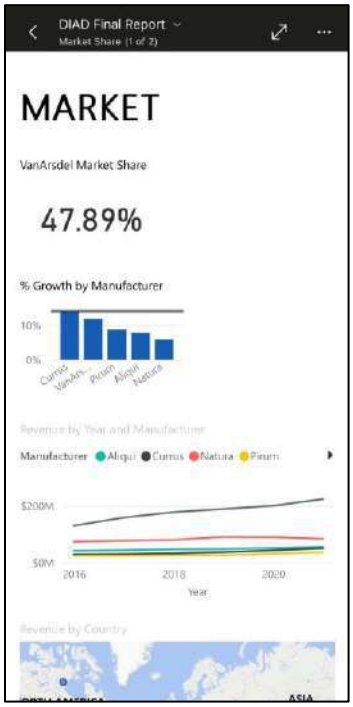
6. Once you have made the choice to allow notifications or not, you will see the main home screen of the Power BI mobile app. Under the **Frequents** section, select the **DIAD Final Report** (report).



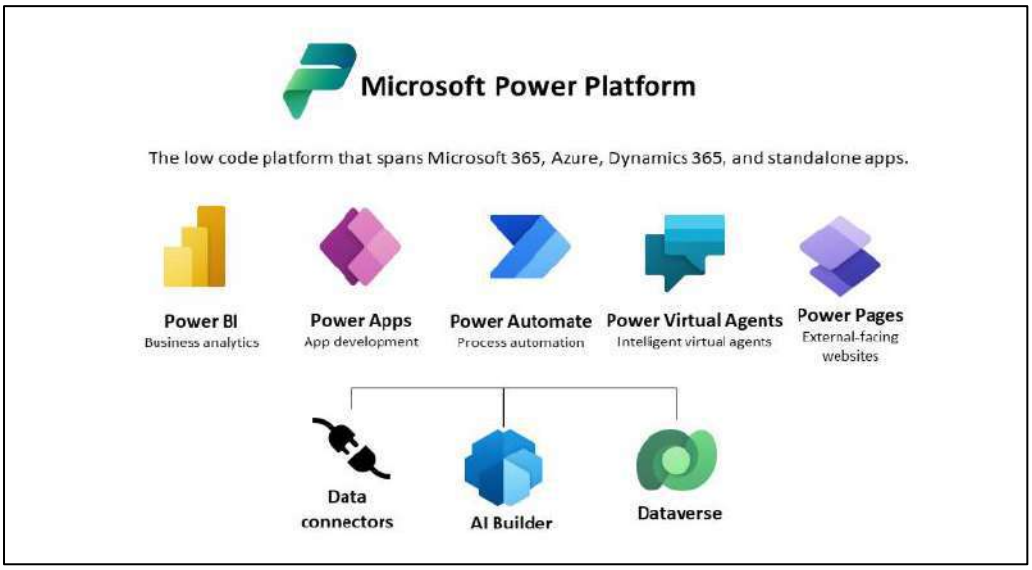
7. Once you have selected the DIAD Final Report, a **You are in control** dialog box will appear. Select **Got it**.



8. Lastly, you should see the mobile view you published from Power BI Desktop.



Further Exploration – Power Platform

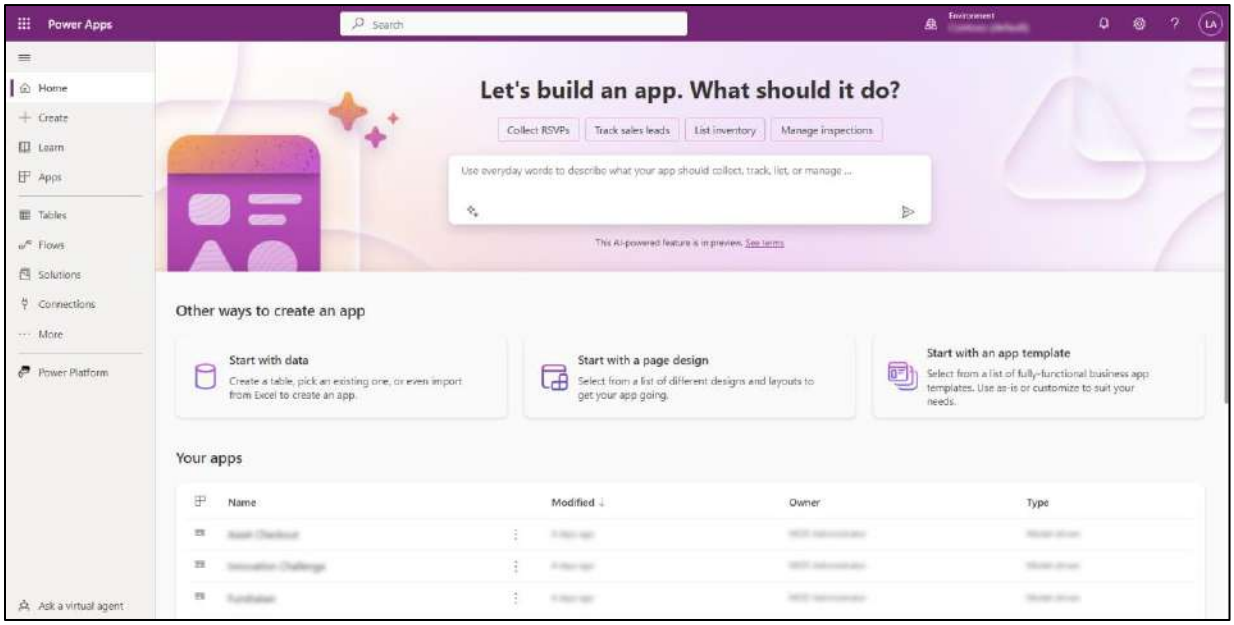


Power Apps

[Microsoft Power Apps documentation - Power Apps | Microsoft Docs]

Suite of apps, services, and connectors, as well as a data platform, that provides rapid development environment to build custom apps for your business needs.

Quickly build custom business apps that connect to your data, stored either in the underlying data platform (Microsoft Dataverse) or in various online and on-premises data sources.



Additional Power Apps training

https://powerapps.microsoft.com/en-us/blog/free-app-in-a-day-powerapps-training-and-more-from-pragmatic-works/

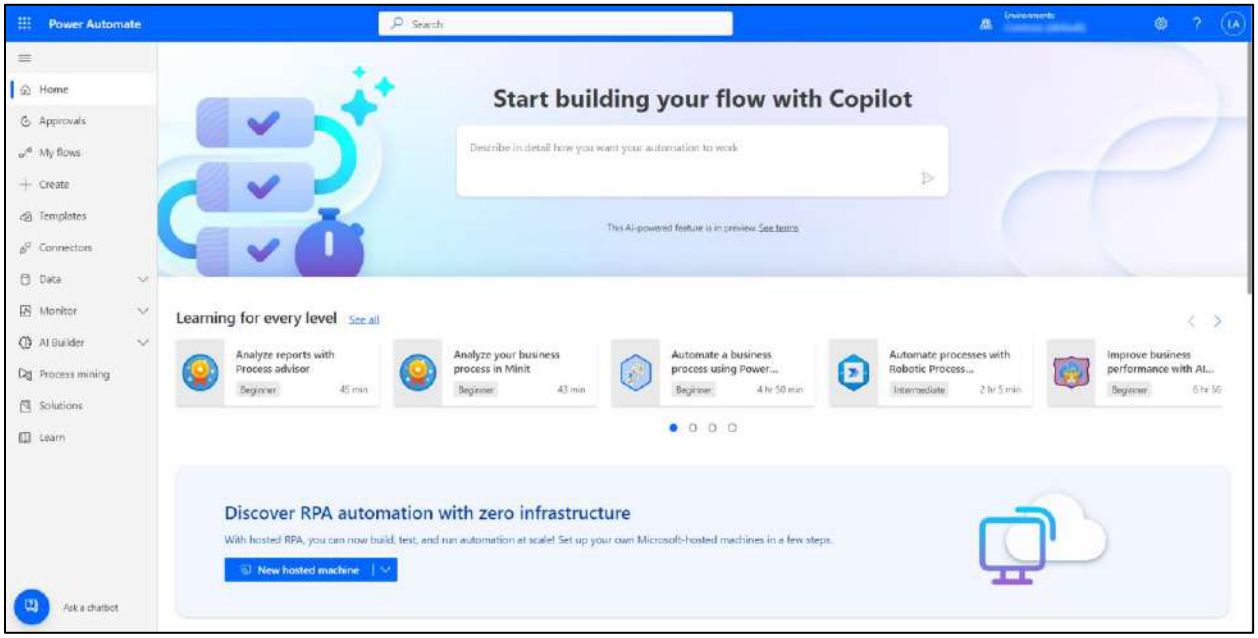
Microsoft Power Platform: Learning Resources | Microsoft Power Apps

Power Automate

https://docs.microsoft.com/en-us/power-automate/getting-started

What can I do with Power Automate?

- Automate business processes
- Send automatic reminders for past due tasks
- Move business data between systems on a schedule
- Connect to almost 400 data sources or any publicly available API
- You can even automate tasks on your local computer like computing data in Excel



Additional Power Automate training

Power Automate on Microsoft Learn | Microsoft Docs

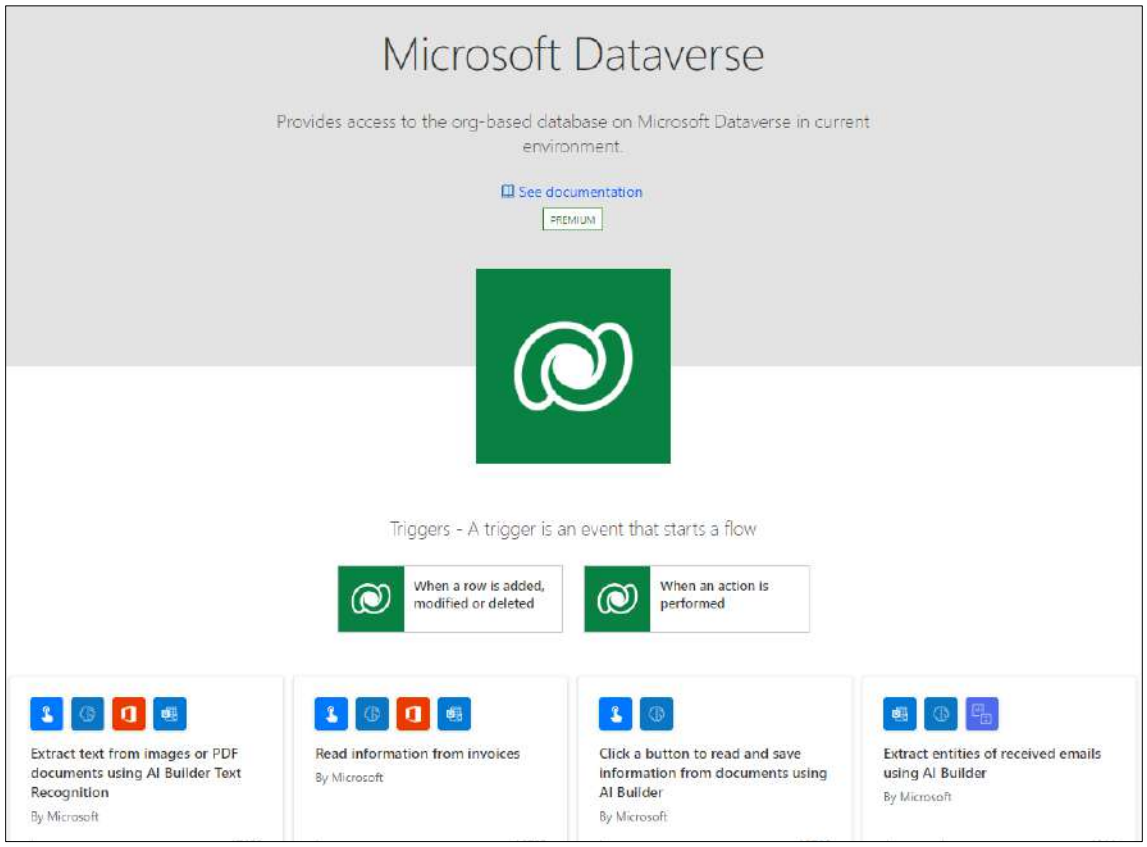
Dataverse

[What is Microsoft Dataverse? - Power Apps | Microsoft Docs]

Dataverse lets you securely store and manage data that's used by business applications. Dataverse allows data to be integrated from multiple sources into a single store, which can then be used in Power Apps, Power Automate, Power BI, and Power Virtual Agents along with data that's already available from the Dynamic 365 applications.

Why use Dataverse?

- Easy to manage
- Easy to secure
- Access your Dynamics 365 data
- Rich metadata
- Logic and validation
- Productivity tools

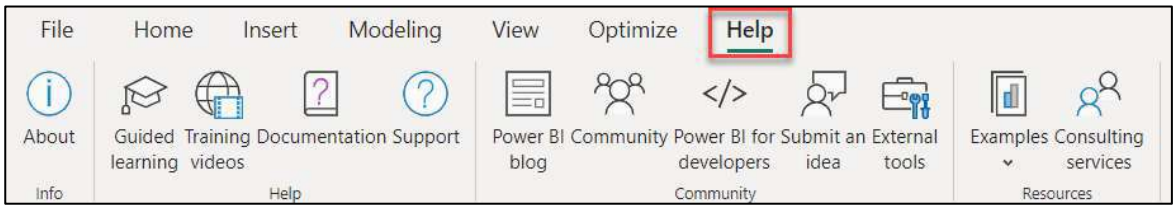


Additional Dataverse training

[Get started using Microsoft Dataverse - Learn | Microsoft Docs]

References

Dashboard in a Day introduces you to some of the key functions available in Power BI. In the ribbon of the Power BI Desktop, the Help section has links to some great resources.



Here are a few more resources that will help you with your next steps with Power BI.

- Getting started: http://powerbi.com
- Power BI Desktop: https://powerbi.microsoft.com/desktop
- Power BI Mobile: https://powerbi.microsoft.com/mobile
- Community site https://community.powerbi.com/
- Power BI Getting started support page: https://support.powerbi.com/knowledgebase/articles/430814-get-started-with-power-bi
- Support site https://support.powerbi.com/
- Feature requests https://ideas.powerbi.com/forums/265200-power-bi-ideas
- New ideas for using Power BI https://aka.ms/PBI_Comm_Ideas
- Power BI Courses http://aka.ms/pbi-create-reports
- Power Platform https://powerplatform.microsoft.com/en-us/instructor-led-training/
- Power Apps Business Apps | Microsoft Power Apps
- Power Automate Power Automate | Microsoft Power Platform
- Dataverse What is Microsoft Dataverse? - Power Apps | Microsoft Docs

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DISCLAIMER

This demo/lab contains only a portion of new features and enhancements in Microsoft Power BI. Some of the features might change in future releases of the product. In this demo/lab, you will learn about some, but not all, new features.

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Homo Digitalis HCD Training

Focus Group
and
Participatory Prototyping

7 November 2024

Leibniz Gemeinschaft

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Agenda

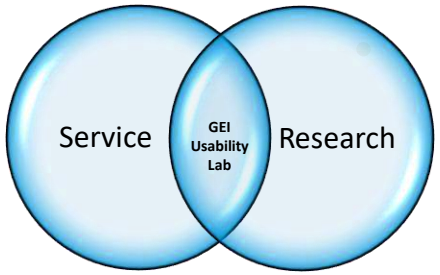


- GEI Usability Lab and Services
- Context of Use: Focus Group on Annotation
- Designing Solutions: Participatory Prototyping

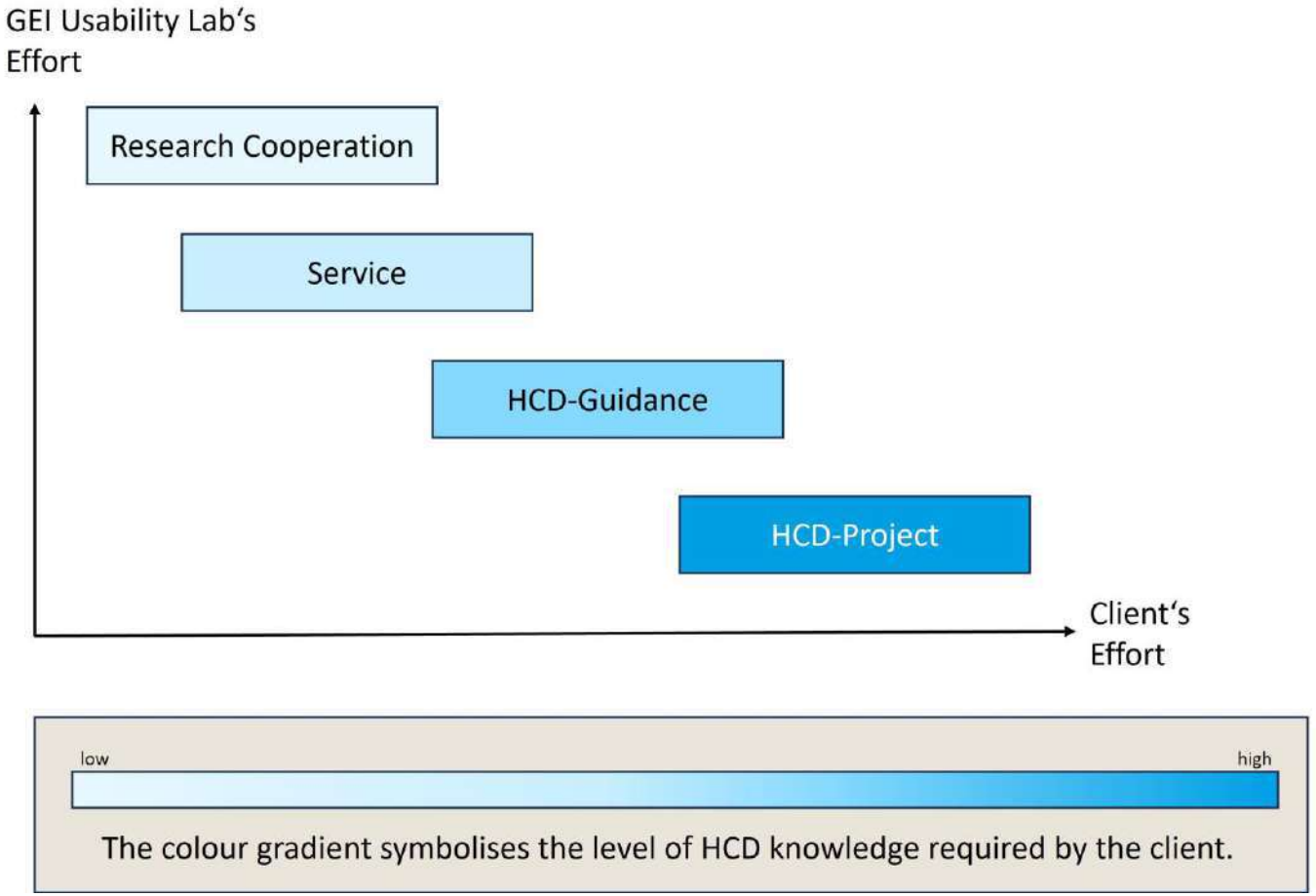
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Overview of Services





Overview of Services



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Overview of Services



Task Clarification

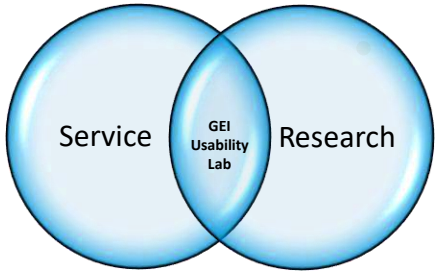
- Goals
- Expected Results
- Available Resources
- Project Context (budget / third-party funding)
- Clarification of Research Part
- Utilisation

HCD-Activities

- Human-Centred Design,
- Contextual Interview / Contextual Enquiry,
- Focus Group,
- Survey and/or
- Usability Inspection/Test

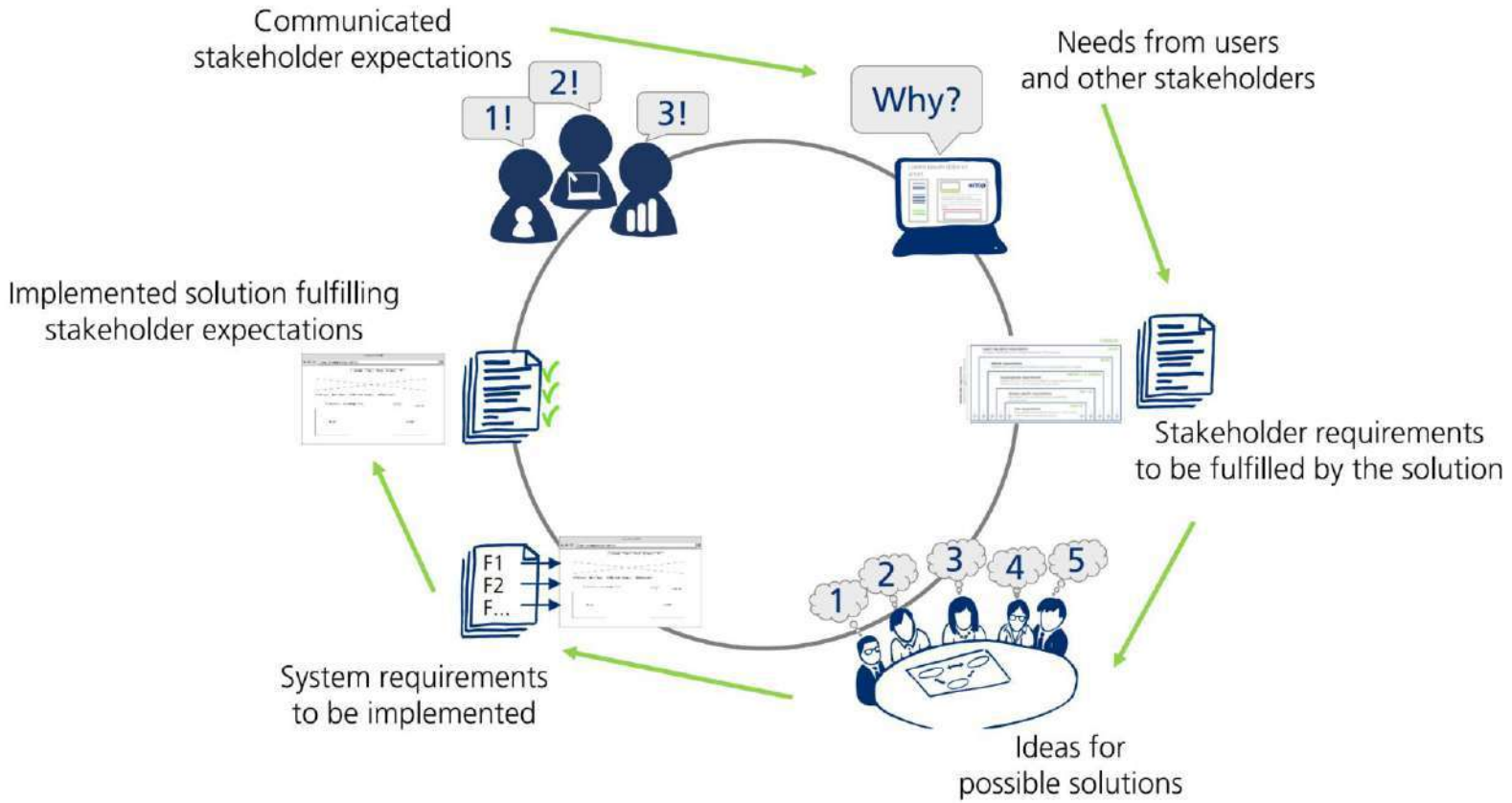
Retrospective

- Preparation of the report by the GEI Usability Lab
- Meeting to discuss the results
- Review and outlook
- Obtaining feedback



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New Way of Working – HCD in the Loop



What if there is already an existing tool?

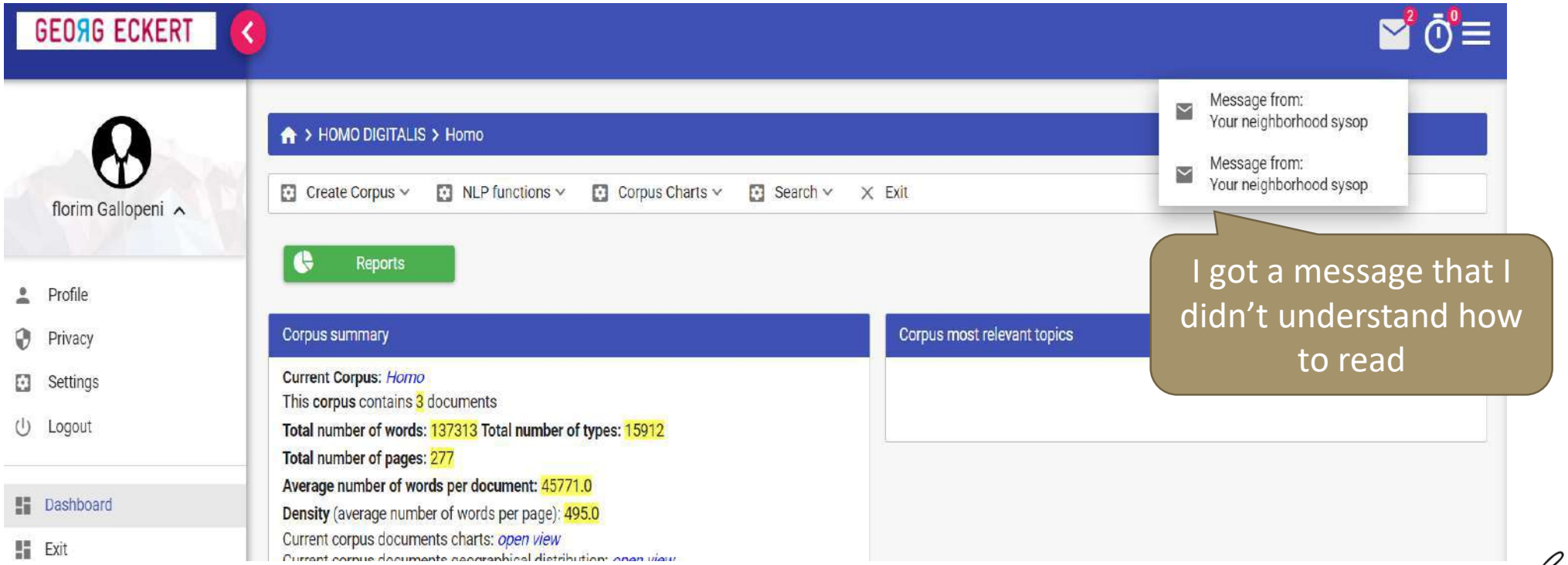
Perform a Usability Evaluation!

- **Usability Test** (with real / potential users)
- **Usability Inspection** (without users)

  → Results from YOUR inspection of the Edumeres Toolbox

Takeaways from your Inspection of the Edumeres Toolbox

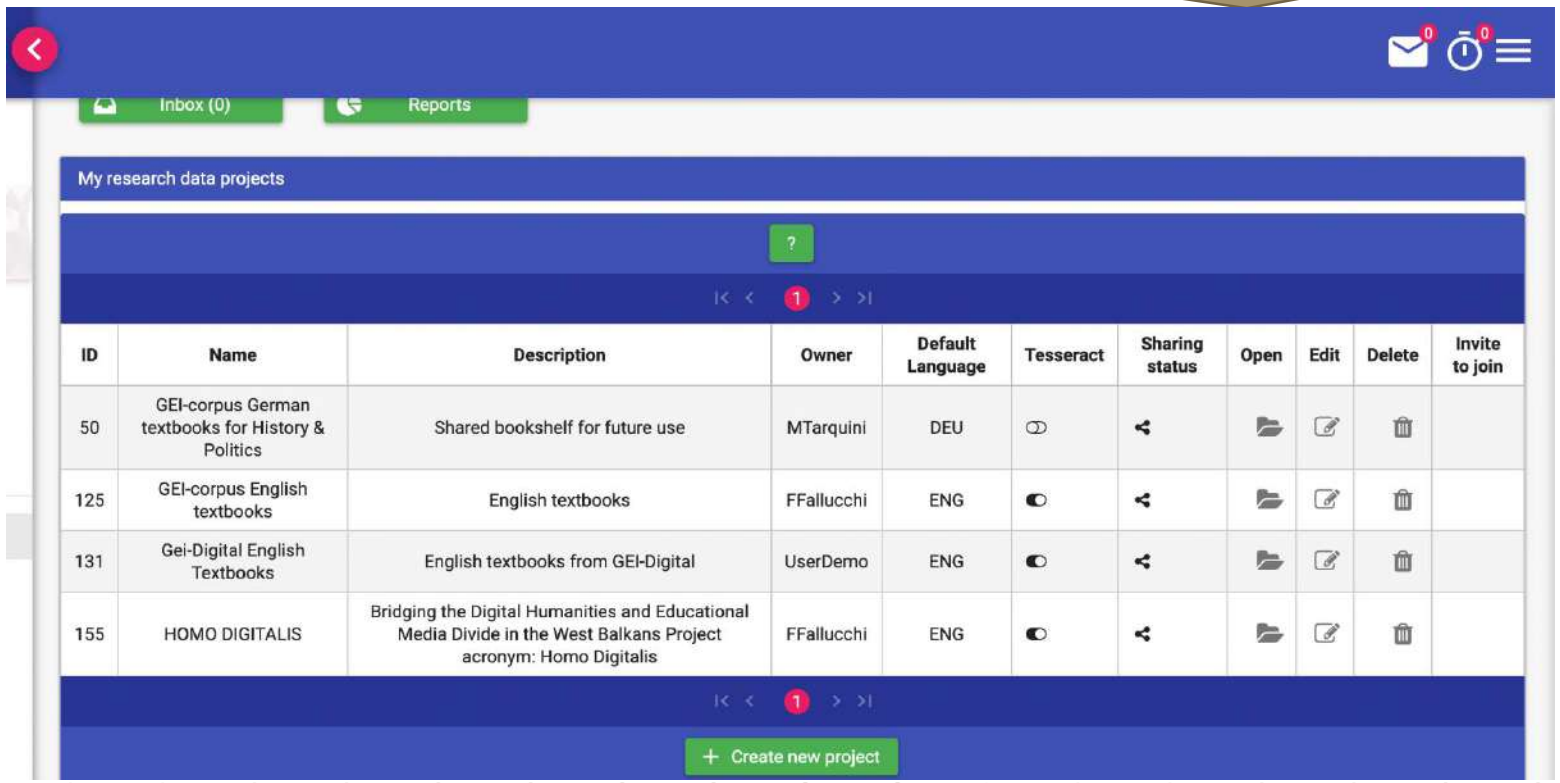
- We need to improve the interaction with system messages



Takeaways from your Inspection of the Edumeres Toolbox

- We need to improve the color schema

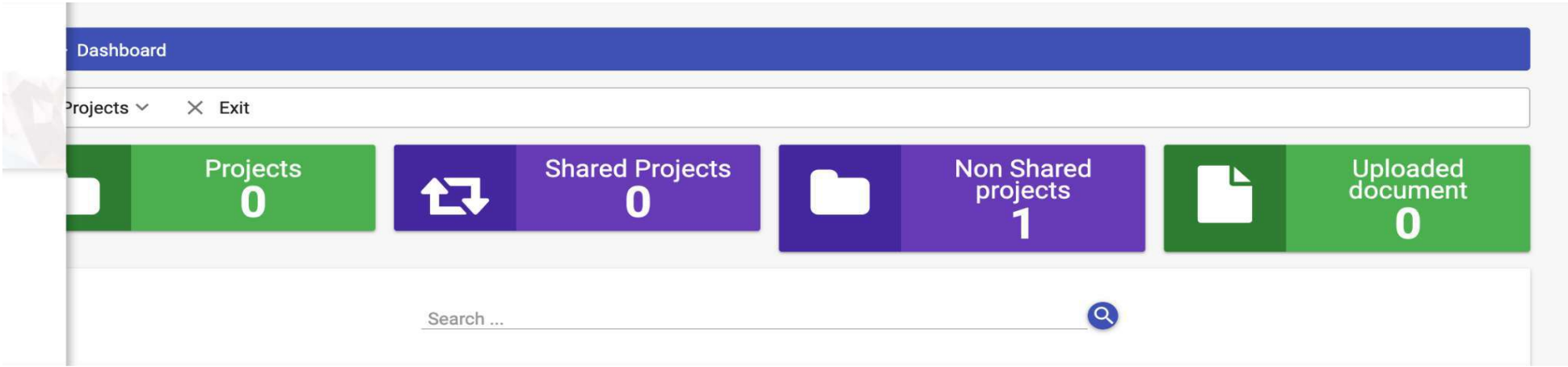
The colors are too bright, which may be disturbing for users with impaired vision



Takeaways from your Inspection of the Edumeres Toolbox

- Design the buttons based on user tasks and make them clickable

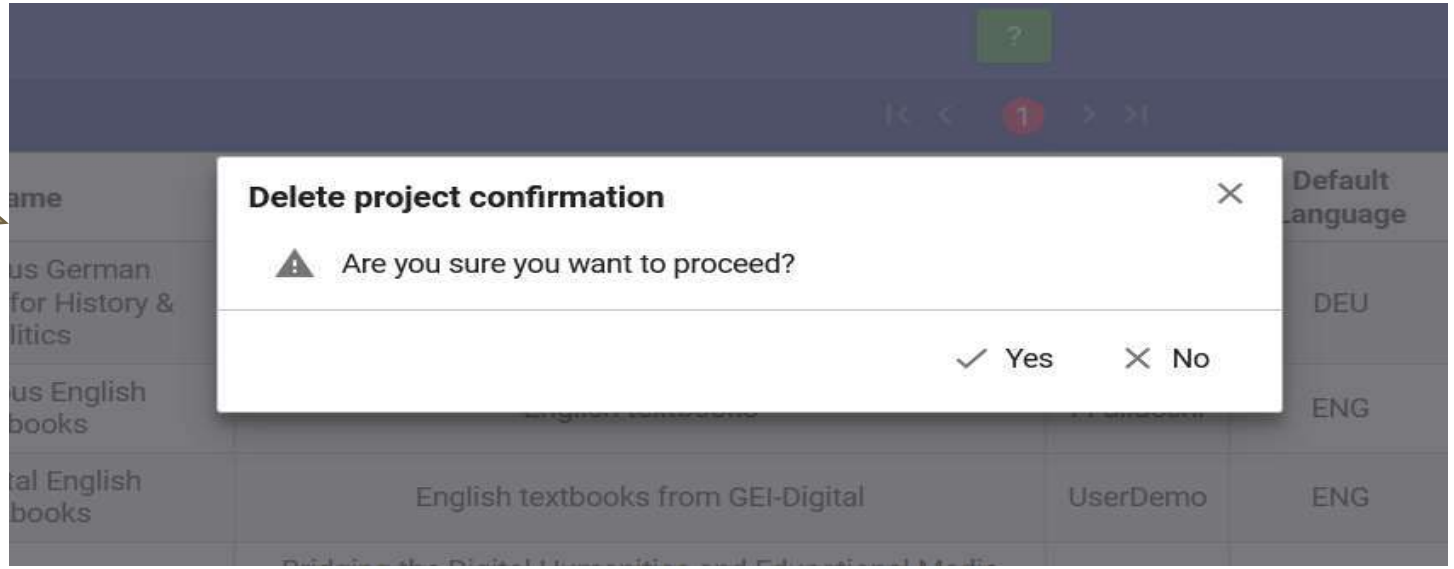
The tab bar on top with projects seems redundant in a way in which it is shaped. My first impression is that these are clickable and that they can lead directly to the project. Instead, they are there for illustrative purposes.



Takeaways from your Inspection of the Edumeres Toolbox

- Implement a roles and rights system, so that no undesired deletions are possible

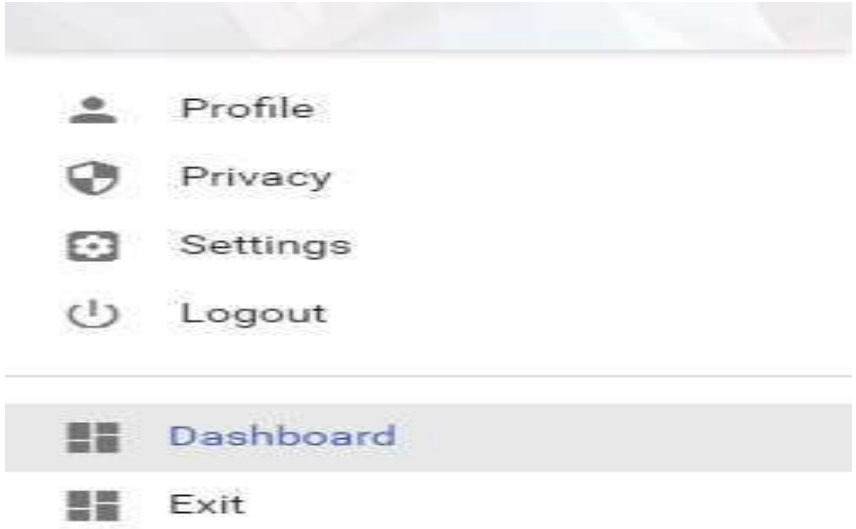
I can delete any project that it is shown, even though I was not part of any of them at any stage. This is a lost of data and work of other people.



Takeaways from your Inspection of the Edumeres Toolbox

- Warn users before logging out
- Let users change their password

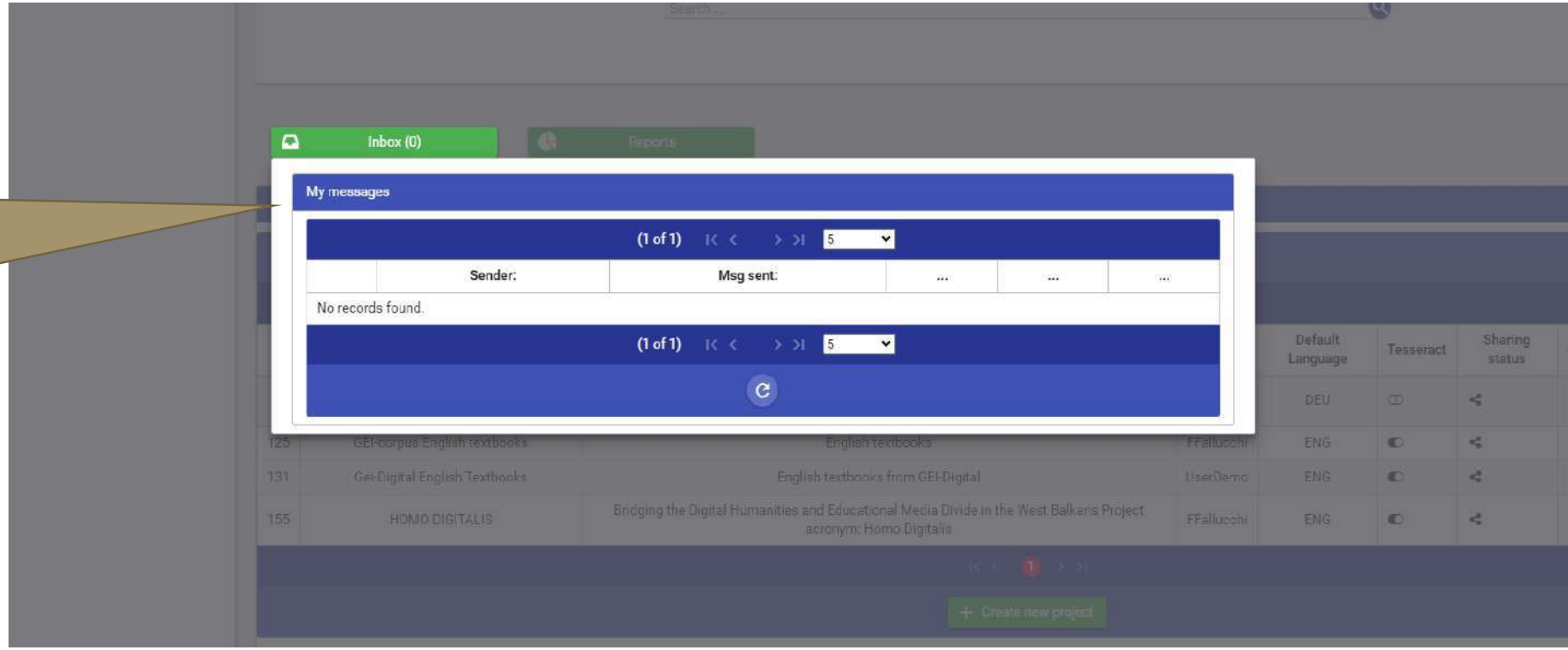
There is no warning if I click on logout, there is also no possibility to change my password



Takeaways from your Inspection of the Edumeres Toolbox

- Improve standards for interaction with popup windows

It is very difficult to close the window of message from other colleagues



Thank you for your work!

Next:

Focus Group Annotation

10:00-12:30



Edumeres Toolbox Purpose



Document Management System



Quantitative Analysis on Digitized Documents



Visualizing Results

Edumeres Toolbox Challenges

- Taking notes and having a discourse about findings is not supported yet
- Data quality issue
- Automated frequency analysis may be incorrect

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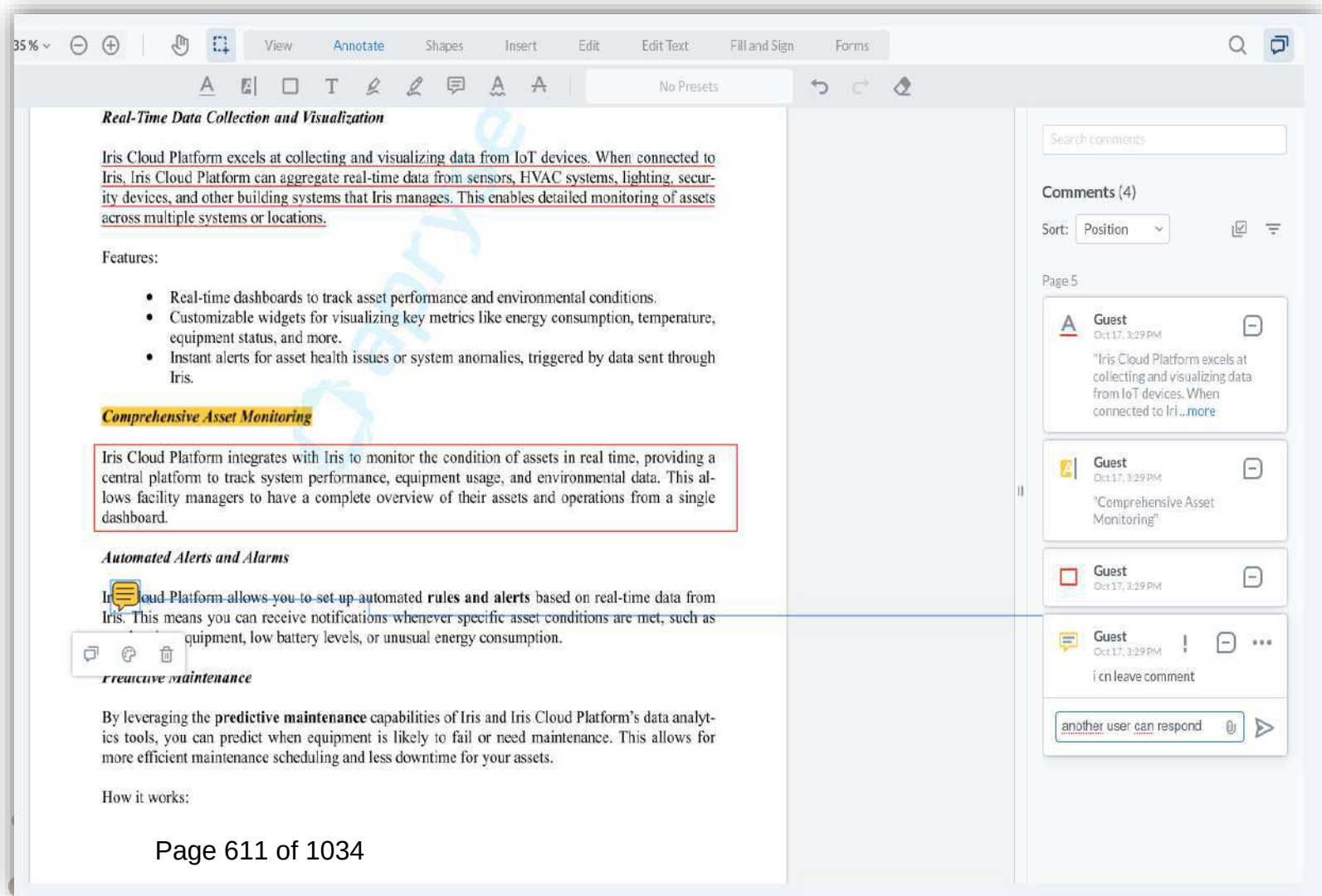
Edumeres Toolbox Annotator

New feature which is still in development.

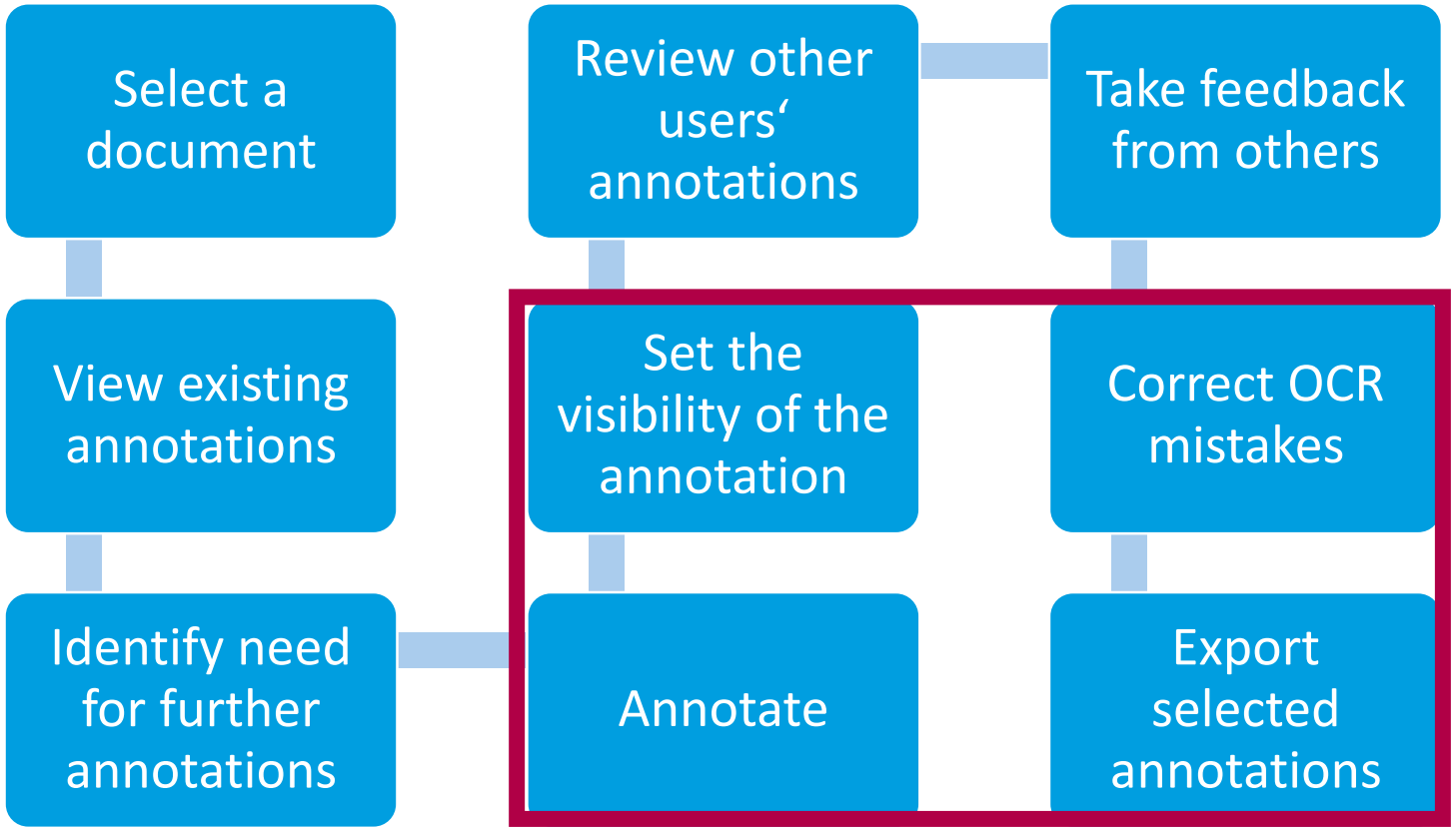
Allows users to:

- **Take notes in digital version of a document**
- **Mark passages**
- **Make public notes**
- **Edit the document**

(similar to Adobe Reader)



Current Assumed Task Sequence for Annotation



Focus Group for our 4 Main Challenges

For each challenge:

- **15 min** small group discussion + visualization
- Presentation in front of the group (no discussion, only if something is unclear)

Annotate



Different annotation types

- Coding
- Private notes
- Collaboration and exchange (shared notes)
- …?

Tell us your **examples** and **stories**

Set the Visibility of the Annotation

- Private
- Selected Colleague(s)
- Department
- Public
- …?

Reasons and situations for each of these types.

Further work with the annotation results

- Export **format**
- For which **tasks**
- For work with which **other tools**
- For **collaboration with humans**

Correct OCR mistakes



How could you imagine the

correction of OCR mistakes

if they are found by researchers

so that others (and you) benefit from it in the future?

What is needed to perform this task,
including marking the status of the document (e.g., to review, corrected,…)

Final Discussion

What did we learn?

Thank you for sharing your perspectives!

Next:

Participatory Prototyping

14:00-16:00



What do we prototype?

"We want to understand
the idea and the type of interaction
between people and the system,
and also make it tangible in the process."



Individual Brainstorming (10 min)

Sketch a your own idea for OCR-Correction.

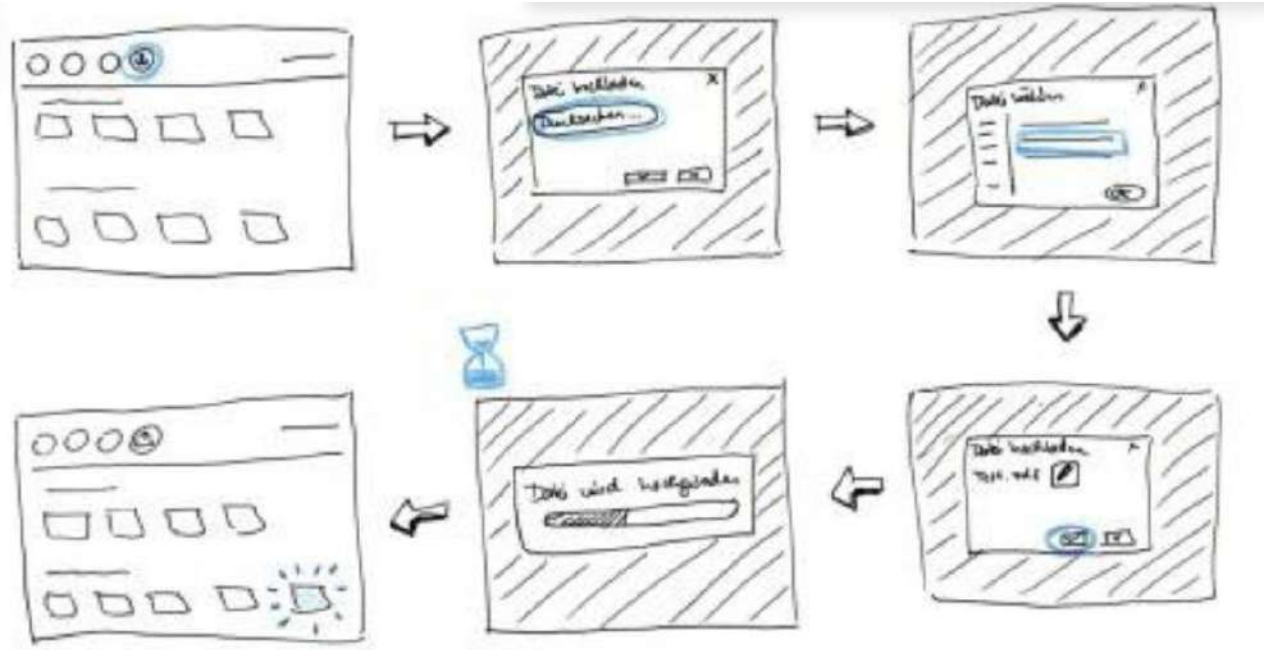
Imagine there are no technical limitations. What do you wish for?

- Which steps are needed to perform this task?
- How can the system interact with the user to support him/her?
- Think about three system interaction modes:
  1. **Select** from different options,
  2. **Input** some information,
  3. **Recognize** information that is displayed by the system.

Small Group Work (20 min)

Discuss your ideas and generate a proposal with your team.

Visualize your idea for the OCR-Correction Task with **wireflows** or **simple sketches**.



https://uxqb.org/public/documents/CPUX-DS_EN_Curriculum.pdf

Small Group Presentations (20 min)



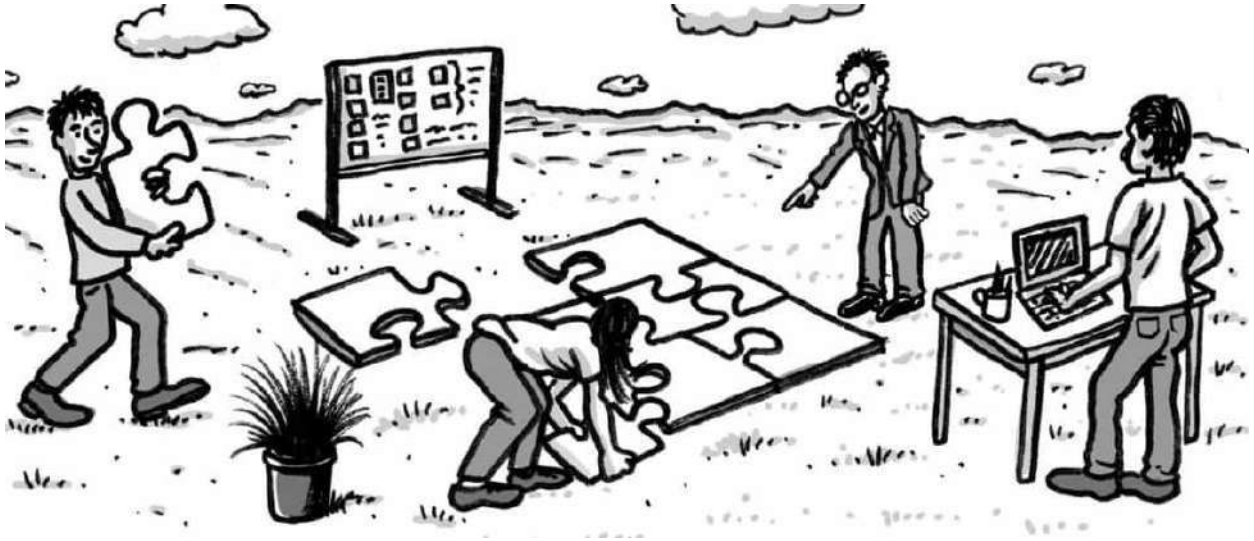
Pitch your ideas (max. 5 min / group).

Collect chances / risks of your ideas within the whole group.

Final Discussion (15 min)

Now let us discuss all ideas.

Can we combine aspects of these ideas?



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Thank you!



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Zwischentöne (Nuances)
Materials for Diversity in Classrooms

Dr. Imke Rath

zwischentoene@leibniz-gei.de



Leibniz Association



1 What is Zwischentöne

2 Confrontation with the „Homo Digitalis“

3 Digital: Potentials and challenges

4 Comparison with EduSkills+

5 Putting thoughts/ideas together

6 Optional: Using the Edumeres toolbox for a textbooks analysis on the depiction of Roma in German textbooks

What is Zwischentöne?

Zwischentöne = Nuances

Materials for **diversity** in classrooms



→ teaching materials for secondary schools

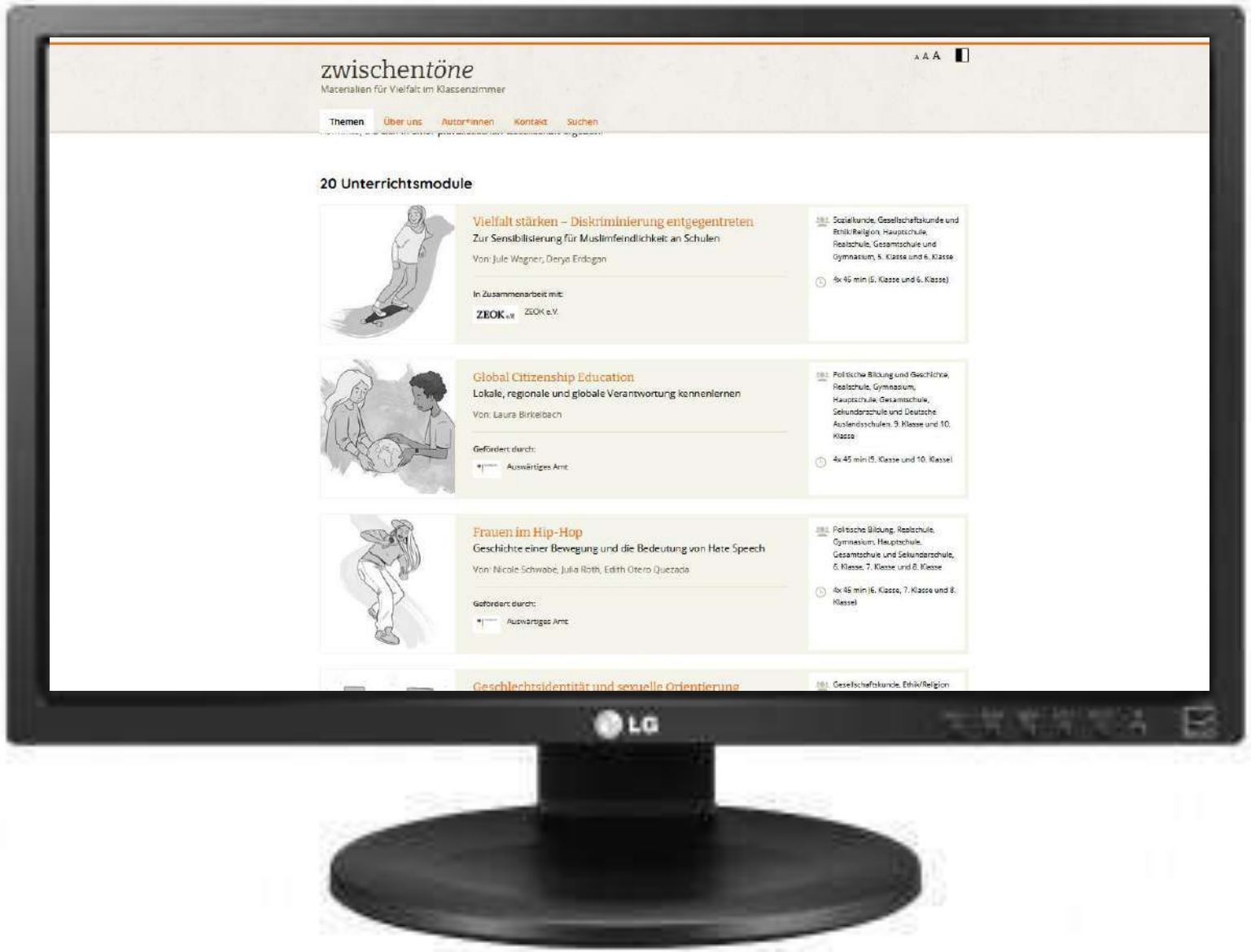
→ diversity in society, pupils with different ethnical backgrounds, gender, sexual identity and orientation, age, disability, religion, world views and social background

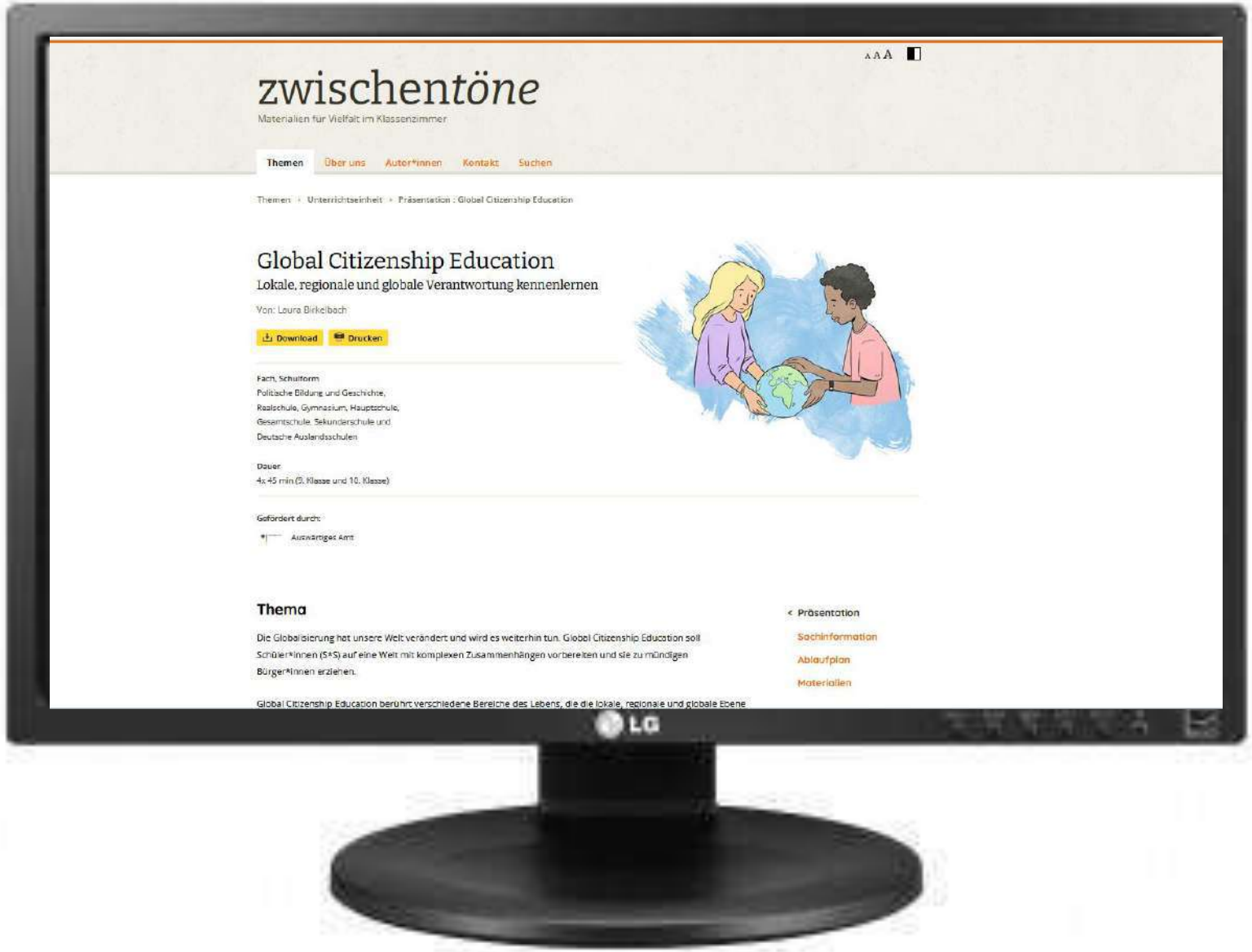
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What is Zwischentöne?






zwischentöne
Materialien für Vielfalt im Klassenzimmer
Themen
Über uns
Autor*innen
Kontakt
Suchen
20 Unterrichtsmodule
Vielfalt stärken – Diskriminierung entgegentreten
Zur Sensibilisierung für Muslimfeindlichkeit an Schulen
Von: Jule Wagner, Derya Erdogan
In Zusammenarbeit mit:
ZEOK e.V.
Sozialkunde, Gesellschaftskunde und Ethik/Religion, Hauptschule, Realschule, Gesamtschule und Gymnasium, 5. Klasse und 6. Klasse
4x 45 min (5. Klasse und 6. Klasse)
Global Citizenship Education
Lokale, regionale und globale Verantwortung kennenlernen
Von: Laura Birkelbach
Gefördert durch:
Auswärtiges Amt
Politische Bildung und Geschichte, Realschule, Gymnasium, Hauptschule, Gesamtschule, Sekundarschule und Deutsche Auslandsschulen, 9. Klasse und 10. Klasse
4x 45 min (5. Klasse und 10. Klasse)
Frauen im Hip-Hop
Geschichte einer Bewegung und die Bedeutung von Hate Speech
Von: Nicole Schwabe, Julia Röth, Edith Otero Quezada
Gefördert durch:
Auswärtiges Amt
Politische Bildung, Realschule, Gymnasium, Hauptschule, Gesamtschule und Sekundarschule, 6. Klasse, 7. Klasse und 8. Klasse
4x 45 min (6. Klasse, 7. Klasse und 8. Klasse)
Geschlechtsidentität und sexuelle Orientierung
Gesellschaftskunde, Ethik/Religion
LG


zwischentöne
Materialien für Vielfalt im Klassenzimmer
Themen
Über uns
Autor*innen
Kontakt
Suchen
Themen › Unterrichtseinheit › Präsentation : Global Citizenship Education
Global Citizenship Education
Lokale, regionale und globale Verantwortung kennenlernen
Von: Laura Birkelbach
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Politische Bildung und Geschichte,
Realschule, Gymnasium, Hauptschule,
Gesamtschule, Sekundarschule und
Deutsche Auslandsschulen
Dauer
4x 45 min (9. Klasse und 10. Klasse)
Gefördert durch:
Auswärtiges Amt
Thema
Die Globalisierung hat unsere Welt verändert und wird es weiterhin tun. Global Citizenship Education soll Schüler*innen (S*S) auf eine Welt mit komplexen Zusammenhängen vorbereiten und sie zu mündigen Bürger*innen erziehen.
Global Citizenship Education berührt verschiedene Bereiche des Lebens, die die lokale, regionale und globale Ebene
‹ Präsentation
Sachinformation
Ablaufplan
Materialien
LG

Unterrichtseinheit für die Sekundarstufe I

Global Citizenship Education

Lokale, regionale und globale Verantwortung kennenlernen

Autorin: Laura Birkelbach



4.0 Int. April 2023
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Fach; Schulform; Klassenstufe

Politische Bildung, Geschichte; alle Schulformen; 9.-10. Klasse

Zeitrahmen

4 x 45 Min.

optional auch 6 x 45 Min. möglich (inkl. Rollenspiel)

Deutschland weltoffen

Thema

Die Globalisierung hat unsere Welt verändert und wird es weiterhin tun. Global Citizenship Education soll Schüler*innen (S*S) auf eine Welt mit komplexen Zusammenhängen vorbereiten und sie zu mündigen Bürger*innen erziehen.

Global Citizenship Education berührt verschiedene Bereiche des Lebens, die die lokale, regionale und globale Ebene betreffen. Diese werden in der vorliegenden Unterrichtseinheit berücksichtigt, indem die S*S das Erlernte in die jeweilige Ebene einordnen. Zunächst erarbeiten sie gemeinsam ihre Rolle als „Global Citizens" sowie deren Vorzüge, aber auch die Herausforderungen, mit denen sie sich konfrontiert sehen. Die Globalisierung hat für eine starke Vernetzung der Welt gesorgt, durch die sich vielfältige Möglichkeiten der Gestaltung des eigenen Lebens ergeben. Im Hinblick auf die Anforderung der Mobilität, die an viele Menschen gestellt wird, kann die Vernetzung aber auch zu einer Belastung werden. Die S*S reflektieren, welche Bedeutung Globalisierung für sie selbst und ihr eigenes Leben hat und welche Verantwortung sie gegenüber der Welt haben. Der letztgenannte Aspekt konzentriert sich besonders auf zwei Bereiche, die im weiteren Verlauf der Unterrichtseinheit behandelt werden: Hier geht es um die Verantwortung des Menschen für die Umwelt und die Konsequenzen des Klimawandels. Damit zusammenhängend spielt aber auch die Verantwortung einzelner Staaten innerhalb der Weltgemeinschaft eine große Rolle, vor allem im Hinblick auf die Kolonialgeschichte(n) und ihren Folgen.

Lehrplanbezug

Kulturelle Vielfalt, Umweltschutz, Nachhaltigkeit, Politische Bildung, Globalisierung, Globales Lernen, Bildung für nachhaltige Entwicklung; Kolonialgeschichte.

Da diese Unterrichtseinheit die globale Dimension des Handelns fokussiert, eignet sie sich gut als Ergänzung von eher national ausgerichteter Demokratiebildung.

Erwartete Kompetenzen

Sachkompetenz; Analysekompetenz; Präsentations- und Kommunikationskompetenzen; Mehrperspektivität; Urteilskompetenz; Diversity-Kompetenzen; Problemorientierung; Reflexions- und Diskursfähigkeit.

Die S*S lernen die komplexen Zusammenhänge der Welt besser zu verstehen und reflektieren, wo sie sich selbst in dieser Welt verorten. So lernen sie die globalen Aspekte bezogen auf den Klimawandel kennen und erarbeiten verschiedene Lösungsmöglichkeiten, wie Menschen diesem entgegenwirken können. Durch ein Rollenspiel werden Präsentations- und Kommunikationskompetenzen gestärkt und die S*S in die Methode der Debatte eingeführt.

Didaktische Perspektive

Die S*S arbeiten mit verschiedenen interaktiven Methoden sowohl individuell als auch in der Gruppe. Die multiplen Perspektiven auf Problemstellungen und die Übernahme von unterschiedlichen Rollen weiten ihren Blick auf Situationen und Probleme. So werden sie einerseits

Sachinformation

Worum geht es?

In einer sich durch Globalisierung und Digitalisierung schnell verändernden Welt ist es wichtig, dass S*S zu mündigen Bürger*innen heranwachsen, die selbstbestimmt Entscheidungen treffen, deren Konsequenzen sie abschätzen können. Global Citizenship Education (GCED) greift diesen Zugang auf, indem sie als politische Bildung Wissen und Fähigkeiten zum Verständnis und zur Begegnung globaler Herausforderungen vermittelt. Grundlage hierfür ist ein zu entwickelndes Zugehörigkeitsgefühl zur Weltgemeinschaft. Die GCED zielt darauf ab, dass sich Weltbürger*innen engagieren und aktiv einen Beitrag zu einer gerechten, friedlichen Welt leisten, in der schonend mit ihren ökologischen Ressourcen umgegangen wird.[1]

Dabei bezieht sich dieser Ansatz nicht nur auf Teilbereiche der Bildung, sondern auf den gesamten Bildungsprozess.[2] Besonders der Klimawandel und die Veränderungen, die er hervorruft, werden immer sichtbarer und werden das Leben in Zukunft immer stärker beeinflussen. Die heranwachsende Generation wird von den Folgen betroffen sein, daher ist es wichtig, dass die S*S die strukturellen Gründe und globalen Zusammenhänge kennen lernen, um zu deren Lösung beitragen zu können. Neben den Auswirkungen auf die Umwelt hat die Globalisierung aber auch einen Einfluss auf das Selbstverständnis der S*S. Die Mobilität nimmt zu und ist mittlerweile schon fast eine Anforderung an jeden einzelnen Menschen geworden. Daher wird in dieser Unterrichtseinheit auch auf den damit verbundenen Zwiespalt eingegangen, den das Weltbürgertum für S*S mit sich bringen kann.

Welche Materialien werden verwendet?

In der Unterrichtseinheit arbeiten die S*S analog und digital. Ein Video erleichtert den Einstieg in das Thema Global Citizenship Education (Material 1). In Gruppen oder individuell lesen die S*S Geschichten (Variante A, Material 9-15) oder Zeitungsartikel (Variante B, Material 16) und diskutieren verschiedenen Perspektiven. Arbeitsblätter dienen der individuellen Reflexion (Material 4&8) oder einer gemeinsamen Ideensammlung (Material 17), ein Glossar (Material 6) gibt den S*S Informationen zu wichtigen Begrifflichkeiten an die Hand. Darüber hinaus kommen verschiedene Aktivitäten wie das „Weltspiel" (Material 2) und, optional in einer möglichen Doppelstunde, ein Rollenspiel, das eine Klimakonferenz simuliert (Material 18-25), zum Einsatz, um die Unterrichtseinheit interaktiv zu gestalten und das Gelernte umzusetzen.

Materialien:

Material 1:	Video – Global Citizenship Education
Material 2:	Aktivität – Das Weltspiel
Material 3:	Lösungen – Weltbevölkerung, Einkommen und CO2-Emissionen

[1] Vgl. Deutsche UNESCO-Kommission: „Hochwertige Bildung: Global Citizenship Education", https://www.unesco.de/bildung/hochwertige-bildung/global-citizenship-education, zuletzt geprüft am 7. Dezember 2022.
[2] Vgl. Grobbauer, Heidi: „Global Citizenship Education: Politische Bildung für die Weltgesellschaft", in: *ZEP Zeitschrift für internationale Bildungsforschung und Entwicklungspädagogik*, 37 (2014) 3, 28–33.

ABLAUFPLAN

Abkürzungen:
EA = Einzelarbeit
GA = Gruppenarbeit
LV = Lehrer*invortrag
SA = Schüler*innenaktivität
SÄ = Schüler*innenäußerungen
SP = Schüler*innenpräsentation
UG = Unterrichtsgespräch
PA = Partner*innenarbeit

Arbeit mit Arbeitsblättern, einem Video, Textquellen, einer Schüler*innenaktivität und einem Rollenspiel

1. STUNDE: WAS IST GLOBAL CITIZENSHIP (EDUCATION)?

Lernziele:

- Die Schüler*innen (S*S) lernen globale Zusammenhänge zu verstehen.
- Die S*S lernen die Konzepte Global Citizen und Global Citizenship Education kennen.

Vorbereitung

- *Die Lehrkraft bereitet das Weltspiel vor, indem sie die Namen der Kontinente jeweils auf ein Blatt Papier ausdruckt (Material 2) und im Unterrichtsraum Platz schafft, um diese Tafeln großzügig auf dem Boden verteilen zu können. Sie liest sich die Spielanleitung durch (Material 2).*
- *Sie hält die Lösungen (Material 3) für sich bereit.*
- *Die Möglichkeit zur Projektion eines Videos (Material 1) ist sichergestellt (Laptop, Beamer).*
- *Die Lehrkraft fertig ausreichende Kopien des Arbeitsblattes (Material 4) an.*
- *Sie liest sich die Hintergrundinformationen zu Global Citizenship Education (Material 5) durch, um den S*S deren Inhalt wiederzugeben.*

Phase	Inhalt	Sozial-form	Medien, Material
Einstieg (7 Min.)	• In dieser Stunde geht es darum, was Global Citizenship (Education) ist und ob Global Citizenship Education einen Beitrag zu globaler Gerechtigkeit leisten kann. • Die Lehrkraft erklärt, dass es in den folgenden Unterrichtsstunden um Global Citizenship Education geht. Als Weltenbürger*innen, sind die S*S jetzt und in Zukunft in ihr eigenes Umfeld (lokal) und die Gesellschaft, in der sie leben (regional) eingebunden und nehmen Einfluss auf Dinge, die die gesamte Welt und die Weltbevölkerung betreffen (global). Die S*S	LV	

Material 1

VIDEO

GLOBAL CITIZENSHIP EDUCATION

Das Video thematisiert kritisch verschiedene Aspekte und Auswirkungen der Globalisierung und erklärt, welche Ziele die Global Citizenship Education hat. Es richtet sich mit letzterem zwar an Entscheidungsträger*innen an Schulen und Lehrkräfte, die Informationen sind aber ebenso für Schüler*innen relevant, da sie dadurch ebenfalls eine Vorstellung von den Zielen der vorliegenden Unterrichtseinheit bekommen.



Link zum Video:
https://www.youtube.com/watch?v=z8twF3u5SzM
Dauer: 3:07 Min.

Quelle:

„Gesellschaft im Wandel – Globalisierung, Weltbürger und die eigene Verantwortung", ocampusthl, in: *YouTube*, 21. Mai 2019, https://www.youtube.com/watch?v=z8twF3u5SzM, zuletzt geprüft am 03. April 2023.

Material 16

ARBEITSBLATT

FOLGEN DES KLIMAWANDELS



Arbeitsauftrag:

Recherchiert selbstständig in der Gruppen Zeitungsartikel zum Thema „Klimawandel".

1. Einigt euch in der Gruppe auf welchen Bereich ihr die anschließende Recherche konzentrieren möchtet. Ihr habt die Auswahl Zeitungsartikel zu den Folgen für…
   a) die Bäuer*innen
   b) den Tourismus
   c) ländliche Gegenden
   d) Städte
   e) die Versorgung der Bevölkerung
   f) die Tierwelt
   g) Ökosysteme oder Landschaften

   … zu suchen.
2. Stimmt euch gemeinsam mit eurer Lehrkraft und den anderen Gruppen ab, sodass keine Gruppe den gleichen Bereich fokussiert wie eine andere.
3. Macht euch Gedanken darüber, in welchem Land ihr Folgen des Klimawandels für den gewählten Bereich vermutet und stimmt euch mit eurer Lehrkraft ab.
4. Recherchiert im Internet einen Zeitungsartikel zu dem Thema und ggf. Hintergrundinformationen zum besseren Verständnis.
5. Beschreibt das Hauptproblem, mit dem ihr euch befasst habt, kurz in eigenen Worten. Erläutert die Ursachen für den Klimawandel in dem ihr sie mit Hilfe eines Pfeildiagramms optisch darstellt. Beachte hierbei auch die Folgen für das Land und die Bevölkerung, die sich daraus ergeben.

Instruments of quality assurance

Expertises

- ✓ academic/professional
- ✓ Didactic
- ✓ biographic

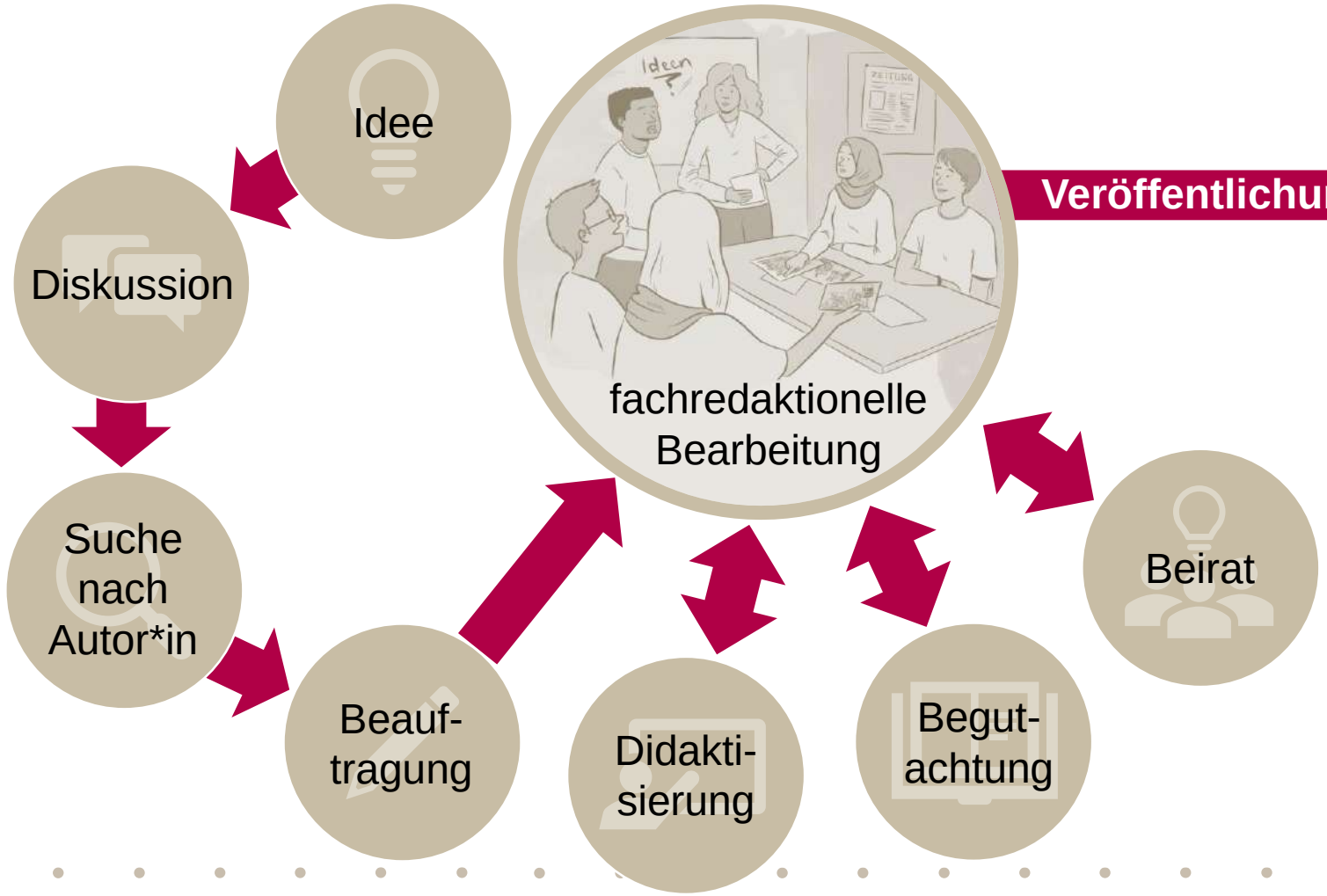
Evaluation

- ✓ editorial counceling (6-eyes-principle)
- ✓ external and internal evaluation
- ✓ Zwischentöne board
- ✓ discusson on conferences

Teacher Trainings

- ✓ introduction of (new) materials
- ✓ discussion of materials in group work
- ✓ Feedback from teachers

WORKFLOW:
Entwicklung von Zwischen*töne*-Unterrichtseinheiten





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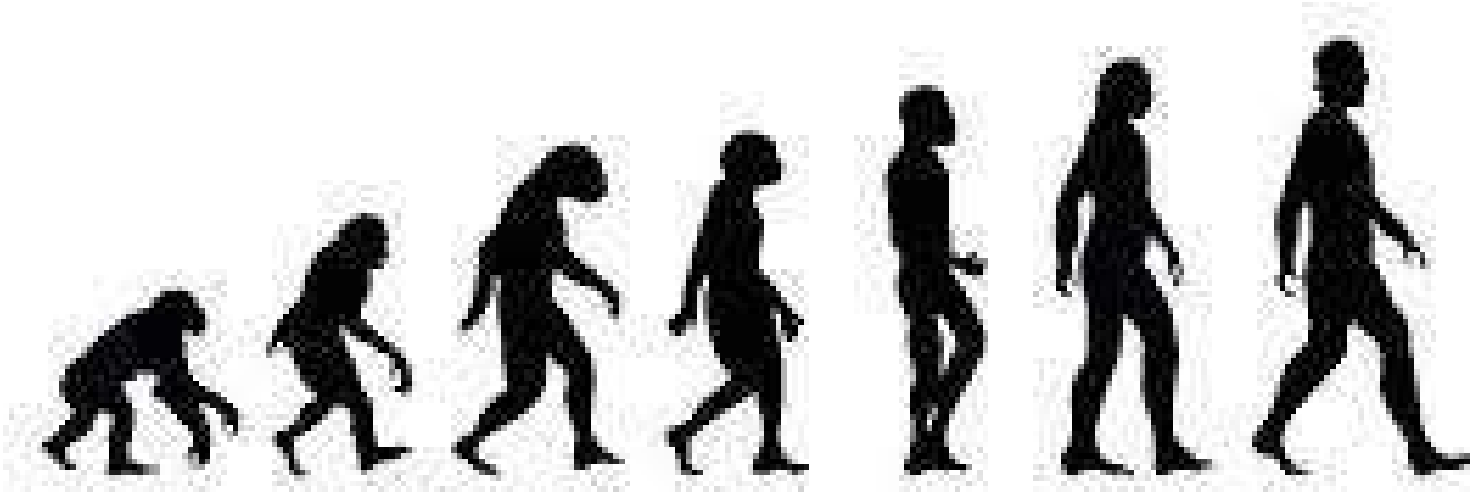
Homo Digitalis





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Homo Digitalis





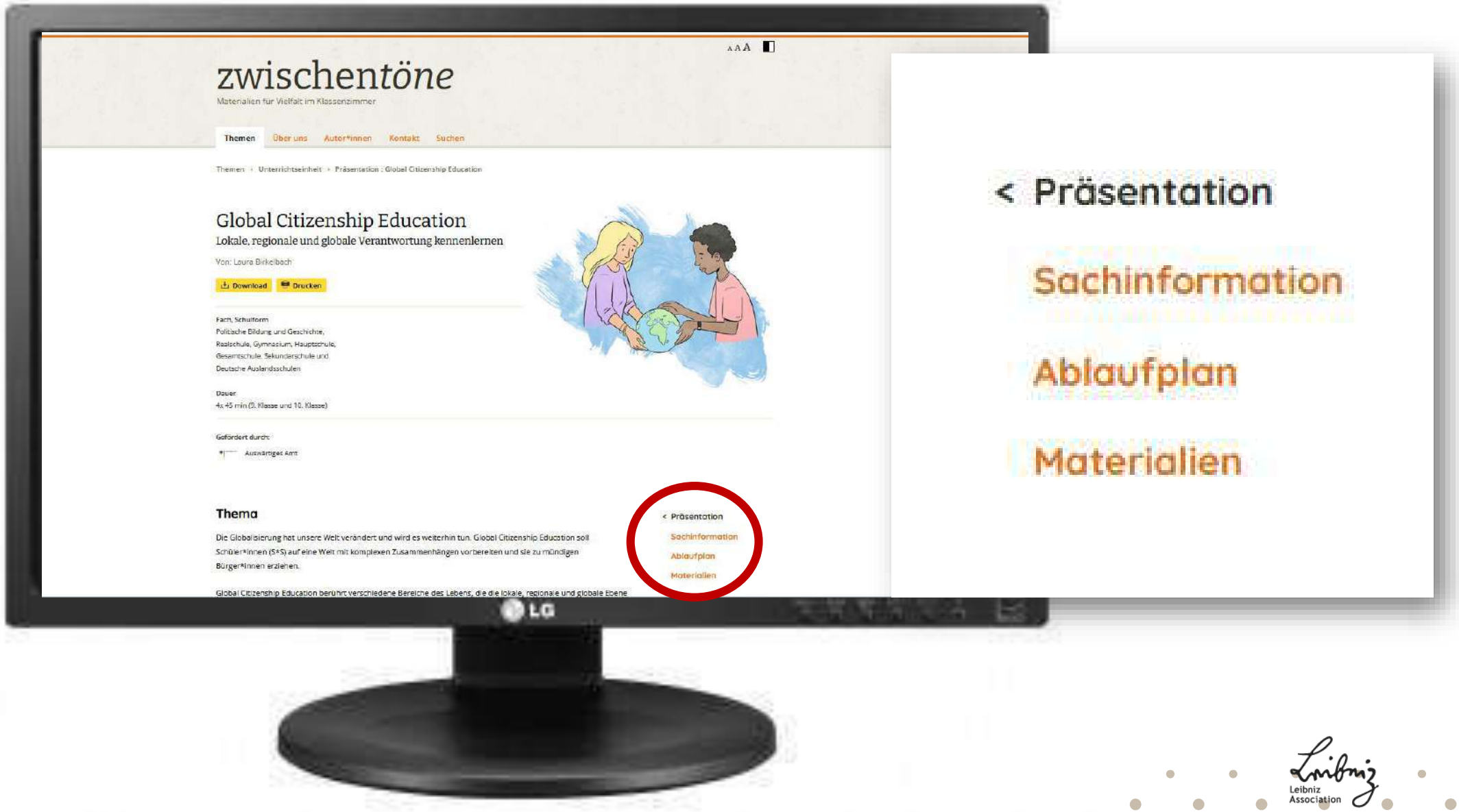
2013

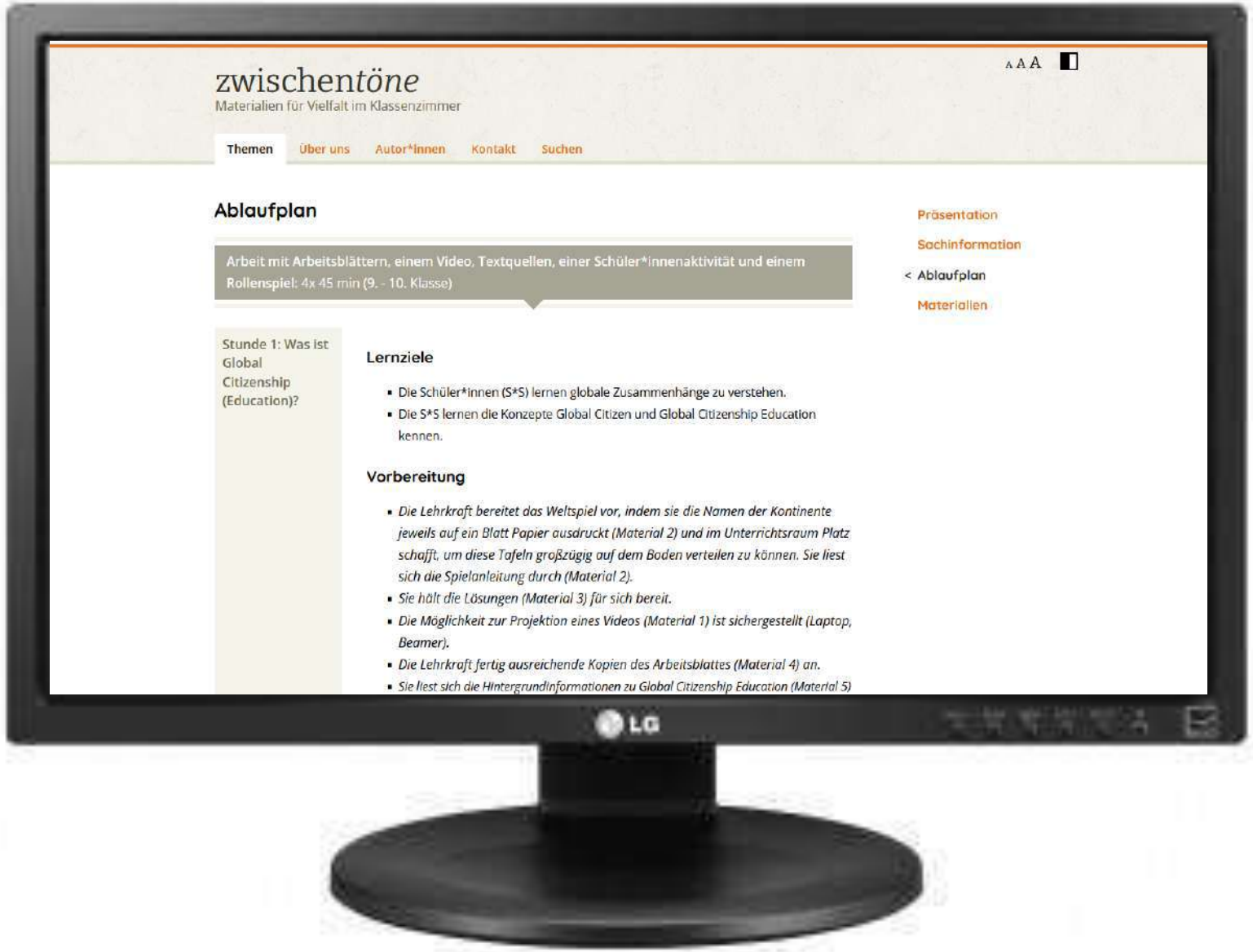
Potentials and challenges

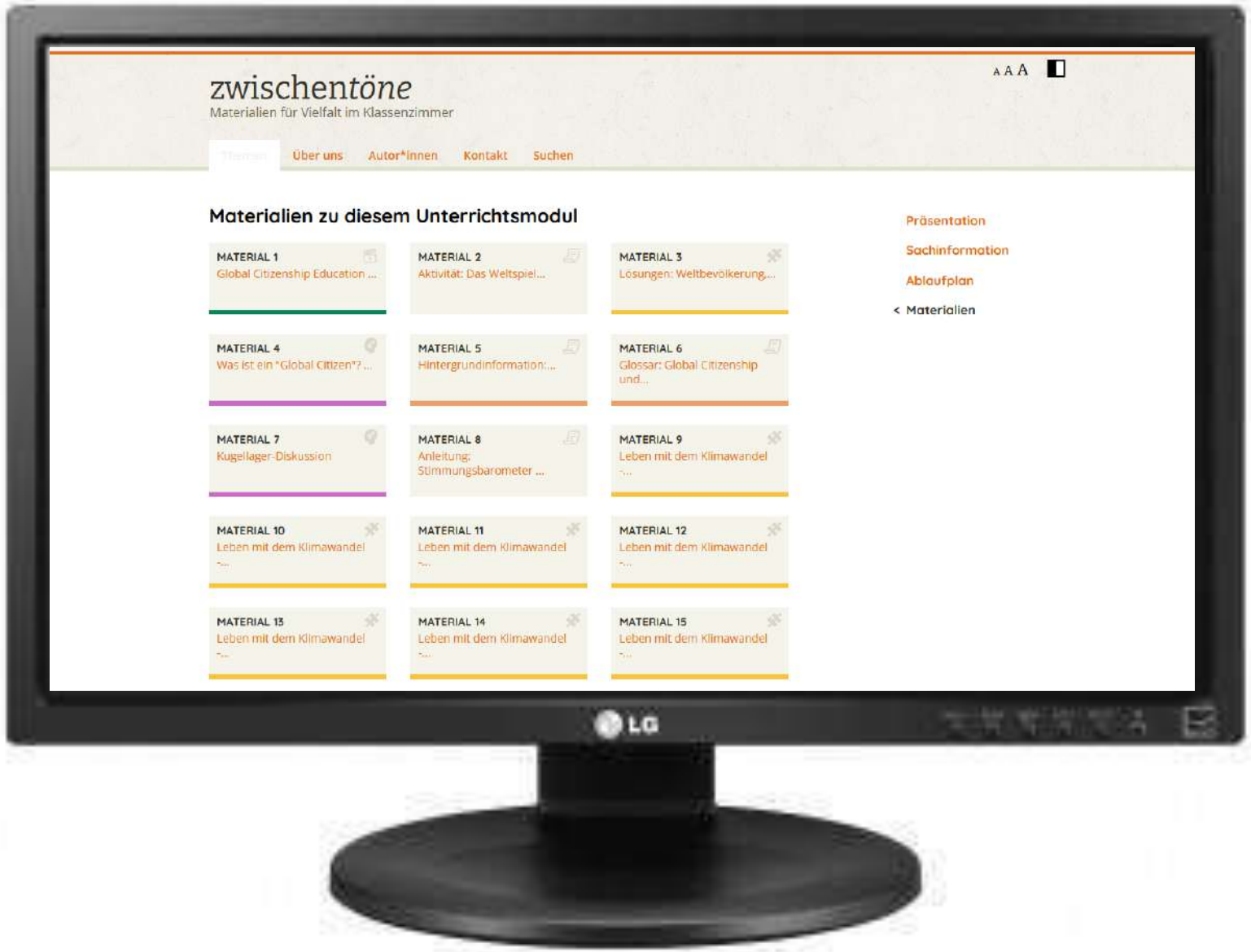


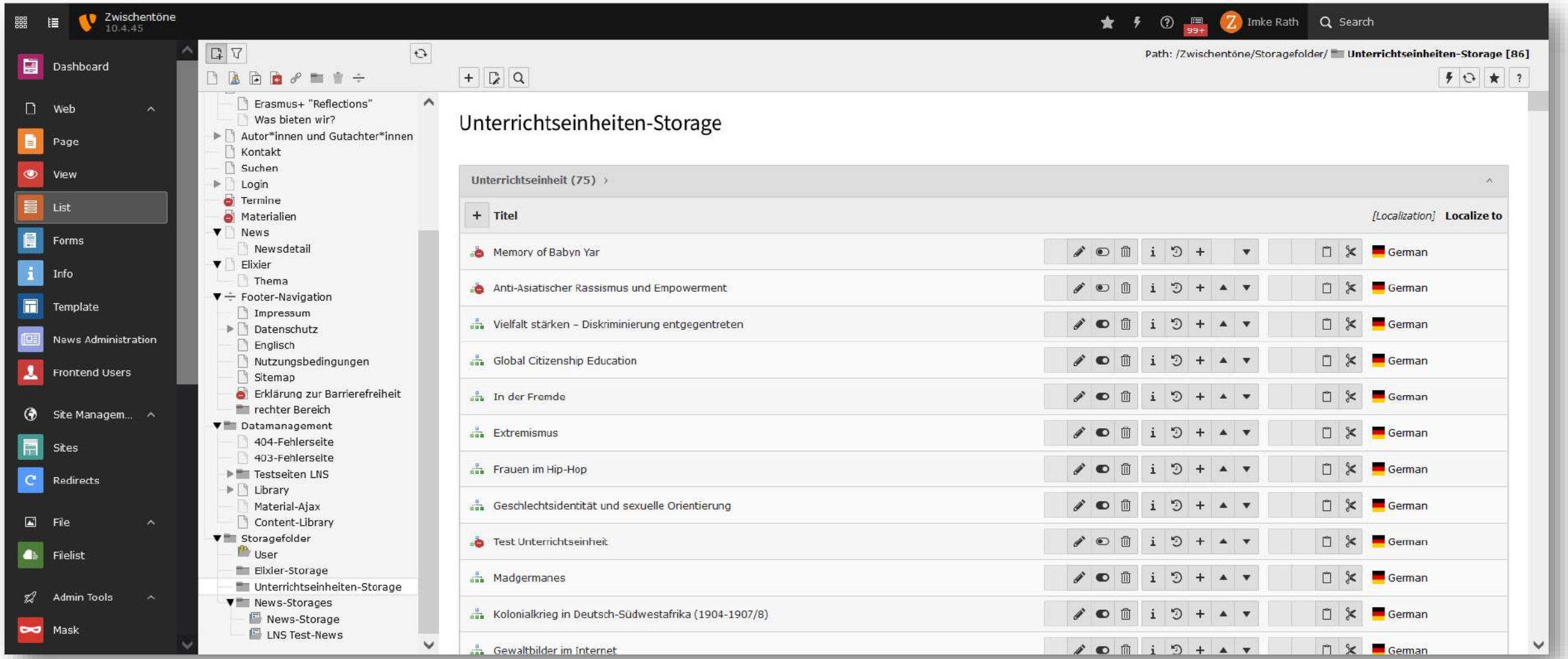


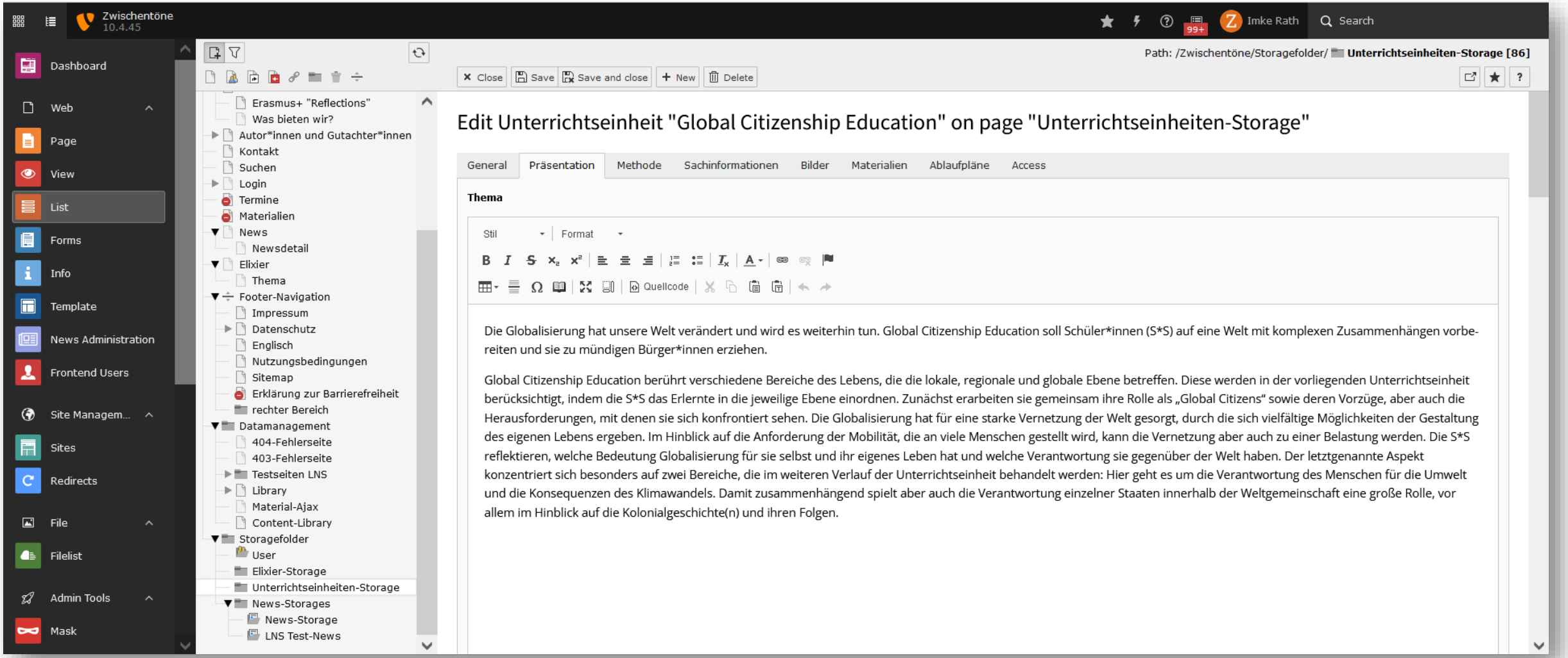

zwischentöne
Materialien für Vielfalt im Klassenzimmer
Themen
Über uns
Autor*innen
Kontakt
Suchen
Identitäten – Wer ist „wir"?
19 UNTERRICHTSMODULE
Deutsch zu sein bedeutet heute etwas anderes als vor 50 Jahren. Die Gesellschaft hat sich verändert – und damit auch das „wir". Aber was heißt das eigentlich für unsere Erinnerung an wichtige Ereignisse der deutschen Geschichte – oder für das Zusammenleben im Alltag? Wer gehört dazu – und wer bestimmt das? In diesen Unterrichtsmodulen geht es um Selbst- und Fremdwahrnehmungen in einer zunehmend pluralistischen Welt, aber auch um Fragen und Konflikte, die sich in einer pluralistischen Gesellschaft ergeben.
Deutsche Geschichte, globale Verflechtungen
13 UNTERRICHTSMODULE
Geschichte endet nicht an den Grenzen des Nationalstaates. Historische Ereignisse - und die Erinnerung an diese Ereignisse - stehen in einem weiteren regionalen und globalen Zusammenhang. In einer Migrationsgesellschaft prägen diese vielfältigen Perspektiven auch die Geschichtserzählungen vor Ort. Diese Unterrichtsmodule fragen nach unterschiedlichen Erfahrungen und Perspektiven und machen diese als Teil der deutschen Geschichte sichtbar.
Religionen & Weltanschauungen: Woran glauben wir?
9 UNTERRICHTSMODULE
„Die" Muslime existieren ebenso wenig wie „die" Christen, „die" Juden oder auch Atheisten. Aber was heißt es dann eigentlich, ein (nicht-)religiöser Mensch zu sein? War dies schon immer so? In diesen Unterrichts- modulen geht es um religiöse und nicht-religiöse Werte und Traditionen, aber vor allem auch um den gesellschaftlichen Wandel und Veränderungen, denen Vorstellungen und Praktiken verschiedener Religionen und Weltanschauungen unterliegen.
LG

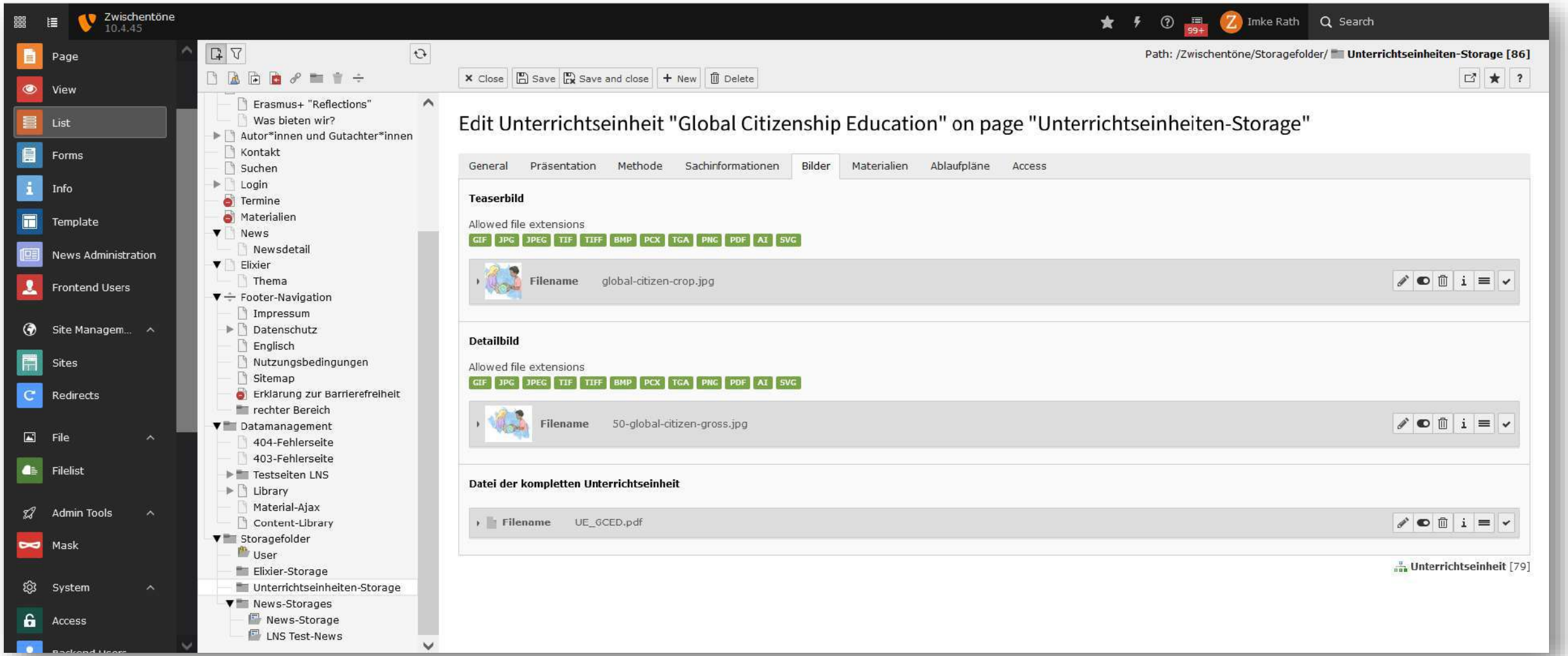

zwischentöne
Materialien für Vielfalt im Klassenzimmer
Themen
Über uns
Autor*innen
Kontakt
Suchen
Themen › Unterrichtseinheit › Präsentation : Global Citizenship Education
Global Citizenship Education
Lokale, regionale und globale Verantwortung kennenlernen
Von: Laura Birkelbach
Download
Drucken
Fach, Schulform
Politische Bildung und Geschichte,
Realschule, Gymnasium, Hauptschule,
Gesamtschule, Sekundarschule und
Deutsche Auslandsschulen
Dauer
4x 45 min (9. Klasse und 10. Klasse)
Gefördert durch:
Auswärtiges Amt
Thema
Die Globalisierung hat unsere Welt verändert und wird es weiterhin tun. Global Citizenship Education soll Schüler*innen (S*S) auf eine Welt mit komplexen Zusammenhängen vorbereiten und sie zu mündigen Bürger*innen erziehen.
Global Citizenship Education berührt verschiedene Bereiche des Lebens, die die lokale, regionale und globale Ebene
< Präsentation
Sachinformation
Ablaufplan
Materialien
LG
< Präsentation
Sachinformation
Ablaufplan
Materialien


zwischentöne
Materialien für Vielfalt im Klassenzimmer
Themen
Über uns
Autor*innen
Kontakt
Suchen
Ablaufplan
Arbeit mit Arbeitsblättern, einem Video, Textquellen, einer Schüler*innenaktivität und einem Rollenspiel: 4x 45 min (9. - 10. Klasse)
Stunde 1: Was ist Global Citizenship (Education)?
Lernziele
Die Schüler*innen (S*S) lernen globale Zusammenhänge zu verstehen.
Die S*S lernen die Konzepte Global Citizen und Global Citizenship Education kennen.
Vorbereitung
Die Lehrkraft bereitet das Weltspiel vor, indem sie die Namen der Kontinente jeweils auf ein Blatt Papier ausdruckt (Material 2) und im Unterrichtsraum Platz schafft, um diese Tafeln großzügig auf dem Boden verteilen zu können. Sie liest sich die Spielanleitung durch (Material 2).
Sie hält die Lösungen (Material 3) für sich bereit.
Die Möglichkeit zur Projektion eines Videos (Material 1) ist sichergestellt (Laptop, Beamer).
Die Lehrkraft fertig ausreichende Kopien des Arbeitsblattes (Material 4) an.
Sie liest sich die Hintergrundinformationen zu Global Citizenship Education (Material 5)
Präsentation
Sachinformation
< Ablaufplan
Materialien
LG

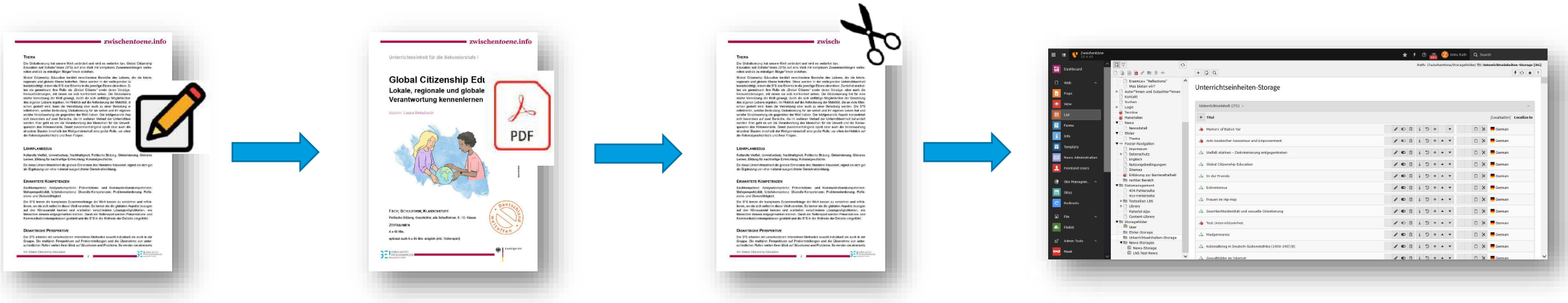

zwischentöne
Materialien für Vielfalt im Klassenzimmer
AAA
Über uns
Autor*innen
Kontakt
Suchen
Materialien zu diesem Unterrichtsmodul
MATERIAL 1
Global Citizenship Education ...
MATERIAL 2
Aktivität: Das Weltspiel...
MATERIAL 3
Lösungen: Weltbevölkerung,...
MATERIAL 4
Was ist ein "Global Citizen"? ...
MATERIAL 5
Hintergrundinformation:...
MATERIAL 6
Glossar: Global Citizenship und...
MATERIAL 7
Kugellager-Diskussion
MATERIAL 8
Anleitung: Stimmungsbarometer ...
MATERIAL 9
Leben mit dem Klimawandel -...
MATERIAL 10
Leben mit dem Klimawandel -...
MATERIAL 11
Leben mit dem Klimawandel -...
MATERIAL 12
Leben mit dem Klimawandel -...
MATERIAL 13
Leben mit dem Klimawandel -...
MATERIAL 14
Leben mit dem Klimawandel -...
MATERIAL 15
Leben mit dem Klimawandel -...
Präsentation
Sachinformation
Ablaufplan
< Materialien
LG

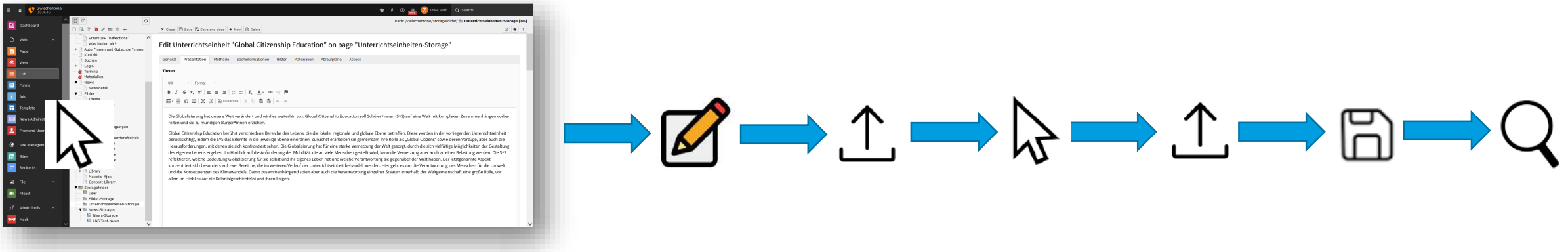

Zwischentöne
10.4.45
Imke Rath
Search
Dashboard
Web
Page
View
List
Forms
Info
Template
News Administration
Frontend Users
Site Managem...
Sites
Redirects
File
Filelist
Admin Tools
Mask
Path: /Zwischentöne/Storagefolder/ Unterrichtseinheiten-Storage [86]
Erasmus+ "Reflections"
Was bieten wir?
Autor*innen und Gutachter*innen
Kontakt
Suchen
Login
Termine
Materialien
News
Newsdetail
Elixier
Thema
Footer-Navigation
Impressum
Datenschutz
Englisch
Nutzungsbedingungen
Sitemap
Erklärung zur Barrierefreiheit
rechter Bereich
Datamanagement
404-Fehlerseite
403-Fehlerseite
Testseiten LNS
Library
Material-Ajax
Content-Library
Storagefolder
User
Elixier-Storage
Unterrichtseinheiten-Storage
News-Storages
News-Storage
LNS Test-News
Unterrichtseinheiten-Storage
Unterrichtseinheit (75)
Titel
[Localization] Localize to
Memory of Babyn Yar
Anti-Asiatischer Rassismus und Empowerment
Vielfalt stärken – Diskriminierung entgegentreten
Global Citizenship Education
In der Fremde
Extremismus
Frauen im Hip-Hop
Geschlechtsidentität und sexuelle Orientierung
Test Unterrichtseinheit
Madgermanes
Kolonialkrieg in Deutsch-Südwestafrika (1904-1907/8)
Gewaltbilder im Internet
German


Zwischentöne
10.4.45
Imke Rath
Search
Dashboard
Web
Page
View
List
Forms
Info
Template
News Administration
Frontend Users
Site Managem...
Sites
Redirects
File
Filelist
Admin Tools
Mask
Path: /Zwischentöne/Storagefolder/ Unterrichtseinheiten-Storage [86]
Close
Save
Save and close
New
Delete
Erasmus+ "Reflections"
Was bieten wir?
Autor*innen und Gutachter*innen
Kontakt
Suchen
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News
Newsdetail
Elixier
Thema
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Testseiten LNS
Library
Material-Ajax
Content-Library
Storagefolder
User
Elixier-Storage
Unterrichtseinheiten-Storage
News-Storages
News-Storage
LNS Test-News
Edit Unterrichtseinheit "Global Citizenship Education" on page "Unterrichtseinheiten-Storage"
General
Präsentation
Methode
Sachinformationen
Bilder
Materialien
Ablaufpläne
Access
Thema
Stil
Format
Quellcode
Die Globalisierung hat unsere Welt verändert und wird es weiterhin tun. Global Citizenship Education soll Schüler*innen (S*S) auf eine Welt mit komplexen Zusammenhängen vorbereiten und sie zu mündigen Bürger*innen erziehen.
Global Citizenship Education berührt verschiedene Bereiche des Lebens, die die lokale, regionale und globale Ebene betreffen. Diese werden in der vorliegenden Unterrichtseinheit berücksichtigt, indem die S*S das Erlernte in die jeweilige Ebene einordnen. Zunächst erarbeiten sie gemeinsam ihre Rolle als „Global Citizens" sowie deren Vorzüge, aber auch die Herausforderungen, mit denen sie sich konfrontiert sehen. Die Globalisierung hat für eine starke Vernetzung der Welt gesorgt, durch die sich vielfältige Möglichkeiten der Gestaltung des eigenen Lebens ergeben. Im Hinblick auf die Anforderung der Mobilität, die an viele Menschen gestellt wird, kann die Vernetzung aber auch zu einer Belastung werden. Die S*S reflektieren, welche Bedeutung Globalisierung für sie selbst und ihr eigenes Leben hat und welche Verantwortung sie gegenüber der Welt haben. Der letztgenannte Aspekt konzentriert sich besonders auf zwei Bereiche, die im weiteren Verlauf der Unterrichtseinheit behandelt werden: Hier geht es um die Verantwortung des Menschen für die Umwelt und die Konsequenzen des Klimawandels. Damit zusammenhängend spielt aber auch die Verantwortung einzelner Staaten innerhalb der Weltgemeinschaft eine große Rolle, vor allem im Hinblick auf die Kolonialgeschichte(n) und ihren Folgen.


Zwischentöne
10.4.45
Imke Rath
Search
Page
View
List
Forms
Info
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News Administration
Frontend Users
Site Managem...
Sites
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Filelist
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Sachinformationen
Bilder
Materialien
Ablaufpläne
Access
Teaserbild
Allowed file extensions
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Filename global-citizen-crop.jpg
Detailbild
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GIF JPG JPEG TIF TIFF BMP PCX TGA PNG PDF AI SVG
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Datei der kompletten Unterrichtseinheit
Filename UE_GCED.pdf
Unterrichtseinheit [79]

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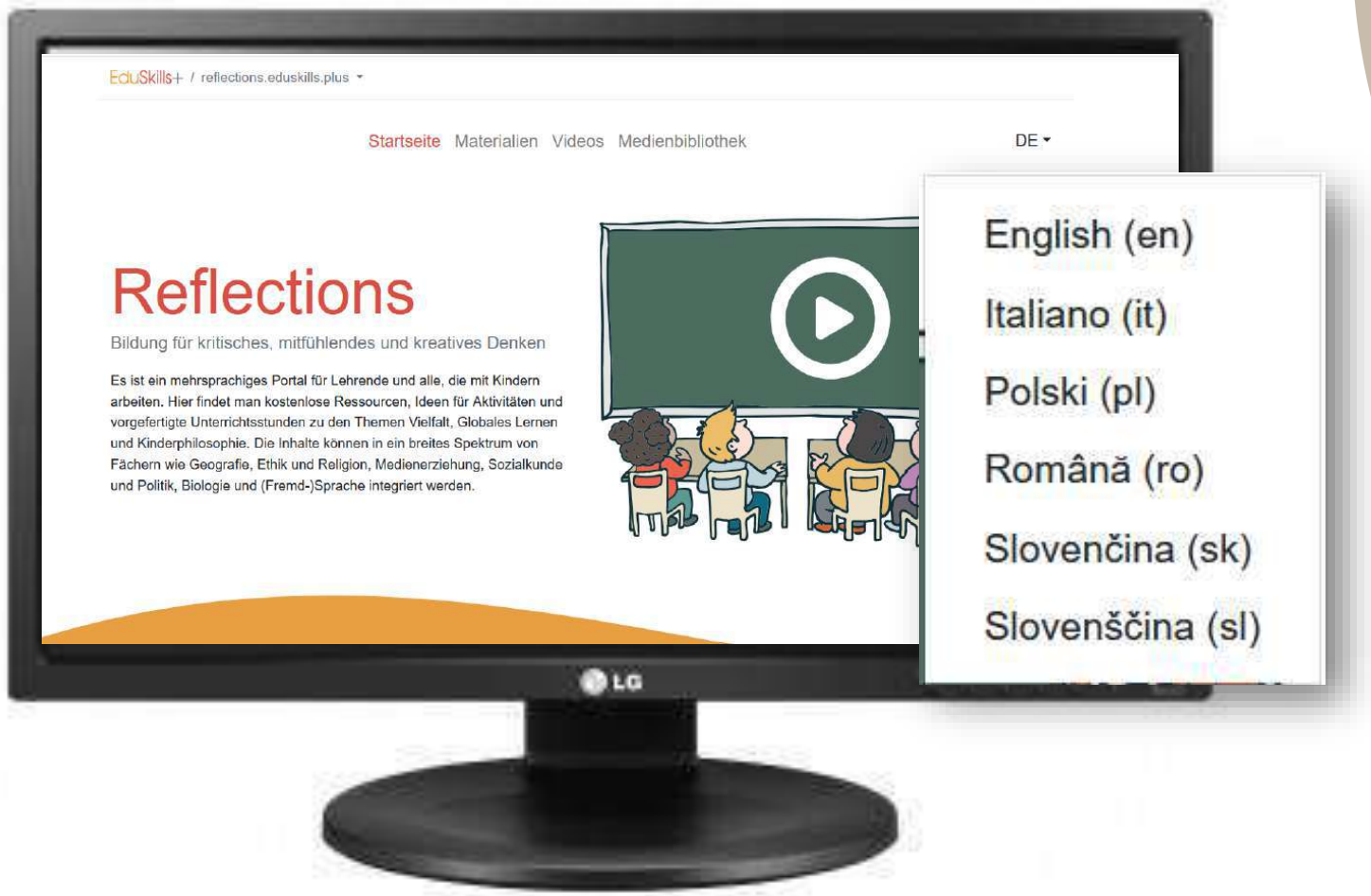




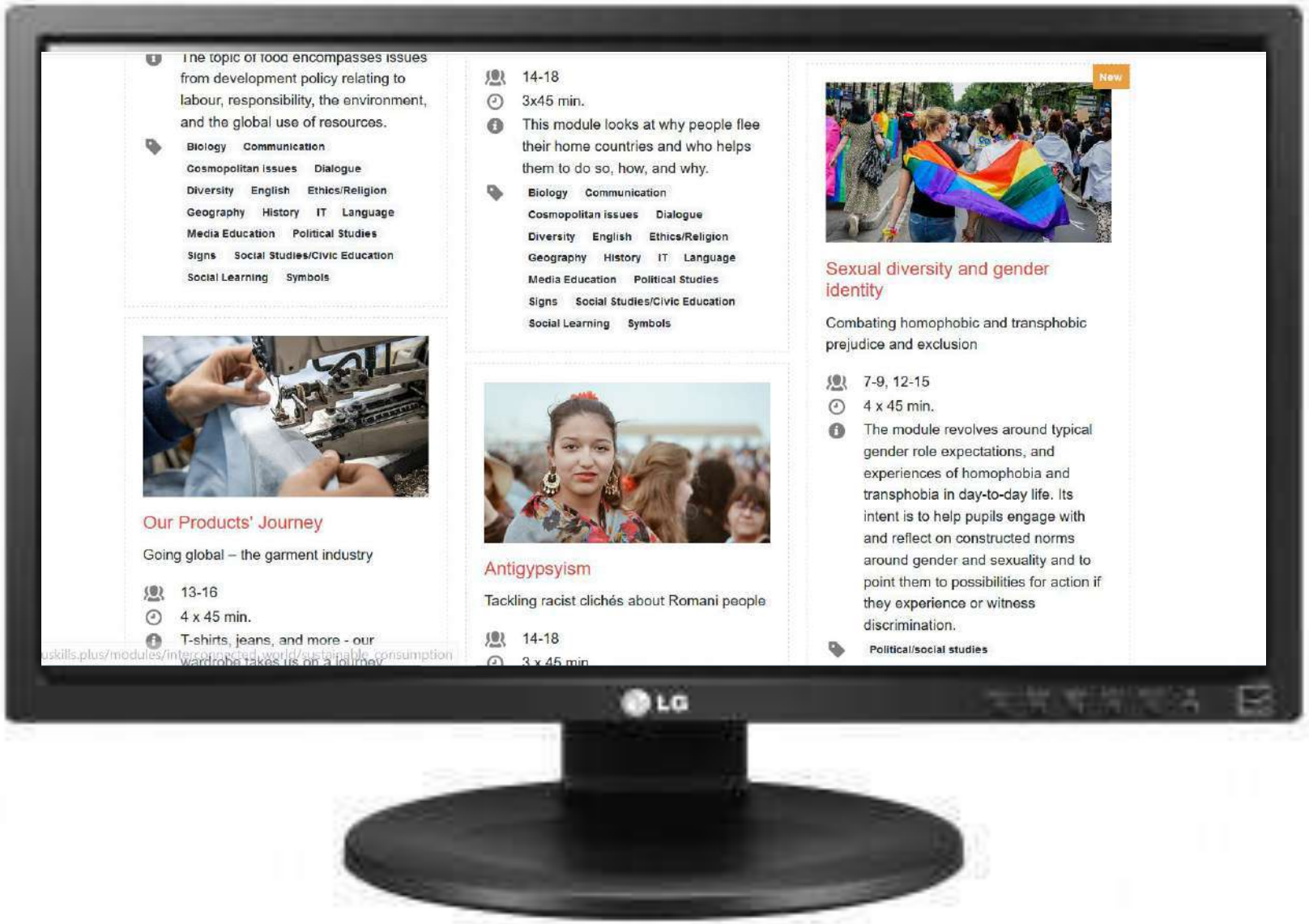


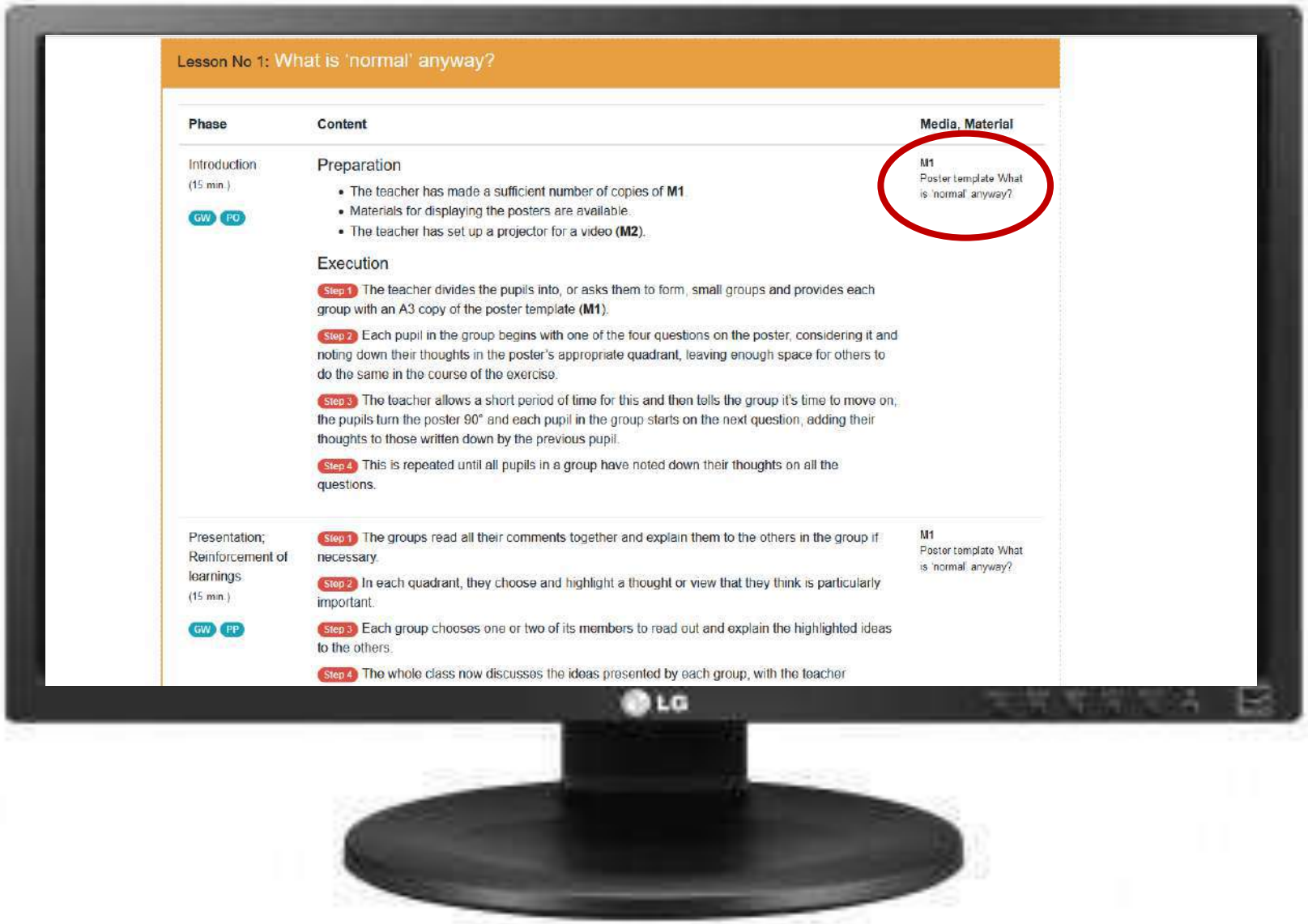
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Reflections



Kofinanziert von der Europäischen Union


The topic of food encompasses issues from development policy relating to labour, responsibility, the environment, and the global use of resources.
Biology Communication Cosmopolitan issues Dialogue Diversity English Ethics/Religion Geography History IT Language Media Education Political Studies Signs Social Studies/Civic Education Social Learning Symbols
Our Products' Journey
Going global – the garment industry
13-16
4 x 45 min.
T-shirts, jeans, and more - our wardrobe takes us on a journey
14-18
3x45 min.
This module looks at why people flee their home countries and who helps them to do so, how, and why.
Biology Communication Cosmopolitan issues Dialogue Diversity English Ethics/Religion Geography History IT Language Media Education Political Studies Signs Social Studies/Civic Education Social Learning Symbols
Antigypsyism
Tackling racist clichés about Romani people
14-18
New
Sexual diversity and gender identity
Combating homophobic and transphobic prejudice and exclusion
7-9, 12-15
4 x 45 min.
The module revolves around typical gender role expectations, and experiences of homophobia and transphobia in day-to-day life. Its intent is to help pupils engage with and reflect on constructed norms around gender and sexuality and to point them to possibilities for action if they experience or witness discrimination.
Political/social studies
LG



Lesson No 1: What is 'normal' anyway?

Phase	Content	Media, Material
Introduction (15 min.) GW PO	**Preparation** • The teacher has made a sufficient number of copies of **M1**. • Materials for displaying the posters are available. • The teacher has set up a projector for a video (**M2**). **Execution** Step 1 The teacher divides the pupils into, or asks them to form, small groups and provides each group with an A3 copy of the poster template (**M1**). Step 2 Each pupil in the group begins with one of the four questions on the poster, considering it and noting down their thoughts in the poster's appropriate quadrant, leaving enough space for others to do the same in the course of the exercise. Step 3 The teacher allows a short period of time for this and then tells the group it's time to move on, the pupils turn the poster 90° and each pupil in the group starts on the next question, adding their thoughts to those written down by the previous pupil. Step 4 This is repeated until all pupils in a group have noted down their thoughts on all the questions.	M1 Poster template What is 'normal' anyway?
Presentation; Reinforcement of learnings (15 min.) GW PP	Step 1 The groups read all their comments together and explain them to the others in the group if necessary. Step 2 In each quadrant, they choose and highlight a thought or view that they think is particularly important. Step 3 Each group chooses one or two of its members to read out and explain the highlighted ideas to the others. Step 4 The whole class now discusses the ideas presented by each group, with the teacher	M1 Poster template What is 'normal' anyway?

Translation system

ImkeRath | log out

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English

Languages | Translators

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de - Deutsch	100%	Translate
en - English	100%	Translate

Other languages 6

eo - Esperanto	0.011%	Ask permission
it - Italiano	99.93%	Ask permission

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September 10, 2024
emmav
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November 20, 2023
Momo
Slovenščina → translated 79 words

November 8, 2023
Palko907
Slovenčina → translated 79 words
Palko907
Slovenčina → edited 3 strings

October 25, 2023
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Deutsch / / modules / homophobia / intro /

#title - English -

translated

Sexual diversity and gender identity

- Admin - January 16, 2023, 12:48 PM

Sexuelle Vielfalt und Geschlechtsidentität

- ImkeRath - March 27, 2023, 10:53 AM

#subtitle - English -

translated

Combating homophobic and transphobic prejudice and exclusion

- Admin - January 16, 2023, 12:48 PM

Gegen homo- und transphobe Vorurteile und Ausgrenzung

- ImkeRath - March 27, 2023, 10:53 AM

#description - English -

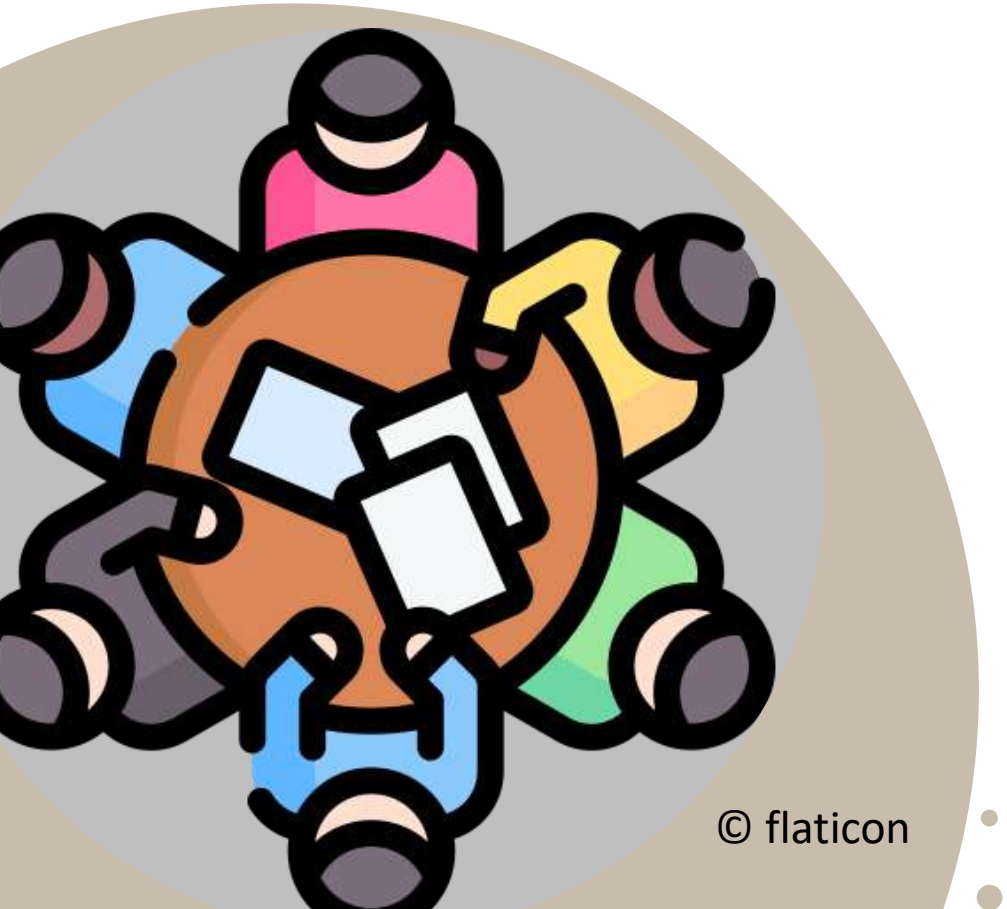
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The module revolves around typical gender role expectations, and experiences of homophobia and transphobia in day-to-day life. Its intent is to help pupils engage with and reflect on constructed norms around gender and sexuality and to point them to possibilities for action if they experience or witness discrimination.

- Admin - January 16, 2023, 12:48 PM

In diesem Modul geht es um geschlechtertypische Rollenerwartungen, homo- und transphobe Alltagserfahrungen und ihre Folgen für die Betroffenen. Ziel sind zum einen die Auseinandersetzung mit und die Reflexion von Normkonstruktionen rund um Geschlechtervorstellungen und Sexualität, zum anderen das Ableiten von Handlungsoptionen bei Diskriminierungen.

And now I need your help





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Leibniz Association

Unterrichtseinheit für die Sekundarstufe I

Global Citizenship Education

Lokale, regionale und globale Verantwortung kennenlernen

Autorin: Laura Birkelbach



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Fach; Schulform; Klassenstufe

Politische Bildung, Geschichte; alle Schulformen; 9.-10. Klasse

Zeitrahmen

4 x 45 Min.

optional auch 6 x 45 Min. möglich (inkl. Rollenspiel)

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Auswärtiges Amt

THEMA

Die Globalisierung hat unsere Welt verändert und wird es weiterhin tun. Global Citizenship Education soll Schüler*innen (S*S) auf eine Welt mit komplexen Zusammenhängen vorbereiten und sie zu mündigen Bürger*innen erziehen.

Global Citizenship Education berührt verschiedene Bereiche des Lebens, die die lokale, regionale und globale Ebene betreffen. Diese werden in der vorliegenden Unterrichtseinheit berücksichtigt, indem die S*S das Erlernte in die jeweilige Ebene einordnen. Zunächst erarbeiten sie gemeinsam ihre Rolle als „Global Citizens“ sowie deren Vorzüge, aber auch die Herausforderungen, mit denen sie sich konfrontiert sehen. Die Globalisierung hat für eine starke Vernetzung der Welt gesorgt, durch die sich vielfältige Möglichkeiten der Gestaltung des eigenen Lebens ergeben. Im Hinblick auf die Anforderung der Mobilität, die an viele Menschen gestellt wird, kann die Vernetzung aber auch zu einer Belastung werden. Die S*S reflektieren, welche Bedeutung Globalisierung für sie selbst und ihr eigenes Leben hat und welche Verantwortung sie gegenüber der Welt haben. Der letztgenannte Aspekt konzentriert sich besonders auf zwei Bereiche, die im weiteren Verlauf der Unterrichtseinheit behandelt werden: Hier geht es um die Verantwortung des Menschen für die Umwelt und die Konsequenzen des Klimawandels. Damit zusammenhängend spielt aber auch die Verantwortung einzelner Staaten innerhalb der Weltgemeinschaft eine große Rolle, vor allem im Hinblick auf die Kolonialgeschichte(n) und ihren Folgen.

LEHRPLANBEZUG

Kulturelle Vielfalt, Umweltschutz, Nachhaltigkeit, Politische Bildung, Globalisierung, Globales Lernen, Bildung für nachhaltige Entwicklung; Kolonialgeschichte.

Da diese Unterrichtseinheit die globale Dimension des Handelns fokussiert, eignet sie sich gut als Ergänzung von eher national ausgerichteter Demokratiebildung.

ERWARTETE KOMPETENZEN

Sachkompetenz; Analysekompetenz; Präsentations- und Kommunikationskompetenzen; Mehrperspektivität; Urteilskompetenz; Diversity-Kompetenzen; Problemorientierung; Reflexions- und Diskursfähigkeit.

Die S*S lernen die komplexen Zusammenhänge der Welt besser zu verstehen und reflektieren, wo sie sich selbst in dieser Welt verorten. So lernen sie die globalen Aspekte bezogen auf den Klimawandel kennen und erarbeiten verschiedene Lösungsmöglichkeiten, wie Menschen diesem entgegenwirken können. Durch ein Rollenspiel werden Präsentations- und Kommunikationskompetenzen gestärkt und die S*S in die Methode der Debatte eingeführt.

DIDAKTISCHE PERSPEKTIVE

Die S*S arbeiten mit verschiedenen interaktiven Methoden sowohl individuell als auch in der Gruppe. Die multiplen Perspektiven auf Problemstellungen und die Übernahme von unterschiedlichen Rollen weiten ihren Blick auf Situationen und Probleme. So werden sie einerseits

dazu angeregt, selbstreflexiv auf sich, die eigene Verortung in der Welt und die Verantwortung ihr gegenüber zu schauen. Die S*S lernen aber auch, dass es im Zusammenhang mit globalen Herausforderungen immer viele andere Perspektiven gibt, die genauso facettenreich wie die eigene sind und die es in Problemlösungsstrategien zu berücksichtigen gilt. Zwischen der individuellen und der politischen Ebene ist stets zu differenzieren. Durch ein Rollenspiel werden Präsentations- und Kommunikationskompetenzen gestärkt. Darüber hinaus dienen digitale Hilfsmittel zur Veranschaulichung der Thematik.

Fragen, mit denen sich die Global Citizenship Education befasst, beziehen sich sowohl auf die lokale als auch auf die regionale und globale Ebene, daher bilden diese den Referenzrahmen für den Inhalt der einzelnen Unterrichtsstunden. Die eigene Verortung in der Welt und die Übernahme von Verantwortung vollzieht sich eher auf der lokalen und regionalen Ebene. Die globalen Aspekte betreffen die Mobilitätsanforderung sowie die Auswirkungen des Klimawandels, der uns alle als Weltbürger*innen betrifft. In Bezug auf den Klimawandel erarbeiten die S*S verschiedene Lösungsmöglichkeiten, wie Menschen diesem entgegenwirken können, und vollziehen damit wieder einen Rückbezug zur lokalen und regionalen Ebene. Das Rollenspiel in der letzten Stunde befasst sich aus einer nationalstaatlichen Perspektive mit der globalen Ebene.

Die Unterrichtseinheit ist in seinem Umfang flexibel erweiterbar. In der vorliegenden Variante sind entweder vier oder sechs Unterrichtsstunden geplant. An verschiedenen Stellen gibt es aber Hinweise darauf, welche Aspekte noch intensiver bearbeitet werden können, wenn mehr Zeit zur Verfügung steht. Zum Einstieg eröffnet das „Weltspiel“ den S*S einen Blick auf ungleiche Bevölkerungs- und Einkommensverteilung sowie Verantwortung für die starke Belastung der Umwelt. Anschließend lernen sie sich selbst als „Global Citizens“ zu verstehen und lernen, wie ihre Umgebung von Mobilität geprägt ist. Dies spielt sowohl in Deutschland – vor allem in Bezug auf Einwanderung – eine Rolle als auch in deutschen Auslandsschulen, die eine sehr mobile Schüler*innenschaft aufweisen. Mit Hilfe der Kugellager-Methode befassen sich die S*S mit der Frage, was „zu Hause“ und „Heimat“ für sie bedeutet und wo sie sich zu Hause fühlen. Dies verdeutlicht ihnen, wie sie ihre eigene Identität konstruieren.

In der dritten, vierten, fünften und sechsten Stunde geht es vor allem um den Klimawandel. Die S*S werden mit einem Glossar mit den wichtigsten Begrifflichkeiten ausgestattet. Zur Diskussion des Klimawandels mit regionalen Schwerpunkten stehen zwei Varianten zur Verfügung. Variante A ist für S*S gedacht, die zum Beispiel aufgrund von begrenzten Sprachkenntnissen vorzugsweise mit leichteren Texten arbeiten. In Variante B recherchieren die S*S eigenständig Zeitungsartikel zu dem Thema. Es lassen sich auch parallel beide Varianten in einer Lerngruppe bearbeiten, da die Ergebnisse der Gruppenarbeit in einer vergleichbaren Art dargestellt werden. Es besteht die Möglichkeit, in einer anschließenden Doppelstunde mit der gesamten Klasse eine Klimakonferenz zu simulieren. In dieser nähern sich die S*S dem Thema durch Überlegungen zur politischen Verantwortung und finanziellen Beiträgen einzelner Länder auf der Ebene von Nationalstaaten, die in der Weltgemeinschaft agieren, an. Die vertretenen Länder haben fiktive Namen, da hier kein existierender Staat denunziert werden soll. Sie sind aber inspiriert von realen Gegebenheiten, so wie sie zu einem bestimmten Zeitpunkt in der jüngeren Vergangenheit vorherrschten.

Die Schwerpunktsetzung der gesamten Unterrichtseinheit zu Global Citizenship Education wurde durch Interviews angeregt, die mit Lehrer*innen an einer Deutschen Auslandsschule über ihr Verständnis von Global Citizenship Education geführt wurden. Darin wurde einerseits

der Bedarf an Unterrichtsmaterialien zu dem Thema eruiert, andererseits wiesen die Interviewpartner*innen auf die Bereiche der Global Citizenship Education hin, die für sie in ihrem Arbeitsumfeld besonders wichtig sind.

SACHINFORMATION

Worum geht es?

In einer sich durch Globalisierung und Digitalisierung schnell verändernden Welt ist es wichtig, dass S*S zu mündigen Bürger*innen heranwachsen, die selbstbestimmt Entscheidungen treffen, deren Konsequenzen sie abschätzen können. Global Citizenship Education (GCED) greift diesen Zugang auf, indem sie als politische Bildung Wissen und Fähigkeiten zum Verständnis und zur Begegnung globaler Herausforderungen vermittelt. Grundlage hierfür ist ein zu entwickelndes Zugehörigkeitsgefühl zur Weltgemeinschaft. Die GCED zielt darauf ab, dass sich Weltbüger*innen engagieren und aktiv einen Beitrag zu einer gerechten, friedlichen Welt leisten, in der schonend mit ihren ökologischen Ressourcen umgegangen wird.[1]

Dabei bezieht sich dieser Ansatz nicht nur auf Teilbereiche der Bildung, sondern auf den gesamten Bildungsprozess.[2] Besonders der Klimawandel und die Veränderungen, die er hervorruft, werden immer sichtbarer und werden das Leben in Zukunft immer stärker beeinflussen. Die heranwachsende Generation wird von den Folgen betroffen sein, daher ist es wichtig, dass die S*S die strukturellen Gründe und globalen Zusammenhänge kennen lernen, um zu deren Lösung beitragen zu können. Neben den Auswirkungen auf die Umwelt hat die Globalisierung aber auch einen Einfluss auf das Selbstverständnis der S*S. Die Mobilität nimmt zu und ist mittlerweile schon fast eine Anforderung an jeden einzelnen Menschen geworden. Daher wird in dieser Unterrichtseinheit auch auf den damit verbundenen Zwiespalt eingegangen, den das Weltbürgertum für S*S mit sich bringen kann.

Welche Materialien werden verwendet?

In der Unterrichtseinheit arbeiten die S*S analog und digital. Ein Video erleichtert den Einstieg in das Thema Global Citizenship Education (Material 1). In Gruppen oder individuell lesen die S*S Geschichten (Variante A, Material 9-15) oder Zeitungsartikel (Variante B, Material 16) und diskutieren verschiedenen Perspektiven. Arbeitsblätter dienen der individuellen Reflexion (Material 4&8) oder einer gemeinsamen Ideensammlung (Material 17), ein Glossar (Material 6) gibt den S*S Informationen zu wichtigen Begrifflichkeiten an die Hand. Darüber hinaus kommen verschiedene Aktivitäten wie das „Weltspiel“ (Material 2) und, optional in einer möglichen Doppelstunde, ein Rollenspiel, das eine Klimakonferenz simuliert (Material 18-25), zum Einsatz, um die Unterrichtseinheit interaktiv zu gestalten und das Gelernte umzusetzen.

Materialien:

Material 1: Video – Global Citizenship Education

Material 2: Aktivität – Das Weltspiel

Material 3: Lösungen – Weltbevölkerung, Einkommen und CO2-Emissionen

[1] Vgl. Deutsche UNESCO-Kommission: „Hochwertige Bildung: Global Citizenship Education“, https://www.unesco.de/bildung/hochwertige-bildung/global-citizenship-education, zuletzt geprüft am 7. Dezember 2022.
[2] Vgl. Grobbauer, Heidi. „Global Citizenship Education: Politische Bildung für die Weltgesellschaft“, in: *ZEP Zeitschrift für internationale Bildungsforschung und Entwicklungspädagogik*, 37 (2014) 3, 28–33.

Material 4: Arbeitsblatt – Was ist ein „Global Citizen“?

Material 5: Hintergrundinformation – Definition Global Citizen

Material 6: Glossar – Global Citizenship und Klima

Material 7: Arbeitsblatt – Kugellager-Diskussion

Material 8: Anleitung – Stimmungsbarometer

Material 9: Textquelle – Leben mit dem Klimawandel: Ghana

Material 10: Textquelle – Leben mit dem Klimawandel: Tuvalu

Material 11: Textquelle – Leben mit dem Klimawandel: Niederlande

Material 12: Textquelle – Leben mit dem Klimawandel: Bangladesch

Material 13: Textquelle – Leben mit dem Klimawandel: Alaska

Material 14: Textquelle – Leben mit dem Klimawandel: Deutschland

Material 15: Textquelle – Leben mit dem Klimawandel: Italien

Material 16: Arbeitsblatt – Folgen des Klimawandels

Material 17: Arbeitsblatt – Handlungsmöglichkeiten

Material 18: Hintergrundinformation – Meilensteine der Klimapolitik

Material 19: Anleitung – Klimakonferenz

Material 20: Rollenkarte – Teilnehmer*innen an der Klimakonferenz – Vertreter*in des Weltklimarates/Moderator*in

Material 21: Rollenkarte – Teilnehmer*innen an der Klimakonferenz – Vertreter*in von Aetanien/Inselstaat

Material 22: Rollenkarte – Teilnehmer*innen an der Klimakonferenz – Vertreter*in von Keltanenland/Charitische Union (CU)

Material 23: Rollenkarte – Teilnehmer*innen an der Klimakonferenz – Vertreter*in der Vereinigten Staaten von Sipacheyenne (VSS)

Material 24: Rollenkarte – Teilnehmer*innen an der Klimakonferenz – Vertreter*in von Ukrasien

Material 25: Rollenkarte – Teilnehmer*innen an der Klimakonferenz – Vertreter*in von Midiabien

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Grobbauer, Heidi. „Global Citizenship Education als transformative Bildung“, in: *ZEP Zeitschrift für internationale Bildungsforschung und Entwicklungspädagogik* 39, 1 (2016), 18–22.

Grobbauer, Heidi und Werner Wintersteiner (Hg.). *Global Citizenship Education in der Praxis: Erfahrungen, Erfolge, Beispiele aus Österreich*, Österreichische UNESCO-Kommission, 2018.

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FEEDBACK

Es freut uns, dass Sie sich für dieses Unterrichtseinheit interessieren. Um die Qualität unseres Angebots laufend verbessern zu können, sind wir auch auf Ihr Feedback angewiesen. Schreiben Sie uns gern, wenn Sie positive oder negative Kritik äußern möchten. Auch Hinweise und Anregungen für neue Themen und Ideen für neue Unterrichtskonzepte nehmen wir dankbar entgegen.

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ABLAUFPLAN

Abkürzungen:
EA = Einzelarbeit
GA = Gruppenarbeit
LV = Lehrer*invortrag
SA = Schüler*innenaktivität
SÄ = Schüler*innenäußerungen
SP = Schüler*innenpräsentation
UG = Unterrichtsgespräch
PA = Partner*innenarbeit

Arbeit mit Arbeitsblättern, einem Video, Textquellen, einer Schüler*innenaktivität und einem Rollenspiel

1. STUNDE: WAS IST GLOBAL CITIZENSHIP (EDUCATION)?

Lernziele:

- Die Schüler*innen (S*S) lernen globale Zusammenhänge zu verstehen.
- Die S*S lernen die Konzepte Global Citizen und Global Citizenship Education kennen.

Vorbereitung

- *Die Lehrkraft bereitet das Weltspiel vor, indem sie die Namen der Kontinente jeweils auf ein Blatt Papier ausdruckt (Material 2) und im Unterrichtsraum Platz schafft, um diese Tafeln großzügig auf dem Boden verteilen zu können. Sie liest sich die Spielanleitung durch (Material 2).*
- *Sie hält die Lösungen (Material 3) für sich bereit.*
- *Die Möglichkeit zur Projektion eines Videos (Material 1) ist sichergestellt (Laptop, Beamer).*
- *Die Lehrkraft fertig ausreichende Kopien des Arbeitsblattes (Material 4) an.*
- *Sie liest sich die Hintergrundinformationen zu Global Citizenship Education (Material 5) durch, um den S*S deren Inhalt wiederzugeben.*

Phase	Inhalt	Sozial-form	Medien, Material
Einstieg (7 Min.)	• In dieser Stunde geht es darum, was Global Citizenship (Education) ist und ob Global Citizenship Education einen Beitrag zu globaler Gerechtigkeit leisten kann. • Die Lehrkraft erklärt, dass es in den folgenden Unterrichtsstunden um Global Citizenship Education geht. Als Welten-bürger*innen, sind die S*S jetzt und in Zukunft in ihr eigenes Umfeld (lokal) und die Gesellschaft, in der sie leben (regional) eingebunden und nehmen Einfluss auf Dinge, die die gesamte Welt und die Welt-bevölkerung betreffen (global). Die S*S	LV	

	werden verschiedene Bereiche der Verantwortung kennenlernen und reflektieren, auf welche dieser Ebenen sie sich bezieht. • Zum Einstieg in das Thema sehen sich die S*S gemeinsam das Video „Gesellschaft im Wandel“ (Material 1) an. • Die Lehrkraft klärt Verständnisfragen und informiert die S*S darüber, dass sie nun gemeinsam den Aspekt der Globalisierung bearbeiten.		M1 Video
Arbeitsphase (28 Min.)	• Das Thema Globalisierung wird mit Hilfe des Weltspiels bearbeitet. Eine Anleitung des Spiels für die Lehrkraft und die Vorlagen für die Tafeln sind in Material 2 zu finden. In Material 3 ist der Auflösungsschlüssel für die Lehrkraft. • *Hinweis:* *Sollte für diese Unterrichtsstunde mehr Zeit, vielleicht sogar eine Doppelstunde, zur Verfügung stehen, dann können die Ergebnisse des Weltspiels, bzw. die Unterschiede zwischen der Einschätzung durch die S*S und der eigentlichen Verteilung nach jeder Runde im Plenum diskutiert werden.*	GA	M2 Aktivität M3 Lösungen
	• Die Lehrkraft verteilt das Arbeitsblatt (Material 4) und bittet die S*S, sich in Stillarbeit zu überlegen, was ein „Global Citizen“ ist und dazu Notizen zu machen. • *Hinweis für Deutsche Auslandsschulen:* *Die Überlegungen und die anschließende Diskussion können an Tiefe gewinnen, wenn die S*S dazu angeregt werden, sich sowohl auf Deutsch als auch auf Englisch (oder ggf. in einer anderen Sprache) über den Begriff „global“ Gedanken zu machen.* • Die S*S finden sich in Kleingruppen von zwei bis drei Personen zusammen und diskutieren ihre Vorschläge. • Die Kleingruppen präsentieren ihre Ergebnisse. Die Lehrkraft hält verschiedene	SP	M4 Arbeitsblatt

	wiederkehrende Aspekte an der Tafel oder am Whiteboard fest. • Die Lehrkraft fasst die Ergebnisse zusammen und hebt die wichtigsten Aspekte hervor.		
Ergebnis-sicherung (10 Min.)	• Die Lehrkraft leitet von der Globalisierung zum Thema GCED über und gibt auf der Grundlage der Hintergrundinformation (Material 5) einen Überblick über die verschiedenen Bereiche. • Im Anschluss kommt die Lehrkraft auf die Frage vom Beginn der Stunde zurück, ob GCED einen Beitrag zu globaler Gerechtigkeit leisten kann und ermutigt Freiwillige, aufgrund des Erlernten dazu Stellung zu nehmen. • *Hinweise:* *Wenn mehr Zeit als eine einzelne Unterrichtsstunde zur Verfügung steht, kann die Lehrkraft die S*S an dieser Stelle bitten, die zentralen Aspekte der GCED zusammenzutragen.* *In diskussionsfreudigen Lerngruppen kann darüber hinaus diskutiert werden, wer eigentlich entscheidet, was Global Citizenship Education ist, wer gemeinsame Werte und Normen vorgibt und wer nicht so sehr in derartige Diskussionen eingebunden wird.*	LV	M5 Hintergrund-information

2. Stunde: Ich als „Global Citizen“

Lernziele:

- Die S*S reflektieren ihre eigene Rolle und Identität.
- Die S*S erarbeiten, welche verschiedenen Bedeutungen der Begriffe „Heimat“ und „zu Hause“ haben kann und überlegen, wo sie sich selbst verorten.

Vorbereitung

- *Die Lehrkraft fertigt ausreichende Kopien von Material 7 an.*
- *Sie bereitet die Stunde vor, indem sie die Einträge zu Nationalität, Staatsbürgerschaft/Staatsangehörigkeit, Heimat und Zuhause im Glossar (Material 6) durchliest und für sich bereithält, sowie ausreichende Kopien dieses Materials anfertigt.*
- *Die Lehrkraft hält für sich eine Kopie mit der Anleitung für das „Stimmungsbarometer“ (Material 8) bereit.*
- *Flipchart, Tafel oder Smartboard stehen zur Verfügung.*
- *Ggf. bereitet die Lehrkraft eine Abfrage per Mentimeter für den Einstieg in die Stunde vor.*

Phase	Inhalt	Sozialform	Medien, Material
Einstieg (9 Min.)	• Die Lehrkraft kündigt an, dass es in dieser Stunde um die Frage geht, inwiefern jede*r selbst ein*e „Global Citizen“ ist. • Die Stunde beginnt mit der regionalen Ebene (mit globalen Bezügen) und konzentriert sich dann auf die lokale. Je nach Zusammensetzung der Klasse, haben die S*S unterschiedlich starke globale Bezüge. • Die Lehrkraft schreibt den Begriff „Nationalität“ an die Tafel und fragt die S*S, was sie darunter verstehen. • Sie hält die wichtigsten Stichpunkte fest und ergänzt sie ggf. auf der Grundlage des Glossars (Material 6). • Sie wiederholt dies mit den Begriffen „Staatsbürgerschaft“ und „Heimat“. Bezüglich des Heimatbegriffes gruppiert sie die Aussagen, die Heimat als „zu Hause“ interpretieren und kritische Stimmen zu dem Konstrukt, um	UG	M6 Glossar

	anschließend darauf zu verweisen, dass im Weiteren das Konstrukt von „zu Hause“ im Zentrum steht. • *Hinweis:* *Sofern die technischen Voraussetzungen dies begünstigen, kann die Abfrage auch als mittels eines Mentimeters erfolgen. Eine kostenlose Anmeldung ist möglich, wobei die S*S nicht ihre privaten Endgeräte, sondern durch die Schule zur Verfügung gestellte verwenden sollten, damit die Nutzung datenschutzrechtlich unbedenklich ist.* • Die Lehrkraft teilt das Glossar (Material 6) aus und bittet die S*S, es auch für die nächsten Stunden bereitzuhalten.		M6 Glossar
„Kugellager“-Diskussion (18 Min.)	• Die S*S bilden zwei Stuhlkreise: einen äußeren und inneren mit der gleichen Anzahl an Stühlen. • In diesen Stuhlkreisen sitzen sie einander gegenüber. • Die Lehrkraft verteilt Kopien des Arbeitsblattes (Material 7). • Die S*S fragen sich gegenseitig die Fragen auf dem Arbeitsblatt und machen sich Notizen. • Nach jeder Frage rutscht der innere Stuhlkreis einen Platz weiter, um mehrere Gesprächspartner*innen zu haben. • Danach diskutieren sie die verschiedenen Antworten im Plenum. • *Hinweis für Deutsche Auslandsschulen: Wenn für diese Unterrichtseinheit mehr als eine Schulstunde zur Verfügung steht, kann die Kugellager-Methode auch auf die Konzepte der Staatsangehörigkeit und Nationalität ausgeweitet werden. Auf diese Weise kommen die S*S untereinander über dieses Thema, das für sie alle relevant ist, in den Austausch. Ggf. können einzelne Diskussionen in die nächste*	SA UG	M7 Arbeitsblatt

	Unterrichtsstunde verlagert und die darin geplanten Aktivitäten dann zeitlich etwas verkürzt werden. *Darüber hinaus könnte auch die Bedeutung des Begriffes „Heimat“ in verschiedenen Sprachen diskutiert werden.*		
Stimmungs-barometer (15 Min.)	• Die S*S schieben die Stühle an die Seite, um Platz für das Stimmungsbarometer zu schaffen. • Die Lehrkraft fordert die S*S dazu auf, sich in der Mitte des Raumes in einer Reihe zu stellen. • Sie erklärt das Vorgehen für das Stimmungsbarometer und liest die Aussagen in Material 8 nacheinander vor. • In der Klasse werden positive und negative Aspekte ihres Daseins als „Global Citizens“ diskutiert. Ggf. tragen einzelne S*S zusätzliche Merkmale bei.	SA UG	M8 Anleitung
Abschluss (3 Min.)	• Die Lehrkraft bittet die S*S dazu Stellung zu beziehen, ob sie sich als „Global Citizens“ fühlen. • *Hinweis:* *Der Inhalt der Stunde hilft den S*S festzustellen, dass man als „Global Citizen“ nicht automatisch in der Welt und überall zu Hause sein muss, sondern das Gefühl von „zu Hause“ oder „Heimat“ ganz individuell mit Orten, aber auch Menschen und anderen Dingen verbunden sein kann. „Global Citizens“ selbst zeichnen sich durch ihre Offenheit der Welt und ihrer Vielfältigkeit gegenüber aus, durch das Verantwortungsgefühl für die Welt und die (Bereitschaft zur) Übernahme einer aktiven Rolle in ihrer Gestaltung.*		

3. Stunde: Klimawandel und Global Citizenship I

Lernziele:

- Die S*S lernen verschiedene Perspektiven auf das Thema Klimawandel kennen.

Vorbereitung

- *Moderationskarten und die Möglichkeit diese aufzuhängen (Pinnwand, Whiteboard etc. inkl. Befestigungsmaterialien) stehen zur Verfügung.*
- *Die Lehrkraft hält ein paar Kopien von Material 6 für die S*S, die es nicht wieder mitgebracht haben, bereit und überlegt sich verschiedene Begriffsgruppen (jeweils drei Begriffe) für die One-Minute-Präsentationen der S*S.*

Phase	Inhalt	Sozial-form	Medien, Material
Einstieg (15 Min.)	• Die Lehrkraft erklärt, dass sich diese Stunde mit der globalen Ebene der Global Citizenship Education befasst. • Zum Einstieg in die Stunde ermittelt die Lehrkraft das Vorwissen der S*S zum Thema „Klimawandel“ und verteilt hierzu Moderationskarten. Sie bittet die S*S in Einzelarbeit innerhalb von drei Minuten aufzuschreiben, was ihnen zu dem Stichwort einfällt. • Die Lehrkraft sammelt die Karten ein und bittet die S*S, die Aussagen nun gemeinsam an der Tafel, einer Pinnwand, o. Ä. zu gruppieren. Hierzu liest sie die Aussagen einzeln vor und lässt die S*S entscheiden, wo die jeweilige Karte hingehängt werden soll. Als Struktur können beispielsweise Ursachen, Folgen und Lösungen gesammelt und die Verbindungen zwischen einzelnen Begriffen aufgezeigt werden. • *Hinweis:* *Alternativ könnten die S*S ihre Argumente auch in einem digital geteilten Dokument in eine Tabelle mit den Spalten „Ursachen“, „Folgen“, „Lösungen“ eintragen.*	EA UG	Moderations-karten

Vertiefung (20 Min.)	• Die Lehrkraft bittet die S*S, das Glossar (Material 6) herauszuholen, händigt denjenigen, die es nicht dabei haben, eine weitere Kopie davon aus und macht darauf aufmerksam, dass die drei Begriffe (Nationalität, Staatsbürgerschaft/Staatsangehörigkeit und Heimat/ Zuhause), um die es in der letzten Stunde ging, darin enthalten sind, es nun aber um andere Begriffe geht. • Die Klasse teilt sich in Kleingruppen ein, die von der Lehrkraft jeweils drei Begriffe aus dem Glossar zugewiesen bekommen. • Die Gruppen haben die Aufgabe, aus diesen Begriffen eine One-Minute-Präsentation zu erarbeiten und sich im Anschluss zu überlegen, wie man als „Global Citizen“ mit den jeweiligen Begriffen in Berührung kommt.	GA	M6 Glossar
Ergebnispräsentation (10 Min.)	• Die Gruppen tragen ihre One-Minute-Präsentation vor. Im Anschluss bittet die Lehrkraft einzelne S*S zu erklären, welche Berührungspunkte sie zwischen den Begriffen und Global Citizenship sehen.	SP	

4. Stunde: Klimawandel und Global Citizenship II

Lernziele:

- Die S*S lernen verschiedene Perspektiven auf das Thema Klimawandel kennen.
- Die S*S befassen sich mit Handlungsmöglichkeiten, um dem Klimawandel entgegenzuwirken.

Vorbereitung

- *Sie wählt eine der beiden Varianten (A oder B) aus und bereitet diese vor. In Lerngruppen mit unterschiedliche leistungsstarken S*S können auch beide Varianten parallel bearbeitet werden.*
- *Für Variante A: Die Lehrkraft fertigt ausreichende Kopien von Material 9-15 an.*
- *Für Variante B: Die Lehrkraft fertigt ausreichende Kopien von Material 16 an und die S*S haben Zugang zum Internet, um in Gruppenarbeit eigenständig Recherchen durchzuführen.*
- *Die Lehrkraft fertigt ausreichende Kopien des Arbeitsblattes (Material 17) zum Erfassen der Handlungsmöglichkeiten an.*
- *Sofern eine weitere Doppelstunde zur Verfügung steht, in der eine Klimakonferenz durchgespielt werden kann, fertig die Lehrkraft ausreichende Kopien der Rollenkarten (Material 21-25) für die Hausaufgabe an. Sie überlegt sich, ob sie selbst die Klimakonferenz in der nächsten Stunde moderieren möchte oder ob sie dies einer*m Schüler*in überlassen möchte (ggf. ein*e Freiwillige*r oder durch die Lehrkraft bestimmt). Je nach dem händigt sie dann Material 20 an die*den entsprechende*n Schüler*in aus oder hält es für sich zurück.*
- *Wenn diese Stunde die letzte ist, dann bereitet sich die Lehrkraft darauf vor, die fehlenden Bereiche des Arbeitsblattes zu Handlungsmöglichkeiten (Material 17) zu ergänzen. Hier geht es besonders um die Kategorien Unternehmen, Regierung und Staatengemeinschaft. Wenn noch eine weitere Stunde geplant ist, dann überlegt sich die Lehrkraft, ob sie die Handlungsmöglichkeiten als Tafelbild oder in einer digitalen Version zur gemeinsamen Bearbeitung zur Verfügung stellen möchte. Sofern es manuell bearbeitet werden soll, benötigt die Lehrkraft Karteikarten zum Notieren der genannten Stichpunkte.*

Phase	Inhalt	Sozial-form	Medien, Material
Einstieg und Arbeitsphase (25 Min.)	• Die Lehrkraft erinnert an das Glossar aus der letzten Stunde, das die S*S nutzen können, um Begriffe nachzuschlagen, die ihnen noch nicht ganz klar sind. • *Hinweis:* *Für die folgende Gruppenarbeit stehen zwei Varianten zur Verfügung, die beide,*	GA	M6 Glossar

	nur mit unterschiedlichen Schwierigkeitsgraden, die gleiche Fragestellung bearbeiten. Daher können auch beide Varianten in derselben Lerngruppe verwendet werden.		
Variante A	*In Variante A wird mit vorgegebenen, leichter verständlichen Texten gearbeitet, sodass hier bzgl. des Sprachverständnisses und der Inhaltsverarbeitung eine differenziertere, weniger voraussetzungsvolle Version angeboten wird.*		M9-15 Textquellen
Variante B	*Variante B beinhaltet hingegen eine eigenständige Recherche zu Zeitungsartikeln und setzt damit einhergehende Kompetenzen und Fähigkeiten voraus.* • Die S*S werden in Gruppen eingeteilt. Jede Gruppe erhält entweder eine Textquelle (Materialien 9-15) in ausreichender Anzahl oder das Arbeitsblatt (Material 16). In den Textquellen werden Geschichten von Menschen aus verschiedenen Ländern erzählt mit Hilfe derer die S*S Gemeinsamkeiten und Unterschiede des Lebens der Menschen mit dem Klimawandel kennenlernen. Das Arbeitsblatt unterstützt hingegen eine eigenständige Recherche. • Die Arbeit mit den Textquellen unterstützt die Lehrkraft, indem sie Verständnisfragen klärt und die Beantwortung der Fragen überwicht. • Bei der eigenständigen Recherche achtet die Lehrkraft darauf, dass sich die einzelnen Gruppen jeweils auf unterschiedliche Bereiche konzentrieren und unterstützt die Gruppen ggf. bei der Auswahl eines Landes, zu dem sie ihren Zeitungsartikel bearbeiten wollen.	GA	M16 Arbeitsblatt
Ergebnispräsentation und -sicherung (15 Min.)	• Die S*S präsentieren die Ergebnisse der Gruppenarbeit. • Die Lehrkraft regt eine Diskussion im Plenum über die Rolle von „Global Citizens“ in diesem Komplex an und verteilt das Arbeitsblatt (Material 17), auf dem die S*S	SP UG	M17 Arbeitsblatt

die Handlungsmöglichkeiten auf individueller Ebene (rechts unten) und ggf. auch andere Kategorien, die während der Diskussion angesprochen werden, bereits notieren können.

- Sofern geplant ist, die Klimakonferenz in einer weiteren Doppelstunde durchzuspielen, notiert die Lehrkraft die einzelnen Punkte auf Karteikarten (für eine manuelle Bearbeitung) oder digital, damit sie ihr in der nächsten Stunde zur Verfügung stehen.

Ggf. Karteikarten

- *Impulse:*
  - > *Welche Rolle spielt man als Global Citizen in diesem Komplex?*
  - > *Was kann man als Global Citizen an der momentanen Situation kritisieren? Welche Handlungsmöglichkeiten gibt es?*
  - > *Sind die Handlungsmöglichkeiten für Global Citizens des globalen Nordens unterschiedlich als die für Global Citizens auf dem globalen Süden?*
- *Erwartungshorizont:*
  *In der Diskussion werden die S*S vielleicht bereits ein paar Ideen sammeln, was sie persönlich tun können, um dem Klimawandel entgegenzuwirken. Es wird aber auch deutlich, dass die Folgen des Klimawandels uns zwar individuell betreffen, viele der Probleme vor allem auf staatlicher und überstaatlicher Ebene angegangen werden müssen, die dann wiederum als Leitlinien für das individuelle Handeln dienen können.*
  *Auf diese Weise wird der Blick von der lokalen und regionalen auf die globale Ebene ausgeweitet. Hierdurch können die S*S auch auf die n können auf die nächste Stunde vorbereitet werden, sofern vorgesehen ist, die Klimakonferenz mit ihnen durchzuspielen.*

	• Wenn in der Diskussion der letzten Frage nicht von selbst das Schlagwort „Klimagerechtigkeit“ fällt, dann bringt die Lehrkraft es ein und liest ggf. noch mal den Eintrag hierzu aus dem Glossar (Material 6) vor.	M6 Glossar
	• Abschließend weist die Lehrkraft darauf hin, dass sich diese Stunde mit der globalen Ebene der Global Citizenship Education befasst hat. Wenn eine weitere Doppelstunde geplant ist, bittet sie die S*S, das Glossar (Material 6) und das Arbeitsblatt zu den Handlungsmöglichkeiten (Material 17) zur nächsten Stunde wieder mitzubringen.	M6 Glossar M17 Arbeitsblatt
Hausaufgabe (5 Min. Vorbereitungszeit) oder	• Sofern eine weitere Doppelstunde zur Verfügung steht, teilt die Lehrkraft die S*S in Arbeitsgruppen für die nächste Stunde ein. Sie erklärt, dass ein Rollenspiel stattfinden wird und bittet die S*S, sich auf dieses zu Hause vorzubereiten, indem sie sich ihre eigene Rolle sowie die Positionen der anderen Gruppen (als Kurzfassung) ansehen. Ggf. bestimmt die Lehrkraft ein*e Moderator*in.	
	• Die Lehrkraft verteilt die Rollenkarten mit den Kurzinformationen (Materialien 20-25).	M20-25 Rollenkarten
	• Sie erinnert die S*S, das Arbeitsblatt mit den Handlungsmöglichkeiten (Material 17) zur nächsten Stunde mitzubringen, da es dann vervollständigt wird.	M17 Arbeitsblatt
Abschluss (5 Min.)	• Die Lehrkraft weist darauf hin, dass die S*S sich in der Diskussion vor allem auf Handlungsmöglichkeiten auf individueller Ebene konzentriert haben, betont aber, dass natürlich auch eine große Verantwortung auf der Ebene der Unternehmen, Regierungen und Staatengemeinschaft liegt.	
	• Wenn noch etwas Zeit zur Verfügung steht, dann sammelt sie Ideen aus dem Plenum	

	zur Ergänzung des Arbeitsblattes (Material 17). Wenn nicht, dann nennt sie selbst ein paar Beispiele.

5. UND 6. STUNDE: GLOBAL CITIZENSHIP IN ACTION: EINE WELTKLIMAKONFERENZ

Lernziele:

- Die S*S lernen die Meilensteine der globalen Klimapolitik kennen.
- Die S*S erkennen Zielkonflikte in der politischen geführten Klimadebatte, lernen verschiedene Argumente und Sichtweisen kennen und erörtern Handlungsoptionen.
- Die S*S erproben die Methode der Debatte.

Vorbereitung

- *Die Lehrkraft bereitet sich auf die Stunde vor, indem sie die Meilensteine der Klimapolitik (M18) durchliest und vor der Klasse wiedergeben kann.*
- *Außerdem liest sie die Anleitung für das Rollenspiel „Klimakonferenz“ (Material 19) und ggf. ihre eigene Rollenkarte (Material 20) und hält jeweils eine Kopie für sich bereit.*
- *Die Lehrkraft fertigt ausreichende Kopien von Material 26 (Arbeitsblatt) und den Rollenkarten (Material 20-25) für die Gruppenarbeit an und bereitet den Vertrag (Material 25) zur Unterzeichnung vor.*
- *Für den Abschluss der Stunde bereitet die Lehrkraft ein Tafelbild vor, das der Vorlage von Material 17 entspricht. Sie kann dieses entweder manuell durch Karteikarten auf Grundlage der Diskussion im Plenum oder in einer digitalen Version ergänzen. In dieses Bild fügt sie bereits die Karteikarten mit Handlungsmöglichkeiten aus der letzten Stunde ein bzw. ergänzt die entsprechenden Infos und überlegt sich vorab weitere Handlungsmöglichkeiten, die den unterschiedlichen Kategorien in Material 17 ergänzen könnten.*

Phase	Inhalt	Sozial-form	Medien, Material
Einstieg (10 Min.)	• Diese Doppelstunde führt nun die globale, regionale und lokale Ebene zusammen. • Die Lehrkraft erklärt die Meilensteine der Klimapolitik (Material 18).	LV	M18 Hintergrund-information
Vorbereitung (10 Min.)	• Die Lehrkraft erklärt den Ablauf der Klima-konferenz (Material 19) und liest ggf. die Informationen zur Weltklimakonferenz und die allgemeine Ausgangslage vor. • Die S*S finden sich in ihren jeweiligen Gruppen zusammen und tauschen sich über ihre Rolle, die sie zu Hause erarbeitet	GA	M19 Anleitung M21-25 Rollenkarten

	haben, und die Positionen der anderen Konferenzteilnehmer*innen aus. • Sofern die Lehrkraft nicht selbst die Rolle der*s Moderator*in übernimmt, vergibt sie diese Rollenkarte (Material 20) an die*den entsprechende*n Schüler*in und bittet sie*ihn, sich auf die Konferenz vorzubereiten, indem sie*er die Kurzinformationen zu den verschiedenen Teilnehmer*innen durchliest. • Jede Gruppe bestimmt ein*e Schüler*in, um die Ergebnisse zu präsentieren. Ggf. kann ein*e weitere*r Schüler*in während der anschließenden Diskussion die jeweiligen Gegenargumente notieren. • Die Lehrkraft bereitet den Raum so vor, dass die Atmosphäre an eine Konferenz erinnert.		M20 Rollenkarte
Konferenz (35 Min.)	• Die Lehrkraft oder ein*e Schüler*in eröffnet als Moderator*in die Konferenz. Die einzelnen Vertreter*innen stellen in Impulsvorträgen (ca. 2 Minuten) ihre Forderungen vor. • Anschließend werden die Positionen verhandelt. An der Diskussion nehmen alle Mitglieder der Gruppen teil, nicht nur die S*S, die die Impulsvorträge gehalten haben. • Die*Der Moderator*in achtet auf die Zeit, versucht zu vermitteln und die Verhandler*innen zu Kompromissen zu bewegen. Sie*Er gibt 5 Minuten vor Ablauf der Zeit ein Zeichen und bittet die Konferenzteilnehmer*innen zu resümieren, ob es unter den vorliegenden Bedingungen zu einem Vertragsabschluss kommen kann oder nicht.	SA UG	
Reflexion (20 Min.)	• Die Lehrkraft signalisiert das Ende der Konferenz und bittet die S*S dabei zu helfen, den Raum wieder in seinen Ursprungszustand zu bringen, damit auch gedanklich der Ausstieg aus dem	SA	M26 Vertrag

Rollenspiel und der Einstieg in eine Metadiskussion erleichtert wird.

- Die Lehrkraft leitet eine Diskussion ein, in der die S*S die Konferenz reflektieren. Sie leitet die Diskussion und versucht gleichzeitig die Handlungsmöglichkeiten, die im Rahmen der Diskussion bereits fallen, (auf Karteikarten) zu notieren.

Ggf. Kateikarten

- *Impulse:*
  - > *War es schwierig, sich zu einigen?*
  - > *Waren die verschiedenen Perspektiven eine Herausforderung im Einigungsprozess?*
  - > *Können die unterschiedlichen Beweggründe (Ökonomie, Ökologie usw.) überhaupt verhandelt und miteinander verbunden werden? Überlegt, was der Fokus auf dem einen oder anderen jeweils bedeuten würde.*
  - > *Könnt ihr euch einen Kompromiss vorstellen, der weder die Wirtschaft, also die Unternehmen und das Auskommen von Menschen, noch die Umwelt also auch die Zukunft von Städten, Landwirtschaft etc. vernachlässigt?*
  - > *Was müsste in einem ausgehandelten Vertrag drinstehen?*
  - > *Was glaubt ihr, wer sich letztlich besser durchsetzen kann und warum? Wie könnte man dem entgegensteuern?*
- *Erwartungshorizont:*
  *In der Reflexionsrunde können die S*S sich mit der Komplexität der Angelegenheit auf verschiedenen Ebenen auseinandersetzen: Sie können zunächst auf individueller Reflexionsebene über ihre Anstrengung sprechen, die die Durchführung des Rollenspiels evtl. gefordert hat. Darüber hinaus tragen sie unterschiedliche Erfahrungen und Perspektiven zusammen, die sich vor allem durch die Konzentration auf die jeweilige Rolle ergeben, die u.a.*

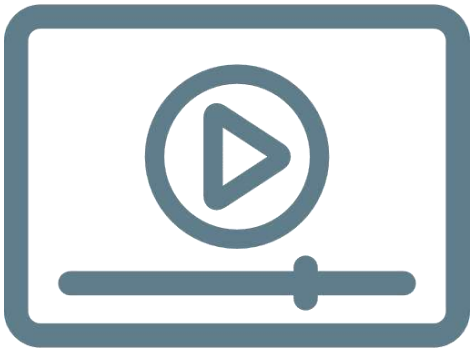
	aber auch etwas mit dem persönlichen Vorwissen zu tun haben. *Die Diskussion sollte sich im Verlauf mit der Frage beschäftigen, was der Inhalt eines möglichen Vertrages sein könnte.* *Ein weiterer Aspekt, um den es gehen sollte, sind ungleiche Machtverhältnisse, vor allem zwischen dem Globalen Norden und Süden.* *Im Zusammenhang mit der Abwägung zwischen Wirtschaftsinteressen und Umweltschutz sollte der Begriff der Generationengerechtigkeit angesprochen werden.* *Während der gesamten Diskussion ist zu berücksichtigen, dass Klimaschutz selbst nicht kontrovers ist, sondern nur die einzelnen Maßnahmen.*		
Lösungen (10 Min.)	• Die Lehrkraft zeigt den S*S das Tafelbild oder die digitale Version des Schaubildes in Material 17 und liest ihnen die Stichpunkte, die sie während der Diskussion notiert hat, einzeln vor. Sie bittet die S*S, diese den einzelnen Kategorien zuzuordnen und regt sie dazu an, sie um weitere zu ergänzen. Das Gesamtwerk stellt sie den S*S zur Verfügung. • Im Anschluss bespricht die Klasse gemeinsam, wie diese konkret in der Klasse oder zu Hause umgesetzt werden.	GA UG	M26 Arbeitsblatt
Abschluss (5 Min.)	• Aus der Diskussion heraus leitet die Lehrkraft zum Abschluss der Unterrichtseinheit über. Sie bittet die S*S Ideen zu äußern, wie sie selbst Einfluss auf die „große Politik“ nehmen können, welche Möglichkeiten zur Partizipation sie haben. • *Erwartungshorizont:* *Dieser Abschluss dient dazu, dass die S*S das gelernte auf ihre eigene Lebenswelt beziehen. Mögliche Felder, in denen sich die S*S engagieren können, wären beispielsweise Fridays for Future, Wahlen, Aktivismus (hier ggf. Vorschläge aus dem näheren Umfeld), Arbeitsgruppen in der Schule, Nichtregierungsorganisationen wie*		

	Greenpeace, Anschreiben an Europaabgeordnete, Ratsmitglieder, die Bundes- oder Landesregierung.

VIDEO

GLOBAL CITIZENSHIP EDUCATION

Das Video thematisiert kritisch verschiedene Aspekte und Auswirkungen der Globalisierung und erklärt, welche Ziele die Global Citizenship Education hat. Es richtet sich mit letzterem zwar an Entscheidungsträger*innen an Schulen und Lehrkräfte, die Informationen sind aber ebenso für Schüler*innen relevant, da sie dadurch ebenfalls eine Vorstellung von den Zielen der vorliegenden Unterrichtseinheit bekommen.



Link zum Video:

https://www.youtube.com/watch?v=z8twF3u5SzM

Dauer: 3:07 Min.

Quelle:

„Gesellschaft im Wandel – Globalisierung, Weltbürger und die eigene Verantwortung“, ocampusthl, in: *YouTube*, 21. Mai 2019, https://www.youtube.com/watch?v=z8twF3u5SzM, zuletzt geprüft am 03. April 2023.

AKTIVITÄT

DAS WELTSPIEL (LEHRKRAFT)



Das Weltspiel verschafft den Schüler*innen (S*S) einen Überblick über die Welt. Es vermittelt Informationen zu den Fragen, welcher Kontinent der Bevölkerungsreichste ist, welcher das höchste Einkommen gemessen am Bruttosozialprodukt hat und welcher Kontinent den größten ökologischen Fußabdruck hat. Hierdurch werden die S*S auf die ungleiche Verteilung von „Reichtum“ und Ressourcenverbrauch aufmerksam gemacht.

Die Tafeln der Kontinente werden im Raum verteilt, sodass genügend Platz für alle ist. Die S*S stellen in der ersten Runde die gesamte Weltbevölkerung dar, in der zweiten die Gesamtheit des Einkommens und in der dritten die jährlichen CO2-Emissionen. Bei sehr wenigen Teilnehmer*innen kann z. B. Australien & Ozeanien weggelassen werden oder es werden zusätzliche Stühle verwendet, die weitere S*S repräsentieren. Die S*S werden aufgefordert, sich so zu verteilen, wie es ihrer Meinung nach zutreffend ist. Durch Absprechen und Diskussion untereinander müssen die S*S zu einer gemeinsamen Lösung kommen. Danach löst die Lehrkraft mit den tatsächlichen Zahlen der Verteilung auf.

Die Lehrkraft stellt vor jeder Runde eine Frage:

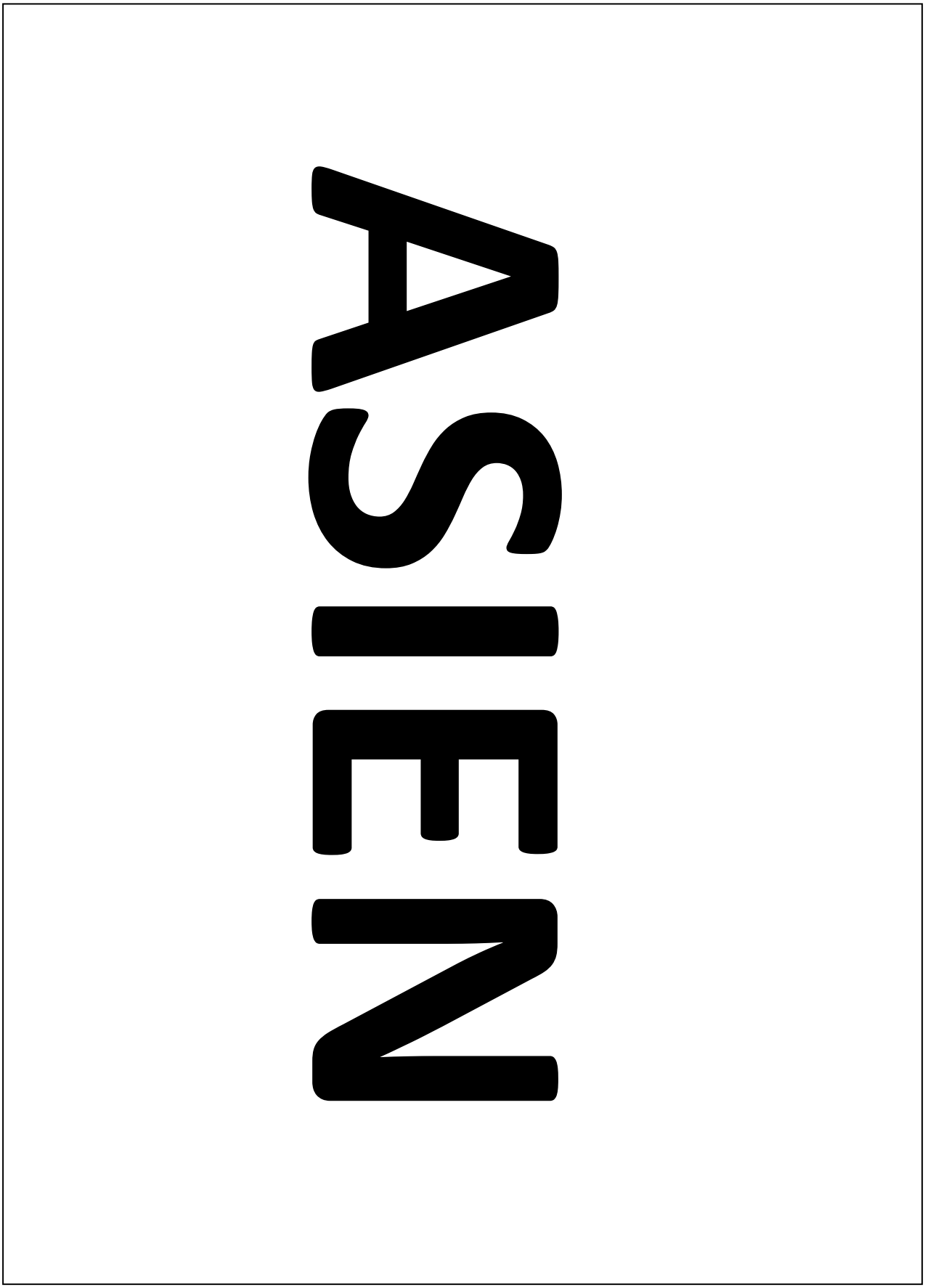
1) Wie verteilt sich die Weltbevölkerung auf die jeweiligen Kontinente?
2) Wie ist die Einkommensverteilung?
3) Welchen Anteil an den jährlichen CO2-Emissionen hat der jeweilige Kontinent?

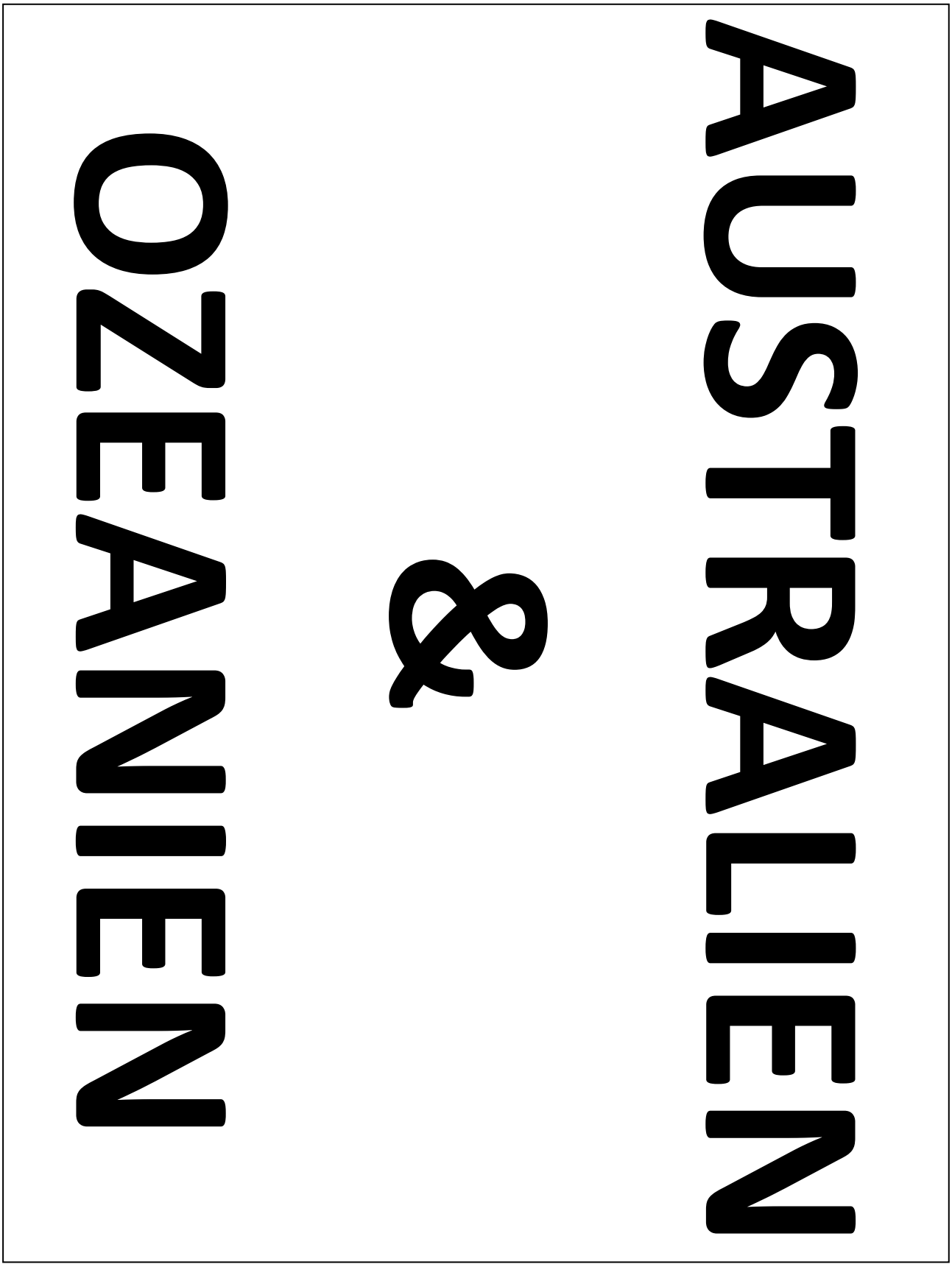
Nach Abschluss der drei Runden sollte kurz reflektiert werden, wie die Verteilung in den drei Runden war.

Mögliche Fragen für die Abschlussdiskussion:

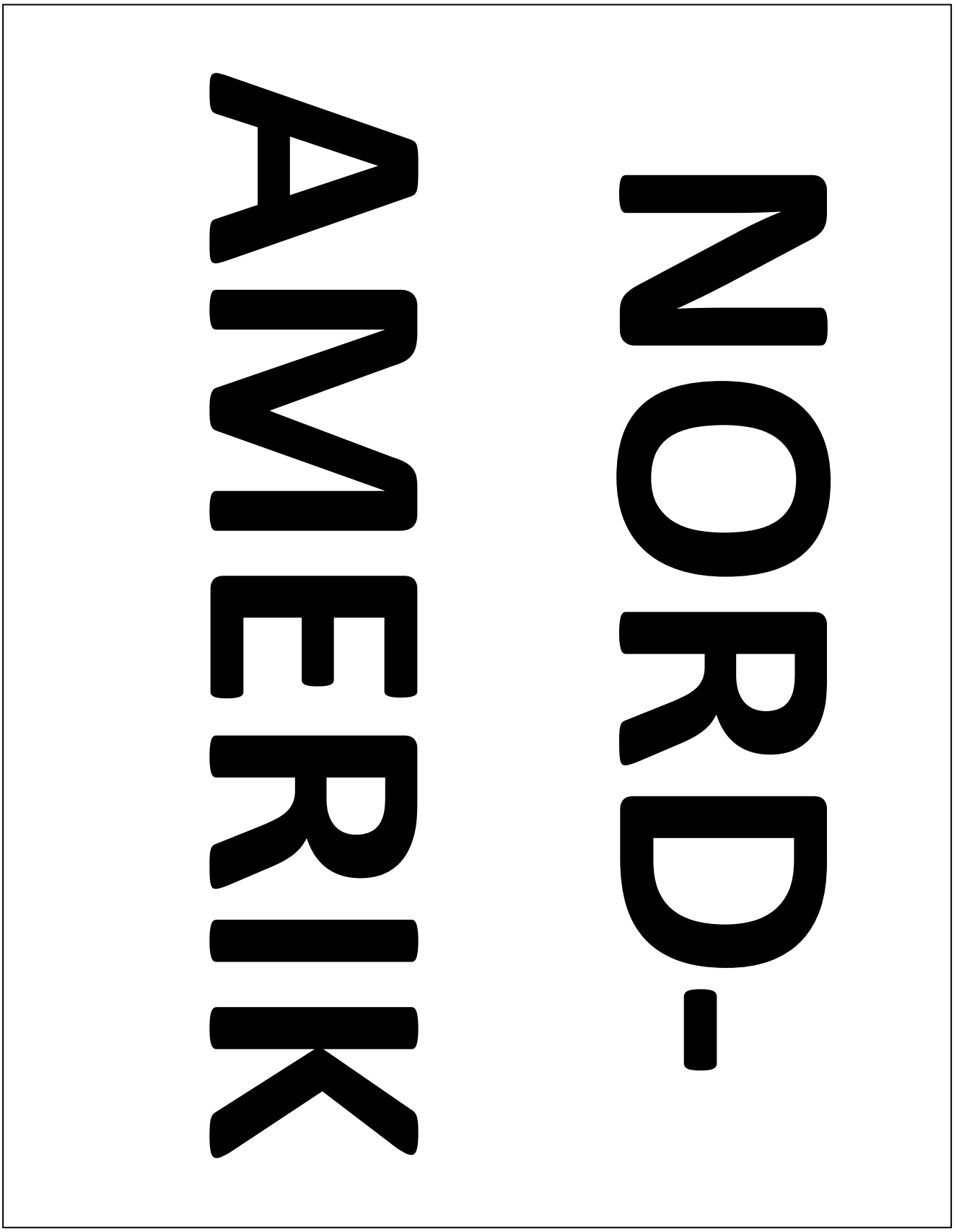
- Warum habt ihr euch so aufgestellt? Was hat eure Entscheidung beeinflusst?
- Was hat euch überrascht?
- Findet ihr die verschiedenen Verteilungen gerecht? Warum?


AFRIKA


ASIEN


AUSTRALIEN
&
OZEANIEN


LATEIN-
AMERIKA
& KARIBIK


NORD-
AMERIK

LÖSUNGEN

WELTBEVÖLKERUNG, EINKOMMEN UND CO2-EMISSIONEN

WELTBEVÖLKERUNG

Kontinente	Gesamt in Mio.	Gesamt in %	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S
			20	21	22	23	24	25	26	27	28	29	30
Europa inkl. Russland	749	9,7	2	2	2	2	2	2	3	3	3	3	3
Nordamerika	490	6,3	1	1	1	1	2	2	2	2	2	2	2
Latein- und Mittelamerika	642	8,3	2	2	2	2	2	2	2	2	2	2	2
Asien	4567	58,9	12	13	13	14	14	15	15	16	16	17	18
Afrika	1275	16,4	3	3	4	4	4	4	4	4	5	5	5
Australien und Ozeanien	33	0,4	0	0	0	0	0	0	0	0	0	0	0
Gesamte Weltbevölkerung	**7756**	**100,0**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**

WELTEINKOMMEN

Kontinente	Gesamt in Mrd. US$	Gesamt in %	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S
			20	21	22	23	24	25	26	27	28	29	30
Europa inkl. Russland	17.589	25,6	5	5	6	6	6	6	7	7	7	8	8
Nordamerika	22.210	32,4	6	7	7	7	8	8	8	9	10	10	10
Latein- und Mittelamerika	5.801	8,4	2	2	2	2	2	2	2	2	2	2	2
Asien	15.581	22,7	5	5	5	5	5	6	6	6	6	6	7
Afrika	5.787	8,4	2	2	2	2	2	2	2	2	2	2	2
Australien und Ozeanien	1.685	2,5	0	1	1	1	1	1	1	1	1	1	1
Gesamte Weltbevölkerung	**68.653**	**100,0**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**

CO2 Emissionen (Mt) pro Jahr												
Kontinente	Gesamt in Mio. Tonnen	Gesamt in %	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S	Anzahl S*S
			20	21	22	23	24	25	26	27	28	29	30
Europa inkl. Russland	5.627	15,7	3	3	3	4	4	4	4	4	5	5	5
Nordamerika	6.463	18,0	4	4	4	4	4	5	5	5	5	5	5
Latein- und Mittelamerika	1.772	4,9	1	1	1	1	1	1	1	1	1	1	1
Asien	20.082	56,1	11	12	12	13	13	14	15	15	16	17	17
Afrika	1.401	3,9	1	1	1	1	1	1	1	1	1	1	1
Australien und Ozeanien	465	1,3	0	0	0	0	0	0	0	0	0	0	0
Gesamte Weltbevölkerung	**35.810**	**100,0**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**

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zwischentoene.info

LEIBNIZ-INSTITUT FÜR BILDUNGSMEDIEN | Georg-Eckert-Institut

ARBEITSBLATT

WAS IST EIN „GLOBAL CITIZEN“?



Arbeitsauftrag:

1. Beschreibe, was deiner Meinung nach einen „Global Citizen“ ausmacht. Nenne mögliche Eigenschaften und erkläre, was „global“ in diesem Zusammenhang bedeutet.
2. Finde dich danach mit 2-3 anderen Schüler*innen zusammen und diskutiert eure Ergebnisse.
3. Präsentiert euer gemeinsames Ergebnis dann der ganzen Klasse.

HINTERGRUNDINFORMATION

DEFINITION GLOBAL CITIZEN

Ein Global Citizen oder ein*e Weltbürger*in ist eine Person, die sich der weiteren Welt bewusst ist und sie versteht – und ihren oder seinen Platz in ihr kennt. Diese Person nimmt eine aktive Rolle in der Gemeinschaft oder Community, in der sie lebt und der sie sich zugehörig fühlt, ein (meistens sind es sogar mehrere Gemeinschaften/Communitys, in denen Menschen interagieren) und arbeitet mit anderen zusammen, um unseren Planeten gleichberechtigter, gerechter und nachhaltiger zu machen.

Ein Global Citizen ist eine Person, die:

- sich der weiten Welt bewusst ist und ein Gefühl für ihre eigene Rolle als Weltbürger*in hat,
- Vielfalt respektiert und schätzt,
- ein Verständnis dafür hat, wie die Welt funktioniert,
- sich über die soziale Ungerechtigkeit Gedanken macht,
- sich an der Gemeinschaft auf einer Reihe von Ebenen, von der lokalen bis zur globalen beteiligt,
- bereit ist zu handeln, um die Welt gerechter und nachhaltiger zu gestalten,
- die Verantwortung für ihre Handlungen übernimmt und sich der Konsequenzen bewusst ist.

Global Citizenship Education

… ist kein zusätzlicher Schulstoff – sie ist ein Rahmen für das Lernen, der über die Schule hinaus auf die breitere Gemeinschaft ausgedehnt wird. Sie kann im Unterricht durch den bestehenden Lehrplan oder durch neue Initiativen und Aktivitäten gefördert werden. Dabei fließen verschiedene Ansätze der politischen Bildung, Bildung für nachhaltige Entwicklung und Friedenspädagogik mit ein.

Global Citizenship Education hilft jungen Menschen dabei:

- ihr eigenes Verständnis des Weltgeschehens zu entwickeln,
- über ihre Werte nachzudenken und darüber, was für sie wichtig ist,
- das, was sie lernen, in der Welt umzusetzen,
- Ignoranz und Intoleranz herauszufordern,

- sich in ihren lokalen, nationalen und globalen Gemeinschaften zu engagieren,
- Argumente zu entwickeln und ihre Meinung zu artikulieren,
- zu verstehen, dass sie die Macht haben, zu handeln und die Welt um sie herum zu beeinflussen.

Quelle:

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GLOSSAR

GLOBAL CITIZENSHIP UND KLIMA

1,5 Grad Ziel

In dem Abkommen, das während der Weltklimakonferenz in Paris im Jahr 2015 geschlossen wurde, verpflichten sich die unterzeichnenden Staaten dazu, Bemühungen zu unternehmen, um den Temperaturanstieg so zu begrenzen, dass er höchstens 1,5 °C über dem vorindustriellen Niveau liegt. Zuvor hatte man sich auf eine Begrenzung auf 2 °C verständigt, ein derartiger Temperaturanstieg hätte jedoch voraussichtlich so schwerwiegende Konsequenzen, dass im Rahmen dieser Konferenz nachgeschärft wurde.

Bei den Angaben zum Temperaturanstieg handelt es sich um weltweite Durchschnittswerte. An einigen Orten werden sich die Temperaturen stärker erwärmen, an anderen weniger stark. Auch im Jahresverlauf drückt sich die Erwärmung je nach Jahreszeit und Art des Wetters unterschiedlich aus.

Besonders kleinere Inselstaaten hatten auf diese Verschärfung gedrängt, da sie zu den am stärksten vom Klimawandel bedrohten Ländern gehören und für sie jeder Temperaturanstieg einen erheblichen Unterschied bedeutet. Die Auswirkungen des Temperaturanstiegs verursachen u.a. langfristige Veränderungen des Meeresspiegels, sodass tiefliegende Länder, wie viele Inselstaaten, große Teile ihrer Landflächen verlieren könnten.

Anthropogen

Der Begriff anthropogen kommt vom griechischen *anthropos*, was Mensch bedeutet und *genese*, also Erzeugung oder Erschaffung. Er bezieht sich auf alles, was vom Menschen beeinflusst, verursacht oder hergestellt wird. Alles das, was nicht in der Natur vorhanden ist, sondern nur existiert, weil der Mensch es herstellt, wie beispielsweise Kunststoff, ist anthropogen.

Häufig wird der Begriff zur Beschreibung von Eingriffen des Menschen in die Umwelt und vom Menschen verursachten Umweltproblemen verwendet. So wird zum Beispiel von einem anthropogenen Treibhauseffekt gesprochen.

CO2 – Kohlen(stoff)dioxid

Kohlendioxid oder Kohlenstoffdioxid ist ein Gas, das aus Kohlenstoff und Sauerstoff besteht. Seit der Industrialisierung ist der Ausstoß von CO2 in der Atmosphäre stark angestiegen, was zu einem Anstieg der Durchschnittstemperatur führt. In der öffentlichen Diskussion wird Kohlendioxid auch häufig als Treibhausgas bezeichnet, denn der Wärmestau in der Atmosphäre erinnert an die Temperaturregulierung in einem Gewächs- oder Treibhaus, und wird daher auch Treibhauseffekt genannt. Denn sie wie das Glaus eines Gewächshauses verhindert das CO2 das Entweichen von Wärme ins Weltall.

CO2 wird in den Blättern von Pflanzen und im Holz eingelagert. Wenn man diese verbrennt, dann wird es wieder freigesetzt.

Man kann Treibhausgasemissionen national (d.h. die Emissionen, die Unternehmen und Haushalte innerhalb der Grenzen eines Landes verursachen) erfassen, wie beispielsweise im Rahmen der UN-Klimakonventionen, oder konsumbasiert. Letzteres wird auch als „ökologischer Fußabdruck“ bezeichnet. Dabei geht es um Emissionen, die durch den Konsum der Bevölkerung eines Landes verursacht werden, egal wo diese entstanden sind. Produktion und Konsum erfolgen oft in unterschiedlichen geografischen Regionen, daher rechnen diese beiden Bilanzierungsformen einem bestimmten Land oft unterschiedlich hohe Emissionen zu.

Fossile Brennstoffe

Als fossile Brennstoffe werden Erdöl, Erdgas, Braun- und Schwarzkohle sowie verschiedene Mischstoffe bezeichnet. Sie entstehen aus pflanzlichem Material, das vor Jahrmillionen abgestorben ist und unter der Erde lagerte. Da die Entstehung eine so lange Zeit braucht, ist das Vorkommen von Kohle, Öl und Gas begrenzt und sie gelten als nicht regenerativ also nicht erneuerbar. Unsere Wirtschaft nutzt nach wie vor fast ausschließlich fossiler Brennstoffe.

Bei der Verbrennung von fossilen Brennstoffen wird unter anderem auch CO2 freigesetzt.

Globale Erwärmung

Als globale Erwärmung oder Erderwärmung bezeichnet man den Anstieg der durchschnittlichen Temperatur auf der Erde. Hierfür wird vor allem folgende Kettenreaktion verantwortlich gemacht: Seit der Industrialisierung ist der Ausstoß von Treibhausgasen stark angestiegen, wodurch sich die Konzentration von Treibhausgasen in der Atmosphäre erhöht hat, was wiederum den Treibhauseffekt verstärkt.

Zu den Folgen der globalen Erderwärmung gehören der Anstieg des Meeresspiegels durch das Abschmelzen der Pole und Gletscher, eine Häufung von extremen Unwettern und Stürmen sowie die Verschiebung von Klimazonen und die extremere Ausprägung von Jahreszeiten.

Globale Gerechtigkeit

Globale Gerechtigkeit ist ein politisches Konzept, das sich u.a. mit den Auswirkungen des globalen kapitalistischen Wirtschaftssystems und der Erderwärmung befasst und Strategien zur Bewältigung der sich daraus ergebenden Herausforderungen entwickelt. Ihm zugrunde liegt die Annahme, dass sich das rasante Wachstum der Wirtschaft in Ländern des Globalen Nordens vor allem zu Lasten der Länder des Globalen Nordens vollzieht und hierfür ein Ausgleich geschaffen werden muss.

Green Climate Fund

Der Green Climate Fund (GCF, auf Deutsch Grüner Klimafonds) ist ein Klimafonds der Klimarahmenkonvention der Vereinten Nationen (UNFCCC) mit Verwaltungssitz in Incheon, Südkorea. Er stellt Geld für Projekte zur Verringerung der Treibhausemissionen sowie zur Anpassung an den Klimawandel in Ländern des Globalen Südens zur Verfügung.

Heimat

Der Begriff **Heimat** verweist zumeist auf eine Beziehung zwischen Mensch und Raum. Heimat ist der Ort, an dem man geboren und/oder aufgewachsen ist oder an dem man sich durch einen längeren Aufenthalt zu Hause fühlt. Die Heimat kann Identität, Charakter, Mentalität, Einstellungen und Weltauffassungen prägen.

Der Begriff ist umstritten, da er auch Ausdruck des Wunsches in eine idealisierte Vergangenheit zurückzukehren sein kann, die es nie gegeben hat. Er kann auch als Vorwand für völkische Überlegenheitsfantasien gelten und steht häufig in Verbindung mit Alltagsrassismus. In diesem Unterrichtskonzept soll es aber explizit um das Heimatverständnis aus dem vorangegangenen Absatz gehen.

Kapitalismus

Kapitalismus ist eine Form des Gesellschaftsaufbaus und des Wirtschaftens. Die Wirtschaftsform ist im Zuge der Industrialisierung im 19. Jahrhundert entstanden. Im Kapitalismus geht es in der Produktion darum, einen maximalen Gewinn zu erzielen. So wird beispielsweise ein Kuchen nicht einfach so gebacken, sondern er wird gebacken, um ihn zu verkaufen. Die meisten Produktionsmittel wie Maschinen, Fabriken und Anlagen gehören nicht dem Staat, sondern sind in Privateigentum.

Der Preis der Waren wird vor allem durch Angebot und Nachfrage bestimmt. Wenn eine große Nachfrage nach Produkten herrscht und ein geringes Angebot besteht, dann steigen die Preise dafür, d.h. der Wert der Waren steht nicht unabänderlich fest, sondern er verändert sich je nach Marktlage.

Kennzeichnend für den Kapitalismus ist, dass es einige Menschen gibt, die viel besitzen und viele, die wenig besitzen.

Kipppunkte im Klimasystem

Das Klimasystem ist sehr komplex und – entgegen der Meinung vieler Menschen – nicht linear. Vor allem in dafür anfälligen Regionen kann es zu plötzlichen und drastischen Klimaveränderungen kommen. Auch eine kleine Beeinflussung durch den Menschen kann dann das Fass zum Überlaufen bringen und Veränderungen hervorrufen, die oft nicht mehr wieder rückgängig gemacht werden können. Dies nennt man „Kipppunkte“, da es sich um ein „Umkippen“ von natürlichen Systemen handelt. Die Wissenschaft versucht, diese vorherzusagen, um großen Schaden zu verhindern – allerdings bislang mit geringem Erfolg.

Klimagerechtigkeit

Das Konzept der Klimagerechtigkeit befasst sich mit der Frage, wie Ausgleiche dafür geschaffen werden können, dass die Länder des globalen Südens, die am wenigstens zur Verursachung des Klimawandels beigetragen haben, am meisten darunter leiden (werden). Außerdem werden die Macht- und Herrschaftsbeziehungen zwischen dem globalen Norden und Süden kritisch hinterfragt und es wird versucht, Betroffenen Gehör zu verschaffen.

Klima-Risiko-Index

Mit Hilfe des Klima-Risiko-Index wird sichtbar gemacht, wie stark ein Land von Wetterextremen wie beispielsweise Hitzewellen, Stürmen oder Überschwemmungen, betroffen ist. Gemessen werden die Auswirkungen auf den Menschen, wie Todesopfer und die wirtschaftlichen Schäden.

Meeresspiegelanstieg

Eine der schwerwiegendsten Folgen des menschengemachten Klimawandels ist der Anstieg des globalen Meeresspiegels. Hierdurch werden die tiefer gelegenen Küstengebiete direkt bedroht. Weitere Folgen, die unmittelbar mit dem Anstieg verbunden sind, ist die Erosion von Küstengebieten, stärker ins Inland hineinreichende Sturmfluten und die Versalzung von Grundwasser durch das Eindringen von Meerwasser. Da besonders die flachen Küsten beliebte Siedlungsgebiete sind, gefährdet der Anstieg des Meeresspiegels den Lebensraum von vielen Menschen.

Nationalität

Der Begriff Nationalität beschreibt die Zugehörigkeit einer Person zu einer Nation. Da die Bezeichnung Nation ein Konstrukt ist und verschiedene Bedeutungen haben kann, bezieht sich auch Nationalität auf unterschiedliche Konzepte: Sie kann im Sinne einer Staatsbürgerschaft für die rechtliche Zuordnung einer Person zu politisch definierten Nationen verstanden werden, sich aber auch auf die Zugehörigkeit zu einer ethnisch definierten Volksgruppe beziehen.

Paris-Abkommen

Das Paris-Abkommen ist ein 2015 entstandener Vertrag, der alle Länder völkerrechtlich dazu verpflichtet, sich an ihre jeweiligen länderspezifischen Klimaziele zu halten. Das Paris-Abkommen legt fest, dass Länder des globalen Südens bei ihrer Anpassung an die Klimaveränderungen finanziell unterstützt werden und dass die Erderwärmung nur maximal 2 °C betragen darf. Das Abkommen trat 2020 in Kraft.

Staatsbürgerschaft/Staatsangehörigkeit

Die Staatsbürgerschaft ist das Verhältnis zwischen einem Staat und einer Person, aus dem sich verschiedene Rechte und Pflichten ergeben. In Demokratien gehört zu diesen Rechten auch das Teilhaberecht am Staatsleben, also das Recht auf politische Mitgestaltung. Die Staatsangehörigkeit ist die rechtliche Zugehörigkeit zur Gemeinschaft von Bürger*innen eines Staates, den Staatsbürger*innen. Die Gemeinschaft der Bürger*innen eines Staates können sich aus vielen unterschiedlichen Nationalitäten zusammensetzen mit nationalen Mehrheiten und Minderheiten.

Erwerb und Verlust der Staatsbürgerschaft und die damit verbundenen Rechte und Pflichten sind in den Gesetzen eines Staates geregelt. In Deutschland wird die Staatsbürgerschaft aufgrund des Abstammungsprinzips erworben, d. h. ein Kind erhält die Staatsangehörigkeit

seiner Eltern. Darüber hinaus besteht die Möglichkeit, sie durch eine Einbürgerung zu bekommen.

Die Staatsbürgerschaft ist meistens keine freiwillige Beziehung, sondern eher Schicksal, denn niemand sucht sich aus, ob er*sie beispielsweise in einem demokratisch oder diktatorisch regierten Staat geboren wird, in einem reichen oder armen Land. Staatsbürger*innen von Staaten im globalen Norden haben allein durch ihre Staatsbürgerschaft häufig mehr Privilegien als diejenigen von Staaten des globalen Südens. So wird die freiwillige Annahme einer anderen Staatsbürgerschaft einigen Menschen im Vergleich zu anderen erheblich erschwert.

Treibhauseffekt

In der Atmosphäre sind eine Vielzahl von Gasen, die die Erde umgeben. Das Sonnenlicht kann die Atmosphäre und die Wolkenschicht zum größten Teil durchdringen. Wenn die Erde das Licht reflektiert und umwandelt, dann entsteht Wärme (Absorption). Diese Wärme strahlt in Form von Infrarotstrahlung in Richtung der Atmosphäre zurück. Die Strahlung geht fast ungehindert ins Weltall weiter, da Sauerstoff oder Stickstoff durchlässig sind. Andere Gase, wie Wasserdampf, Kohlendioxid oder Methan, behindern das Austreten der warmen Infrarotstrahlen hingegen und halten so die Wärme in der Atmosphäre. Das ist so ähnlich wie in einem Gewächshaus, auch Treibhaus genannt. Der Treibhauseffekt ist zunächst nicht nur negativ, denn ohne ihn wäre es auf der Erde ziemlich kalt und das Leben, so wie wir es kennen, wäre nicht möglich. Der Anteil der Treibhausgase in der Atmosphäre steigt durch die Art, wie die Menschen leben und wirtschaften, allerdings an und immer mehr Infrarotstrahlung bleibt in der Atmosphäre, was zu Problemen führt. Man nennt dies menschengemachten oder anthropogenen Treibhauseffekt.

Zuhause (oder zu Hause)

Der Begriff „zu Hause“ bezieht sich auf den Ort (oft ein Haus oder eine Wohnung), an dem jemand zu Hause ist und sich häufig auch wohl fühlt. Der Begriff „Heim“ kann auch synonym verwendet werden. Beispiele, die die unterschiedlichen Dimensionen kenntlich machen, sind: „Sie hat ein schönes Zuhause.“ In diesem Fall bezieht es sich auf das Haus, die Wohnung. Wenn man aber von „kein Zuhause haben“ spricht, dann ist das Verständnis weitergefasst und kann bedeuten, kein Haus oder keine Wohnung haben, aber auch keine Familie zu haben.

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ARBEITSBLATT

KUGELLAGER-DISKUSSION



- Was ist für dich „Heimat“ und was „zu Hause“? Wo fühlst du dich zu Hause?

- Was, außer einem bestimmten Ort, ist noch „Heimat“ für dich?

- Muss man sich irgendwo zu Hause fühlen?

ANLEITUNG

STIMMUNGSBAROMETER



Für die Methode des Stimmungsbarometers stellen sich die S*S in der Mitte des Raumes auf. Die Lehrkraft liest nacheinander Aussagen vor. Die S*S, die der jeweiligen Aussage zustimmen, gehen einen Schritt nach vorne. Wenn sie der Aussage nicht zustimmen, gehen sie einen Schritt zurück.

Ich bin neugierig, mehr über andere Menschen und Kulturen zu erfahren.

Ich kann gut mit Situationen umgehen, in denen verschiedene Meinungen oder Ansichten aufeinandertreffen.

Ich habe immer viele verschiedene Geschichten zu erzählen.

Es fällt mir schwer zu sagen, wo meine Heimat ist.

Ich kann mich gut in andere Menschen hinein fühlen.

Es gefällt mir, verschiedene Sprachen zu sprechen.

Ich fühle mich ganz verschiedenen Orten zugehörig.

Im Anschluss sprechen die S*S über die Gefühle und Gedanken wie es ist, ein „Global Citizen“ zu sein. Positive Aspekte werden hervorgehoben und um zusätzliche ergänzt. Negative Aspekte werden in der Klasse diskutiert.

Hinweis:

Neben der Verantwortung für das eigene Handeln und dessen translokale Auswirkungen und der Auseinandersetzung mit globalen Schlüsselproblemen, gehört die Reflexion über die eigene Zugehörigkeit zu wichtigen Aspekten in Bezug auf das Bewusstsein, ein „Global Citizen“ zu sein. Um letzteren Punkt soll es an dieser Stelle gehen, daher sollte die Diskussion, sofern sie sich zu stark auf die ersten Bereiche konzentriert, an einem bestimmten Punkt wieder auf die anschließenden Aspekte zurückgeführt werden.

Positive Aspekte als „Global Citizen“ aufzuwachsen

Neugierde, Diplomatie, Erlebnisse, Empathie, Mehrsprachigkeit, Bereicherung durch multiple Zugehörigkeiten und Sprachen

Negative Aspekte als „Global Citizen“ aufzuwachsen

Gefühl der Verlorenheit, Entwurzelung

TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – GHANA

„Farida und Friya Abubakari sind Zwillinge. Sie sind 24 Jahre alt und leben in Ghana. Ghana liegt in Westafrika. Früher lebten sie im Norden des Landes, an der Grenze zu dem Land Burkina Faso. Ihr Vater war ein Bauer.

Im Norden Ghanas sind die meisten Menschen Kleinbauern und leben von der Landwirtschaft. Auf ihren Feldern bauen sie Hirse, Reis, Mais, Erdnüsse, Maniok oder Gemüse an.



Ein Reisfeld in Ghana

Doch in der letzten Zeit gibt es Probleme, denn durch den Klimawandel hat sich das Wetter verändert. In manchen Regionen regnet es fast gar nicht mehr, in anderen viel stärker als früher. Außerdem wird es immer wärmer. Dadurch können die Bauern immer weniger ernten und kaum noch Geld verdienen.

Deshalb verlassen viele von ihnen ihre Heimat. Auch Faridas und Friyas Familie ist von zu Hause fortgezogen. Ihr Vater arbeitet nun als Händler, ihre Mutter verkauft Brot auf dem Markt. Die Zwillinge leben jetzt in einer großen Stadt im Süden des Landes. Sie hatten Glück: Sie haben Geld bekommen, um zur Schule zu gehen und zu studieren. Nun möchten sie den vielen anderen Menschen in Ghana, die ähnliche Probleme haben, helfen. Sie haben eine Hilfsorganisation gegründet, die den Bauern hilft.

Die Zwillinge finden es ungerecht, dass besonders Afrika unter den Folgen des Klimawandels leidet. „Afrika hat am wenigsten zur Klimaerwärmung beigetragen, aber wir sind es, die schon jetzt die Folgen spüren“, sagt Farida. Sie wünscht sich, dass die reicheren Staaten mehr tun, um den Klimawandel zu stoppen. Und arme Länder wie Ghana sollten Geld bekommen, damit sie den Bauern helfen können.“

Farida und Friya sind jedoch nicht die einzigen, die sich gegen den Klimawandel einsetzten. So gibt es in Ghana eine Vielzahl von jungen Klimaaktivist*innen. Beispielsweise wurde der junge Klimaaktivist Derrick durch „Fridays for Future“ dazu inspiriert, sich mehr gegen den Klimawandel einzusetzen. Seither informiert er zur nationalen Klimalage im ganzen Land. Genauso engagiert sich auch der Journalist und Aktivist Daniel Anyorigya. Er sagt, dass die Regierung von Ghana schon einige Vorzeigeprogramme umgesetzt hat, um gegen einige Folgen des Klimawandels anzukommen. Jedoch bleiben weitere Probleme bestehen, da Ghana sehr stark von den Wetterkatastrophen des Klimawandels betroffen ist.

Quellen:

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, „Leben mit dem Klimawandel“, in: *Umwelt im Unterricht*, 1, https://www.umwelt-im-unterricht.de/medien/dateien/leben-mit-dem-klimawandel/, zuletzt geprüft am 26. August 2022.

Das Material wurde unter der Creative Commons Lizenz CC BY-SA 4.0 veröffentlicht und von dem Zwischentöne-Team durch Angaben aus folgender Quelle ergänzt: Klimadelegation (Hg.). „Teil 4: Die heikle Phase“, in: *KlimaDelegation*, 17. Juli 2020, https://klimadelegation.de/teil-4-die-heikle-phase/, zuletzt geprüft am 26. August 2022.

Arbeitsauftrag:

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2. Erläutere, welche Kette von Umständen zu diesem Problem führen. Nutze ein Pfeildiagramm, um die beschriebenen Ursachen des Klimawandels optisch darzustellen. Beachte hierbei auch die Folgen für das Land und die Bevölkerung, die sich daraus ergeben.

TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – TUVALU

„Tuvalu ist ein sehr kleiner Staat im Pazifischen Ozean. Dort leben nur etwa 10.000 Menschen auf neun Inseln. Tuvalu ist ein sehr flaches Land. Der höchste Punkt der Inseln liegt nur etwa vier Meter über dem Meeresspiegel.

Der frühere Regierungschef Bikenibeu Paeniu schildert die Sorgen vieler Menschen: „Seit einigen Jahren gibt es in Tuvalu besonders hohe Gezeiten. Das Meerwasser überspült dann große Teile der Landfläche."



Tuvalu besteht aus kleinen Inseln. Alle Bewohner*innen leben direkt am Meer.

Durch den Klimawandel steigt das Meer immer höher, immer öfter gibt es Überschwemmungen. Früher hätte Bikenibeu Paeniu nicht geglaubt, dass die Menschen Tuvalu irgendwann verlassen müssten. „Aber heute sehe ich, dass die Industrieländer nichts gegen den Klimawandel unternehmen. Ich glaube, dass Tuvalu früher oder später unter Wasser stehen wird."

Bereits heute sind einige Inseln unbewohnbar. Auch könnte das Trinkwasser knapp werden, denn salziges Meerwasser sickert in das Grundwasser. Deshalb wurden schon Trinkwasser und Entsalzungsanlagen aus Neuseeland mit dem Flugzeug nach Tuvalu gebracht.

Viele Bewohner haben Tuvalu bereits verlassen. Die meisten leben jetzt in Neuseeland oder Australien. Auf Tuvalu fordern die Menschen, dass die reicheren Länder helfen sollen. Und im Notfall sollen sie die Inselbewohner aufnehmen. Bis dahin sollen sie weniger Treibhausgase produzieren, denn dann würde das Meer langsamer steigen."

Die internationale Organisation „Saving Tuvalu" setzt sich dafür ein, die Stimmen der Bewohner*innen von Tuvalu zu verstärken. Sie wird von Jugendlichen geführt und verfolgt das Ziel, ein gemeinschaftliches Bewusstsein für die Auswirkungen der Umweltkrise des Klimawandels in Tuvalu aufzubauen. Zudem werden Förderprogramme und Projekte umgesetzt, um die Qualität des Lebens für die Bevölkerung zu verbessern.

Quellen:

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, „Leben mit dem Klimawandel", in: *Umwelt im Unterricht*, 1, https://www.umwelt-im-unterricht.de/medien/dateien/leben-mit-dem-klimawandel/, zuletzt geprüft am 26. August 2022.

Das Material wurde unter der Creative Commons Lizenz CC BY-SA 4.0 veröffentlicht und von dem Zwischentöne-Team durch Angaben von folgender Webseite ergänzt: *Saving Tuvalu: If Tuvalu sinks, the world sinks with it*, https://savingtuvalu.org/, zuletzt geprüft am 26. August 2022.

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2. Erläutere, welche Kette von Umständen zu diesem Problem führen. Nutze ein Pfeildiagramm, um die beschriebenen Ursachen des Klimawandels optisch darzustellen. Beachte hierbei auch die Folgen für das Land und die Bevölkerung, die sich daraus ergeben.

TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – NIEDERLANDE

Die Familie Fleerakker lebt auf einem Bauernhof in den Niederlanden. Die Niederlande liegen an der Nordsee. Die Familie hat ein Problem: Sie muss bald umziehen. Denn der Fluss Maas, der ganz in ihrer Nähe fließt, wird die Gegend um den Hof in Zukunft häufig überfluten.



Teile des Landes liegen unter dem Meeresspiegel.

Eigentlich gibt es einen Deich, der das Land vor Überschwemmungen schützt. Doch durch den Klimawandel kann es in den Niederlanden immer häufiger starken Regen und dadurch Hochwasser geben. Durch das viele Wasser wird der Druck gegen die Deiche zu stark: Sie könnten brechen. Deshalb soll das Wasser mehr Platz bekommen. An vielen Flüssen zum Beispiel werden Deiche versetzt. So wird bei Hochwasser zwar mehr Land überschwemmt, aber dafür drückt das Wasser nicht mehr so stark gegen die Deiche. Die Menschen, deren Land überschwemmt wird, müssen umziehen: Entweder in eine andere Gegend oder auf einen kleinen Hügel, der extra dafür gebaut wird.

Hochwasser und Sturmfluten sind in den Niederlanden besonders gefährlich, weil große Teile des Landes unter dem Meeresspiegel liegen. Nur die Deiche an den Küsten und an den Flüssen verhindern, dass das Land überflutet wird.

Doch auch der Meeresspiegel steigt durch den Klimawandel. Auch dadurch wird die Gefahr durch Überflutungen größer. Dort, wo die Flüsse ins Meer münden, werden deshalb riesige Sperren gebaut. Bei einer Sturmflut werden sie geschlossen und verhindern so, dass das Meerwasser ins Landesinnere strömt. Die Sperren sind sehr aufwändig zu bauen und daher sehr teuer. Die Niederlande können sich diesen Schutz leisten, weil sie ähnlich wie Deutschland ein sehr reiches Land sind.

Quelle:

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, „Leben mit dem Klimawandel“, in: *Umwelt im Unterricht*, 1, https://www.umwelt-im-unterricht.de/medien/dateien/leben-mit-dem-klimawandel/, zuletzt geprüft am 26. August 2022.

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TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – BANGLADESCH

„Hasina lebt mit ihrem Sohn am Fluss Ganges in Bangladesch. Bangladesch liegt in Asien, östlich von Indien. Bis vor kurzem lebte Hasina in einem Haus auf einer der Inseln im Fluss. Doch beim letzten Hochwasser wurde die Insel fortgespült. Wo Hasina gewohnt hat, ist jetzt nur noch Wasser. Millionen Menschen in Bangladesch leben in einem Gebiet, wo riesige Flüsse in das Meer münden. Doch der Boden ist Schwemmland. Immer wieder entstehen neue Inseln, weil die Flüsse Sand und Lehm anspülen. Jedoch bei der nächsten Überflutung kann das Land wieder verschwinden.



Hasinas Haus wurde vom Wasser fortgespült.

„Das Hochwasser wird seit einigen Jahren immer schlimmer“, sagt Hasina. „Es kommt jetzt häufiger. Es kommt früher im Jahr und steigt sehr schnell. Anschließend dauert es länger, bis das Wasser wieder abfließt.“

Fachleute sagen, dass der Klimawandel die Überflutungen verstärkt. Denn er sorgt für mehr Regen. Und es gibt immer häufiger Sturmfluten.

Hasina weiß nicht, wie es mit ihrem Leben weitergehen soll, denn das Wasser zerstört häufig die Ernte. Der Klimawandel verursacht noch ein weiteres Problem: Der Meeresspiegel steigt an. Da das Land sehr niedrig liegt, gelangt salzhaltiges Meerwasser in die Flüsse. Dadurch wird das Wasser der Flüsse salzig. Dann kann man es nicht mehr als Trinkwasser und zum Bewässern der Pflanzen benutzen.

Bangladesch ist ein sehr armes Land. Mithilfe einiger reicherer Länder wurden Warnsysteme für Unwetter eingerichtet. So können sich die Menschen rechtzeitig vor Stürmen und Hochwasser in Sicherheit bringen. Einige Hilfsorganisationen unterstützen die Bauern auf dem Schwemmland dabei, ihre Häuser höher zu bauen. Viele legen auch schwimmende Gärten auf Flößen an.“

Die Anwältin Yi Yi Prue entschied sich im Jahr 2019 nach schweren Unwetterkatastrophen dazu, juristisch für mehr Klimagerechtigkeit zu kämpfen. Gemeinsam mit anderen reichte eine Klage gegen die unzureichenden klimatechnischen Maßnahmen Deutschlands ein und gewann den Prozess. Sie sich auch dafür ein, dass auch die Stimmen der indigenen Bevölkerung im Zusammenhang einer nachhaltigen Entwicklung mehr beachtet werden.

Quellen:

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, „Leben mit dem Klimawandel“, in: *Umwelt im Unterricht*, 1, https://www.umwelt-im-unterricht.de/medien/dateien/leben-mit-dem-klimawandel/, zuletzt geprüft am 26. August 2022.

Das Material wurde unter der Creative Commons Lizenz CC BY-SA 4.0 veröffentlicht und von dem Zwischentöne-Team durch Angaben aus folgender Quelle ergänzt: „A Written Statement by Yi Yi Prue“, in: *Theaterbremen*, 4. Februar 2022, https://www.theaterbremen.de/de_DE/a-written-statement-by-yi-yi-prue, zuletzt geprüft am 26. August 2022.

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TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – ALASKA

Miizuk ist 15 Jahre alt. Er lebt in einem kleinen Dorf auf einer Insel im Norden Alaskas, in Nordamerika. Miizuk ist ein Inuit – so heißen die Ureinwohner*innen Alaskas. Sein Dorf hat nur 600 Einwohner*innen und ist im Winter nur mit dem Flugzeug erreichbar.



In so einem Dorf auf einer Insel im Meer vor Alaska lebt Miizuk.

Miizuks Familie lebt von der Jagd. Im Winter ist das Meer rund um die Insel zugefroren. Auf dem Eis jagen Miizuk und sein Vater Robben oder gehen fischen. Von dem Fleisch und den Fischen ernährt sich die Familie. Aus den Fellen der Robben wird warme Kleidung genäht. So haben es bereits Miizuks Vorfahr*innen vor einigen Tausend Jahren gemacht.



Miizuk und sein Vater jagen im Winter Robben auf dem Eis

Doch die Lebensweise der Inuit ist durch den Klimawandel bedroht. Miizuk und sein Vater zeigen eine Stelle am Strand, wo ein Haus vom Meer weggerissen wurde. Miizuks Vater erklärt: „Früher war der Strand weiter draußen. Hier standen noch mehr Häuser, bevor die Wellen kamen."

Wegen des Klimawandels wird das Meer wärmer und friert später zu. Der Boden der Inseln taut auf und vor der Küste fehlt das Eis. So können die Wellen bei Sturm große Schäden anrichten. Solange das Meer nicht zugefroren ist, können die Inuit auch nicht auf dem Eis jagen. „Irgendwann in Zukunft müssen wir wohl alle umziehen", sagt Miizuk. „Ich hoffe, dass wir alle zusammenbleiben und weiterhin als Dorf zusammenleben können." Aber schon in zehn Jahren könnte sein Dorf nicht mehr bewohnbar sein."

Quelle:

Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit, „Leben mit dem Klimawandel", in: *Umwelt im Unterricht*, 1, https://www.umwelt-im-unterricht.de/medien/dateien/leben-mit-dem-klimawandel/, zuletzt geprüft am 26. August 2022.

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TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – DEUTSCHLAND

Dilsad ist 24 Jahre alt und lebt mit ihrer Familie in der Stadt Sinzig. Sinzig liegt im Bundesland Rheinland-Pfalz und befindet sich im Ahrtal. Dilsads Familie wohnt schon seit 20 Jahren in ihrem Haus und lebt hier gerne.

Das Ahrtal gilt als Hochwasserentstehungsgebiet. Durch das Tal fließt der Fluss Ahr, in welchen in einem verzweigten Flusssystem zahlreiche Bäche und Bachquellen münden. In der Vergangenheit ist es hier schon öfters zu katastrophalen Hochwasserereignissen gekommen. Grund hierfür ist starker Regen, der das Wasser in den Gewässern ansteigen lässt. Durch den Klimawandel kommt es heute immer häufiger zu Extremwetter wie Starkregen, was in dicht bebauten und bewohnten Gebieten in Deutschland zerstörerische Folgen mit sich bringt.



Hochwasser in Altenahr.

So kam es auch im Juli 2021 im Ahrtal und anderen Tälern des deutschen Mittelgebirges durch starke Niederschläge zu gefährlichen Sturzfluten. Durch extrem hohe Mengen an Regen stiegen viele Bäche und Flüsse plötzlich an, was zu extremen Überschwemmungen mit enormen Schäden führte. Durch die Fluten mussten viele ihre Häuser verlassen, so auch Dilsad und ihre Familie. Sie konnten sich glücklicherweise in einen Nachbarort retten. Als sie nach dem Hochwasser wieder zu ihrem Zuhause zurückkehrten, war vieles zerstört und kaputt. Die Familie will ihr Zuhause jedoch nicht aufgeben und versucht mit Unterstützung von Geldspenden und Freunden alles wieder aufzubauen. Andere Betroffene können oder möchten in ihr zerstörtes Zuhause nicht mehr zurückkehren.

Durch den Klimawandel ist das Wetter und Klima in Deutschland sehr trocken geworden. Es kommt immer häufiger zu langen Phasen der Dürre und Trockenheit. Auch die schwereren, aber seltener werdenden Niederschläge kommen nicht gegen die Trockenheit an. Die steigenden Temperaturen führen zu schlechten Ernten, bedrohten Ökosystemen und zu brandgefährdeten Wäldern. Doch auch der Wasserstand in den deutschen Gewässern sinkt durch die Trockenheit enorm ab. Das Wasser wird immer knapper. So stellt auch der Forscher Jay Famiglietti fest, dass Deutschland „zu den Regionen mit den höchsten Wasserverlusten“ gehört. Aktuell steht noch genug Trinkwasser zur Verfügung. In den nächsten Jahren wird aber von einer regionalen und zeitlich begrenzten Wasserknappheit während der Sommerzeit ausgegangen.

Um den Schaden durch Unwetterkatastrophen und den Wassermangel abzuschwächen, muss die Politik eingreifen. Es wird ein umweltschonendes Wassermanagement und ein verbesserter Katastrophenschutz benötigt. Die Zukunft wird zeigen, wie diese Maßnahmen umgesetzt werden.

Quellen:

Dießelkämper, Berit, Fabian Herriger und Paul Lütge. „Rettung aus der Flut: ‚Wir hatten zehn Minuten Zeit'", in: *Zeit Campus*, 25. Juli 2021, https://www.zeit.de/campus/2021-07/rettung-flut-erfahrungsberichte-hochwasser-deutschland-geschichten-ueberlebende-junge-menschen, zuletzt geprüft am 26. August 2022.

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Schlömer, Oliver, Jens Giesel und Manfred Lindinger. „Déjà-vu der Katastrophe", in: *Frankfurter Allgemeine Zeitung*, 5. August 2021, https://www.faz.net/aktuell/gesellschaft/ungluecke/flutkatastrophe-im-ahrtal-neue-erkenntnisse-zum-hochwasser-17470847.html, zuletzt geprüft am 26. August 2022.

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Umweltbundesamt (Hg.). „Trockenheit in Deutschland – Fragen und Antworten", in: *Umwelt Bundesamt*, 15. Juli 2022, https://www.umweltbundesamt.de/themen/trockenheit-in-deutschland-fragen-antworten, zuletzt geprüft am 26. August 2022.

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TEXTQUELLE

LEBEN MIT DEM KLIMAWANDEL – ITALIEN



Das Kolosseum in Rom
Foto: Fabio Di Lupo, veröffentlicht auf Flickr

Hast du schon mal etwas vom Kolosseum in Rom gehört? Das Kolosseum ist ein Amphitheater[3], das im antiken Rom erbaut wurde und als Wahrzeichen der italienischen Hauptstadt gilt. Es hat einen großen historischen und archäologischen Wert, weshalb es auch im Jahr 2007 zu einem der Sieben Weltwunder der Neuzeit erklärt wurde. Doch das Kolosseum droht Opfer des Klimawandels zu werden, denn Italien zählt zu den Ländern in Südeuropa, die besonders stark mit den Folgen des Klimawandels zu kämpfen haben: es gibt mittlerweile immer wieder sehr starken Regen, Stürme und Tornados sowie sehr hohe Temperaturen, die zu Dürren führen.

Laut der Forscherin Alessandra Bonazza greifen die immer stärker werdenden Regenfälle und die langen Dürreperioden die Fassade des Kolosseums an und bringen den Stein zum Bröckeln. Um die Gefahren, die dadurch entstehen, zu verhindern, muss das Kolosseum ständig kontrolliert werden. Aber nicht nur das Kolosseum leidet unter dem Klimawandel, sondern auch andere alte Bauwerke und das gesamte antike Ruinengebiet in Pompeji.

Italiens Städte sind besonders für hohe Temperaturen, Hitzewellen und extreme Regenfälle anfällig. Da sie sich immer weiter ausbreiten, die Kanalisation veraltet ist und Wasserleitungen kaputt gehen, werden die Böden undurchlässig und Wasserreserven gehen verloren. Im Juli 2022 war Italien so stark von der Dürre betroffen, dass in manchen Städten wie Pisa oder Verona sogar die Wassernutzung eingeschränkt werden musste. In Sizilien verursachte die Trockenheit und starke Winde immer wiederkehrende Waldbrände. Auch die Ernte war bedroht. So sagt Gianluigi Tacchini, ein italienischer Reisbauer: „Ich habe noch nie eine so lange Trockenheit erlebt. (…) Wenn das Wasserproblem weiter anhält, droht mir ein hundertprozentiger Ernteausfall."

Italien befindet sich somit in einer extremen Notlage und hat sich nun hohe Klimaziele gesetzt. Bei der Umsetzung wird es wie alle Mitgliedstaaten von der EU mit finanziellen Mitteln unterstützt.

[3] Amphitheater sind offene, rund angelegte Theater, die zur Zeit der römischen Antike entstanden sind.

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Foto:

Fabio Di Lupo, Colosseo, in: *Flickr*, 24. Mai 2008, https://www.flickr.com/photos/fabiodilupo/2523934266/.

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Arbeitsauftrag:

1. Beschreibe das Hauptproblem, um das es in dem Text geht, kurz in eigenen Worten.
2. Erläutere, welche Kette von Umständen zu diesem Problem führen. Nutze ein Pfeildiagramm, um die beschriebenen Ursachen des Klimawandels optisch darzustellen. Beachte hierbei auch die Folgen für das Land und die Bevölkerung, die sich daraus ergeben.

ARBEITSBLATT

FOLGEN DES KLIMAWANDELS



Arbeitsauftrag:

Recherchiert selbstständig in der Gruppen Zeitungsartikel zum Thema „Klimawandel“.

1. Einigt euch in der Gruppe auf welchen Bereich ihr die anschließende Recherche konzentrieren möchtet. Ihr habt die Auswahl Zeitungsartikel zu den Folgen für…
    a) die Bäuer*innen
    b) den Tourismus
    c) ländliche Gegenden
    d) Städte
    e) die Versorgung der Bevölkerung
    f) die Tierwelt
    g) Ökosysteme oder Landschaften

    … zu suchen.
2. Stimmt euch gemeinsam mit eurer Lehrkraft und den anderen Gruppen ab, sodass keine Gruppe den gleichen Bereich fokussiert wie eine andere.
3. Macht euch Gedanken darüber, in welchem Land ihr Folgen des Klimawandels für den gewählten Bereich vermutet und stimmt euch mit eurer Lehrkraft ab.
4. Recherchiert im Internet einen Zeitungsartikel zu dem Thema und ggf. Hintergrundinformationen zum besseren Verständnis.
5. Beschreibt das Hauptproblem, mit dem ihr euch befasst habt, kurz in eigenen Worten. Erläutert die Ursachen für den Klimawandel in dem ihr sie mit Hilfe eines Pfeildiagramms optisch darstellt. Beachte hierbei auch die Folgen für das Land und die Bevölkerung, die sich daraus ergeben.

ARBEITSBLATT

HANDLUNGSMÖGLICHKEITEN



Was kann/können … für den Schutz des Klimas tun?

die Staatengemeinschaft	Nationale Regierungen
Unternehmen	Jede*r Einzelne

HINTERGRUNDINFORMATION

MEILENSTEINE DER KLIMAPOLITIK

1992

„Erdgipfel“ in Rio de Janeiro (Brasilien)

1992 findet die UN-Konferenz zu Umwelt und Entwicklung in Rio de Janeiro statt. Auf dieser auch als Erdgipfel bekannten Konferenz verabschieden die Vereinten Nationen unter anderem die Agenda 21 und die UN-Klimarahmenkonvention. Seitdem treffen sich die Vertragsstaaten jährlich zu Weltklimakonferenzen, um zu berichten, was sich im Klimaschutz getan hat und über neue Maßnahmen und Ziele zu verhandeln.

1997

Das Kyoto-Protokoll wird verabschiedet (Japan)

Auf der Weltklimakonferenz in Kyoto wird ein Zusatzprotokoll, das sogenannte Kyoto-Protokoll, zur Ausgestaltung der UN-Klimarahmenkonvention verabschiedet. Darin verpflichten sich die Industrieländer erstmals rechtsverbindlich, den CO2-Ausstoß zu reduzieren.

2009

Weltklimakonferenz in Kopenhagen (Dänemark)

Ziel der Konferenz war es, eine Verlängerung des Kyoto-Protokolls über 2012 hinaus zu erreichen, doch es scheitert. China, Indien, Südafrika, Brasilien und die USA schließen den sogenannten „Copenhagen Accord“, in dem der Klimawandel als eine der größten Herausforderungen der Menschheit anerkannt und das 2-Grad-Ziel zur Verhinderung einer gefährlichen Störung des Klimasystems gesetzt werden.

2015

Weltklimakonferenz in Paris (Frankreich)

Im Pariser Abkommen einigen sich die Vertragsstaaten der UN-Klimarahmenkonvention darauf, die Erderwärmung auf unter 2 Grad Celsius zu begrenzen. Im Pariser Abkommen verpflichten sich erstmals alle Vertragsstaaten dazu, einen Beitrag zum Klimaschutz zu leisten.

Die Vereinten Nationen verabschieden siebzehn ökologische, wirtschaftliche, kulturelle und soziale Nachhaltigkeitsziele (Sustainable Development Goals).

2021

Weltklimakonferenz in Glasgow (Schottland, Großbritannien)

In Glasgow wurden erstmals im Rahmen einer Weltklimakonferenz Kohle und andere nicht regenerative fossile Energieträger zum Auslaufmodell erklärt. Die Staaten konnten sich letztlich allerdings nur darauf einigen, einer schrittweisen Verringerung deren Nutzung zuzustimmen, anstatt zu erklären, den Ausstieg zum Ziel zu haben. Auch wurde die Bedeutung des 1,5-Grad-Ziels noch einmal bekräftigt und die teilnehmenden Nationen sagten zu, ihre Bemühungen zur Erreichung dieses fortzusetzen.

Die Forderung nach Hilfen für die Bewältigung der Klimaschäden führte während den Verhandlungen sogar zum Streit. Letztlich wurde zwar anerkannt, dass der Klimawandel immer größere Schäden anrichte und daher Finanzhilfen nötig seien, allerdings wurden keine Verpflichtungen der Industrieländer festgelegt.

2022

Weltklimakonferenz in Sharm El-Sheikh (Ägypten)

Im Rahmen der 27. Weltklimakonferenz in Sharm El-Sheikh setzte sich die deutsche Bundesregierung für mehr Ehrgeiz für die Eindämmung der Klimakrise ein. Für die Beschleunigung der Energiewende einschließlich der Abkehr von der Stromproduktion durch die Verbrennung von Kohle sollen Partnerschaften mit afrikanischen Staaten eingegangen werden. Außerdem verzeichnete man Fortschritte bei der Einrichtung eines Fonds für ärmere Staaten, die von Klimaschäden stark betroffen sind.

Die EU einigte sich im Rahmen des Gipfels darauf, ihr bisheriges Klimaziel zu steigern und ihre Emissionen bis zum Jahr 2030 um 57% im Vergleich zu 1990 zu senken.

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ANLEITUNG

KLIMAKONFERENZ



Die S*S nehmen unterschiedliche Rollen ein und spielen eine Weltklimakonferenz nach.

- ca. 20 S*S
- 3-4 S*S pro Gruppe
- 1 Moderator*in (Lehrkraft oder ein*e durch sie ausgewählte*r Schüler*in)

Ziel der Konferenz: Abschluss eines Abkommens

Ablauf:

Die S*S werden in Kleingruppen eingeteilt und erhalten Rollenkarten. Ziel des Spiels ist es, eine Einigung zu erwirken, die Grundlage eines Abkommens, das alle Gruppen unterzeichnen würden. Die Gruppen sollen zwar ihre Position verteidigen, müssen aber auch bereit sein, Kompromisse einzugehen.

Die S*S informieren sich im Vorwege zu Hause über ihre Rollen und erarbeiten gemeinsam eine Strategie für die Verhandlung. Auf Grundlage der Zusatzinformationen, die sie über die anderen Rollen haben, sollten sich auch überlegen, welche Argumenten die anderen Gruppen haben könnten, um auf diese entsprechend reagieren zu können. Es wird pro Gruppe eine Person ausgewählt, die mit den anderen Vertreter*innen verhandelt.

Die Spielleitung eröffnet die Konferenz, die Ländervertreter*innen stellen in Impulsreferaten ihre Forderungen vor. Die Spielleitung sammelt die Forderungen, sodass sie für alle sichtbar sind. Anschließend werden die Forderungen verhandelt und entsprechend angepasst. Aus der Sammlung der Forderungen wird das Abkommen formuliert und verabschiedet. Wird keine Einigung erzielt, werden die Verhandlungen als gescheitert erklärt.

ROLLENKARTE

TEILNEHMER*INNEN AN DER KLIMAKONFERENZ



Vertreter*in des Weltklimarates/Moderator*in

Vorrangiges Ziel ist es, dass sich die Staaten bezüglich der Fragestellungen einigen und möglichst ambitionierte Ziele unterstützen. Das bedeutet: der Vertrag muss ausgefüllt und von allen außer der VSS unterzeichnet werden. Der/Die Moderator*in ergreift allerdings keine Partei für Staaten, sondern leitet überparteilich die Konferenz. Er*Sie hat die Verantwortung, dass alle ausgewogen zu Wort kommen und wenn die Diskussion zu sehr abschweift, sie wieder auf das Ziel zu fokussieren.

Erklärung zur Weltklimakonferenz

Seit Anfang der 1990er Jahre diskutieren alle Länder der Erde bei sogenannten Klimakonferenzen Fragen zum Klimaschutz. Es geht u.a. darum, wie stark einzelne Länder ihre Treibhausgase reduzieren oder mit wie viel Geld und Zusammenarbeit reiche Länder die ärmeren Länder beim notwendigen Klimaschutz und der Bewältigung der zunehmenden Klimakrise unterstützen. Bei den Konferenzen kommen Politiker*innen, Berater*innen und Klimaschutz-Organisationen zusammen und beratschlagen darüber, wie sie gemeinsam die Erderwärmung begrenzen können. Die Treffen werden von den Vereinten Nationen organisiert.

Unterstützt werden die Konferenzen durch Berichte über das aktuelle Wissen der Klimawissenschaft, die der Weltklimarat (Intergovernmental Panel on Climate Change, IPCC) regelmäßig herausgibt. In diesem Gremium der Vereinten Nationen arbeiten Wissenschaftler*innen aus der ganzen Welt zusammen und ergründen, welche Ursachen und Folgen die Klimakrise hat, wie die Menschen das Klima schützen können, wie sie mit den Folgen und Problemen der Klimakrise umgehen und wie wir uns an die Veränderungen anpassen können. Die Berichte dienen als Grundlage für politische Entscheidungen darüber, was getan werden muss, um auch in Zukunft ein gutes Leben zu ermöglichen.

Am Ende der Konferenzen stehen Erklärungen, die idealerweise alle an der Konferenz teilnehmenden Länder unterzeichnen und in denen sie möglichst konkrete Ziele festlegen und Maßnahmen nennen, wie sie versuchen wollen, diese zu erreichen. Dies ist ein politischer Entscheidungsprozess, bei dem Machtverhältnisse, wie in der gesamten internationalen Politik, eine wichtige Rolle spielen. Daher ist es in der Regel so, dass wohlhabendere Staaten, die selbst auch mehr Geld in den Klimaschutz investieren (können), auch einen deutlichen größeren Einfluss auf die Entscheidungen haben, die getroffen werden. Es passiert auch immer wieder, dass einzelnen Staaten die Erklärungen nicht unterzeichnen oder Änderungen im Text dadurch erwirken, dass sie damit drohen, ihre Unterschrift zu verweigern.

Allgemeine Informationen

Für die nachfolgende Klimakonferenz stehen sich fiktive Länder als Verhandlungspartner gegenüber. Die beschriebenen Voraussetzungen, die diese mitbringen, und das Eingangsszenario basieren aber auf realen Ereignissen, Daten und Fakten, die gelegentlich etwas verändert wurden, um die einzelnen Positionen noch stärker hervorzuheben.

Die Vereinigten Staaten von Sipacheyenne (VSS) haben kürzlich einen neuen Präsidenten gewählt, der nicht bereit ist, sich (finanziell) am Klimaschutz zu beteiligen. Öffentlich stellt der die Tatsache der globalen Erwärmung mit ihren katastrophalen Folgen in Frage. Es ist aus dem Pariser Klimaabkommen, in dem die unterzeichnenden Länder sich verpflichtet hatten, Treibhausgasemissionen zu reduzieren und Maßnahmen zur Minderung der Auswirkungen des Klimawandels zu finanzieren. Da die VSS finanziell gut aufgestellt sind und damit auch einen hohen Beitrag zur Finanzierung dieser Maßnahmen hätten leisten sollen, ist auf den Klimakonferenzen eine politische Lücke entstanden. Durch eine erhöhte internationale politische Verantwortung können der eigene Standpunkt und eigenen Absichten besser durchgesetzt werden, aber das eigene Land erhält auch eine Vorreiterfunktion und übernimmt Verantwortung für Misserfolge.

Der Green Climate Fund ist der größte „Geldtopf“, in den reiche Staaten einzahlen, um Projekte zum Klimaschutz und zur Anpassung an den Klimawandel finanziell zu unterstützen. In Paris hat der damalige Präsident der VSS der internationalen Gemeinschaft durch den Green Climate Fund 3 Milliarden VS-Dollar zugesichert. Nach der Ankündigung seines Nachfolgers, diesen Fond nicht mehr zu unterstützen, fehlen nun noch 2 Milliarden US-Dollar.

Ziel: Führt Verhandlungen, die als Grundlage für den Abschluss eines Vertrages dienen sollen, der von allen (außer den VSS) unterzeichnet wird. Versucht, die Interessen des eigenen Staates möglichst stark miteinzubringen, dabei aber auch die Konsequenzen für unseren Planeten im Blick zu behalten und ebenfalls den Vertragsabschluss nicht zu gefährden. Gelingt es nicht, einen Vertrag auszuhandeln, haben alle verloren, denn der Klimawandel schreitet ungehindert fort.

Informationen zu den Konferenzteilnehmer*innen

Aetanien: Aetanien ist ein tropischer Inselstaat und durch den Meeresspiegelanstieg, der vom Klimawandel ausgelöst wird, in besonderem Maße bedroht. Bereits jetzt versinken einige Inseln im Ozean und schwere Taifune sowie durch starken Regen ausgelöste Erdrutsche setzen dem Staat ebenfalls zu.

Um die eigene Stimme zu verstärken, haben sich die Inselstaaten bei den Klimakonferenzen zur Interessengruppe AOSIS zusammengeschlossen. Sie vereint die hohe Verwundbarkeit, denn sie sind besonders anfällig für die Folgen klimatischer Veränderungen, während ihr CO2-Ausstoß niedrig ist. In den Klimakonferenzen appellieren die Inselstaaten sehr eindringlich, nicht langwierig zu verhandeln, sondern zügig alles zu tun, um den Klimawandel abzuschwächen. Ihnen ist wichtig, dass Kapital aus dem Green Climate Fund für Anpassungen an die Folgen des Klimawandels zur Verfügung steht. Ukrasien und die Vereinigten Staaten von Sipacheyenne (VSS) sind für Aetanien als aktuelle Hauptemittenten klar diejenigen, die die Verantwortung tragen sollten. Für die Länder, die auf das Recht beharren, im Zuge ihrer

Entwicklung mehr CO2 auszustoßen, wie es auch die heutigen Industriestaaten Keltanenland, VSS etc. getan haben, hat Aetanien wenig Verständnis – Klimaschutz muss jetzt stattfinden.

Keltanenland/Charitische Union (CU): Aufgrund seiner halbherzigen Strategien zur Erreichung der Klimaziele wird Keltanenland seine sich selbst gesteckten Klimaziele voraussichtlich nicht erreichen und auch die Energiewende hin zu erneuerbaren Energien ist ins Stocken geraten. Der neue Pariser Vertrag wird allerdings ausdrücklich begrüßt und das Land steckt sich bei Klimakonferenzen hohe Ziele. Keltanenland hat ein wirtschaftliches Interesse daran, dass Staaten wie Ukrasien, dessen CO2-Emissionen stark angestiegen sind, sich zu Klimazielen verpflichten.

Keltanenland ist vom Klimawandel vor allem durch Hitzewellen und die dadurch verursachten Dürren, sowie Überschwemmungen durch starke Regenfälle betroffen.

Als Exporteur von erneuerbaren Technologien profitiert Keltanenland aber auch vom Klimawandel, da die Nachfrage nach diesen steigt. Bei den Klimaverhandlungen tritt die Charitische Union (CU) gemeinsam auf und wird von dem Staat, der aktuell die Ratspräsidentschaft innehat, vertreten. Als Mitglied der CU gerät auch Keltanenland unter Druck, weil die Union auf der einen Seite sehr proaktiv ist, auf der anderen Seite allerdings in ihren Ländern zu wenig umsetzt.

Vereinigte Staaten von Sipacheyenne: Der aktuelle Präsident der VSS hat den Pariser Vertrages aufgekündigt, da er ihn als ungerecht und wirtschaftlich benachteiligend für sein Land empfindet. Daher haben die VSS in den Verhandlungen kaum ein politisches Gewicht und werden auch den veränderten Vertrag nicht unterzeichnen. Dennoch sind sie bei den Verhandlungen anwesend, erhalten Redezeit und können sich zu Themen äußern. Ihr Ziel ist es, die anderen Staaten auf ihre Seite zu ziehen und das Abkommen scheitern zu lassen, damit neu in ihrem Sinne verhandelt werden kann.

Auch in der Geschichte der Klimakonferenzen gehörten die VSS zu den Bremsern von Klimaschutzabkommen, denn ihre Wirtschaft basiert auf fossilen Energieträgern. Gemeinsam mit anderen Industriestaaten, die ein ambitioniertes Klimaabkommen ablehnen, treten sie in der sogenannten UMBRELLA-Gruppe bei Konferenzen auf. Sie bestehen darauf, dass sowohl Ukrasien als auch andere Schwellenländer stärker in die Verantwortung genommen werden und ihren finanziellen Beitrag leisten müssen.

Ukrasien: Ukrasien ist mittlerweile mit weitem Abstand der Hauptemmitent von CO2, und damit fordern die anderen Staaten die Übernahme von Verantwortung. Ukrasien verweist bei solchen Vorwürfen gerne auf den Pro-Kopf-Ausstoß von CO2, der im Vergleich weitaus geringer ist.

Für den Klimawandel ist Ukrasien besonders anfällig, da Wasser-, Nahrungsmittel und Energiesysteme des Landes bereits am Limit und aufgrund steigender Meeresspiegel, Dürren, Wasserknappheit und Hitzewellen einem zunehmenden Druck ausgesetzt sind. In den Städten gibt es häufig Smog-Alarm und vermehrte Dürren sowie starke Veränderungen des Niederschlags führen zu großen (wirtschaftlichen) Schäden.

In Bezug auf Elektromobilität und erneuerbare Energien ist Ukrasien wohl an der Spitze der Weltrangliste. Auch auf der Klimakonferenz in Paris überraschte der Staat durch ambitionierte Vorgaben für den Klimaschutz. Diese Vorreiterrolle möchte er weiter ausbauen und ist durchaus bereit, mehr Verantwortung zu übernehmen. Es fordert von den Industriestaaten wie Keltanenland und die VSS sich an der Aufgabe zu beteiligen, das starke Wirtschaftswachstum ohne eine große Zunahme der CO2-Emissionen zu ermöglichen.

Ukrasien strebt eine globale Vereinbarung zur Reduktion der Treibhausgasemissionen an, die die Klimarisiken begrenzen, sich aber auch auf die Wirtschaft und grundlegende nationale Interessen bestmöglich auswirken soll. Ohne Maßnahmen werden Ukrasiens Emissionen bis 2100 dramatisch ansteigen.

Midiabien: Midiabien zählt vor allem aufgrund seiner Ölwirtschaft zu einem der reichsten Länder der Erde. Da die Verbrennung von Öl neben der von Kohle vor allem für den weltweiten CO2-Ausstoß verantwortlich ist, sieht Midiabien die Grundlage seines Reichtums bei Maßnahmen gegen den Klimawandel in Gefahr.

In Midabien wurde der Ausstieg der VSS positiv aufgenommen. Der Staat möchte so wenig wie möglich Verantwortung übernehmen und beruft sich dabei auf die historische Verantwortung der Industriestaaten, ihr Know-How und die im Jahr 1992 vorgenommene Einstufung Midiabiens als Unterstützungsempfänger*in. Insgesamt versucht Midiabien die Konferenz so gut es geht zu blockieren und die Ziele so minimal wie möglich zu halten. Es ist allerdings stark vom Export abhängig und möchte seine Beziehungen zu den anderen Staaten nicht gefährden, daher will sich Midiabien nicht von der Staatengemeinschaft verabschieden. Weiterhin kann es sich bei Forderungen der Schwellenländer und Industriestaaten darauf berufen, dass diese Hauptabnehmer seines Erdöls sind und somit auch hierfür Verantwortung tragen.

Die hier vorgestellten Länder sind fiktiv, die Angaben sind inspiriert von folgenden Quellen:

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ROLLENKARTE

TEILNEHMER*INNEN AN DER KLIMAKONFERENZ



Vertreter*in von Aetanien/Inselstaat

Arbeitsauftrag:

Bereitet euch auf die Klimakonferenz und die Verhandlung eines Vertrages zu folgenden Fragen vor:

1) Welche politische Verantwortung übernimmt jeder einzelne Staat nach dem Austritt der Vereinigten Staaten von Sipacheyenne (VSS)?
2) Welchen Anteil übernehmen die einzelnen Staaten von den fehlenden 2 Milliarden VS-Dollar im Green Climate Fund?

Überlegt euch eine geeignete Argumentationsstrategie für euer Land: auf welche Zahlen solltet ihr euch stützen? Welche Länder könnten eure Verbündeten sein? Welche Argumente könnten die anderen haben und wir könnt ihr diese entkräften?

Erklärung zur Weltklimakonferenz

Seit Anfang der 1990er Jahre diskutieren alle Länder der Erde bei sogenannten Klimakonferenzen Fragen zum Klimaschutz. Es geht u.a. darum, wie stark einzelne Länder ihre Treibhausgase reduzieren oder mit wie viel Geld und Zusammenarbeit reiche Länder die ärmeren Länder beim notwendigen Klimaschutz und der Bewältigung der zunehmenden Klimakrise unterstützen. Bei den Konferenzen kommen Politiker*innen, Berater*innen und Klimaschutz-Organisationen zusammen und beratschlagen darüber, wie sie gemeinsam die Erderwärmung begrenzen können. Die Treffen werden von den Vereinten Nationen organisiert.

Unterstützt werden die Konferenzen durch Berichte über das aktuelle Wissen der Klimawissenschaft, die der Weltklimarat (Intergovernmental Panel on Climate Change, IPCC) regelmäßig herausgibt. In diesem Gremium der Vereinten Nationen arbeiten Wissenschaftler*innen aus der ganzen Welt zusammen und ergründen, welche Ursachen und Folgen die Klimakrise hat, wie die Menschen das Klima schützen können, wie sie mit den Folgen und Problemen der Klimakrise umgehen und wie wir uns an die Veränderungen anpassen können. Die Berichte dienen als Grundlage für politische Entscheidungen darüber, was getan werden muss, um auch in Zukunft ein gutes Leben zu ermöglichen.

Am Ende der Konferenzen stehen Erklärungen, die idealerweise alle an der Konferenz teilnehmenden Länder unterzeichnen und in denen sie möglichst konkrete Ziele festlegen und Maßnahmen nennen, wie sie versuchen wollen, diese zu erreichen. Dies ist ein politischer Entscheidungsprozess, bei dem Machtverhältnisse, wie in der gesamten internationalen Politik, eine wichtige Rolle spielen. Daher ist es in der Regel so, dass wohlhabendere Staaten, die selbst auch mehr Geld in den Klimaschutz investieren (können), auch einen deutlichen

größeren Einfluss auf die Entscheidungen haben, die getroffen werden. Es passiert auch immer wieder, dass einzelnen Staaten die Erklärungen nicht unterzeichnen oder Änderungen im Text dadurch erwirken, dass sie damit drohen, ihre Unterschrift zu verweigern.

Allgemeine Informationen

Für die nachfolgende Klimakonferenz stehen sich fiktive Länder als Verhandlungspartner gegenüber. Die beschriebenen Voraussetzungen, die diese mitbringen, und das Eingangsszenario basieren aber auf realen Ereignissen, Daten und Fakten, die gelegentlich etwas verändert wurden, um die einzelnen Positionen noch stärker hervorzuheben.

Die Vereinigten Staaten von Sipacheyenne (VSS) haben kürzlich einen neuen Präsidenten gewählt, der nicht bereit ist, sich (finanziell) am Klimaschutz zu beteiligen. Öffentlich stellt der die Tatsache der globalen Erwärmung mit ihren katastrophalen Folgen in Frage. Es ist aus dem Pariser Klimaabkommen, in dem die unterzeichnenden Länder sich verpflichtet hatten, Treibhausgasemissionen zu reduzieren und Maßnahmen zur Minderung der Auswirkungen des Klimawandels zu finanzieren. Da die VSS finanziell gut aufgestellt sind und damit auch einen hohen Beitrag zur Finanzierung dieser Maßnahmen hätten leisten sollen, ist auf den Klimakonferenzen eine politische Lücke entstanden. Durch eine erhöhte internationale politische Verantwortung können der eigene Standpunkt und eigenen Absichten besser durchgesetzt werden, aber das eigene Land erhält auch eine Vorreiterfunktion und übernimmt Verantwortung für Misserfolge.

Der Green Climate Fund ist der größte „Geldtopf“, in den reiche Staaten einzahlen, um Projekte zum Klimaschutz und zur Anpassung an den Klimawandel finanziell zu unterstützen. In Paris hat der damalige Präsident der VSS der internationalen Gemeinschaft durch den Green Climate Fund 3 Milliarden VS-Dollar zugesichert. Nach der Ankündigung seines Nachfolgers, diesen Fond nicht mehr zu unterstützen, fehlen nun noch 2 Milliarden US-Dollar.

Ziel: Führt Verhandlungen, die als Grundlage für den Abschluss eines Vertrages dienen sollen, der von allen (außer den VSS) unterzeichnet wird. Versucht, die Interessen des eigenen Staates möglichst stark miteinzubringen, dabei aber auch die Konsequenzen für unseren Planeten im Blick zu behalten und ebenfalls den Vertragsabschluss nicht zu gefährden. Gelingt es nicht, einen Vertrag auszuhandeln, haben alle verloren, denn der Klimawandel schreitet ungehindert fort.

Informationen zu Aetanien

Aetanien ist ein tropischer Inselstaat mit mehr als 5.000 Inseln. Es ist durch den Meeresspiegelanstieg in besonderem Maße vom Klimawandel bedroht. Bereits jetzt versinken einige Inseln im Ozean. Zudem setzen schwere Taifune dem Staat zu. Der stärkste weltweit gemessene Taifun Malaki traf im September 2018 als Taifun der Kategorie 5 den nördlichen Teil von Aetanien. Beim Erreichen des Festlandes erzielte er Spitzengeschwindigkeiten von bis zu 270 Stundenkilometern. Mehr als 250.000 Menschen im ganzen Land erlitten Schäden durch den Taifun und Mindestens 59 Menschen wurden getötet. Die meisten Todesopfer forderten Erdrutsche, die durch die starken Regenfälle ausgelöst wurden. Durch den Klimawandel wird es zukünftig häufiger zu solchen extremen Naturereignissen kommen als bisher. Bei den UN-

Klimakonferenzen haben sich die Inselstaaten zur Interessengruppe AOSIS zusammengeschlossen. So erhoffen sie sich, weltpolitisch mit einer stärkeren Stimme sprechen zu können. Die Bewohner*innen vieler Inseln leben in Häusern, die aus natürlichen Materialien bestehen und versorgen sich weitgehend mit dem, was ihre Umgebung ihnen zu bieten hat. Sie vereint die hohe Verwundbarkeit, denn sie sind besonders anfällig für die Folgen klimatischer Veränderungen, während ihr CO2-Ausstoß niedrig ist. In den Klimakonferenzen appellieren die Inselstaaten sehr eindringlich, nicht langwierig zu verhandeln, sondern zügig alles zu tun, um den Klimawandel abzuschwächen. Hierzu bringen sie Berichte, Erfahrungen und Beispiele aus ihren Staaten mit ein. Ihnen ist wichtig, dass Kapital aus dem Green Climate Fund für Anpassungen an die Folgen des Klimawandels zur Verfügung steht.

Ukrasien und die Vereinigten Staaten von Sipacheyenne (VSS) sind für Aetanien als aktuelle Hauptemittenten klar diejenigen, die die Verantwortung tragen sollten.

Der Austritt der VSS ist für sie gleichzusetzen mit der Aussage: „Wir lassen euch untergehen." Für die Länder, die auf das Recht beharren, im Zuge ihrer Entwicklung mehr CO2 auszustoßen, wie es auch die heutigen Industriestaaten Keltanenland, VSS etc. getan haben, hat Aetanien wenig Verständnis – Klimaschutz muss jetzt stattfinden. Von den Industriestaaten fordert Aetanien aufgrund ihrer Machtposition, Druck auf die Weltgemeinschaft auszuüben, sodass weltweit Emissionen heruntergefahren werden und der Klimagipfel gelingt. Aus Sicht von Aetanien setzen Staaten wie Midiabien ihr Wirtschaftsmodell durch – auf Kosten der verwundbaren Länder.

2017	Keltanenland	Aetanien	VSS	Ukrasien	Midiabien
Einwohner (Mio.)	83	105	325	1421	33
BIP (Mrd. VS$)[4]	3.657	314	19.485	12.143	689
BIP per capita[5] (Tsd. VS$)	44	3	60	9	21
$MtCO_2$[6]-Produktion	974	131	5671	9839	633
tCO_2 per capita	9,7	1,2	16	6,9	19
$MtCO_2$-Konsum	795	149	5287	8549	620
tCO_2 per capita	11	1,4	18	6	19
Klima-Risiko-Index	3	2	12	33	103

Maximaler Beitrag zum Green Climate Fund: 1 Million VS$

[4] Der Wert des VS$ ist derzeit vergleichbar mit dem US-amerikanischen Dollar.
[5] Per capita bedeutet pro Person.
[6] Maß zum Vergleich der Emissionen verschiedener Treibhausgase.

Informationen zu den anderen Konferenzteilnehmer*innen

Keltanenland/Charitische Union (CU): Aufgrund seiner halbherzigen Strategien zur Erreichung der Klimaziele wird Keltanenland seine sich selbst gesteckten Klimaziele voraussichtlich nicht erreichen und auch die Energiewende hin zu erneuerbaren Energien ist ins Stocken geraten. Der neue Pariser Vertrag wird allerdings ausdrücklich begrüßt und das Land steckt sich bei Klimakonferenzen hohe Ziele. Keltanenland hat ein wirtschaftliches Interesse daran, dass Staaten wie Ukrasien, dessen CO2-Emissionen stark angestiegen sind, sich zu Klimazielen verpflichten.

Keltanenland ist vom Klimawandel vor allem durch Hitzewellen und die dadurch verursachten Dürren, sowie Überschwemmungen durch starke Regenfälle betroffen.

Als Exporteur von erneuerbaren Technologien profitiert Keltanenland aber auch vom Klimawandel, da die Nachfrage nach diesen steigt. Bei den Klimaverhandlungen tritt die Charitische Union (CU) gemeinsam auf und wird von dem Staat, der aktuell die Ratspräsidentschaft innehat, vertreten. Als Mitglied der CU gerät auch Keltanenland unter Druck, weil die Union auf der einen Seite sehr proaktiv ist, auf der anderen Seite allerdings in ihren Ländern zu wenig umsetzt.

Vereinigte Staaten von Sipacheyenne: Der aktuelle Präsident der VSS hat den Pariser Vertrages aufgekündigt, da er ihn als ungerecht und wirtschaftlich benachteiligend für sein Land empfindet. Daher haben die VSS in den Verhandlungen kaum ein politisches Gewicht und werden auch den veränderten Vertrag nicht unterzeichnen. Dennoch sind sie bei den Verhandlungen anwesend, erhalten Redezeit und können sich zu Themen äußern. Ihr Ziel ist es, die anderen Staaten auf ihre Seite zu ziehen und das Abkommen scheitern zu lassen, damit neu in ihrem Sinne verhandelt werden kann.

Auch in der Geschichte der Klimakonferenzen gehörten die VSS zu den Bremsern von Klimaschutzabkommen, denn ihre Wirtschaft basiert auf fossilen Energieträgern. Gemeinsam mit anderen Industriestaaten, die ein ambitioniertes Klimaabkommen ablehnen, treten sie in der sogenannten UMBRELLA-Gruppe bei Konferenzen auf. Sie bestehen darauf, dass sowohl Ukrasien als auch andere Schwellenländer stärker in die Verantwortung genommen werden und ihren finanziellen Beitrag leisten müssen.

Ukrasien: Ukrasien ist mittlerweile mit weitem Abstand der Hauptemmitent von CO2, und damit fordern die anderen Staaten die Übernahme von Verantwortung. Ukrasien verweist bei solchen Vorwürfen gerne auf den Pro-Kopf-Ausstoß von CO2, der im Vergleich weitaus geringer ist.

Für den Klimawandel ist Ukrasien besonders anfällig, da Wasser-, Nahrungsmittel und Energiesysteme des Landes bereits am Limit und aufgrund steigender Meeresspiegel, Dürren, Wasserknappheit und Hitzewellen einem zunehmenden Druck ausgesetzt sind. In den Städten gibt es häufig Smog-Alarm und vermehrte Dürren sowie starke Veränderungen des Niederschlags führen zu großen (wirtschaftlichen) Schäden.

In Bezug auf Elektromobilität und erneuerbare Energien ist Ukrasien wohl an der Spitze der Weltrangliste. Auch auf der Klimakonferenz in Paris überraschte der Staat durch ambitionierte Vorgaben für den Klimaschutz. Diese Vorreiterrolle möchte er weiter ausbauen und ist durchaus bereit, mehr Verantwortung zu übernehmen. Es fordert von den Industriestaaten wie Keltanenland und die VSS sich an der Aufgabe zu beteiligen, das starke Wirtschaftswachstum ohne eine große Zunahme der CO2-Emissionen zu ermöglichen.

Ukrasien strebt eine globale Vereinbarung zur Reduktion der Treibhausgasemissionen an, die die Klimarisiken begrenzen, sich aber auch auf die Wirtschaft und grundlegende nationale Interessen bestmöglich auswirken soll. Ohne Maßnahmen werden Ukrasiens Emissionen bis 2100 dramatisch ansteigen.

Midiabien: Midiabien zählt vor allem aufgrund seiner Ölwirtschaft zu einem der reichsten Länder der Erde. Da die Verbrennung von Öl neben der von Kohle vor allem für den weltweiten CO2-Ausstoß verantwortlich ist, sieht Midiabien die Grundlage seines Reichtums bei Maßnahmen gegen den Klimawandel in Gefahr.

In Midabien wurde der Ausstieg der VSS positiv aufgenommen. Der Staat möchte so wenig wie möglich Verantwortung übernehmen und beruft sich dabei auf die historische Verantwortung der Industriestaaten, ihr Know-How und die im Jahr 1992 vorgenommene Einstufung Midiabiens als Unterstützungsempfänger*in. Insgesamt versucht Midiabien die Konferenz so gut es geht zu blockieren und die Ziele so minimal wie möglich zu halten. Es ist allerdings stark vom Export abhängig und möchte seine Beziehungen zu den anderen Staaten nicht gefährden, daher will sich Midiabien nicht von der Staatengemeinschaft verabschieden. Weiterhin kann es sich bei Forderungen der Schwellenländer und Industriestaaten darauf berufen, dass diese Hauptabnehmer seines Erdöls sind und somit auch hierfür Verantwortung tragen.

Die hier vorgestellten Länder sind fiktiv, die Angaben sind inspiriert von folgenden Quellen:

Eckstein, David, Vera Künzel, Laura Schäfer und Maik Winges. „Global Climate Risk Index 2020: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2018 and 1999 to 2018“, *Briefing Paper,* Berlin, Bonn: Germanwatch, https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_13.pdf, zuletzt geprüft am 24. Juni 2022.

Germanwatch, „1,5°C: Als es uns gelungen ist, unsere Erde zu retten“, Berlin, Bonn, 2019, https://germanwatch.org/sites/germanwatch.org/files/Zukunftsgeschichten%20zum%20Drucken.pdf, zuletzt geprüft am 28. Juni 2022.

Greenpeace, „Alles Verhandlungssache? Bildungsmaterial zum internationalen Klimaschutz ab Klasse“ 7, Hamburg, 2017, https://www.greenpeace.de/bildungsmaterial/Klimaschutz-Alles-Verhandlungssache.pdf, zuletzt geprüft am 28. Juni 2022.

Germanwatch. „Globaler Klima-Risiko-Index 2020“, Bonn, Dezember 2019, https://germanwatch.org/sites/germanwatch.org/files/20-2-01%20KRI%202020%20-%20Kurzzusammenfassung_7.pdf, zuletzt geprüft am 24. Juni 2021.

Misereor, „Für’s Klima an den Verhandlungstisch: Simulation einer Klimakonferenz und Unterrichtsmaterial zu den Themen Klimagerechtigkeit und Klimawandel für die Sekundarstufe 2“, Aachen, 2018, https://www.misereor.de/fileadmin/publikationen/fuers-klima-an-den-verhandlungstisch-.pdf, zuletzt geprüft am 28. Juni 2022.

ROLLENKARTE

TEILNEHMER*INNEN AN DER KLIMAKONFERENZ



Vertreter*in von Keltanenland/Charitische Union (CU)

Arbeitsauftrag:

Bereitet euch auf die Klimakonferenz und die Verhandlung eines Vertrages zu folgenden Fragen vor:

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Seit Anfang der 1990er Jahre diskutieren alle Länder der Erde bei sogenannten Klimakonferenzen Fragen zum Klimaschutz. Es geht u.a. darum, wie stark einzelne Länder ihre Treibhausgase reduzieren oder mit wie viel Geld und Zusammenarbeit reiche Länder die ärmeren Länder beim notwendigen Klimaschutz und der Bewältigung der zunehmenden Klimakrise unterstützen. Bei den Konferenzen kommen Politiker*innen, Berater*innen und Klimaschutz-Organisationen zusammen und beratschlagen darüber, wie sie gemeinsam die Erderwärmung begrenzen können. Die Treffen werden von den Vereinten Nationen organisiert.

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Allgemeine Informationen

Für die nachfolgende Klimakonferenz stehen sich fiktive Länder als Verhandlungspartner gegenüber. Die beschriebenen Voraussetzungen, die diese mitbringen, und das Eingangsszenario basieren aber auf realen Ereignissen, Daten und Fakten, die gelegentlich etwas verändert wurden, um die einzelnen Positionen noch stärker hervorzuheben.

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Der Green Climate Fund ist der größte „Geldtopf“, in den reiche Staaten einzahlen, um Projekte zum Klimaschutz und zur Anpassung an den Klimawandel finanziell zu unterstützen. In Paris hat der damalige Präsident der VSS der internationalen Gemeinschaft durch den Green Climate Fund 3 Milliarden VS-Dollar zugesichert. Nach der Ankündigung seines Nachfolgers, diesen Fond nicht mehr zu unterstützen, fehlen nun noch 2 Milliarden US-Dollar.

Ziel: Führt Verhandlungen, die als Grundlage für den Abschluss eines Vertrages dienen sollen, der von allen (außer den VSS) unterzeichnet wird. Versucht, die Interessen des eigenen Staates möglichst stark miteinzubringen, dabei aber auch die Konsequenzen für unseren Planeten im Blick zu behalten und ebenfalls den Vertragsabschluss nicht zu gefährden. Gelingt es nicht, einen Vertrag auszuhandeln, haben alle verloren, denn der Klimawandel schreitet ungehindert fort.

Informationen zu Keltanenland

Lange Zeit galt Keltanenland als Vorreiter in der Klimapolitik. Mit seinen Beschlüssen zur Energiewende, der Förderung der erneuerbaren Energien und dem geplanten Ausstieg aus der Kernenergie hatte das Energiekonzept international Leuchtturmcharakter erlangt. Die Umsetzung stockt jedoch zunehmend, sodass Keltanenland voraussichtlich die gesteckten Klimaziele nicht erreicht. Durch wirtschaftliche Interessen wurden halbherzige Strategien in dem Bereich Verkehr und Energieeffizienz vereinbart mit der Folge, dass Keltanenland sogar CU-weit in diesen Bereichen abgehängt wurde. Auch die Energiewende hin zu erneuerbaren Energien stockt. Jedoch war der neue Pariser Vertrag dringend notwendig und er wird ausdrücklich begrüßt. Die Zahlen zeigen eindeutig, dass Länder wie Ukrasien so viel CO2

emittieren, dass sie mehr Verantwortung übernehmen müssen. Keltanenland hat ein starkes wirtschaftliches Interesse daran, dass Staaten sich zu Klimazielen verpflichten.

Keltanenland erlebte 2018 aufgrund einer starken Hitzewelle das wärmste Jahr seit Beginn der Wetteraufzeichnungen. Die Zeit zwischen April und Juli 2018 war mit Temperaturen von 2,9°C über dem Durchschnitt die heißeste, die jemals in Keltanenland gemessen wurde. Insgesamt führte die Hitzewelle zum Tod von mehr als 1.000 Menschen. Nach starken Regenfällen im Januar 2018 fiel im Sommer nur 61% der üblichen Niederschlagsmenge, sodass im Oktober 2018 70% des Bodens von Dürre betroffen waren. Rund 8.000 Landwirte beantragten eine staatliche Nothilfe in Höhe von rund 11,2 Mrd. VS$, um ihre Verluste auszugleichen, nachdem ein massiver Rückgang der Ernte insgesamt 3,5 Mrd. VS$ Schäden verursachte. Kürzlich verursachten wiederholte starke Regenfälle auch massive Überschwemmungen in Teilen von Keltanenland, die die Lebensgrundlage der Bewohner*innen in den betroffenen Gebieten zerstörten.

Da Keltanenland einer der größten Exporteure von erneuerbaren Technologien ist, steigert sich der Absatzmarkt für seine Produkte. Bei den Klimakonferenzen setzt sich Keltanenland für ambitionierte Klimaziele, wie z.B. die 1,5 Grad-Grenze, ein. Weiterhin tritt die Charitische Union (CU) gemeinsam bei den Klimaverhandlungen auf und wird von dem Staat, der aktuell die Ratspräsidentschaft innehat, vertreten. Die CU (und damit auch Keltanenland) gerät bei den Klimakonferenzen unter Druck, weil sie auf der einen Seite sehr proaktiv ist, auf der anderen Seite allerdings in ihren Ländern zu wenig umsetzt. Die Welt lässt sich nicht in zwei Klassen einteilen. Vielmehr sollte jeder Staat anteilig an dem, was er finanziell leisten kann und welchen aktuellen Beitrag zum Klimawandel er hat, Verantwortung übernehmen. Schaut man auf die Zahlen, so müssen sowohl Midiabien als auch Ukrasien, einen weitaus größeren Anteil leisten als bisher.

2017	Keltanenland	Aetanien	VSS	Ukrasien	Midiabien
Einwohner (Mio.)	83	105	325	1421	33
BIP (Mrd. VS$)[7]	3.657	314	19.485	12.143	689
BIP per capita[8] (Tsd. VS$)	44	3	60	9	21
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Maximaler Beitrag zum Green Climate Fund: 400 Millionen VS$

[7] Der Wert des VS$ ist derzeit vergleichbar mit dem US-amerikanischen Dollar.
[8] Per capita bedeutet pro Person.
[9] Maß zum Vergleich der Emissionen verschiedener Treibhausgase.

Informationen zu den anderen Konferenzteilnehmer*innen

Aetanien: Aetanien ist ein tropischer Inselstaat und durch den Meeresspiegelanstieg, der vom Klimawandel ausgelöst wird, in besonderem Maße bedroht. Bereits jetzt versinken einige Inseln im Ozean und schwere Taifune sowie durch starken Regen ausgelöste Erdrutsche setzen dem Staat ebenfalls zu.

Um die eigene Stimme zu verstärken, haben sich die Inselstaaten bei den Klimakonferenzen zur Interessengruppe AOSIS zusammengeschlossen. Sie vereint die hohe Verwundbarkeit, denn sie sind besonders anfällig für die Folgen klimatischer Veränderungen, während ihr CO2-Ausstoß niedrig ist. In den Klimakonferenzen appellieren die Inselstaaten sehr eindringlich, nicht langwierig zu verhandeln, sondern zügig alles zu tun, um den Klimawandel abzuschwächen. Ihnen ist wichtig, dass Kapital aus dem Green Climate Fund für Anpassungen an die Folgen des Klimawandels zur Verfügung steht. Ukrasien und die Vereinigten Staaten von Sipacheyenne (VSS) sind für Aetanien als aktuelle Hauptemittenten klar diejenigen, die die Verantwortung tragen sollten. Für die Länder, die auf das Recht beharren, im Zuge ihrer Entwicklung mehr CO2 auszustoßen, wie es auch die heutigen Industriestaaten Keltanenland, VSS etc. getan haben, hat Aetanien wenig Verständnis – Klimaschutz muss jetzt stattfinden.

Vereinigte Staaten von Sipacheyenne: Der aktuelle Präsident der VSS hat den Pariser Vertrages aufgekündigt, da er ihn als ungerecht und wirtschaftlich benachteiligend für sein Land empfindet. Daher haben die VSS in den Verhandlungen kaum ein politisches Gewicht und werden auch den veränderten Vertrag nicht unterzeichnen. Dennoch sind sie bei den Verhandlungen anwesend, erhalten Redezeit und können sich zu Themen äußern. Ihr Ziel ist es, die anderen Staaten auf ihre Seite zu ziehen und das Abkommen scheitern zu lassen, damit neu in ihrem Sinne verhandelt werden kann.

Auch in der Geschichte der Klimakonferenzen gehörten die VSS zu den Bremsern von Klimaschutzabkommen, denn ihre Wirtschaft basiert auf fossilen Energieträgern. Gemeinsam mit anderen Industriestaaten, die ein ambitioniertes Klimaabkommen ablehnen, treten sie in der sogenannten UMBRELLA-Gruppe bei Konferenzen auf. Sie bestehen darauf, dass sowohl Ukrasien als auch andere Schwellenländer stärker in die Verantwortung genommen werden und ihren finanziellen Beitrag leisten müssen.

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In Bezug auf Elektromobilität und erneuerbare Energien ist Ukrasien wohl an der Spitze der Weltrangliste. Auch auf der Klimakonferenz in Paris überraschte der Staat durch ambitionierte

Vorgaben für den Klimaschutz. Diese Vorreiterrolle möchte er weiter ausbauen und ist durchaus bereit, mehr Verantwortung zu übernehmen. Es fordert von den Industriestaaten wie Keltanenland und die VSS sich an der Aufgabe zu beteiligen, das starke Wirtschaftswachstum ohne eine große Zunahme der CO2-Emissionen zu ermöglichen.

Ukrasien strebt eine globale Vereinbarung zur Reduktion der Treibhausgasemissionen an, die die Klimarisiken begrenzen, sich aber auch auf die Wirtschaft und grundlegende nationale Interessen bestmöglich auswirken soll. Ohne Maßnahmen werden Ukrasiens Emissionen bis 2100 dramatisch ansteigen.

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In Midabien wurde der Ausstieg der VSS positiv aufgenommen. Der Staat möchte so wenig wie möglich Verantwortung übernehmen und beruft sich dabei auf die historische Verantwortung der Industriestaaten, ihr Know-How und die im Jahr 1992 vorgenommene Einstufung Midiabiens als Unterstützungsempfänger*in. Insgesamt versucht Midiabien die Konferenz so gut es geht zu blockieren und die Ziele so minimal wie möglich zu halten. Es ist allerdings stark vom Export abhängig und möchte seine Beziehungen zu den anderen Staaten nicht gefährden, daher will sich Midiabien nicht von der Staatengemeinschaft verabschieden. Weiterhin kann es sich bei Forderungen der Schwellenländer und Industriestaaten darauf berufen, dass diese Hauptabnehmer seines Erdöls sind und somit auch hierfür Verantwortung tragen.

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ROLLENKARTE

TEILNEHMER*INNEN AN DER KLIMAKONFERENZ



Vertreter*in der Vereinigten Staaten von Sipacheyenne (VSS)

Arbeitsauftrag:

Bereitet euch auf die Klimakonferenz und die Verhandlung eines Vertrages zu folgenden Fragen vor:

1) Welche politische Verantwortung übernimmt jeder einzelne Staat nach dem Austritt der Vereinigten Staaten von Sipacheyenne (VSS)?
2) Welchen Anteil übernehmen die einzelnen Staaten von den fehlenden 2 Milliarden VS-Dollar im Green Climate Fund?

Überlegt euch eine geeignete Argumentationsstrategie für euer Land: auf welche Zahlen solltet ihr euch stützen? Welche Länder könnten eure Verbündeten sein? Welche Argumente könnten die anderen haben und wir könnt ihr diese entkräften?

Erklärung zur Weltklimakonferenz

Seit Anfang der 1990er Jahre diskutieren alle Länder der Erde bei sogenannten Klimakonferenzen Fragen zum Klimaschutz. Es geht u.a. darum, wie stark einzelne Länder ihre Treibhausgase reduzieren oder mit wie viel Geld und Zusammenarbeit reiche Länder die ärmeren Länder beim notwendigen Klimaschutz und der Bewältigung der zunehmenden Klimakrise unterstützen. Bei den Konferenzen kommen Politiker*innen, Berater*innen und Klimaschutz-Organisationen zusammen und beratschlagen darüber, wie sie gemeinsam die Erderwärmung begrenzen können. Die Treffen werden von den Vereinten Nationen organisiert.

Unterstützt werden die Konferenzen durch Berichte über das aktuelle Wissen der Klimawissenschaft, die der Weltklimarat (Intergovernmental Panel on Climate Change, IPCC) regelmäßig herausgibt. In diesem Gremium der Vereinten Nationen arbeiten Wissenschaftler*innen aus der ganzen Welt zusammen und ergründen, welche Ursachen und Folgen die Klimakrise hat, wie die Menschen das Klima schützen können, wie sie mit den Folgen und Problemen der Klimakrise umgehen und wie wir uns an die Veränderungen anpassen können. Die Berichte dienen als Grundlage für politische Entscheidungen darüber, was getan werden muss, um auch in Zukunft ein gutes Leben zu ermöglichen.

Am Ende der Konferenzen stehen Erklärungen, die idealerweise alle an der Konferenz teilnehmenden Länder unterzeichnen und in denen sie möglichst konkrete Ziele festlegen und Maßnahmen nennen, wie sie versuchen wollen, diese zu erreichen. Dies ist ein politischer Entscheidungsprozess, bei dem Machtverhältnisse, wie in der gesamten internationalen Politik, eine wichtige Rolle spielen. Daher ist es in der Regel so, dass wohlhabendere Staaten, die selbst auch mehr Geld in den Klimaschutz investieren (können), auch einen deutlichen

größeren Einfluss auf die Entscheidungen haben, die getroffen werden. Es passiert auch immer wieder, dass einzelnen Staaten die Erklärungen nicht unterzeichnen oder Änderungen im Text dadurch erwirken, dass sie damit drohen, ihre Unterschrift zu verweigern.

Allgemeine Informationen

Für die nachfolgende Klimakonferenz stehen sich fiktive Länder als Verhandlungspartner gegenüber. Die beschriebenen Voraussetzungen, die diese mitbringen, und das Eingangsszenario basieren aber auf realen Ereignissen, Daten und Fakten, die gelegentlich etwas verändert wurden, um die einzelnen Positionen noch stärker hervorzuheben.

Die Vereinigten Staaten von Sipacheyenne (VSS) haben kürzlich einen neuen Präsidenten gewählt, der nicht bereit ist, sich (finanziell) am Klimaschutz zu beteiligen. Öffentlich stellt der die Tatsache der globalen Erwärmung mit ihren katastrophalen Folgen in Frage. Es ist aus dem Pariser Klimaabkommen, in dem die unterzeichnenden Länder sich verpflichtet hatten, Treibhausgasemissionen zu reduzieren und Maßnahmen zur Minderung der Auswirkungen des Klimawandels zu finanzieren. Da die VSS finanziell gut aufgestellt sind und damit auch einen hohen Beitrag zur Finanzierung dieser Maßnahmen hätten leisten sollen, ist auf den Klimakonferenzen eine politische Lücke entstanden. Durch eine erhöhte internationale politische Verantwortung können der eigene Standpunkt und eigenen Absichten besser durchgesetzt werden, aber das eigene Land erhält auch eine Vorreiterfunktion und übernimmt Verantwortung für Misserfolge.

Der Green Climate Fund ist der größte „Geldtopf“, in den reiche Staaten einzahlen, um Projekte zum Klimaschutz und zur Anpassung an den Klimawandel finanziell zu unterstützen. In Paris hat der damalige Präsident der VSS der internationalen Gemeinschaft durch den Green Climate Fund 3 Milliarden VS-Dollar zugesichert. Nach der Ankündigung seines Nachfolgers, diesen Fond nicht mehr zu unterstützen, fehlen nun noch 2 Milliarden US-Dollar.

Ziel: Führt Verhandlungen, die als Grundlage für den Abschluss eines Vertrages dienen sollen, der von allen (außer den VSS) unterzeichnet wird. Versucht, die Interessen des eigenen Staates möglichst stark miteinzubringen, dabei aber auch die Konsequenzen für unseren Planeten im Blick zu behalten und ebenfalls den Vertragsabschluss nicht zu gefährden. Gelingt es nicht, einen Vertrag auszuhandeln, haben alle verloren, denn der Klimawandel schreitet ungehindert fort.

Informationen zu den Vereinigten Staaten von Sipacheyenne (VSS)

Die Vereinigten Staaten von Sipacheyenne (VSS) nehmen eine paradoxe Stellung auf der Konferenz ein. Unter dem letzten Präsidenten noch Befürworter des Klimaschutzes, hat der aktuelle Präsident dies als größten Fehler dargestellt, den sein Vorgänger gemacht hat. Durch die Ablehnung des Pariser Vertrages haben die VSS in den Verhandlungen deshalb kaum ein politisches Gewicht, da sie den veränderten Vertrag nicht mit unterzeichnen werden. Dennoch sind die VSS bei den Verhandlungen anwesend, erhalten Redezeit und können sich zu Themen äußern. Ihr Ziel ist es, die anderen Staaten auf ihre Seite zu ziehen und das Abkommen scheitern zu lassen, damit neu in ihrem Sinne verhandelt werden kann.

In der Geschichte der Klimakonferenzen gehören die VSS zu den Bremsern von Klimaschutzabkommen. Das Kyoto-Protokoll beispielsweise wurde nie von ihnen ratifiziert. Begründet ist

dies durch ihre auf fossile Energieträger basierende Wirtschaft. Viele Industriestaaten – unter ihnen die VSS – stehen einem ambitionierten Klimaschutzabkommen ablehnend und blockierend gegenüber. Sie treten gemeinsam in der sogenannten UMBRELLA-Gruppe bei Konferenzen auf. Die VSS sind ausgetreten, weil ihr Präsident den Vertrag als höchst ungerecht und wirtschaftlich benachteiligend für das Land empfindet. Sowohl Ukrasien als auch andere Schwellenländer müssen stärker in die Verantwortung genommen werden und ihren finanziellen Beitrag leisten.

2017	Keltanenland	Aetanien	VSS	Ukrasien	Midiabien
Einwohner (Mio.)	83	105	325	1421	33
BIP (Mrd. VS$)[10]	3.657	314	19.485	12.143	689
BIP per capita[11] (Tsd. VS$)	44	3	60	9	21
$MtCO_2$[12]-Produktion	974	131	5671	9839	633
tCO_2 per capita	9,7	1,2	16	6,9	19
$MtCO_2$-Konsum	795	149	5287	8549	620
tCO_2 per capita	11	1,4	18	6	19
Klima-Risiko-Index	3	2	12	33	103

Maximaler Beitrag zum Green Climate Fund: 0 Millionen VS$

[10] Der Wert des VS$ ist derzeit vergleichbar mit dem US-amerikanischen Dollar.
[11] Per capita bedeutet pro Person.
[12] Maß zum Vergleich der Emissionen verschiedener Treibhausgase.

Informationen zu den anderen Konferenzteilnehmer*innen

Aetanien: Aetanien ist ein tropischer Inselstaat und durch den Meeresspiegelanstieg, der vom Klimawandel ausgelöst wird, in besonderem Maße bedroht. Bereits jetzt versinken einige Inseln im Ozean und schwere Taifune sowie durch starken Regen ausgelöste Erdrutsche setzen dem Staat ebenfalls zu.

Um die eigene Stimme zu verstärken, haben sich die Inselstaaten bei den Klimakonferenzen zur Interessengruppe AOSIS zusammengeschlossen. Sie vereint die hohe Verwundbarkeit, denn sie sind besonders anfällig für die Folgen klimatischer Veränderungen, während ihr CO2-Ausstoß niedrig ist. In den Klimakonferenzen appellieren die Inselstaaten sehr eindringlich, nicht langwierig zu verhandeln, sondern zügig alles zu tun, um den Klimawandel abzuschwächen. Ihnen ist wichtig, dass Kapital aus dem Green Climate Fund für Anpassungen an die Folgen des Klimawandels zur Verfügung steht. Ukrasien und die Vereinigten Staaten von Sipacheyenne (VSS) sind für Aetanien als aktuelle Hauptemittenten klar diejenigen, die die Verantwortung tragen sollten. Für die Länder, die auf das Recht beharren, im Zuge ihrer Entwicklung mehr CO2 auszustoßen, wie es auch die heutigen Industriestaaten Keltanenland, VSS etc. getan haben, hat Aetanien wenig Verständnis – Klimaschutz muss jetzt stattfinden.

Keltanenland/Charitische Union (CU): Aufgrund seiner halbherzigen Strategien zur Erreichung der Klimaziele wird Keltanenland seine sich selbst gesteckten Klimaziele voraussichtlich nicht erreichen und auch die Energiewende hin zu erneuerbaren Energien ist ins Stocken geraten. Der neue Pariser Vertrag wird allerdings ausdrücklich begrüßt und das Land steckt sich bei Klimakonferenzen hohe Ziele. Keltanenland hat ein wirtschaftliches Interesse daran, dass Staaten wie Ukrasien, dessen CO2-Emissionen stark angestiegen sind, sich zu Klimazielen verpflichten.

Keltanenland ist vom Klimawandel vor allem durch Hitzewellen und die dadurch verursachten Dürren, sowie Überschwemmungen durch starke Regenfälle betroffen.

Als Exporteur von erneuerbaren Technologien profitiert Keltanenland aber auch vom Klimawandel, da die Nachfrage nach diesen steigt. Bei den Klimaverhandlungen tritt die Charitische Union (CU) gemeinsam auf und wird von dem Staat, der aktuell die Ratspräsidentschaft innehat, vertreten. Als Mitglied der CU gerät auch Keltanenland unter Druck, weil die Union auf der einen Seite sehr proaktiv ist, auf der anderen Seite allerdings in ihren Ländern zu wenig umsetzt.

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In Bezug auf Elektromobilität und erneuerbare Energien ist Ukrasien wohl an der Spitze der Weltrangliste. Auch auf der Klimakonferenz in Paris überraschte der Staat durch ambitionierte Vorgaben für den Klimaschutz. Diese Vorreiterrolle möchte er weiter ausbauen und ist durchaus bereit, mehr Verantwortung zu übernehmen. Es fordert von den Industriestaaten wie Keltanenland und die VSS sich an der Aufgabe zu beteiligen, das starke Wirtschaftswachstum ohne eine große Zunahme der CO2-Emissionen zu ermöglichen.

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ROLLENKARTE

TEILNEHMER*INNEN AN DER KLIMAKONFERENZ



Vertreter*in von Ukrasien

Arbeitsauftrag:

Bereitet euch auf die Klimakonferenz und die Verhandlung eines Vertrages zu folgenden Fragen vor:

1) Welche politische Verantwortung übernimmt jeder einzelne Staat nach dem Austritt der Vereinigten Staaten von Sipacheyenne (VSS)?
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Überlegt euch eine geeignete Argumentationsstrategie für euer Land: auf welche Zahlen solltet ihr euch stützen? Welche Länder könnten eure Verbündeten sein? Welche Argumente könnten die anderen haben und wir könnt ihr diese entkräften?

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Seit Anfang der 1990er Jahre diskutieren alle Länder der Erde bei sogenannten Klimakonferenzen Fragen zum Klimaschutz. Es geht u.a. darum, wie stark einzelne Länder ihre Treibhausgase reduzieren oder mit wie viel Geld und Zusammenarbeit reiche Länder die ärmeren Länder beim notwendigen Klimaschutz und der Bewältigung der zunehmenden Klimakrise unterstützen. Bei den Konferenzen kommen Politiker*innen, Berater*innen und Klimaschutz-Organisationen zusammen und beratschlagen darüber, wie sie gemeinsam die Erderwärmung begrenzen können. Die Treffen werden von den Vereinten Nationen organisiert.

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Für die nachfolgende Klimakonferenz stehen sich fiktive Länder als Verhandlungspartner gegenüber. Die beschriebenen Voraussetzungen, die diese mitbringen, und das Eingangsszenario basieren aber auf realen Ereignissen, Daten und Fakten, die gelegentlich etwas verändert wurden, um die einzelnen Positionen noch stärker hervorzuheben.

Die Vereinigten Staaten von Sipacheyenne (VSS) haben kürzlich einen neuen Präsidenten gewählt, der nicht bereit ist, sich (finanziell) am Klimaschutz zu beteiligen. Öffentlich stellt der die Tatsache der globalen Erwärmung mit ihren katastrophalen Folgen in Frage. Es ist aus dem Pariser Klimaabkommen, in dem die unterzeichnenden Länder sich verpflichtet hatten, Treibhausgasemissionen zu reduzieren und Maßnahmen zur Minderung der Auswirkungen des Klimawandels zu finanzieren. Da die VSS finanziell gut aufgestellt sind und damit auch einen hohen Beitrag zur Finanzierung dieser Maßnahmen hätten leisten sollen, ist auf den Klimakonferenzen eine politische Lücke entstanden. Durch eine erhöhte internationale politische Verantwortung können der eigene Standpunkt und eigenen Absichten besser durchgesetzt werden, aber das eigene Land erhält auch eine Vorreiterfunktion und übernimmt Verantwortung für Misserfolge.

Der Green Climate Fund ist der größte „Geldtopf“, in den reiche Staaten einzahlen, um Projekte zum Klimaschutz und zur Anpassung an den Klimawandel finanziell zu unterstützen. In Paris hat der damalige Präsident der VSS der internationalen Gemeinschaft durch den Green Climate Fund 3 Milliarden VS-Dollar zugesichert. Nach der Ankündigung seines Nachfolgers, diesen Fond nicht mehr zu unterstützen, fehlen nun noch 2 Milliarden US-Dollar.

Ziel: Führt Verhandlungen, die als Grundlage für den Abschluss eines Vertrages dienen sollen, der von allen (außer den VSS) unterzeichnet wird. Versucht, die Interessen des eigenen Staates möglichst stark miteinzubringen, dabei aber auch die Konsequenzen für unseren Planeten im Blick zu behalten und ebenfalls den Vertragsabschluss nicht zu gefährden. Gelingt es nicht, einen Vertrag auszuhandeln, haben alle verloren, denn der Klimawandel schreitet ungehindert fort.

Informationen zu Ukrasien

Ukrasien ist in Bezug auf den Klimawandel und Klimaschutz im Umbruch. Zu Zeiten der Erstellung des Kyoto-Protokolls stieß Ukrasien nur halb so viel CO2 aus, wie die VSS. Das hat sich jedoch erheblich verändert. So ist Ukrasien mit weitem Abstand der Hauptemmitent von CO2, und damit fordern die anderen Staaten die Übernahme von Verantwortung. Ukrasien verweist bei solchen Vorwürfen gerne auf den Pro-Kopf-Ausstoß von CO2, der im Vergleich weitaus geringer ist. Ukrasien bekommt die Folgen des Klimawandels und der Verschmutzung erheblich zu spüren. In den großen Städten im Osten sind Smog-Alarme keine Seltenheit mehr. Dürren und Veränderung des Niederschlags nehmen zu. Ukrasien ist deshalb wohl das fortschrittlichste Land in Bezug auf Elektromobilität und erneuerbare Energien. Auch auf der Klimakonferenz in Paris überraschte der Staat durch ambitionierte Vorgaben für den

Klimaschutz. Diese Vorreiterrolle möchte er weiter ausbauen und ist durchaus bereit, mehr Verantwortung zu übernehmen.

Da kommt der Ausstieg der VSS gelegen, um einflussreicher agieren zu können. Auf den internationalen Konferenzen ist Ukrasien aufgrund der Wirtschaftsmacht und des politischen Einflusses ein wichtiger Akteur. Da Ukrasien mit einem starkem Wirtschaftswachstum im Aufbruch ist, sollten die Industriestaaten, wie Keltanenland und die VSS, sich daran beteiligen, dass Ukrasiens Wirtschaftswachstum ohne extreme Zunahme der CO2-Emissionen vonstattengeht. Sie sind in erster Linie in der Pflicht.

Ukrasien ist anfällig für den Klimawandel, da die Wasser-, Nahrungsmittel- und Energiesysteme des Landes bereits am Limit sind und aufgrund steigender Meeresspiegel, Dürren, Wasserknappheit und Hitzewellen einem zunehmenden Druck ausgesetzt sind. Ukrasien erlebte im Jahr 2017 eine anhaltende Hitzewelle und die Wahrscheinlichkeit solcher Temperaturen aufgrund des anthropogenen Klimawandels ist um etwa ein Drittel gestiegen.

Ukrasien strebt eine globale Vereinbarung zur Reduktion der Treibhausgasemissionen (THG-Emissionen) an. Diese Vereinbarung soll Klimarisiken begrenzen, sich aber auch auf die Wirtschaft und grundlegende nationale Interessen bestmöglich auswirken. Bei der UN-Klimakonferenz in Paris im Jahr 2015 einigten sich die Verhandlungspartner darauf, die Erderwärmung auf „deutlich unter 2°C gegenüber dem vorindustriellen Niveau“ zu begrenzen. Ohne Maßnahmen werden Ukrasiens Emissionen bis 2100 dramatisch ansteigen.

2017	Keltanenland	Aetanien	VSS	Ukrasien	Midiabien
Einwohner (Mio.)	83	105	325	1421	33
BIP (Mrd. VS$)[13]	3.657	314	19.485	12.143	689
BIP per capita[14] (Tsd. VS$)	44	3	60	9	21
$MtCO_2$[15]-Produktion	974	131	5671	9839	633
tCO_2 per capita	9,7	1,2	16	6,9	19
$MtCO_2$-Konsum	795	149	5287	8549	620
tCO_2 per capita	11	1,4	18	6	19
Klima-Risiko-Index	3	2	12	33	103

Maximaler Beitrag zum Green Climate Fund: 800 Millionen VS$

[13] Der Wert des VS$ ist derzeit vergleichbar mit dem US-amerikanischen Dollar.
[14] Per capita bedeutet pro Person.
[15] Maß zum Vergleich der Emissionen verschiedener Treibhausgase.

Informationen zu den anderen Konferenzteilnehmer*innen

Aetanien: Aetanien ist ein tropischer Inselstaat und durch den Meeresspiegelanstieg, der vom Klimawandel ausgelöst wird, in besonderem Maße bedroht. Bereits jetzt versinken einige Inseln im Ozean und schwere Taifune sowie durch starken Regen ausgelöste Erdrutsche setzen dem Staat ebenfalls zu.

Um die eigene Stimme zu verstärken, haben sich die Inselstaaten bei den Klimakonferenzen zur Interessengruppe AOSIS zusammengeschlossen. Sie vereint die hohe Verwundbarkeit, denn sie sind besonders anfällig für die Folgen klimatischer Veränderungen, während ihr CO2-Ausstoß niedrig ist. In den Klimakonferenzen appellieren die Inselstaaten sehr eindringlich, nicht langwierig zu verhandeln, sondern zügig alles zu tun, um den Klimawandel abzuschwächen. Ihnen ist wichtig, dass Kapital aus dem Green Climate Fund für Anpassungen an die Folgen des Klimawandels zur Verfügung steht. Ukrasien und die Vereinigten Staaten von Sipacheyenne (VSS) sind für Aetanien als aktuelle Hauptemittenten klar diejenigen, die die Verantwortung tragen sollten. Für die Länder, die auf das Recht beharren, im Zuge ihrer Entwicklung mehr CO2 auszustoßen, wie es auch die heutigen Industriestaaten Keltanenland, VSS etc. getan haben, hat Aetanien wenig Verständnis – Klimaschutz muss jetzt stattfinden.

Keltanenland/Charitische Union (CU): Aufgrund seiner halbherzigen Strategien zur Erreichung der Klimaziele wird Keltanenland seine sich selbst gesteckten Klimaziele voraussichtlich nicht erreichen und auch die Energiewende hin zu erneuerbaren Energien ist ins Stocken geraten. Der neue Pariser Vertrag wird allerdings ausdrücklich begrüßt und das Land steckt sich bei Klimakonferenzen hohe Ziele. Keltanenland hat ein wirtschaftliches Interesse daran, dass Staaten wie Ukrasien, dessen CO2-Emissionen stark angestiegen sind, sich zu Klimazielen verpflichten.

Keltanenland ist vom Klimawandel vor allem durch Hitzewellen und die dadurch verursachten Dürren, sowie Überschwemmungen durch starke Regenfälle betroffen.

Als Exporteur von erneuerbaren Technologien profitiert Keltanenland aber auch vom Klimawandel, da die Nachfrage nach diesen steigt. Bei den Klimaverhandlungen tritt die Charitische Union (CU) gemeinsam auf und wird von dem Staat, der aktuell die Ratspräsidentschaft innehat, vertreten. Als Mitglied der CU gerät auch Keltanenland unter Druck, weil die Union auf der einen Seite sehr proaktiv ist, auf der anderen Seite allerdings in ihren Ländern zu wenig umsetzt.

Vereinigte Staaten von Sipacheyenne: Der aktuelle Präsident der VSS hat den Pariser Vertrages aufgekündigt, da er ihn als ungerecht und wirtschaftlich benachteiligend für sein Land empfindet. Daher haben die VSS in den Verhandlungen kaum ein politisches Gewicht und werden auch den veränderten Vertrag nicht unterzeichnen. Dennoch sind sie bei den Verhandlungen anwesend, erhalten Redezeit und können sich zu Themen äußern. Ihr Ziel ist es, die anderen Staaten auf ihre Seite zu ziehen und das Abkommen scheitern zu lassen, damit neu in ihrem Sinne verhandelt werden kann.

Auch in der Geschichte der Klimakonferenzen gehörten die VSS zu den Bremsern von Klimaschutzabkommen, denn ihre Wirtschaft basiert auf fossilen Energieträgern. Gemeinsam mit

anderen Industriestaaten, die ein ambitioniertes Klimaabkommen ablehnen, treten sie in der sogenannten UMBRELLA-Gruppe bei Konferenzen auf. Sie bestehen darauf, dass sowohl Ukrasien als auch andere Schwellenländer stärker in die Verantwortung genommen werden und ihren finanziellen Beitrag leisten müssen.

Midiabien: Midiabien zählt vor allem aufgrund seiner Ölwirtschaft zu einem der reichsten Länder der Erde. Da die Verbrennung von Öl neben der von Kohle vor allem für den weltweiten CO2-Ausstoß verantwortlich ist, sieht Midiabien die Grundlage seines Reichtums bei Maßnahmen gegen den Klimawandel in Gefahr.

In Midabien wurde der Ausstieg der VSS positiv aufgenommen. Der Staat möchte so wenig wie möglich Verantwortung übernehmen und beruft sich dabei auf die historische Verantwortung der Industriestaaten, ihr Know-How und die im Jahr 1992 vorgenommene Einstufung Midiabiens als Unterstützungsempfänger*in. Insgesamt versucht Midiabien die Konferenz so gut es geht zu blockieren und die Ziele so minimal wie möglich zu halten. Es ist allerdings stark vom Export abhängig und möchte seine Beziehungen zu den anderen Staaten nicht gefährden, daher will sich Midiabien nicht von der Staatengemeinschaft verabschieden. Weiterhin kann es sich bei Forderungen der Schwellenländer und Industriestaaten darauf berufen, dass diese Hauptabnehmer seines Erdöls sind und somit auch hierfür Verantwortung tragen.

Die hier vorgestellten Länder sind fiktiv, die Angaben sind inspiriert von folgenden Quellen:

Eckstein, David, Vera Künzel, Laura Schäfer und Maik Winges. „Global Climate Risk Index 2020: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2018 and 1999 to 2018“, *Briefing Paper,* Berlin, Bonn: Germanwatch, https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_13.pdf, zuletzt geprüft am 24. Juni 2022.

Germanwatch, „1,5°C: Als es uns gelungen ist, unsere Erde zu retten“, Berlin, Bonn, 2019, https://germanwatch.org/sites/germanwatch.org/files/Zukunftsgeschichten%20zum%20Drucken.pdf, zuletzt geprüft am 28. Juni 2022.

Greenpeace, „Alles Verhandlungssache? Bildungsmaterial zum internationalen Klimaschutz ab Klasse“ 7, Hamburg, 2017, https://www.greenpeace.de/bildungsmaterial/Klimaschutz-Alles-Verhandlungssache.pdf, zuletzt geprüft am 28. Juni 2022.

Germanwatch. „Globaler Klima-Risiko-Index 2020“, Bonn, Dezember 2019, https://germanwatch.org/sites/germanwatch.org/files/20-2-01%20KRI%202020%20-%20Kurzzusammenfassung_7.pdf, zuletzt geprüft am 24. Juni 2021.

Misereor, „Für’s Klima an den Verhandlungstisch: Simulation einer Klimakonferenz und Unterrichtsmaterial zu den Themen Klimagerechtigkeit und Klimawandel für die Sekundarstufe 2“, Aachen, 2018, https://www.misereor.de/fileadmin/publikationen/fuers-klima-an-den-verhandlungstisch-.pdf, zuletzt geprüft am 28. Juni 2022.

ROLLENKARTE

TEILNEHMER*INNEN AN DER KLIMAKONFERENZ



Vertreter*in von Midiabien

Arbeitsauftrag:

Bereitet euch auf die Klimakonferenz und die Verhandlung eines Vertrages zu folgenden Fragen vor:

1) Welche politische Verantwortung übernimmt jeder einzelne Staat nach dem Austritt der Vereinigten Staaten von Sipacheyenne (VSS)?
2) Welchen Anteil übernehmen die einzelnen Staaten von den fehlenden 2 Milliarden VS-Dollar im Green Climate Fund?

Überlegt euch eine geeignete Argumentationsstrategie für euer Land: auf welche Zahlen solltet ihr euch stützen? Welche Länder könnten eure Verbündeten sein? Welche Argumente könnten die anderen haben und wir könnt ihr diese entkräften?

Erklärung zur Weltklimakonferenz

Seit Anfang der 1990er Jahre diskutieren alle Länder der Erde bei sogenannten Klimakonferenzen Fragen zum Klimaschutz. Es geht u.a. darum, wie stark einzelne Länder ihre Treibhausgase reduzieren oder mit wie viel Geld und Zusammenarbeit reiche Länder die ärmeren Länder beim notwendigen Klimaschutz und der Bewältigung der zunehmenden Klimakrise unterstützen. Bei den Konferenzen kommen Politiker*innen, Berater*innen und Klimaschutz-Organisationen zusammen und beratschlagen darüber, wie sie gemeinsam die Erderwärmung begrenzen können. Die Treffen werden von den Vereinten Nationen organisiert.

Unterstützt werden die Konferenzen durch Berichte über das aktuelle Wissen der Klimawissenschaft, die der Weltklimarat (Intergovernmental Panel on Climate Change, IPCC) regelmäßig herausgibt. In diesem Gremium der Vereinten Nationen arbeiten Wissenschaftler*innen aus der ganzen Welt zusammen und ergründen, welche Ursachen und Folgen die Klimakrise hat, wie die Menschen das Klima schützen können, wie sie mit den Folgen und Problemen der Klimakrise umgehen und wie wir uns an die Veränderungen anpassen können. Die Berichte dienen als Grundlage für politische Entscheidungen darüber, was getan werden muss, um auch in Zukunft ein gutes Leben zu ermöglichen.

Am Ende der Konferenzen stehen Erklärungen, die idealerweise alle an der Konferenz teilnehmenden Länder unterzeichnen und in denen sie möglichst konkrete Ziele festlegen und Maßnahmen nennen, wie sie versuchen wollen, diese zu erreichen. Dies ist ein politischer Entscheidungsprozess, bei dem Machtverhältnisse, wie in der gesamten internationalen Politik, eine wichtige Rolle spielen. Daher ist es in der Regel so, dass wohlhabendere Staaten, die selbst auch mehr Geld in den Klimaschutz investieren (können), auch einen deutlichen

größeren Einfluss auf die Entscheidungen haben, die getroffen werden. Es passiert auch immer wieder, dass einzelnen Staaten die Erklärungen nicht unterzeichnen oder Änderungen im Text dadurch erwirken, dass sie damit drohen, ihre Unterschrift zu verweigern.

Allgemeine Informationen

Für die nachfolgende Klimakonferenz stehen sich fiktive Länder als Verhandlungspartner gegenüber. Die beschriebenen Voraussetzungen, die diese mitbringen, und das Eingangsszenario basieren aber auf realen Ereignissen, Daten und Fakten, die gelegentlich etwas verändert wurden, um die einzelnen Positionen noch stärker hervorzuheben.

Die Vereinigten Staaten von Sipacheyenne (VSS) haben kürzlich einen neuen Präsidenten gewählt, der nicht bereit ist, sich (finanziell) am Klimaschutz zu beteiligen. Öffentlich stellt der die Tatsache der globalen Erwärmung mit ihren katastrophalen Folgen in Frage. Es ist aus dem Pariser Klimaabkommen, in dem die unterzeichnenden Länder sich verpflichtet hatten, Treibhausgasemissionen zu reduzieren und Maßnahmen zur Minderung der Auswirkungen des Klimawandels zu finanzieren. Da die VSS finanziell gut aufgestellt sind und damit auch einen hohen Beitrag zur Finanzierung dieser Maßnahmen hätten leisten sollen, ist auf den Klimakonferenzen eine politische Lücke entstanden. Durch eine erhöhte internationale politische Verantwortung können der eigene Standpunkt und eigenen Absichten besser durchgesetzt werden, aber das eigene Land erhält auch eine Vorreiterfunktion und übernimmt Verantwortung für Misserfolge.

Der Green Climate Fund ist der größte „Geldtopf“, in den reiche Staaten einzahlen, um Projekte zum Klimaschutz und zur Anpassung an den Klimawandel finanziell zu unterstützen. In Paris hat der damalige Präsident der VSS der internationalen Gemeinschaft durch den Green Climate Fund 3 Milliarden VS-Dollar zugesichert. Nach der Ankündigung seines Nachfolgers, diesen Fond nicht mehr zu unterstützen, fehlen nun noch 2 Milliarden US-Dollar.

Ziel: Führt Verhandlungen, die als Grundlage für den Abschluss eines Vertrages dienen sollen, der von allen (außer den VSS) unterzeichnet wird. Versucht, die Interessen des eigenen Staates möglichst stark miteinzubringen, dabei aber auch die Konsequenzen für unseren Planeten im Blick zu behalten und ebenfalls den Vertragsabschluss nicht zu gefährden. Gelingt es nicht, einen Vertrag auszuhandeln, haben alle verloren, denn der Klimawandel schreitet ungehindert fort.

Informationen zu Midiabien

Midiabien zählt zu einem der reichsten Länder der Erde. Sein Reichtum begründet sich vor allem in dem Ölexport des Landes, mit dem es ca. 100 Milliarden VS$/Jahr einnimmt. Da die Ölwirtschaft neben der Kohle vor allem für den weltweiten CO2-Ausstoß verantwortlich ist, sieht Midiabien die Grundlage seines Reichtums bei Maßnahmen gegen den Klimawandel in Gefahr. Gewinneinbrüche im Ölexport können zudem die innere Sicherheit des Staates destabilisieren.

Deshalb ist die Nachricht von dem Ausstieg der VSS aus den Verhandlungen für Midiabien positiv. Bei der Konferenz sitzt am Verhandlungstisch nicht der Umweltminister, sondern der Öl- und-Energieminister. Nach der alten Regelung von Rio de Janeiro im Jahr 1992 zählt

Midiabien zu den G77-Ländern und damit weder zu den Industriestaaten noch zu den Schwellenländern.

Auch wenn die Charitische Union (CU) und Ukrasien mehr Verantwortungsübernahme von Midiabien fordern, möchte der Staat aufgrund der oben beschriebenen Situation so wenig wie möglich davon übernehmen. Midiabien versucht, die Konferenz so gut es geht zu blockieren und die Ziele so minimal wie möglich zu halten. Es verweist gerne auf das Know-How die historische Verantwortlichkeit der Industriestaaten, also dass Länder des Globalen Südens von heutigen Industriestaaten kolonisiert wurden und auch heute noch unter den Folgen leiden, die ihre ökonomischen Möglichkeiten verringert. Von der Staatengemeinschaft verabschieden will es sich aber aufgrund seiner Beziehungen und Abhängigkeit vom Export nicht. Weiterhin kann es sich bei Forderungen der Schwellenländer und Industriestaaten darauf berufen, dass diese Hauptabnehmer seines Erdöls sind und somit auch hierfür Verantwortung tragen.

2017	Keltanenland	Aetanien	VSS	Ukrasien	Midiabien
Einwohner (Mio.)	83	105	325	1421	33
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Maximaler Beitrag zum Green Climate Fund: 200 Millionen VS$

[16] Der Wert des VS$ ist derzeit vergleichbar mit dem US-amerikanischen Dollar.
[17] Per capita bedeutet pro Person.
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Um die eigene Stimme zu verstärken, haben sich die Inselstaaten bei den Klimakonferenzen zur Interessengruppe AOSIS zusammengeschlossen. Sie vereint die hohe Verwundbarkeit, denn sie sind besonders anfällig für die Folgen klimatischer Veränderungen, während ihr CO2-Ausstoß niedrig ist. In den Klimakonferenzen appellieren die Inselstaaten sehr eindringlich, nicht langwierig zu verhandeln, sondern zügig alles zu tun, um den Klimawandel abzuschwächen. Ihnen ist wichtig, dass Kapital aus dem Green Climate Fund für Anpassungen an die Folgen des Klimawandels zur Verfügung steht. Ukrasien und die Vereinigten Staaten von Sipacheyenne (VSS) sind für Aetanien als aktuelle Hauptemittenten klar diejenigen, die die Verantwortung tragen sollten. Für die Länder, die auf das Recht beharren, im Zuge ihrer Entwicklung mehr CO2 auszustoßen, wie es auch die heutigen Industriestaaten Keltanenland, VSS etc. getan haben, hat Aetanien wenig Verständnis – Klimaschutz muss jetzt stattfinden.

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Keltanenland ist vom Klimawandel vor allem durch Hitzewellen und die dadurch verursachten Dürren, sowie Überschwemmungen durch starke Regenfälle betroffen.

Als Exporteur von erneuerbaren Technologien profitiert Keltanenland aber auch vom Klimawandel, da die Nachfrage nach diesen steigt. Bei den Klimaverhandlungen tritt die Charitische Union (CU) gemeinsam auf und wird von dem Staat, der aktuell die Ratspräsidentschaft innehat, vertreten. Als Mitglied der CU gerät auch Keltanenland unter Druck, weil die Union auf der einen Seite sehr proaktiv ist, auf der anderen Seite allerdings in ihren Ländern zu wenig umsetzt.

Vereinigte Staaten von Sipacheyenne: Der aktuelle Präsident der VSS hat den Pariser Vertrages aufgekündigt, da er ihn als ungerecht und wirtschaftlich benachteiligend für sein Land empfindet. Daher haben die VSS in den Verhandlungen kaum ein politisches Gewicht und werden auch den veränderten Vertrag nicht unterzeichnen. Dennoch sind sie bei den Verhandlungen anwesend, erhalten Redezeit und können sich zu Themen äußern. Ihr Ziel ist es, die anderen Staaten auf ihre Seite zu ziehen und das Abkommen scheitern zu lassen, damit neu in ihrem Sinne verhandelt werden kann.

Auch in der Geschichte der Klimakonferenzen gehörten die VSS zu den Bremsern von Klimaschutzabkommen, denn ihre Wirtschaft basiert auf fossilen Energieträgern. Gemeinsam mit

anderen Industriestaaten, die ein ambitioniertes Klimaabkommen ablehnen, treten sie in der sogenannten UMBRELLA-Gruppe bei Konferenzen auf. Sie bestehen darauf, dass sowohl Ukrasien als auch andere Schwellenländer stärker in die Verantwortung genommen werden und ihren finanziellen Beitrag leisten müssen.

Ukrasien: Ukrasien ist mittlerweile mit weitem Abstand der Hauptemmitent von CO2, und damit fordern die anderen Staaten die Übernahme von Verantwortung. Ukrasien verweist bei solchen Vorwürfen gerne auf den Pro-Kopf-Ausstoß von CO2, der im Vergleich weitaus geringer ist.

Für den Klimawandel ist Ukrasien besonders anfällig, da Wasser-, Nahrungsmittel und Energiesysteme des Landes bereits am Limit und aufgrund steigender Meeresspiegel, Dürren, Wasserknappheit und Hitzewellen einem zunehmenden Druck ausgesetzt sind. In den Städten gibt es häufig Smog-Alarm und vermehrte Dürren sowie starke Veränderungen des Niederschlags führen zu großen (wirtschaftlichen) Schäden.

In Bezug auf Elektromobilität und erneuerbare Energien ist Ukrasien wohl an der Spitze der Weltrangliste. Auch auf der Klimakonferenz in Paris überraschte der Staat durch ambitionierte Vorgaben für den Klimaschutz. Diese Vorreiterrolle möchte er weiter ausbauen und ist durchaus bereit, mehr Verantwortung zu übernehmen. Es fordert von den Industriestaaten wie Keltanenland und die VSS sich an der Aufgabe zu beteiligen, das starke Wirtschaftswachstum ohne eine große Zunahme der CO2-Emissionen zu ermöglichen.

Ukrasien strebt eine globale Vereinbarung zur Reduktion der Treibhausgasemissionen an, die die Klimarisiken begrenzen, sich aber auch auf die Wirtschaft und grundlegende nationale Interessen bestmöglich auswirken soll. Ohne Maßnahmen werden Ukrasiens Emissionen bis 2100 dramatisch ansteigen.

Die hier vorgestellten Länder sind fiktiv, die Angaben sind inspiriert von folgenden Quellen:

Eckstein, David, Vera Künzel, Laura Schäfer und Maik Winges. „Global Climate Risk Index 2020: Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2018 and 1999 to 2018“, *Briefing Paper,* Berlin, Bonn: Germanwatch, https://germanwatch.org/sites/germanwatch.org/files/20-2-01e%20Global%20Climate%20Risk%20Index%202020_13.pdf, zuletzt geprüft am 24. Juni 2022.

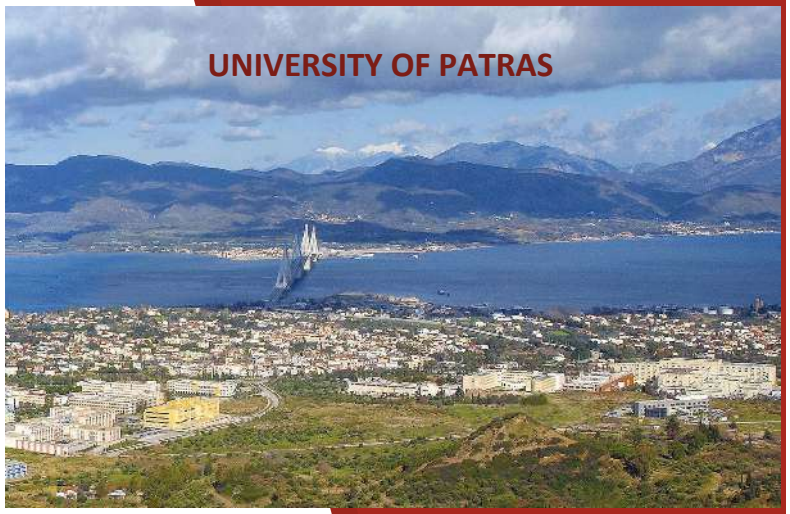
Germanwatch, „1,5°C: Als es uns gelungen ist, unsere Erde zu retten“, Berlin, Bonn, 2019, https://germanwatch.org/sites/germanwatch.org/files/Zukunftsgeschichten%20zum%20Drucken.pdf, zuletzt geprüft am 28. Juni 2022.

Greenpeace, „Alles Verhandlungssache? Bildungsmaterial zum internationalen Klimaschutz ab Klasse“ 7, Hamburg, 2017, https://www.greenpeace.de/bildungsmaterial/Klimaschutz-Alles-Verhandlungssache.pdf, zuletzt geprüft am 28. Juni 2022.

Germanwatch. „Globaler Klima-Risiko-Index 2020“, Bonn, Dezember 2019, https://germanwatch.org/sites/germanwatch.org/files/20-2-01%20KRI%202020%20-%20Kurzzusammenfassung_7.pdf, zuletzt geprüft am 24. Juni 2021.

Misereor, „Für’s Klima an den Verhandlungstisch: Simulation einer Klimakonferenz und Unterrichtsmaterial zu den Themen Klimagerechtigkeit und Klimawandel für die Sekundarstufe 2“, Aachen, 2018, https://www.misereor.de/fileadmin/publikationen/fuers-klima-an-den-verhandlungstisch-.pdf, zuletzt geprüft am 28. Juni 2022.

UNIVERSITY OF PATRAS



Rector: Professor *Christos Bouras*

Vice-Rector for Strategic Internationalization and Extroversion: Professor *Dionissios Mantzavinos*

Vice-Rector for Academic Affairs and Finance: *Professor Ioannis Venetis*

Vice-Rector for Planning, Digital Modernization and Infrastructure: Professor *Giorgos Panagiotopoulos*

Vice-Rector for Student and Cultural Affairs: Associate Professor *Eleni Albani*

https://www.upatras.gr/en/

Foundation 1964

University of Western Greece Integration 2013

Departments of the *Technological Educational Institute of Western Greece* Integration 2019

2021

3rd largest University in Greece

Premises in:
Rio, Agrinio, Messolonghi

34.268 active undergraduate students
2.030 postgraduate Students
1.681 PhD Candidates

31 Departments
180 Research Laboratories
17 Clinics



Teaching & Research Staff (Faculty Staff members)	708
Special Teaching Staff	232
Sum	*940*
Administrative Staff (permanent administrative staff members)	443
On contract	1.711
Sum	*2.154*

(data: 09.2024)



University Campus-Rio



- more than 40 buildings
- 131 classrooms, laboratories, computer centers, workshops, etc.
- Student Residence
- University Hospital
- Central Library
- 4 Museums
- Sports facilities
- Conference & Cultural Center

ADMINISTRATION



- Governing Council
- Senate
- Rector
- Vice-Rectors
- Executive Director

7 Schools - 31 Departments

- **School of Natural Sciences**
  - Biology
  - Geology
  - Mathematics
  - Physics
  - Chemistry
  - Meterials Science
- **School of Engineering**
  - Architecture
  - Electrical & Computer Engineering
  - Computer Engineering & Informatics
  - Mechanical Engineering & Aeronautics
  - Civil Engineering
  - Chemical Engineering
- **School of Health Sciences**
  - Medicine
  - Pharmacy
- **School of Health Rehabilitation Centre**
  - Speech & Language Therapy
  - Nursing
  - Physiotherapy
- **School of Humanities & Social Sciences**
  - Education & Social Work
  - Educational Sciences & Early Childhood Education
  - Theatrical Studies
  - History & Archaeology
  - Philology
  - Philosophy
- **School of Agricultural Sciences**
  - Agriculture
  - Fisheries & Aquaculture
  - Food Science & Technology
  - Sustainable Agriculture
- **School of Economics & Business**
  - Tourism Management
  - Management Science & Technology
  - Business Administration
  - Economics

QUALITY ASSURANCE

One of the Institution's strategic priorities



Evaluation (1999-2015)

- First external evaluation of the University of Patras by ***CRE Club of the Rectors*** of ***Europe*** (1999)
- Evaluation of teaching work (since 2001)
- Establishment of the Quality Assurance Unit of the University of Patras (2009).

Activities been completed:

✓ **External evaluation of 24 academic Departments (2011-14)**
and
✓ **External evaluation by the Hellenic Quality Assurance and Accreditation Agency (2015) - *Positive Evaluation***

Accreditation (2015-today)



- **Quality Assurance**
- **Internal Quality Assurance System Accreditation**
- **Accreditation of Undergraduate Programs**

Accreditation of Undergraduate Study Programs
26 accredited undergraduate programs (2018-2023)



26 Accreditation Committees
≈ 100 experts from universities & research centers in Europe and America

"The accreditation process shifts the focus away from 'input' evaluation to evaluation of quality outcomes, namely 'output', and, more specifically, to achieving objectives and learning outcomes." *Accreditation Guide, HQA, 2017*

Internal Quality Assurance System Accreditation 2018 & 2024





CERTIFIED εθααε hahe IQAS

The Internal Quality Assurance System of the University of Patras is in compliance with the HQA Quality Standards, as well as the Standards & Guidelines for Quality Assurance in the European Higher Education Area.

RESEARCH

Indicative actions and initiatives to support research and innovation

- "**MEDIKOS**" Program
- Support of publications in high impact journals
- Aid for tuition-free postgraduate programs
- "**Carathéodory**" Basic Research Support Program
- "**Industrial PhDs – UPatras IQ**" Program
- **Patras IQ Innovation & Know-how Transfer Exhibition**
- Connection of research activity with the business community-**UPLATFORM** for Research & Knowledge Transfer
- **Research, Innovation and Entrepreneurship** Unit
- **Employment, Career & Liaison** Unit
- **University Research Center**
- **Research Ethics Committee**
- Support of innovation and entrepreneurship: **RE-STARTUP 2020 – Patras Open Innovation Quest**

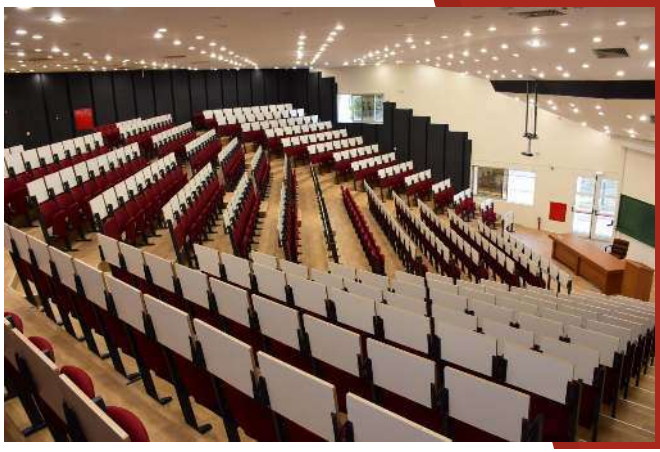
https://research.upatras.gr



Study Programs

- **36** Undergraduate Study Programs
- **54** Post-Graduate Programs
  (of which 7 are taught in English)
  - ***32 Departmental***
  - ***16 Inter-Departmental***
  - ***6 Inter-institutional***
- **31** PhD Programs

For more information on Educational matters:
https://www.upatras.gr/en/education/



STRATEGIC INTERNATIONALISATION & EXTROVERSION

- The **development** of the University of Patras (UP) is to a great extent intertwined with **extroversion**.
- **Internationalisation** is the main component of extroversion and is a **strategic choice** of UP.



Pillars of Internationalisation

- ***Promotion** and **Networking** actions*
- ***Erasmus+ mobility***
- ***Joint** Study Programs **with** Institutions **abroad***
- *Joint Study Programs **abroad***
- *The **branch** of University of Patras in **Alexandria***
- ***Culture, politics and internationalisation***

Promotion and Networking actions

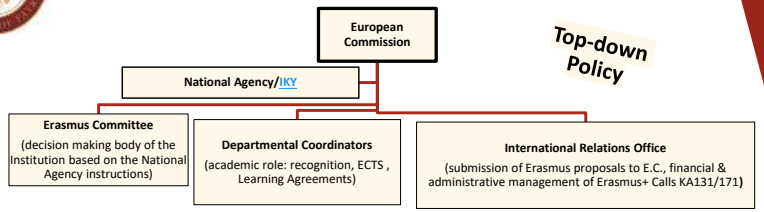
- Active participation of the IP in **international networking exhibitions** (**NAFSA** - New Orleans, 5/2024, **EAIE** - Toulouse, 9/2024).
- Participation in **Pharos Summits** (USA) and corresponding activities for British and French universities.
- Participation in **international networks *EUA, EUF, UNIADRION, SGROUP, BSUN*** aiming at:

- *monitoring new trends in education/research following the developments in the European Higher Education Area / EHEA (Bologna Process) - (EUA, EUF)*
- *strengthening cooperation with Adriatic countries (UniAdrion)*
- *-promoting cooperation with universities in the Black Sea region (BSUN)*



- After years of effort and through a competitive process, UP participates in the **European Alliance EUNICoast**, ensuring its presence in the **European University initiative.**
- Founding partner of **Study in Greece**.

Erasmus+ mobility



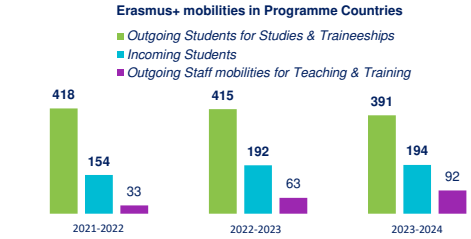


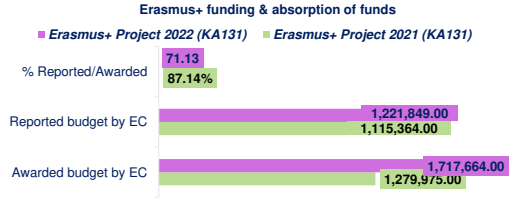
The University of Patras, embracing the principles of **internationalisation** and **extroversion**, promotes its cooperation with other partner institutions in the framework of the **Erasmus+ Programme** (657 agreements with institutions in the Programme countries and 30 agreements with institutions in the framework of International Credit Mobility-ICM).

International Relations

In line with the European Higher Education Area and the Key Principles of the Erasmus+ Charter:

- the implementation of ECTS, and
- the academic recognition of mobility periods.





Erasmus+ International Credit Mobility Inter-Institutional Agreements (IIAs)		
A/A	Partner Institutions	Country
1	Universitetit Te Vlores	Albania
2	Kolegji Universitar Logos - University College Logos	Albania
3	Univerzitet U Istocnom Sarajevu	Bosnia And Herzegovina
4	Universiteti Nderkombetar Per Biznes Dhe Teknologji Ubt Shpk	Kosovo
5	Cairo University	Egypt
6	German Jordanian University	Jordan
7	Amman Arab University	Jordan
8	Universite Abdelmalek Essaadi	Morocco
9	Universite De La Manouba	Tunisia
10	Universite De Tunis El Manar	Tunisia
11	Sfax University	Tunisia
12	State Educational Establishment Of Higher Professional Education Russian-Armenian (Slavonic) University	Armenia
13	Azerbaijan State University Of Economics	Armenia
14	Akaki Tsereteli State University	Georgia
15	Shota Rustaveli State University	Georgia
16	M.V. Lomonosov Moscow State University	Russia
17	Southwest University	China
18	University Of Melbourne	Australia
19	University Of New South Wales	Australia
20	University Of Cape Town	South Africa
21	University Of Pretoria	South Africa
22	Stellenbosch University	South Africa
23	Universite Gaston Berger De Saint Louis	Senegal
24	Universidad Catolica De Cordoba	Argentina
25	Universidad De Buenos Aires	Argentina
26	Universidad Del Bio-Bio	Chile
27	Universidad Nacional Autonoma De Mexico	Mexico
28	Universidad De La Republica	Uruguay
29	University Of Massachusetts	United States Of America
30	University Of Washington	United States Of America

Aim: to enhance mobility (students & staff) through Erasmus+ International Credit Mobility based on inter-institutional agreements with 30 partner institutions in 20 countries.



Memoranda of Understanding / MoUs

(signed MoUs with 102 foreign institutions and 122 Greek institutions/companies with the aim of educational and research cooperation)

JOHNS HOPKINS MEDICINE

MoU Faculty of Medicine of UP with Johns Hopkins University: UP provides scholarships to students of the Department of Medicine of UP to Johns Hopkins University for research and clinical electives.

CENTER FOR HELLENIC STUDIES HARVARD UNIVERSITY

MoU with the Center for Hellenic Studies at Harvard University in Greece: *Scholarships awarded to students of the School of Humanities & Social Sciences of the University of Patras for their participation in the Summer Program of Harvard University in Greece, focusing on Comparative Cultural Studies.*



Some MoUs signed with UP are indicatively with:

- *Fujian University of Technology,* ***China***
- *Southwest University Chongqing,* ***China***
- *University of Toronto,* ***Canada***
- *University of Arizona,* ***USA***
- *Purdue University,* ***USA***
- *Greek Community of Alexandria,* ***Egypt***
- *Akaki Tsereteli State University,* ***Georgia***
- *LOGOS University College,* ***Albania***
- *University of Banja Luka,* ***Bosnia and Herzegovina***
- *Russian-Armenian University,* ***Armenia***

University of Patras on the "*Silk Road*": *partnerships with China* (I)

- Cooperation between the ***School of Humanities & Social Sciences*** and ***Xi'an International Studies University, "XISU"*** under the ***Joint Academic Programme Agreement***: students of "XISU" having successfully completed 2 years of studies at the Greek Department, School of European Studies may complete their 3rd year of studies at the School of Humanities & Social Sciences of the University of Patras.

- ***Inter-institutional MSc: "Greek and Chinese Civilizations. A comparative approach"***

As a result of the **MoU** of **UP** with **Southwest University, Chongqing =>** the **2-year MSc** in **English.** It is an of the **Department of Philosophy** of **UP** with:

- the Department of History & Philosophy of Science, **University of Athens**
- the Department of Philosophy & Pedagogy of the **Aristotle University of Thessaloniki**
- the Department of Philosophy & Social Studies of the **University of Crete**, and
- the School of History & Culture of **Southwest University** (Chongqing, China).



University of Patras on the "*Silk Road*": *partnerships with China* (II)

- **English-language undergraduate degree program** in *Chemical Engineering & Technology* with ***Liaoning University of Technology*** awarding a dual degree. A pioneering model **exclusively** for **Chinese students** in China with tuition **fees** under the Law 4957/2022 and subsequent provisions. UP offers 1/3 of the courses, 120 students, already in the 2nd year of study
- The same model will be implemented with ***Fujian University of Technology*** with UP departments: *Civil Engineering, Electrical Engineering & Computer Technology, Computer Engineering & Information Technology.*
- UP as a founding partner of the **Centre for the Study of Ancient Greek and Chinese Culture** .
- Establishment of an Institute of UP at ***Xi'an Shiyou University***.
- Establishment of a branch of the ***Confucius Institute*** under the auspices of ***Beijing University of Chemical Technology*** (ceremony on 9/12/2024 with the presence of the Vice-Minister of Education of China).





Internationalisation Foreign Language Study Programmes

- **Expansion of joint undergraduate degree programmes** in Asia, based on the model with **Liaoning University of Technology, China**
- Expanding the offer of doctoral studies to students from Asia based on the model of the Department of Management Science & Technology**.**
- Finalizing the procedures for a framework of awarding a dual degree between the **Department of Electrical & Computer Engineering & Technology and Imperial College, UK**.
- Participation in the *Ministry of Education, Religious Affairs and Sport* **Call** for **joint MSc** with **prominent institutions abroad** - 5 proposals are estimated to be submitted with Cyprus, UK and USA.

- Procedures in progress for the establishment of an **8th School in Ancient Olympia** with two undergraduate courses in Olympism/Sports Marketing and bilingual programmes of study.
- **Joint MScs** with the ***University of Nicosia***: **a strategic partner**.
- **Joint MSc** with ***Southwest University, China in Ancient Civilizations*** (*Chinese* and *Greek*), two-year (1+1).



The Hellenic University of Alexandria: a National Vision



Signing of the Memorandum of Understanding between UP and the Greek Community of Alexandria , Alexandria, 9/2023

- **Memorandum of Understanding** with the **Greek Community of Alexandria** and procedures for the **establishment** of UP branch in **Alexandria**.
- Model of an **umbrella-institution** and other universities.
- An objective of **great strategic importance** with the appropriate national support from the **Greek Parliament, the Hellenic Ministry of Foreign Affairs, the Ministry of National Defense, the Patriarchate of Alexandria.**
- Partner with the **Greek Community of Alexandria**.

-Phase 1: Submission of the official establishment request to the Government of Egypt and approval - completed 9/2024
-Phase 2: Academic planning and submission of the official dossier - *ongoing*



Other collaborations of the University of Patras



- **With the University of Nicosia**
- Post-Graduate Program in "***Special Education***"
- new Postgraduate Program in "***Intercultural Education and Mediation***" offering the possibility of internships at collaborating institutions (established: 4773/18.10.2021)

and

- Memorandum of Understanding between UP and the ***General Secretariat for Citizenship, Ministry of the Interior.***

- Private Lifelong Learning Center

Certified training provided in cooperation with the University of Patras Life-Long Training Center.

INTERNATIONAL RANKINGS

- Improving UP's rank in international rankings => enhancing internationalisation.
- Participation in various schemes and **systematic study** of performance through consultancy, setting up committees, organising workshops, etc.
- In the area of **Sustainability**, **UP** was awarded by **QS** award for its high performance in this area, ranked **1st among Greek institutions**, **151st in Europe** and **339th worldwide**.



Σύστημα κατάταξης	Έτος αναφοράς				
	2021	2022	2023	2024	2025
Times Higher Education World University Rankings	1000+	801-1000	1001-1200	801-1000	1100
QS Top Universities	751-800	801-900	801-900	795-800	761-770
ShanghaiRanking Academic Ranking of World Universities	1000+	1000+	701-800	901-1000	
RUR	666	730	877	777	



LIFE-LONG LEARNING (I)

Life-Long Learning Center

It offers Training & Lifelong Learning Programmes with distance & hybrid learning.

Purpose:
- offer and implementation of training, education & training programmes
- co-organisation of scientific conferences, workshops & events
- implementation of research programmes & innovative initiatives
- making available teaching material developed in the framework of this cooperation
- operation of a library
- liaising with professional & educational institutions; and
- utilisation of teaching, post-doctoral and other staff.

In the framework of the above cooperation, the following training programmes are already being implemented:
- SPECIAL EDUCATION
- ORGANIZATION AND MANAGEMENT OF EDUCATION
- SCHOOL PSYCHOLOGY.

(https://kedivim.upatras.gr)



LIFE-LONG LEARNING (II)

Foreign Language Unit

The Unit provides instruction and laboratory support for Foreign Language modules offered by all University departments.
(http://languages.upatras.gr)

Greek Language & Culture Lab

The Lab provides:
- systematic teaching of Greek as a second/foreign language for a wide range of participants (academic and non-academic)
- ***Greek language*** and ***culture courses*** for Erasmus incoming students.

(http://greeklab.upatras.gr)



LIBRARY & INFORMATION CENTER

There are:

- 400 study places
- computer workstations
- collaboration study rooms
- wireless internet
- access to thousands of electronic books and journals, digital collections, etc.

(https://library.upatras.gr)



CONFERENCE & CULTURAL CENTER

Hosting a wide range of conference and cultural events, it consists of:

- a 930-seated main hall
- a 250-seated amphitheater
- exhibition rooms
- rooms of parallel meetings, seminar rooms, a reception hall and workplaces.



www.confer.upatras.gr

MUSEUMS

-Science & Technology Museum
-Botanical Museum
-Zoological Museum
-Education Museum

There is also the "**Company for the Development and Management of the Property of University of Patras**" in the form of public company.

Aim: to develop and manage the University's property.
(https://unico.upatras.gr/)

University Structures

Student Advocacy & Counseling Unit: its aim is to mediate between students and the University's institutional bodies, teaching staff, services or executives.
(https://synigorosfoititi.upatras.gr)



UP FM: *Radio Station*

UPwebTV: *Web TV station*

@UP Magazine

Bookstore, Restaurants, Canteens



University Gym





http://gym.upatras.gr/

CULTURAL GROUPS

https://www.upatras.gr/en/culture/



- **Students' Cultural Groups**
- **University Choir**
- **University Staff Theatrical Group**
- **Dance-Theater 'ORMITES'**
- **Traditional Greek Dance Club**

SUSTAINABLE UNIVERSITY & VOLUNTEERING

UPatras volunteer student group
Aim: to highlight volunteering as a way of life, expression and mentality

The volunteering group **actions** are based on 3 principles:

1.contribution to society (blood donations, providing assistance in emergencies, etc.)

2.protection of the environment (tree planting, protection of flora and fauna, etc.) and

3. professional ethics of future scientists, men and women, in society.

"Sustainable/Green" University, promotes actions in the context of:

- ✓ implementing nature-based smart solutions
- ✓ upgrading the main Campus environment
- ✓ improving the quality of everyday life infrastructures for University students and staff.



http://green.upatras.gr

Link between the University of Patras and Society





Welcome to UP festival

Welcome to UP Freshman Festival "Welcome to UP", the University of Patras' Welcome Festival for First-Year Students, an unprecedented for the Greek standards institution, which started in 2022, is preparing for its third edition on October 15-19, 2024.
The Festival has been embraced from the beginning by the residents of Patras, Agrinio and Messolonghi, where its events take place.

https://welcometoup.upatras.gr/







ALUMNI NETWORK

alumni

https://alumni.upatras.gr/

The alumni network:

- ✓ is addressed to graduates of Undergraduate, Postgraduate and Doctoral Studies
- ✓ brings together a large number of old classmates
- ✓ provides information on postgraduate studies, scholarships, seminars, etc.
- ✓ informs about news & announcements of the University
- ✓ informs about professional opportunities & jobs
- ✓ gives access to the Library & Information Centre
- ✓ provides free counselling support from the Liaison Office.

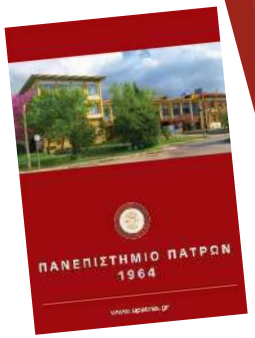


General overview of the University of Patras on its official channel:

- **video 1 (facilities)**
- **video 2 (facilities – short presentation)**









Rectorate's Office
e-mail: rectorate@upatras.gr, tel.: +30 2610 997973

International Relations Office contact details:
e-mail: intern.rel@upatras.gr, ***tel.:*** **+30 2610 969029 / 996610 / 997987**

www.upatras.gr

3rd Study Visit
University of Patras, March 10-11, 2025

Erasmus+ Programme
(ERASMUS-EDU-2022-CBHE-STRAND-1)
Bridging the Digital Humanities and Educational Media Divide in the West Balkans
Project No. 101129182 — Homo Digitalis

Prof. N. Avouris, Prof. A. Karalis, Prof. D. Koukopoulos

Grant Agreement No: 101129182

Overview

- This is a two-day event that will take place in person at the University of Patras main campus in Rio, Patras, Greece during the period March 10th to 11th.
- The event involves visits to the following Research Laboratories and University Units: Interactive Technologies Lab, the Visualization and Virtual Reality Group, the Library and Information Center, the Center of Teaching and Learning and the Laboratory of Didactics of Science, Mathematics, and ICT.
- The visit will be in the workshop format, where staff and students will be presented with real examples of cooperation, and how can they develop multilateral and multidisciplinary project. Students and staff through examples will be motivated on how to work with their colleagues from the Consortium, but also with other stakeholders such as industry etc.

Event's Agenda – Day 1 (March 10)

10:00-17:30	DAY 1
10:00-10:30	Welcome event – Main building (Vice-Rector for Strategic Internationalization and Extroversion of the University of Patras)
11:00-13:00	Visit to the Interactive Technologies Lab *Presentation: Research and Educational activities of the HCI group (30 minutes)* *Lab visit (60 minutes) Infrastructure - Demo of EEG experiment – Presentation of an Education Environment of Virtual Exhibitions (project CREAMS).* *Discussion on future collaborations (30 minutes)*
13:00-15:00	Lunch Break
15:00-17:00	Visit to the Visualization and Virtual Reality Group *Presentation: Research and Educational activities of the VVR group (30 minutes)* *Lab visit (60 minutes) Infrastructure - Demos on virtual reality - Demos on mixed reality - Demos on Haptics - Demos on biomechanics and rehabilitation through XR* *Discussion on future collaborations (30 minutes)*
17:00-17:30	Discussion on first day activities
20:00-22:00	Social Dinner

Event's Agenda – Day 2 (March 11)

10:00-17:30	DAY 2
10:00-12:00	Visit to the Library and Information Center *Tour and a presentation of all the provided services with special focus on the accessibility to educational content.* *Workshop on healing writing and the innovative and highly acclaimed programme "The Power of Words" that addresses mild mental health issues of students will take place.*
12:00-13:00	Visit to the Center of Teaching and Learning *Presentation of CTL activities*
13:00-15:00	Lunch Break
15:00-17:00	Visit at the Laboratory of Didactics of Science, Mathematics and ICT *Presentation of the research activities of the lab will take place, as well as demos of ongoing research activities and project results*
17:00-17:30	Closure and Final Discussion

Interactive Technologies Lab
hcigroup
of the University of Patras

Interactive Technologies Lab

A short presentation of the lab's activities

`https://hci.ece.upatras.gr`

Profile

- The Laboratory of Interactive Technologies focuses on **interdisciplinary research and teaching** in subjects related to the **design, development**, and **evaluation** of **software systems** and, more broadly, on the study of human-computer interaction within diverse contexts.
- Since its establishment in **1994**, the activities of the Laboratory have resulted in **15 PhD theses** and hundreds of Diploma/Undergraduate projects from the Department of Electrical Engineering and other departments of the University of Patras.
- The laboratory has participated in more than **30 funded projects** (>€10M), within the framework of national and international research and development programs, in fields such as cybersecurity, cultural heritage, and UX.

Areas of research interest

Cybersecurity

- with an emphasis on **usable security** in user authentication and authorization, phishing research, and the preservation of the privacy of personal and biometric data in blockchain networks, design and development and evaluation of LLM's for supporting phishing victims

Immersive technologies & Human Cognitive Modeling

- with an emphasis on **personalizing interactive user experiences** based on mixed and augmented reality, applied in **creative sectors** such as culture, education, and entertainment industries

Brain-computer interfaces & Neuroergonomics

- with an emphasis on modelling the interaction between the user and a computing device based on the analysis and modelling of their brain signals

Areas of research interest

Cultural Technologies

- 10+ years in technology development for cultural heritage
- Collaborations with major institutions (Benaki Museum, Technopolis of Athens, etc.)
- Activities: consultancy, publications, guest lectures, functional prototypes (Museumscrabble, CityScrabble, Invisible City)

User Experience Measurements – Usability Lab

- Extensive experience and specialized equipment
- User logging protocols, expert inspections, checklists, eye-tracking
- Developed tools: CogniX Framework

Awards

Hundreds of publications in journals, books, and conference proceedings have been produced, while its members have been awarded in international and European conferences and competitions.

- ACM UMAP 2024 Best Demo Award of 2024 (July 2024)
- UMUAI James Chen Award for Best Paper of 2019 (2020)
- Seal of Excellence - Horizon 2020 Marie Sklodowska-Curie actions call H2020-MSCA-IF-2016
- Historic Best Paper in MobileHCI (2015),
- 1st prize for innovation in Athens Plaython 2012: City Scrabble
- 1st prize for mobile application competition Ubi Patras 2012 : Project Benaki Museum Scrabble
- 2nd prize in innovation competition ImagineCup 2008

https://hci.ece.upatras.gr/publications/

Infrastructure

Fully equipped Brain Computer Interaction Lab

- State of the art BCI equipment
- Supporting research activities with mobile EEG devices with various EEG channels and technologies
- Functional near-infrared spectroscopy devices

User Experience Measurements – Usability Lab

- Extensive and specialized eye-tracking equipment
- Mixed Reality Devices
- Developed tools: CogniX Framework

https://hci.ece.upatras.gr/research_infrastructure/

Brain Computer Interaction (BCI) Research Infrastructure



Eye Tracking Apparatus





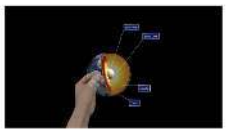


XR Equipment



HoloLens 2 is a groundbreaking device that brings 3D holographic content into the real world, offering an unmatched interactive experience for students and researchers. It is designed for comfort and durability, allowing for extended periods of use without compromising performance. With intuitive gestures, voice commands, and eye activity tracking capabilities, users can easily navigate and interact with complex sets, simulations, and virtual environments, creating new opportunities for learning and research.





CREAMS – Virtual Exhibitions



https://creams-project.eu

- S. Sylaiou, P. Dafiotis, D. Koukopoulos, C. Koukoulis, R. Vital, A. Antoniou, and C. Fidas, "From Physical to Virtual Art Exhibitions and Beyond: Survey and some Issues for Consideration for the Metaverse," *Journal of Cultural Heritage*, Vol. 66. pp. 86-98, Elsevier, 2024.
- R. Vital, S. Sylaiou, D. Koukopoulos, K. Koukoulis, P. Dafiotis, and C. Fidas, "Comparison of Extended Reality Platforms and Tools for Viewing and Exhibiting Art," *Digital Applications in Archaeology and Cultural Heritage*, Elsevier, 2023. doi: https://doi.org/10.1016/j.daach.2023.e00298.
- N. Constantinides, A. Constantinides, D. Koukopoulos, C. Fidas, and M. Belk, "CulturAI: Exploring Mixed Reality Art Exhibitions with Large Language Models for Personalized Immersive Experiences," *Proc. of the* 32nd ACM Conference on User Modeling, Adaptation and Personalization Adjunct (ACM UMAP 2024), pp. 102-105, ACM, 2024. [Best Demo Award]
- D. Koukopoulos, P. Dafiotis, S. Sylaiou, K. Koukoulis, and C. Fidas, "Evaluating the Design of an Art Student Framework Supporting XR Exhibitions," *Proc. of the 26th Pan-hellenic Conference on Informatics with International Participation*, pp. 267-272, ACM, 2023.
- D. Koukopoulos, P. Dafiotis, S. Sylaiou, K. Koukoulis, and C. Fidas,, "Personalising Services in Art Education Environments: First Results Survey," *Proc. of the 13th IEEE International Conference on Information, Intelligence, Systems and Applications (IISA 2022)*, pp. 1-8, IEEE, 2022, doi: 10.1109/IISA56318.2022.9904365.
- D. Koukopoulos, P. Dafiotis, S. Sylaiou, K. Koukoulis, and C. Fidas, "XR technologies for self-regulated student exhibitions in art education: First results survey," *Proc. of the 2nd International Conference on Interactive Media, Smart Systems and Emerging Technologies (IMET 2022)*, pp. 1-8, IEEE, 2022, doi: 10.1109/IMET54801.2022.9929450.
- D. Koukopoulos, P. Dafiotis, S. Sylaiou, K. Koukoulis, M. Belk and C. Fidas, "Towards an Art Exhibition Framework for Scaffolding Art Students' Creativity," *Proc. of*

Culture AI – Best Demo Paper UMAP 2024



- Nicolas Constantinides, Argyris Constantinides, Dimitrios Koukopoulos, Christos Fidas, and Marios Belk. 2024. CulturAI: Exploring Mixed Reality Art Exhibitions with Large Language Models for Personalized Immersive Experiences. In Adjunct Proceedings of the 32nd ACM Conference on User Modeling, Adaptation and Personalization (UMAP Adjunct '24). Association for Computing Machinery, New York, NY, USA, 102–105. https://doi.org/10.1145/3631700.3664874

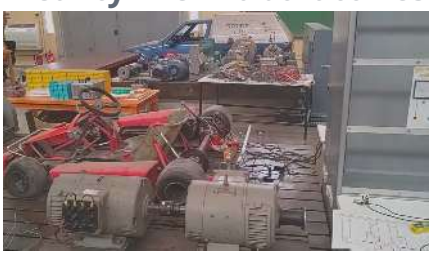
PGA – Authentication in MR





- Argyris Constantinides, Marios Belk, Christos Fidas, Roy Beumers, David Vidal, Wanting Huang, Juliana Bowles, Thais Webber, Agastya Silvina, and Andreas Pitsillides. 2023. Security and Usability of a Personalized User Authentication Paradigm: Insights from a Longitudinal Study with Three Healthcare Organizations. ACM Transactions on Computing in Healthcare 4, 1, Article 2 (January 2023), 40 pages. https://doi.org/10.1145/3564610
- George Hadjidemetriou, Marios Belk, Christos Fidas, and Andreas Pitsillides. 2019. Picture Passwords in Mixed Reality: Implementation and Evaluation. In Extended Abstracts of the 2019 CHI Conference on Human Factors in Computing Systems (CHI EA '19). Association for Computing Machinery, New York, NY, USA, Paper LBW0263, 1–6. https://doi.org/10.1145/3290607.3313076

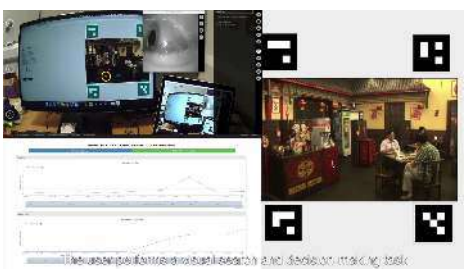
Mixed Reality– ECE Laboratories

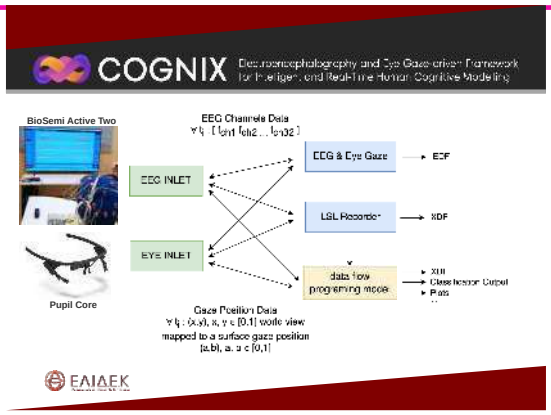


•Diploma Thesis – Georgakopoulos Sotirios. ECE Department University of Patras

CogniKIT: Real Time– Gaze Analysis Framework & Tools

Proceedings of the 25th International Conference on Intelligent User Interfaces (IUI '20 Companion). Association for Computing Machinery, New York, NY, USA, 130–131. https://doi.org/10.1145/3379336.3381460

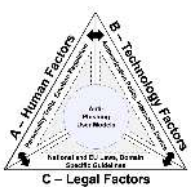






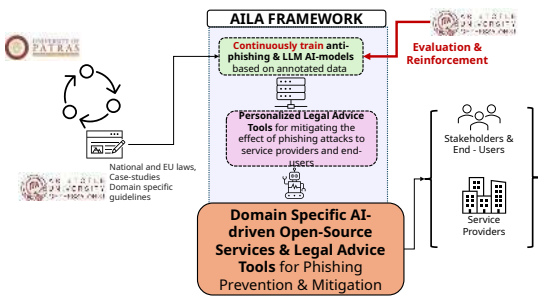
AILA Vision & Basic Research

"The provision of an integrated interdisciplinary framework and information system that will **provide personalized legal information, advice, and guidance against phishing for specific users**. The services will be open-source and easily expandable into various sectors such as different business domains, e.g., e-banking, e-government, e-education"



Multi-disciplinary Research Model

AILA Framework

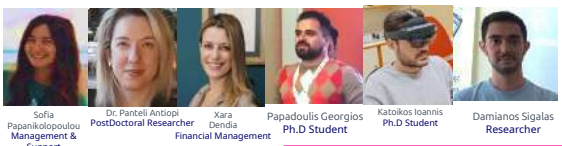


People

Interactive Technologies Lab hcigroup of the University of Patras



Professor Dr. Nikolaos Avouris, Founder of ITLab
Dr. Christos Sintoris, Teaching and Research Associate
Dr. Zois Koukopoulos, Project Manager
Professor Dr. Dimitrios Koukopoulos, Affiliate Faculty
Dr. Koukoulis Konstantinos, PostDoctoral Researcher
Assoc. Prof. Dr. Christos A. Fidas, Director of ITLab



Sofia Papanikolopoulou, Management & Support
Dr. Panteli Antiopi, PostDoctoral Researcher
Xara Dendia, Financial Management
Papadoulis Georgios, Ph.D Student
Katoikos Ioannis, Ph.D Student
Damianos Sigalas, Researcher

https://hci.ece.upatras.gr/people/

On-going Research Projects

Interactive Technologies Lab hcigroup of the University of Patras

TrustID
Intelligent Student Identity Management for Higher Education Institutions

COGNIX
Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modelling

AILA
Artificial Intelligence-driven Framework and Legal Advice Tools for Phishing Prevention and Mitigation in Information Systems

Scaffolding Creativity of Arts Students

CREAMS Latest Technologies

https://creams-project.eu

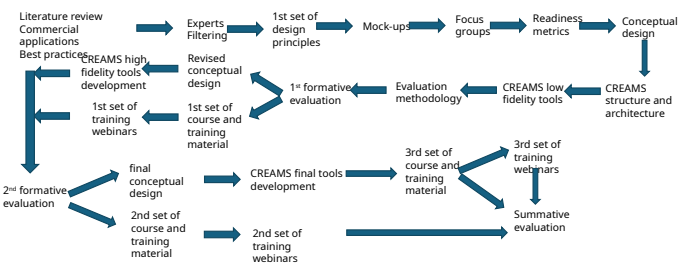
Scaffolding Creativity of Arts Students:
Framework, Toolchain, and Educational Material on how to Create their Own Virtual Exhibitions

Main functions

- ✓Enable artists to **employ 3D digital exhibitions** in order to reach new audiences and promote their work.
- ✓Develop **tools** that empower artists **to present contextual issues, ideas and personal thoughts about their artworks in an original way**.
- ✓Creation of **multimodal in-depth descriptions** of selected artworks in the form of **art sketchbooks**
- ✓**Adaptability** of the modalities employed **to the aesthetic and conceptual character of the artworks**.



Methodology – Project workflow



Overview

- The CREAMS platform supports an innovative workflow that consists of:
  - digitization of physical artifacts into the CREAMS platform through a mobile application;
  - assigning the digitized artifacts to virtual exhibitions;
  - personalizing the narratives to specific technological means (Mixed Reality, Augmented Reality or Virtual Reality) and target groups.

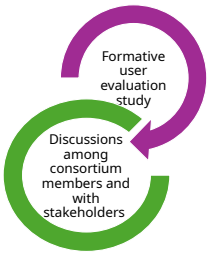
Needs validation and verification

Workflow

Step 1: Mapping of existing approaches, requirements, and special characteristics of the material to be communicated through virtual exhibitions.

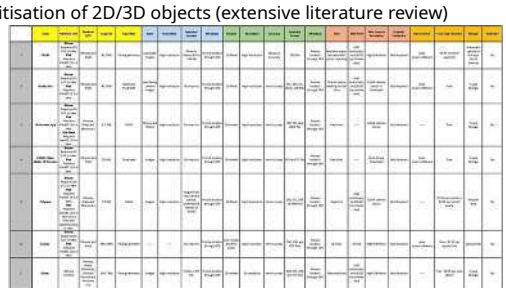
Step 2: Verification of findings of the needs analysis through semi-structured interviews with stakeholders of the participating HEIs.

Revised Conceptual Design

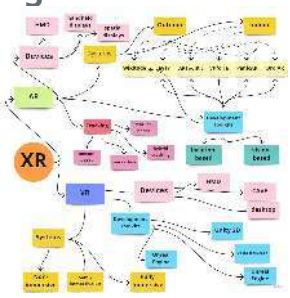


Digitisation

- Digitisation of 2D/3D objects (extensive literature review)



XR Technologies



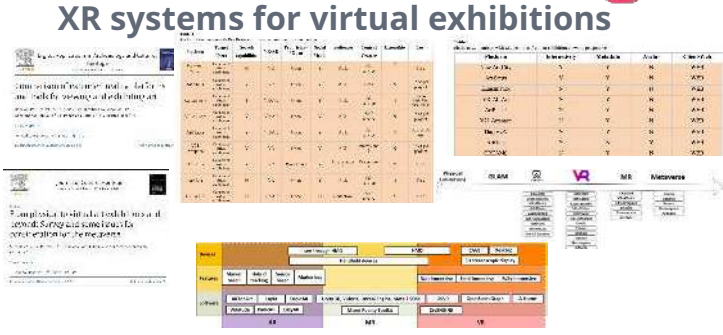
Personalisation

Classification	
Individual: user profile data content-based filtering systems	**Collaborative:** users with similar preferences social or collaborative filtering
Reactive personalization as a conversational process that requires explicit interactions with the user	**Proactive** learn user preferences and provide recommendations based on the learned information
User Information content descriptions of the items being recommended and a products' domain ontology	**Item Information** past preference ratings and behavior of the user, and user demographics
Memory Based simply memorize all the data and generalize from it at the point of generating recommendations	**Model-Based** learn a statistical model, and use that model to make predictions
Client-Side data is only available about the individual user	**Server Side** On the server-side, the business can collect data on all its visitors

Personalisation techniques

- **Content-Based Filtering**
- **Traditional Collaborative Filtering**
- **Clustering Based Approaches**
- **Association and Sequence Rule-Based Approaches**
- **Hybrid Techniques**
  1. ***Weighted hybridization method***
  2. ***Switching hybridization method***
  3. ***Mixed hybridization method***
  4. ***Feature combination hybridization method***
  5. ***Cascade hybridization method***
  6. ***Feature augmentation hybridization method***
  7. ***Meta-level hybridization method***

XR systems for virtual exhibitions



Expert Opinions – Filtering State of the Art Findings: Basic system functionalities

- contain tools that empower artists to present contextual issues, ideas and personal thoughts about their artworks in an original way.
- enable artists to employ 3D digital exhibitions to reach new audiences and promote their work.
- facilitate the creation of multimodal in-depth descriptions of selected artworks in the form of art sketchbooks.
- promote the adaptability of the modalities employed to the aesthetic and conceptual character of the artworks.
- ease the creation of 3D online virtual exhibitions.
- use multimodal in-depth descriptions of artworks in the form of interactive art sketchbooks.
- contain interactive features such as pop-up widgets with text, multimedia content and multimodal annotations.
- use digital narratives, such as avatars as narrators.

Mock-Ups

- An art teacher initiates an exhibition
- An art teacher assesses an exhibition
- A student uses the digitizer
- Setting up a VR exhibition space
- Setting up an outdoor AR exhibition
- Viewing a 3D exhibition
- Viewing an artwork in a 3D exhibition
- A student creates an exhibition
- Visitor views an exhibition
- AR in-Home projection
- AR Indoor

An art teacher initiates an exhibition



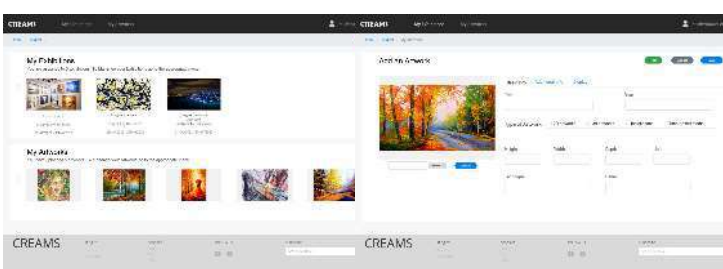
An art teacher assesses an exhibition



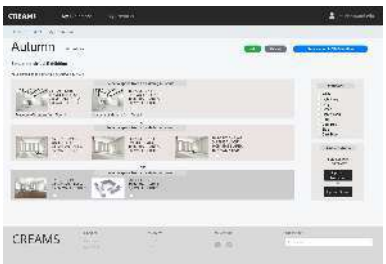
Student – Uses the digitizer



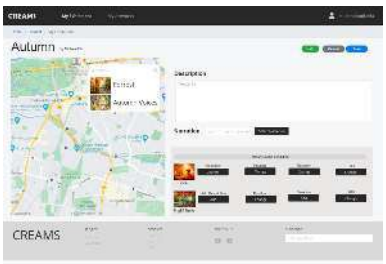
A student creates an exhibition



Art student – Setting up a VR exhibition space



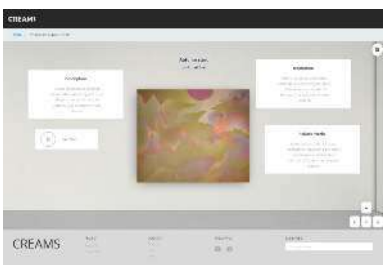
Art student – Setting up an AR outdoor exhibition



Visitor – Viewing a 3D exhibition



Visitor – Viewing an artwork in a 3D exhibition



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Visitor – Views an exhibition using the mobile app



Visitor - AR Indoor Projection



Visitor - AR in-home projection



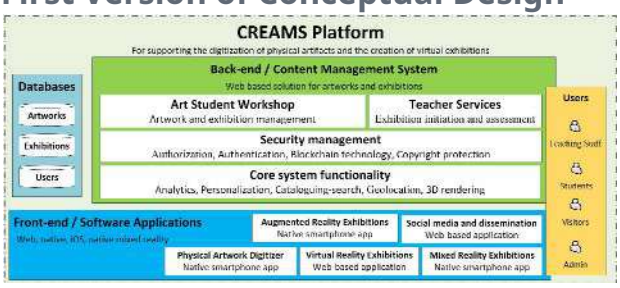
Focus groups

- **Art Students**
- **Art Teachers**
- **Art Exhibition Visitors**

Readiness Metrics of Employing Cutting-edge Digital Technologies



First Version of Conceptual Design



Personalization and recommendations

Topic	Criteria
Art Workshop	• How do I choose the objects that are most appropriate to the narrative I want to present and the story of the exhibition? • How can I adjust the group of artworks and the narrative to the space in terms of scale, size and rhythm/flow? • Could we have more than one room for the exhibition? • Could we change the color of the walls in the exhibition rooms? • Could we have various options for the students concerning the shape of the rooms? (e.g., long room, spiral room, round room, square room or well-known online museums).
Exhibition assessment	• Could we assess the exhibition based on previous assessments of similar exhibitions?
Exhibition Viewing	• Will we use avatars? If not, could we have a range of options? • Could we provide alternative artwork exhibition viewing based on user behavior in previous system visits?

Role (whom)	What	Setting	When
Teacher	Coadvisors with experience in exhibition assessment of such exhibitions	VR	Exhibition assignment
	Exhibition assessments that are similar to the exhibition to be assessed.	VR, AR	Exhibition Assessment
Student	Narrations that are related	VR, AR	Exhibition Creation
	Related Artwork descriptions	VR, AR	Artwork management
	Exhibitions that are similar and with high ranking or with the best assessment	VR, AR	Before the creation of an exhibition
	Artworks that are highly related to the exhibition	VR, AR	Exhibition Creation
Visitor	Artworks or Exhibitions depending on their behavior, personal info and preferences	VR, AR	Viewing

A Personalization Scenario

- A visitor uses the MR app to display an exhibition



Curatorial Approach

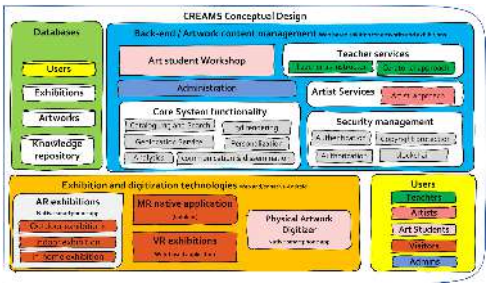
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Curatorial Process

Curational Stage	Lecturer	Student
Gathering the Artworks		Collecting all the visual material in Pinterest board and Miro
Acquaintance and assimilation of the art works	Can you arrange in three lines: 1. Three content groups 2. Three groups of colors/material 3. Three sets of time/space	Documentation of each arrangement (Photography or print screen) Upload the photos to Miro
Editing & Writing	Choose one artist (content and work) (40 words that characterizes the group)	Writing a connection of the text to the arrangement and the group
Presentation and reflection feedback	The lecturer's reflections for the steps and the acceptance of the exhibition of the texts in the group + the commitment for analysis and writing	Display one selected group + the text
Editing order of artworks Processing data to text	Arrange the group you selected on a straight line Link on a word to the narrative + the relativity of the text and its connection to the words	Aligning the images on a linear - narrative axis Writing a process to verbalize the text
Thematization and its space (positioning the artworks semiotically (form, word, meaning)	Try to spread the images in the exhibition space so that they maintain the defined narrative A criterion for ego, hanging, intensity Working with narrative Form Depth Rhythm Intimacy Aesthetic distance Intensity	Combining, arranging and linking - about the visible Expression of one's topic separately in exhibition space
Actual placement on the wall and feedback of the space to the student. It would be interesting if the actor of the first round (and feedback to the students)	Advocate on to the space	Hanging images, lighting, texts
Evaluation & Feed back	Reflection for the whole process	Presentation of the entire process + the final exhibition

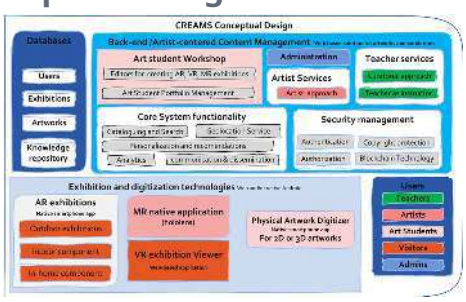
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Revised System Conceptual Design



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Conceptual design – Final Version



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System Services

- Core services
- Art-Student services
- Teacher services
- Visitor services
- Artist services
- Administration

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Art-Student Services

- Artwork management
- Artwork digitization
- Exhibition creation
- Exhibition management
- VR exhibition space creation

creams

Core Services

- Authentication and registration
- Authorization
- Geolocation services
- Personalization
- Analytics
- Viewing and searching
- Copyright protection
- Communication and dissemination

Teacher Services

- **Teacher as an instructor:** Teachers can start a new exhibition. During this process, they only choose the exhibition targeting and select the students (**Exhibition initiation**). The teaching staff that initiates an exhibition (advisor) also sets a number of co-advisors. The co-advisors assess the exhibitions, and the advisor puts an overall assessment (**Exhibition assessment**).
- **Curatorial approach:** If the teacher chooses to follow the alternative scenario for assigning the exhibition to the students, some milestones should be reached. The first set of actions includes the gathering of the artworks, their documentation and digitization, and the conceptualization of an exhibition for the selected artworks. Next, the artworks should be placed in a linear-narrative axis and should also be defined as the exhibition title and the narrative description. Finally, the student should create the digital space, place the artwork inside and present the final exhibition as well as the entire process. On each step, the teacher gives feedback to the student and allows her/him to proceed

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Visitor Services

- Immersive services
- In-House projection
- VR and AR viewing

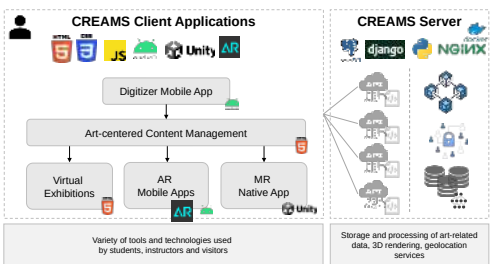
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Artist Services

• Artist–guest approach

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Architectural Design



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Final Tools

- Artist-centered content management system, platform, integration
- Web VR art exhibition for visitors
- Native mixed reality application

- Digitizer application (2d/3D digitization and rendering)

- AR mobile application (outdoor, indoor, in-home exhibitions)

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CREAMS Latest Technologies

https://creams-project.eu

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Artist-centered content management system

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Key Features

INSTRUCTORS

- Instructor's services
  - Initiate an exhibition
    - VR, AR, MR
  - Assign students to exhibition
  - Assign co-advisors
  - Assessment
    - Regular
    - Curatorial approach
- Communication/chat component

STUDENTS

- Manage digitized artworks
- Manage media
- VR exhibition workshop/editor
- AR exhibition editor
- MR exhibition editor
- Curatorial approach
- Communication/chat component

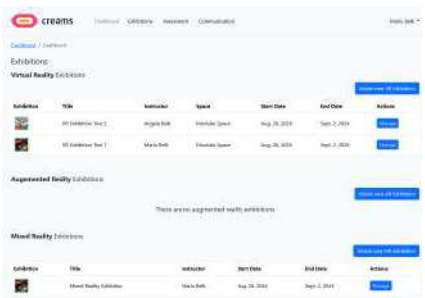
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User Authentication



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Instructor Dashboard



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Instructor Initiates an Exhibition



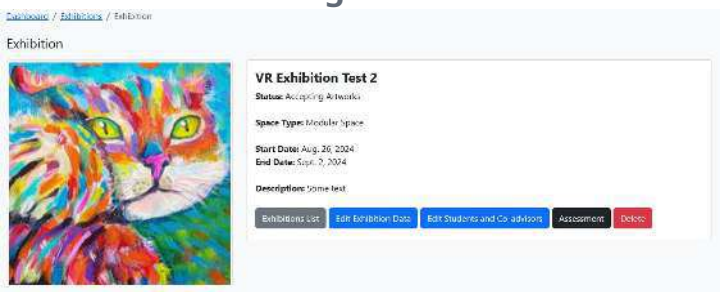
72

Instructor Assigns Students to the Exhibition



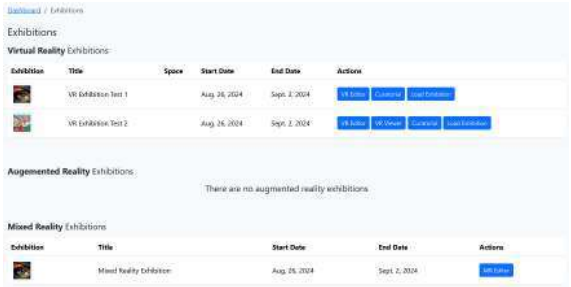
73

Instructor Manages Exhibitions



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Student View

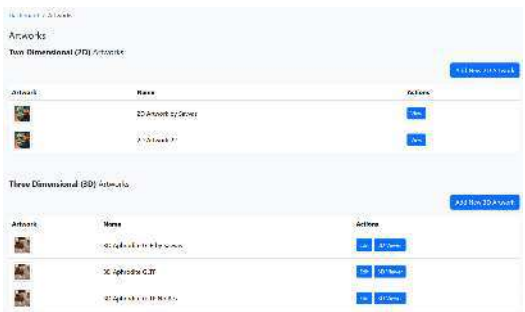


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Artworks Manager

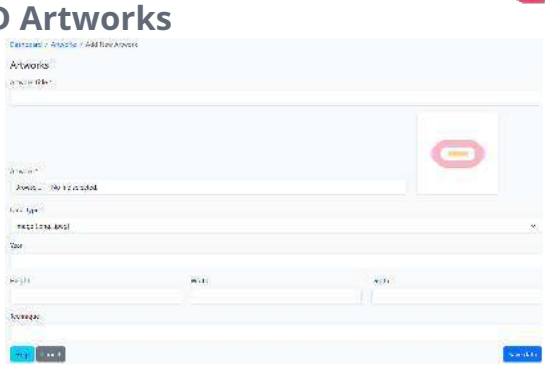
76

Artworks Manager



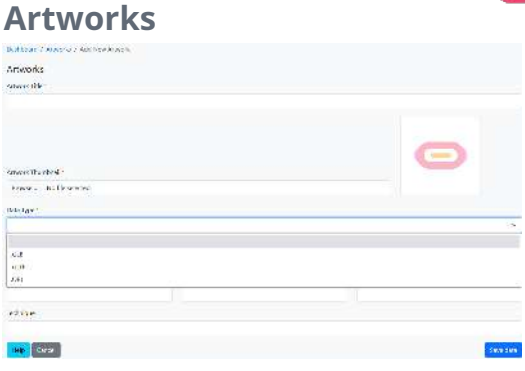
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2D Artworks



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3D Artworks



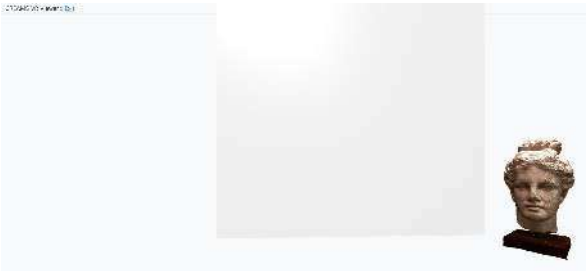
79

Upload Data for 3D Artworks



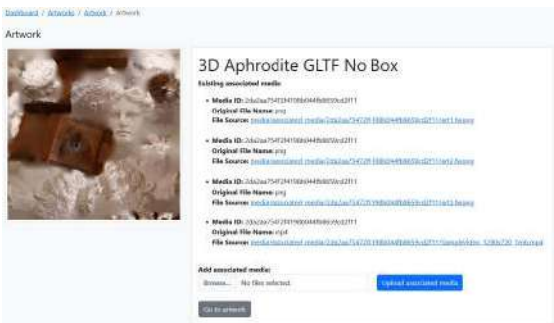
80

3D Viewer



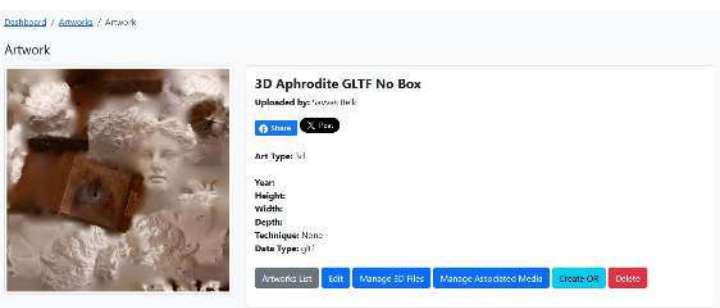
81

Assign Associated Media to Artworks



82

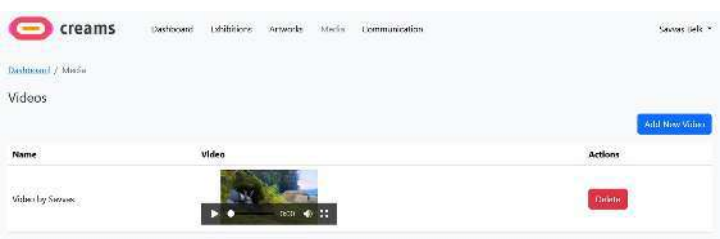
Manage Existing Artworks



Media Manager

84

Media Management



85

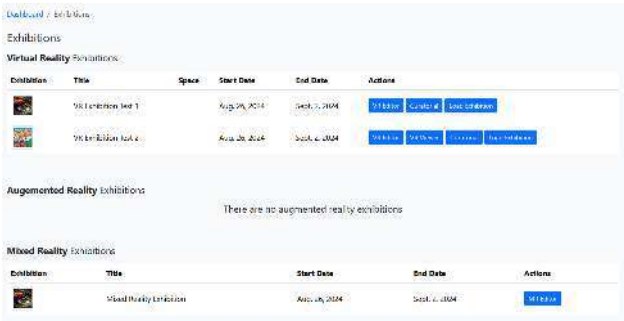
creams

Exhibitions Manager

86

creams

Access Exhibitions – VR, AR, MR



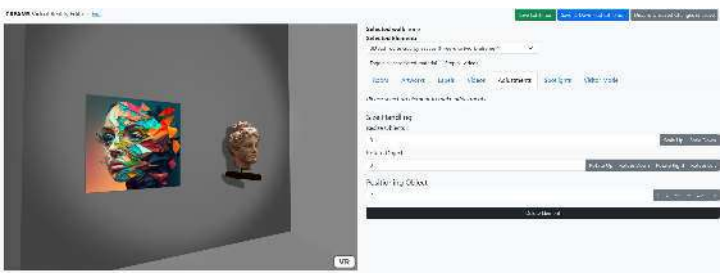
creams

Virtual Reality Workshop

88

creams

Virtual Reality Editor



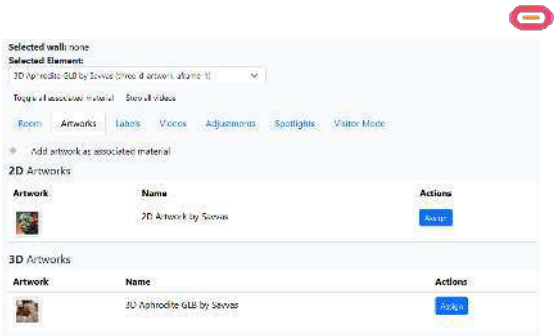
89

creams



90

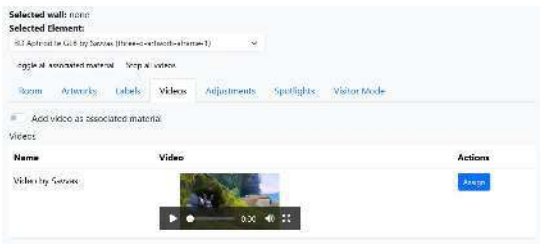
creams



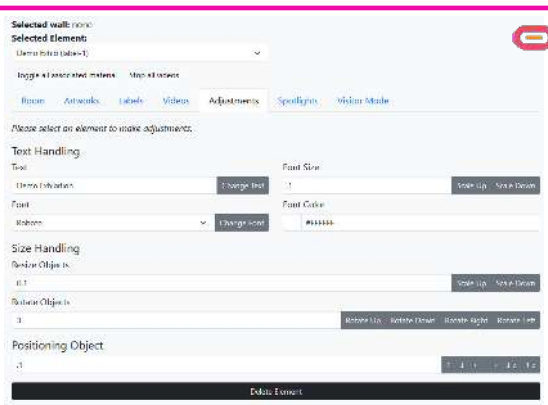
91


Selected wall: none
Selected Element:
Toggle all associated material
Stop all videos
Room
Artworks
Labels
Videos
Adjustments
Spotlights
Visitor Mode
Add label as associated material
Please select the wall for which you would like to add a label.

92


Selected wall: none
Selected Element:
Toggle all associated material
Stop all videos
Room
Artworks
Labels
Videos
Adjustments
Spotlights
Visitor Mode
Add video as associated material
Videos
Name
Video
Actions
Video by Sawas
Assign

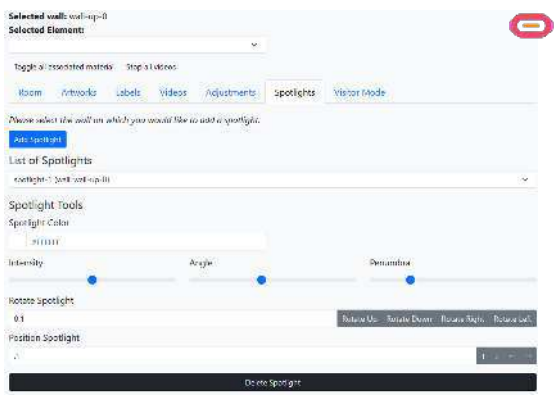
93


Selected wall: none
Selected Element:
Toggle all associated material
Stop all videos
Room
Artworks
Labels
Videos
Adjustments
Spotlights
Visitor Mode
Please select an element to make adjustments.
Text Handling
Text
Change Text
Font Size
Make Up
Make Down
Font
Change Font
Font Color
Size Handling
Resize Object by
Make Up
Make Down
Rotate Object by
Rotate Up
Rotate Down
Rotate Right
Rotate Left
Positioning Object
Delete Element

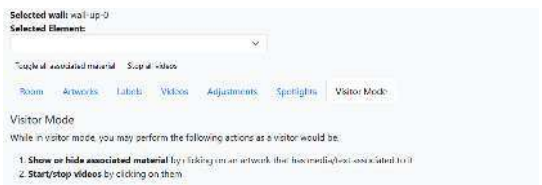
94


Selected wall: none
Selected Element:
Demo Entity [label=1]
3D Artwork by Sawas [type=3_artwork_chrome: 1]
3D Asphodel to GLB by Sawas [type=3_artwork_chrome: 1]
Demo Entity [label=1]

95


Selected wall: wall-up-0
Selected Element:
Toggle all associated material
Stop all videos
Room
Artworks
Labels
Videos
Adjustments
Spotlights
Visitor Mode
Please select the wall on which you would like to add a spotlight.
Add Spotlight
List of Spotlights
Spotlight Tools
Spotlight Color
Intensity
Angle
Penumbra
Rotate Spotlight
Rotate Up
Rotate Down
Rotate Right
Rotate Left
Position Spotlight
Delete Spotlight

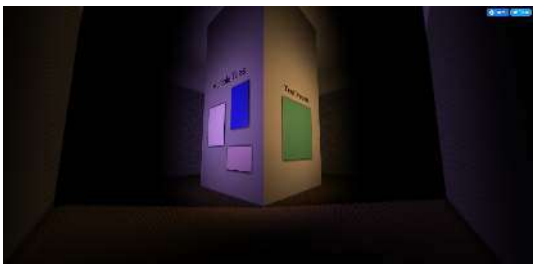
96


Selected wall: wall-up-0
Selected Element:
Toggle all associated material
Stop all videos
Room
Artworks
Labels
Videos
Adjustments
Spotlights
Visitor Mode
Visitor Mode
While in visitor mode, you may perform the following actions as a visitor would be:
1. Show or hide associated material by clicking on an artwork that has media/text associated to it
2. Start/stop videos by clicking on them

Example of the Sketchbook



Another Example



Additional Management Tools

- Backup and load exhibitions
- Reset exhibition

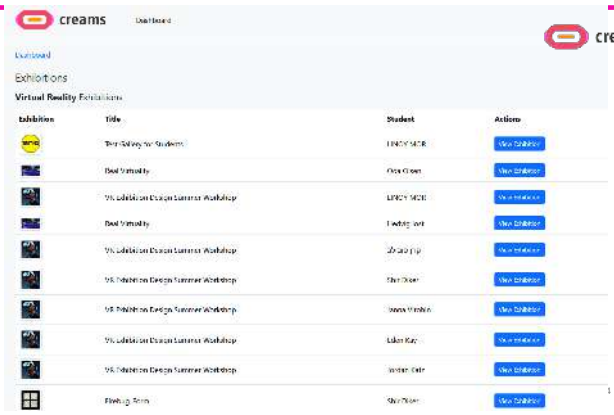
Backup and load exhibitions

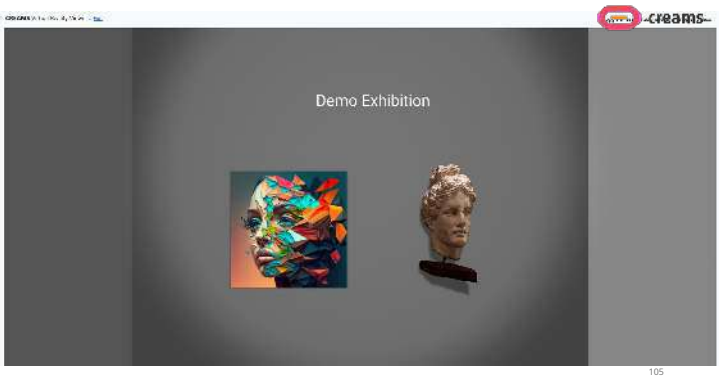


Backup and load exhibitions



View Exhibitions
VR Viewer





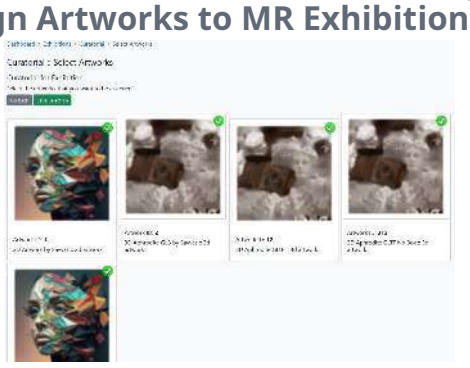
creams

AR and MR Editors



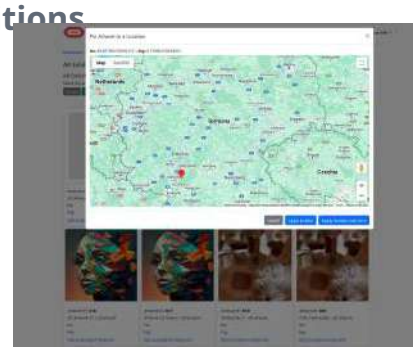
creams

Assign Artworks to MR Exhibition



creams

Assign Artworks to AR Outdoor Exhibitions



creams

Teacher Services
Assessment and Curatorial Process

110

creams

Assessment



111

creams

Assessment



112

creams

Curatorial Process

- *Curatorial approach* in which the instructor provides feedback on the selection of artworks and reasoning before the student actually starts implementing the exhibition

113

creams

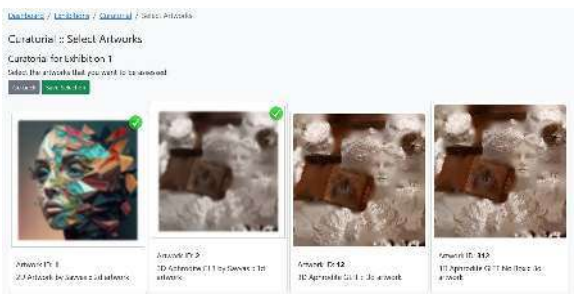
Curatorial Approach



114

creams

Student Selects Artworks



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Communication Service



creams

CREAMS AR Application

creams

AR Application



Creams' icon within the phone's default applications.

A smartphone application enabling visitors to interact with the students' artefacts in the context of physical exhibitions in which the artefact will be augmented either in a physical outdoor space based on geolocation services, within indoor exhibitions by scanning a QR code or in-home by augmenting any artefact in the viewer's physical space



Homepage with outdoor galleries, indicatively chosen, procured from URLs.









creams

Augmenting 3D Artworks



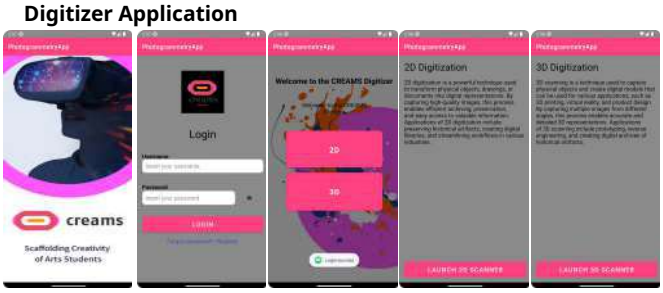


creams

CREAMS Digitizer Application

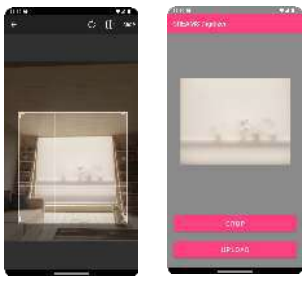
creams

Digitizer Application



creams

Digitizer Application - Cropping



creams

Native mixed reality application

creams

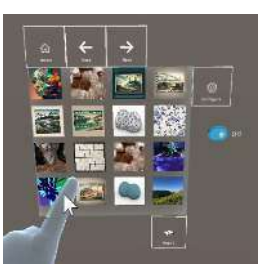
Dashboard

- Artworks Gallery
  - Artwork Extended View and Associated Media
- Match an Artwork from the Physical World
- Cognitive Agent
- Exhibitions



creams

Artworks Gallery



creams

View Artwork



Associated Media



128

Match an Artwork from the Physical World



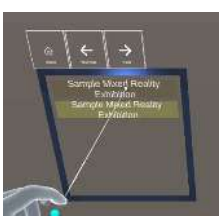
129

Cognitive Agent



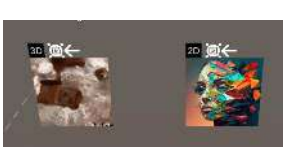
130

Exhibitions



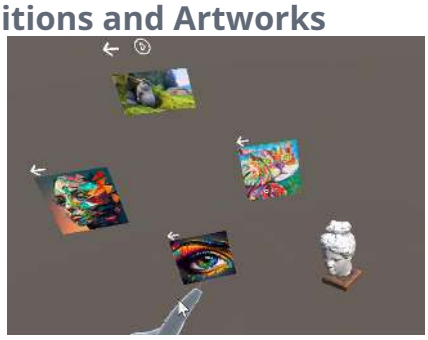
131

Exhibitions and Artworks



132

Exhibitions and Artworks



133

creams

Exhibitions and Artworks



134

creams

Artwork Grouping



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creams

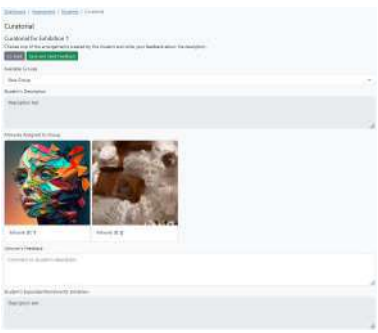
Description to Characterize the Grouping



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creams

Instructor View and Feedback



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creams

Student Views Instructor's Feedback



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creams

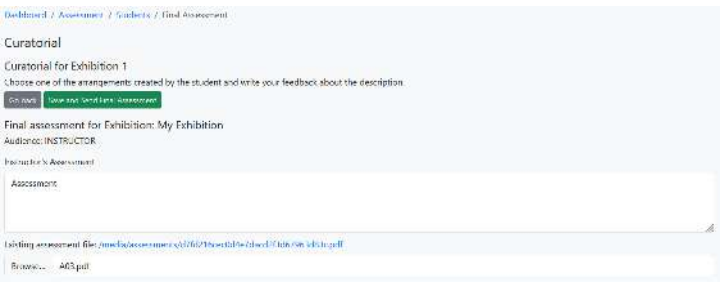
Title, Audience, Description



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creams

Final Assessment

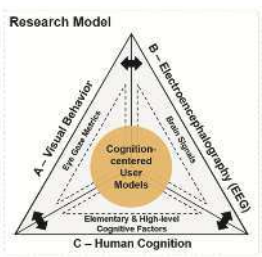


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COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modelling

Interactive Technologies Lab hcigroup

Main Objective
Design, develop and evaluate a unified **electroencephalography** (**EEG**) based and **eye gaze**-driven framework for intelligent real-time modelling of human cognitive abilities.



COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modelling

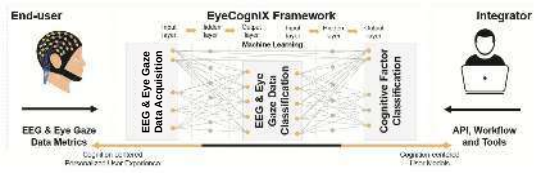
Key Stakeholders

Researchers
Acquire data, design and conduct experiments through CogniX.

UI & UX designers
Create user interfaces for tasks and experiments.

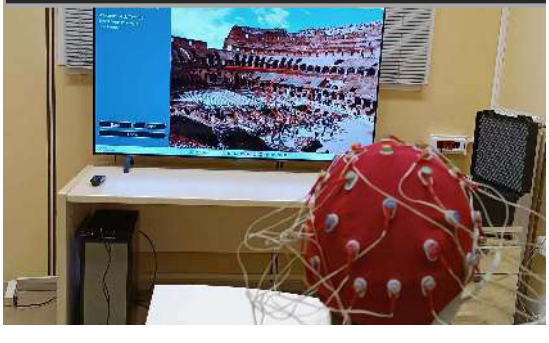
Developers
Implement machine learning algorithms, data analysis, and system architecture.

End-users
Transparently interact with BCI applications that are powered by CogniX.



ΕΛΙΔΕΚ

Εναρκτήρια συνάντηση FIREFLY - 10/11/2023
COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modelling



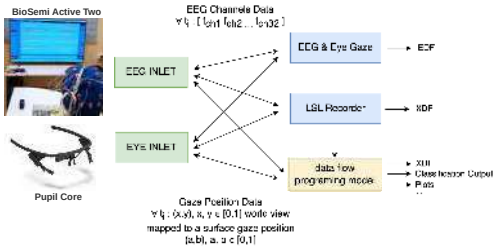
COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modeling



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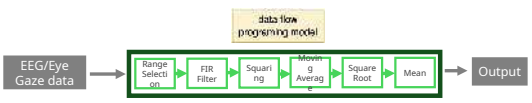


COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modeling



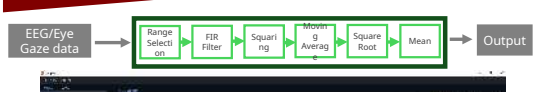
ΕΛΙΔΕΚ

COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modeling



node-based / visual scripting

ΕΛΙΔΕΚ





ΕΛΙΔΕΚ

COGNIX Electroencephalography and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modeling

Device-agnostic design

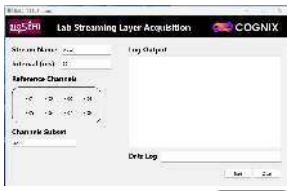
Lab Streaming Layer (LSL)
an open-source networked middleware ecosystem to stream, receive, synchronize, and record neural, physiological, and behavioral data streams acquired from diverse sensor hardware.

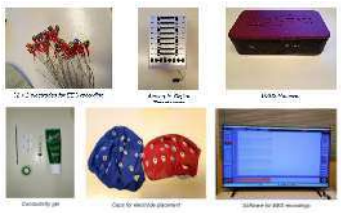
hcigroup

Device-agnostic design

Lab Streaming Layer (LSL)
an open-source networked middleware ecosystem to stream, receive, synchronize, and record neural, physiological, and behavioral data streams acquired from diverse sensor hardware.

biosemi-lsl
Customized implementation of an LSL streamer for the BioSemi Active Two Mk2 system.





Available on GitHub
github.com/CognixUP

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COGNIX Electroencephalographic and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modeling

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github.com/CognixUP

CognixCore
Python library that provides the backend mechanisms for offline and online (real-time) graph-based (node) processing and evaluation. Based on DAGs (Directed Acyclic Graphs).

CognixLib
Python library for offline or online analysis of EEG and Eye-Gaze signals. Stand-alone and node-based modes (through CognixCore).

CogniX Editor
A visual data-flow programming graphical user interface for designing and deploying graphs based on the previous packages (CognixCore, CognixLib).

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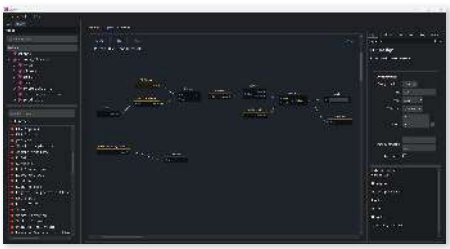
Ryven

Available at **ryven.org**

CORE

COGNIX Electroencephalographic and Eye Gaze-driven Framework for Intelligent and Real-Time Human Cognitive Modeling

CogniX Editor
A visual data-flow programming graphical user interface for designing and deploying graphs based on the previous packages (CognixCore, CognixLib).



hcigroup

CENTER
for Teaching and Learning
UNIVERSITY OF PATRAS

Short Presentation

Thanassis Karalis

Coordinator

Co-funded by the European Union

ΕΣΠΑ 2021-2027 Partnership Agreement

Human Resources and Social Cohesion Programme

Higher Education Pedagogy in Greece





Professor Katerina **KEDRAKA**
Department of Molecular Biology and Genetics
Democritus University of Thrace



Symposium for HEP
Democritus University of Thrace
September, 2016

External Evaluation of the University of Patras

HELLENIC REPUBLIC
H.Q.A.
HELLENIC QUALITY ASSURANCE AND ACCREDITATION AGENCY

EXTERNAL EVALUATION REPORT

UNIVERSITY OF PATRAS

October 2015



systematic way. The EEC would like to recommend that the University develop a teaching enhancement programme and a support office (e.g. Teaching and Learning Centre) to provide guidance to faculty in developing better teaching skills.





Activities

- 20% of teaching personnel
- 12 programs of total duration 250 hours
- MOOC for students
- 15 educational materials

International collaborations

UC LOGOS, University of Bogazici and University of Siena

Erasmus+ Programme
Capacity Building in Higher Education
(ERASMUS- EDU-2022-CBHE-STRAND-1)
Project 101083006

MAGNET

BALKANETUP

eua EUROPEAN UNIVERSITY ASSOCIATION DIGIHE

TPG- Collaborative Teaching Practice

homodigitalis

DigiReady+

Digiready+ Digital Readiness in European Higher Education Institutions: a Data-driven Framework Guided by Institutional and Instructional Analytics

KOLEGJI UNIVERSITAR LOGOS

ctl.upatras.gr

The Center for Teaching and Learning of the University of Patras (CTL) aims to upgrade the public good of education at the undergraduate and postgraduate level and to provide a high level of education to the students of the University through the continuous empowerment and cooperation of teaching staff. CTL aims to create a learning community of all faculty members, that supports innovative, transformative, and inclusive teaching practices, promotes interdisciplinary collaborations, and approaches, and establishes a culture that responds to the high ideals of education and to the changing needs of the disciplines served by the community members of the University of Patras.

Introduction

- More students are experiencing mental health difficulties such as depression, anxiety, low self-esteem, loneliness.
- Libraries on prescription project.
- Those are the reason for designing & applying a group support intervention (creative writing).
- Participants wrote stories, tried to express their feelings, boosted their self-confidence, socialized, and tried to estimate their anxiety or depression.

Intervention ***"Power of Words"***

Angeliki Giannopoulou



Libraries on Prescription



Libraries change role:

- Libraries have long been regarded as more than just repositories of books. They are open, safe, and brave community spaces that serve as pillars of education, enlightenment, and inclusivity.
- Libraries play a vital role in creating a stronger, more connected community.
- Also, they are platforms for diverse ideas, opinions, and perspectives, fostering a climate of open dialogue and learning.

Why run a Libraries on Prescription (LoP) programme:

- ✓ Create a culture of caring
- ✓ Provide space where groups can come together and enjoy activities that are co-designed with people, to meet their needs.
- ✓ Create safe, welcoming and accessible physical environments freely open to all, which encourage participation, creativity and mutual learning and support.
- ✓ Capacity building for library staff and library service users

Pilot program (6 Geek Libraries)

Creative/Therapeutic writing

- **Creative writing therapy** (or therapeutic writing): form of therapeutic intervention that uses writing as tool to explore and express thoughts, feelings and emotions.
- **Writing therapy:** useful for people who struggle with mental health, have experienced trauma or grief, or are simply looking for a creative outlet to process their thoughts and feelings.
- Writing therapy can take many **forms:** journaling, poetry, creative writing, letter writing, or memoirs.
- **Writing therapy:** can be done individually or in a group setting. It can also be facilitated by a therapist, counselor or writing coach.

Intervention “Power of Words”/1

- Providing help to students to overcome mild mental health problems and psychological pressures through creative writing techniques.
- Developing skills in identifying and expressing issues of personal concern in a creative way.
- Relief from psychological issues, developing friendships, expressing emotions, managing stress, becoming self-confident and being more self-empowered.



Intervention “Power of Words”/2

- **Supervision:** A faculty member (psychologist) of DESSW of Patra’s University, & a faculty member of DESSW of Patra’s University with experience in creative writing techniques.
- **Duration:** 3 circles of intervention – 3 semesters (March 2023, October 2023, March 2024)
- **Participants**: students of Patra’s University with mental health problems (1st-11 students / 2nd-16 students / 3rd – 10 students)
- **Guidance**: 1 or 2 Librarians
- **Place**: LIC Patra’s University (specially designed room).
- **Time**: 8 meetings (weekly, 2 hours).
- **Online application**

Intervention Content

- Writing exercise: Writing stories to externalize feelings, experiences and difficulties.
- Introductory activity: aimed at getting to know each other, group bonding, feeling safe and comfortable.
- Main activity: to encourage expression and interaction, e.g. 'Photo from the past' exercise.
- Closing activity: short game for positive interaction and disassociation from stories.
- At the End: writing stories and publishing an e-book.

Tools

- **GAD-7** (Generalized Anxiety Disorder)
- **PHQ-9** (Patient Health Questionnaire)
- **WEMWBS** (Warwick Edinburg Mental Wellbeing Scale)
- **RSES-10** (Rosenberg Self-Esteem Scale)



N=32

Discussion – Results of evaluation

- The use of creative writing techniques in the intervention group helped to improve the mental health of the group members who participated. It helped them to socialize and feel more positive.
- The results showed that the 'Power of Words' activity achieved its goal.
- This activity managed to reduce level of anxiety and depression & increase level of well-being and self-esteem of the participants.
- The implementation helped the participants to further reduce the level of anxiety and depression & further increase their psychological well-being and self-esteem compared to the control group.

Thank you!

agianop@upatras.gr



Photos















Laboratory of Didactics of Science, Mathematics and ICT

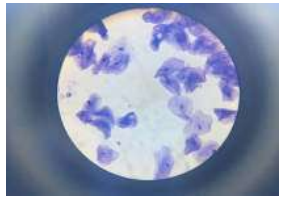
Department of Educational Sciences and Early Childhood Education

University of Patras

Marida Ergazaki
Lab Director

Homo digitalis
Patras-Greece, 11-3-2025





Welcome to the Lab!





The overview of the meeting

- Lab intro
- Our *"Homo digitalis"*-aspect in a nutshell
- Discussion

Lab intro

1. Lab - Department

Lab intro

- The Lab is concerned with educational research
  - teaching/learning science, math, computer science
- DESECE trains
  - preschool teachers
- So, how come…
  - such a Lab functions
  - in such a Department?



Lab intro

- Young children
  - are very curious about the natural world
  - have their own ways to understand it
  - show potential in building new knowledge about it
- An example

Lab intro

- Developmental psychology
  - young children have a "naïve biological theory"
    - ✓ initial ideas about living things
    - ✓ initial reasoning devices about living things
- Biology Didactics
  - young children can elaborate their initial ideas when working in appropriate LEs

Lab intro

- So, future preschool teachers
  - need to be able to design/implement such science/math LEs
- The Lab
  - supports them in achieving this goal



Pre

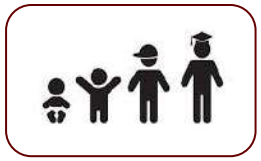


Post

Lab intro

- This does not means that
  - we only do research on early SMICT education

- On the contrary, we study the teaching and learning of SMICT in
  - preschool
  - primary school
  - high school
  - higher education
  - .... and even in non-typical educational settings



Lab intro

2. Who we are…

Lab intro

- The Lab includes members with expertise in
  - Didactics of Biology
  - Didactics of Physics
  - Didactics of Mathematics
  - Didactics of Computer Science and ICT, Informatics in Education

- It also includes members with expertise in
  - Philosophy
  - Psychology
  - Pedagogy

Didactics of Biology



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Lab intro

3. What we do…

Lab intro

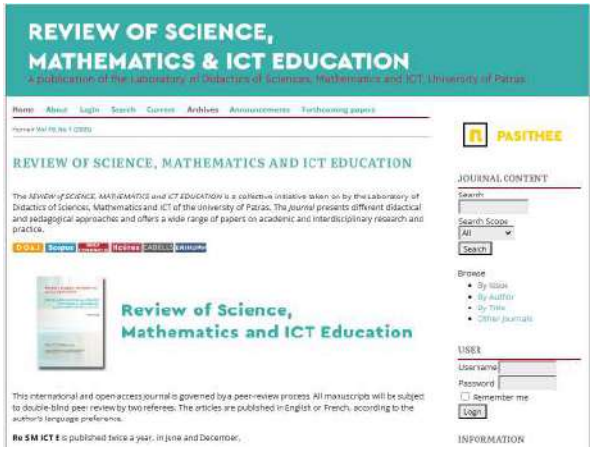
- The Lab members
  - teach courses to undergraduates and postgraduates
  - do research
  - supervise doctoral students

⇩

  - ✓ apprenticeship in educational research on SMICT

Lab intro

- The Lab publishes a journal
  - open-access
  - peer-reviewed



Lab intro

- Prof. Konstantinos Ravanis
  - editor-in-chief
  - coordinator of the whole endeavor since 2007

- ReSMICTE
  - is published twice a year
  - is indexed in databases
  - draws international scholars

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Lab intro

- The Lab has provided many times
  - professional development programs to teachers

- Training center for
  - using new technologies in high school
  - promoting health education in high school
  - implementing IBSE in preschool
  - using new edu software & digital materials for the new preschool curriculum

Lab intro

- The Fibonacci Project
  - Designing, implementing and testing a model for the dissemination of inquiry-based teaching and learning in science and maths in Europe *(3 years)*
  - Funded by the European Union - FP7
  - The Lab has trained
    - ✓ 108 preschool teachers from
    - ✓ 90 kindergartens
  - The Lab provided full support in the implementation of IBSE with
    - ✓ 1687 preschoolers

Lab intro

- What we did was
  - introducing the IBSE model
  - designing educational activities
  - training teachers to their implementation
  - supporting them during the implementation
  - discussing their experience and giving them feedback

Lab intro

- Research programmes
  - 2021-2024: "The augMENTOR project: Augmented intelligence for pedagogically sustained training and education proposal" (HORIZON-RIA)
  - 2021-2023: "KEEP – Key engaging educational practices", used by secondary school teachers to keep connected with their students following Covid-19 pandemic (France Education International)
  - 2001-2004: "ModellingSpace: A space for ideas' expression, modeling and collaboration for the development of imagination, reasoning and learning" (European Commission)

Lab intro

- Partnerships / Events: strong bonds with French Universities and Labs
  - Communication and exchange projects in Europe and worldwide (Erasmus Mundus)
  - 2019: Colloque SIEST Méditerranée, Patras 2019: Education scientifique et technologique pour tous, 3-5 April, UPatras
  - 2015: Sixième Colloque International du RIFEFF", 2-4 July, UPatras
  - 2004: ERIDOB 2004: 5th Conference of European Researchers in Didactics of Biology, Sep 21-25, UPatras

What's next in the meeting?

Thank you
for your attention!



What's next?

- Our *"Homo digitalis"*-aspect
  - Biology education research
    - ecosystem simulations to challenge the BON-idea *(M. Ergazaki)*
  - Physics education research
    - a digital tool to explore alternative ideas in autism *(G. Kaliampos)*
  - Educational Research in AI
    - the augMENTOR Project *(A. Filippidi)*
  - Research on Robotics in Early Childhood Education
    - research-based practice & policy-making in Greece *(A. Misirli)*

Using NetLogo models to challenge the BON-idea: *Just a glance*

Marida Ergazaki
Dept. of Educational Sciences and Early Childhood Education
University of Patras

Homo digitalis
Patras-Greece, 11-3-2025

Introduction

- Part of a PhD study *(Georgios Ampatzidis)*
- For instance
  - Ampatzidis, G., & Ergazaki, M. (2017). Using ecosystem simulation models to teach about the 'resilient nature'. In A. Lionarakis, S. Ioakimidou, M. Niari, E. Manousou, T. Hartofylaka, S, Papadimitriou, & A. Apostolidou (Eds.), Proceedings of the 9th International Conference in Open & Distance Learning: The Learning Design, Volume 9, Part 6B (pp. 224-231). Athens, Greece: Hellenic Open University and Hellenic Network of Open and Distance Education. ISBN: 978-618-5335-01-4
  - Ampatzidis, G., & Ergazaki, M. (2018). Challenging Students' Belief in the 'Balance of Nature' Idea. The emergence of a design theory. Science & Education, 27(9), 895-919.
- Design research
  - 3 Research cycles, 3 case studies
  - non-biology students
- Results
  - a working version of the initial learning environment
  - a design theory for introducing ecosystems' contingency
- Focus here
  - the use of NetLogo-models

The BON-idea

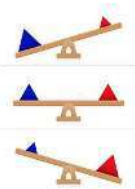
- The BON-idea: a longstanding idea
  - popular culture *(Ladle & Gillson, 2009)*
  - school science *(Westra, 2008)*
  - students' reasoning *(Ergazaki & Ampatzidis, 2012)*

    ↓
    - ✓ Disturbed ecosystems recover their initial state
    - ✓ Protected ecosystems look the same years later

The BON-idea

- The BON-idea implies predetermined order and stability in nature
- It refers to an outdated view of the natural world
- It may hinder eco understanding & env awareness

  ⇩
  - ecosystems are "teeter-totter"-like *(not true)*
  - they always recover their initial state after a disturbance *(not true)*
  - so… why worry??? *(not true)*



The "Resilient nature"- idea *(currently valid)*

- "Balanced-nature" *vs.* "resilient nature"
  - order/stability/purpose *vs.* contingency
- Resilient nature
  - multiple alternative states
  - ecosystems shift between these states
  - in not necessarily reversible ways *(Gunderson & Holling, 2002)*

RQ

- So, can we help students challenge the BON-idea?
- Can we help them replace it with the idea of the resilient nature?
- How?
- Is it feasible to come up with an empirically tested theory of tea/lea about contingency in nature when designing an 'anti-BON' LE?

Methods

- Design research
- Exploratory phase (Learning objectives, Design criteria, LE1)
- Phase of Research Cycles (RC1-3)
- Participants
  - 1st year students of edu sciences
  - N_{RC1}=41, N_{RC2}=34, N_{RC3}=44
  - basic knowledge of ecology, experience of computer-use and group-work
  - attending an optional ecology-course, conveniently selected

Methods

- Learning environment
- Learning objectives (LO)
  - LO1: Ecosystems may have multiple alternative states
  - LO2: Each state is self-organized through feedbacks changing at tipping points
  - LO3: Shifts between alternative states may be irreversible or reversible based on initial state or handlings
  - LO4:Reversing the factor that caused the shift, does not necessarily bring the ecosystem to its prior state
  - $LO5_{contingency:}$ Natural systems show a contingent / not pre-determined behaviour ('resilient' vs 'balanced' nature)
- Sessions
  - N = 5
  - t = 2h per session

Methods

- Sessions 1-4
- 4 NetLogo models with Wsheets
  - predictions about the ecosystem's behaviour before using the model
  - explanations afterwards
- The models simulated terrestrial or aquatic ecosystems
  - protected or disturbed by humans
- The models were based
  - on findings of current ecological research

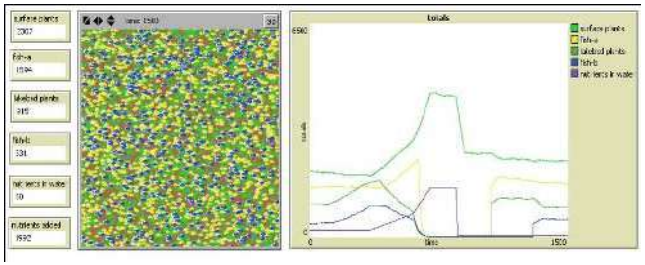
Methods

The NetLogo Models (NM1-NM4)

NM1 - Forest ➢ maturation of a forest ➢ *eco research: Gunderson et al. (2010)*	LO1-2, $LO5_{contingency}$
NM2- Lake ➢ introducing/removing nutrients ➢ *eco research: Scheffer (2009)*	LO1-4, $LO5_{contingency}$
NM3-Lake/Recovery plan ➢ introducing/removing nutrients & additional actions ➢ *eco research: Scheffer (2009)*	LO1-4, $LO5_{contingency}$
NM4- Meadow ➢ removing/re-introducing spiders ➢ *eco research: Smitz (2010)*	LO1-4, $LO5_{contingency}$

Methods

- Interface
  - boxes
    - ✓ N_{pop} , abiotic factors (if applicable)
  - simulation window
    - ✓ individuals in different shapes and colors
  - graph window
    - changes in N_{pop} and abiotic factors with time
    - graphical representation of the ecosystem's trajectory



Methods

- Each model: two different versions (two different trajectories of the ecosystem)
- Students worked in small groups
- Half explored the 1st version of the model
- The other half explored the 2nd one
- At the end of each session: whole class discussion about the two trajectories

Methods

- Session 5
  - landscape models made of plasticine
  - hands-on, systems thinking activities

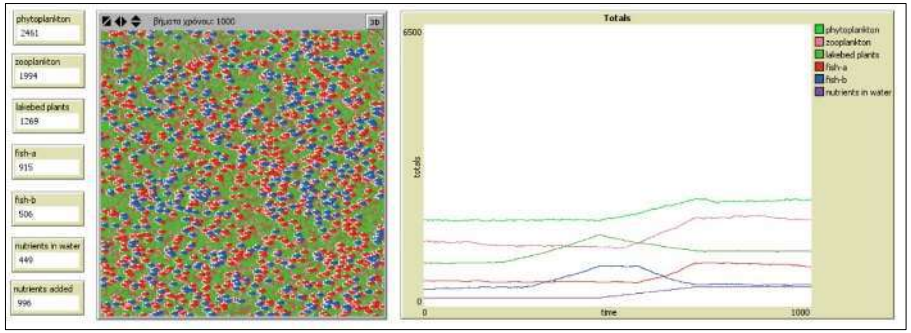
Methods

- An example
  - the NM2- the lake model
  - based on the eco work of Scheffer (2009) with a lake in the NL
- Populations
  - 2 plant populations (phytoplankton and lakebed plants)
  - 3 animal populations (zooplankton, fish-a, fish-b)
- Trophic relations
  - Zooplankton feed on phytoplankton
  - Fish-a feed on zooplankton
  - Fish-b feed on lakebed plants

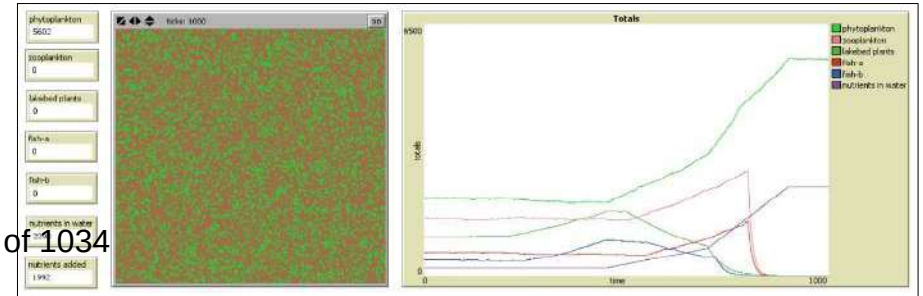
Methods

- Disturbance
  - extra nutrients are introduced in the lake
  - changes of the size of the lake populations
- Results
  - Version 1
    - ✓ the lake remains to its initial state
  - Version 2
    - ✓ the lake shifts to a new state
    - ✓ all populations die out, only phytoplankton remains

- Version 1



- Version 2



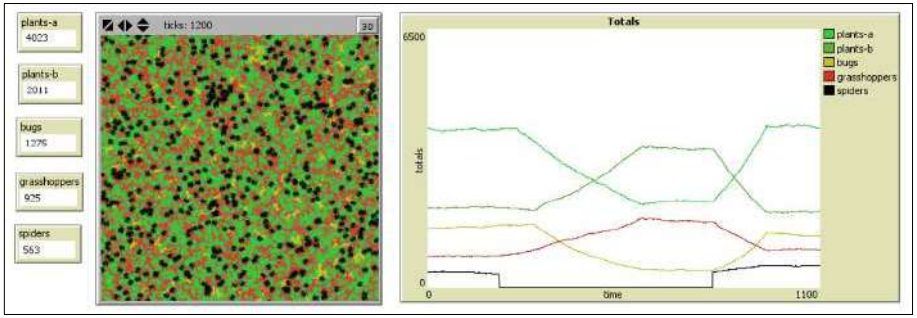
Methods

- Another example
  - the NM4- the meadow model
  - based on the eco work of Schmitz (2010) with a meadow in US
- Populations
  - 2 plant populations (plants-a and plants-b)
  - 3 animal populations (bugs, grasshoppers, spiders)
- Trophic relations
  - bugs feed on plants-a
  - grasshoppers feed on plants-b
  - spiders feed on grasshoppers

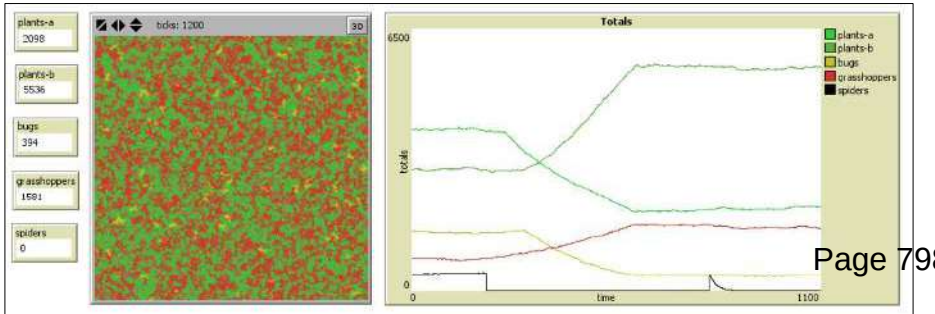
Methods

- Disturbance
  - all the spiders are removed for a certain period of time
  - they are re-introduced later
- Results
  - Version 1
    - the meadow shifts back to its initial state
  - Version 2
    - the meadow does not shift back to its initial state

- Version 1



- Version 2

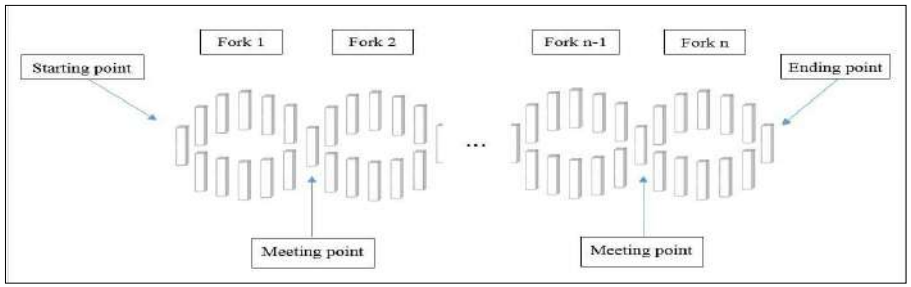


Results

- Effective learning environment
- Design theory *(teaching contingency in nature)*
  - ↓
  - Bifurcated Domino-Path (BDP)

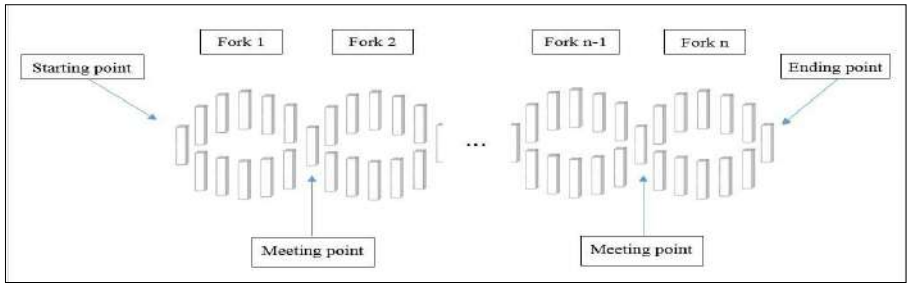
Results

- BDP derives from the use of two-version models
- Bifurcated
  - because it has several “forks” and “meeting points”



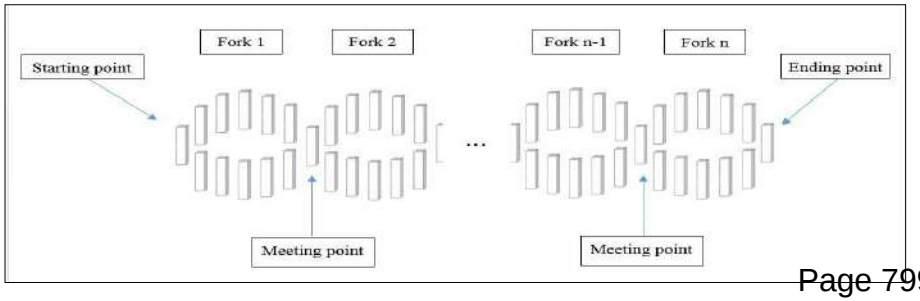
Results

- At each fork
  - some peer-groups explore one version of the target phenomenon
  - some others explore an alternative one
- At each meeting point
  - they all share their different conclusions to realize the underlying contingency



Results

- This bifurcated path works as a domino
  - pieces need to fall all the way
    - ✓ from the starting point *(where the global Q that guides the whole LE is posed, and the local Q1 that guides session 1 is also posed)*
    - ✓ through meeting points *(where the session’s local Q is answered and this leads to the next session’s local Q)*
    - ✓ to the ending point *(where the global Q is finally answered)*



So…

- This was a case of a design research study
  - trying to bring cutting edge science in the classroom
  - as part of non experts’ scientific literacy
  - through integrating technological tools that seemed to work well

Thank you
for your attention!

Homo Digitalis

T.E.A.I.A.: Presenting a Digital Tool for Exploring Alternative Ideas in Autism

Dr. George Kaliampos

Constructivism theory

- The last decades constructivism has dominated science education (Ravanis, 2017)
- At the core of constructivism lie alternative ideas (Alwan, 2011; Driver et al., 1985)

- Alternative ideas
  - *Formed in children minds at a very young age, in advance of their schooling* (Vosniadou, 1994)
  - *They are not compatible with scientific models* (Driver et al., 1985)
  - *They are stable* (Driver et al., 1994)
  - *They play a key role in learning process* (Cheng et al., 2021; Lemmer et al., 2020)

Alternative ideas hold their origins from

Natural world



Sociocultural world



Natural world

- A student observes that a body stops moving even without any apparent force being applied to it (Driver et al., 1994)



- A student feels colder when touching a tile than a wooden table (Driver et al., 1985)



Sociocultural world

- The student hears expressions like (Alwan, 2022; Driver et al., 1994)
  - *close the door so the cold doesn't get in*
  - *the heat of the day rises and reaches a peak in the afternoon*
  - *there was a large consumption of electricity*



- The student observes that the water in the pot boils when the cooker eye is set to '6'



Constructivism in the special needs spectrum

- A number of researchers have tried to identify alternative ideas of typical development students about a number of natural phenomena (Delserieys et al., 2018; Driver et al., 2018; Fragkiadaki & Ravanis, 2015; Okulu & Oğuz, 2018; Pantidos et al., 2017)

- This has **NOT** been the case for students falling within the scope of special education.
- Indeed, few researchers have tried to explore science education in the wilderness of special education spectrum (Aydeniz et al., 2012; Brigham et al., 2011; Chia, 2011)
  - *Autism* (Kaliampos et al., 2023, 2021)
  - *Learning difficulties* (katsidima et al., 2023)
  - *Deafness* (Araujo et al., 2023)

Research Design

- Experimental investigation
- Qualitative in nature
- Research tool: **T.E.A.I.A. (Tool for Exploring Alternative Ideas in Autism)**
- Individual semi-structured interviews

- The study aims to answer the following research questions

What are the alternative ideas of force, impetus theory, projectile motion and gravity in autistic adolescents?

Sample

- 74 Greek participants aged 12-16 years old
  - Group 1: 19 adolescents with autism
    mean age=172.6 months, s.d.=3.63
  - Group 2: 55 adolescents with typical development
    mean age=169.9 months, s.d.=1.99

- The 2 study groups were equivalent on
  - *gender*
  - *non-verbal mental age*

raven test: A non-parametric analysis (Mann-Whitney test) revealed no statistical group differences (U=565.000, p=0.696)

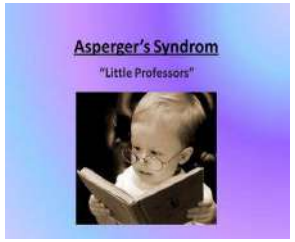
Autism



- Autism is a severe neurodevelopmental disorder with clear indications of genetic etiology (Cantio et al., 2016)
- According to DSM-5 , autistic individuals are characterized by dysfunctions in two main areas (American Psychiatric Association, 2013)
  - *social communication and interaction*
  - *repetitive and stereotypical activities*
- Kanner syndrome — Asperger syndrome



Islets of abilities



- Nevertheless, autistic pupils have 'islets of abilities'; these are remarkable skills in specific domains (Shah & Frith, 1993)
  - *music, drawing, maths, physics*
- autistic pupils often become extremely fascinated with physical systems such as *weather* (meteorology), *formation of mountains* (geography) and *motion of the planets* (astronomy)(Baron-Cohen et al., 2001)
- the title 'little professor' is often attributed to them
- autistic pupils performed significantly better than the control group in various physics tests (Baron-Cohen et al., 2001; Binnie & Williams, 2002, 2003; Krajmer et al., 2010; Paganini & Gaido, 2013)
- Almost 10% of autistic pupils have 'islets of abilities'(Klin, 2006)

T.E.A.I.A.
Tool for Exploring Alternative Ideas in Autism



- Structured, digital tool in the form of questionnaire
- T.E.A.I.A. comprises
  - *4 basic sections (forces, impetus theory, projectile motion, gravity)*
  - *24 physics tasks*
- All tasks
  - have been inspired by questionnaires used in a number of science education studies concerning mechanics
  - promote visual learning which is considered particularly effective for children with autism (Chia, 2011)
  - appear with the same structure and make use of appropriate terminology which can be perceived by students with autism
  - are parted from both 'basic' and 'reality check' questions (Binnie & Williams, 2002)



SECTION A



SECTION B



SECTION C



SECTION D



TASK A1

You see the following three objects:







1c: Do you believe there is force in the balloon? Why?

TASK A7

You see a stone on a free fall movement.

You see a stone resting on the ground.





7b: Do you believe the force in the stone at rest is the same as the stone on free fall? Why? Why different?

TASK A10

Yu see a man pulling a boat out of the sea with a rope



10: Do you believe there is force in the boat?

TASK A11

Obelix has put the famous stone menir on his back and walks around.

11: Do you believe there is a force in the stone?

TASK B1

You see a tiger kicking a ball.



Show me the ball

13a: Do you believe that the force in the ball increases, decreases or stays constant as it moves through the air?

TASK B2

You see Kirby throwing a javelin.



Show me the javelin

14a: Do you believe there is a force in the javelin as it moves through the air?

14b: Do you believe that the force in the javelin increases, decreases or stays constant as it moves?

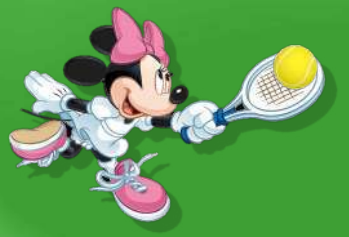
Task B3

You see Mini hitting a ball with her racquet.

Position B

Position A

Position C



Show me the racquet

15b: Do you believe the force on the ball is different between positions A, B and C?

TASK C2

You see an Indian standing on a large stone.
He throws a javelin horizontally



17: Could you draw the trajectory of the javelin?

TASK C4

You see an airplane flying. The airplane drops a bomb.



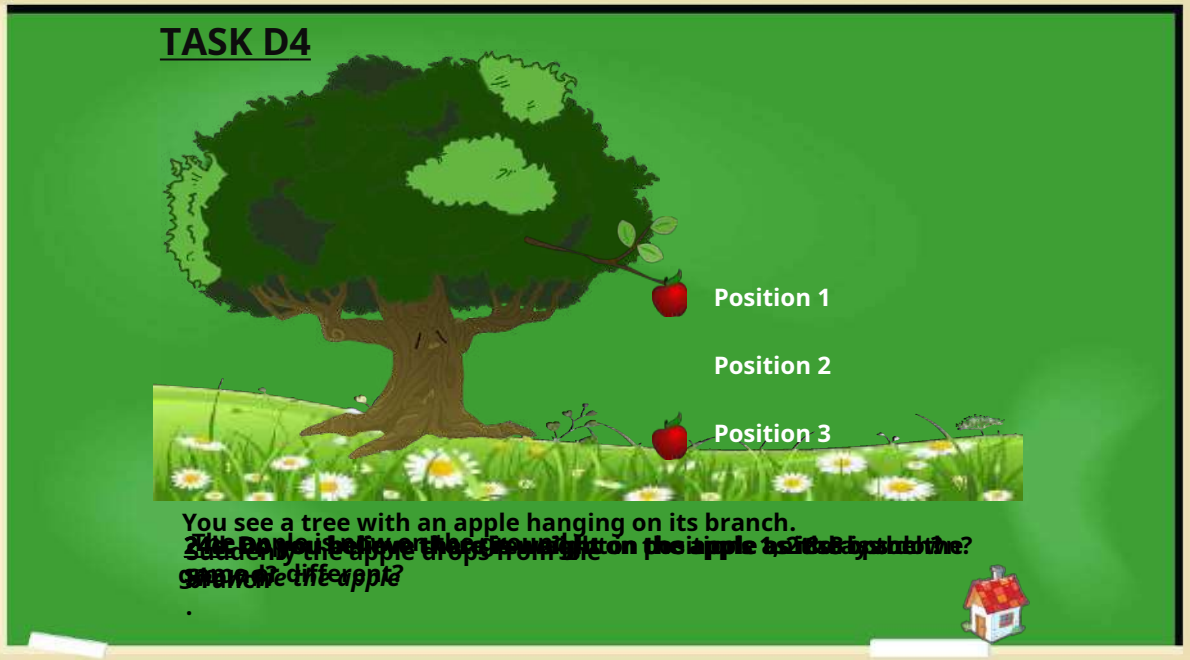
19: Could you draw the trajectory of the bomb as it moves toward the ground?



TASK D2
Which of the following routes will the flag follow?
Route A
Route B
Route Γ







Indicative Results - Force models

- Internal (I): *Force is a property of the object*
  - *An object has force due to its size/weight (Is/w) or due to the damage/noise (Id/n) it can cause*
- Acquired (A): *A moving object has force, a stationary object does not*
- Imovement (Imov): Force exists in every body that can resist the change in its kinetic state
- Push/pull (P): *Force is exerted only on objects being pushed by an agent, irrespectively of whether the objects remain stationary or not*
- Gravity (G): *Gravity model includes all versions where gravity is referred either in a scientifically acceptable or non-scientifically acceptable way.*
- External (E): *Specific types of force e.g. friction, force of wind*

	1st Set		2nd Set		3rd Set		4th Set		5th Set	
	AS	TD	AS	TD	AS	TD	AS	TD	AS	TD
I	63	41	32	11	18	10	42	42	26	29
Imov	5	13	5	2	6	9	0	5	10	5
A	26	38	47	70	42	50	31	60	52	31
P	10	5	26	18	6	10	0	4	10	49
G	21	18	12	22	16	16	42	31	15	22
IA	0	0	5	5	6	3	5	15	0	0
E	5	5	10	4	6	0	5	5	10	11
O	0	5	10	4	0	2	0	4	0	2

Indicative Results - Force models



Objects located in one place

Internal : *'yes (there is a force in the ball) ... yes, because when you kick it ... you say that there is a glass and here is a ball ... when you kick it, paaaap, the glass breaks'* (AS#3).

Acquired: *'yes, there is a force because the ball is a spherical object and can slip'* (AS#5).



Objects cast into the air

Internal: *'yes (there is a force in the ball) because when you kick it, it goes over the air and break the glass ... it's a little hard the ball'* (AS#3)

Acquired: *'no (there is no force in the immobile ball), because nobody bothers it. Yes (there is a force in the moving ball), because you beat it, it leaves and this is force'* (AS#14)



Objects in stable or unstable position

Acquired: *'yes (there is a force in the ball in the seal). No (there is no force in the ball on the table), because the ball of the seal will fall, while on the table will not fall'* (AS#17).

Indicative Results - Force models



Objects that perform free fall

Internal: *'yes (there is a force on the two stones), because the stones are too strong and if you throw them they will hurt someone for sure... the force is very large and it is the same for the two stones'* (AS#19).

Gravity: *'greater force exists in the stone that falls to the ground, because gravity pushes it forcefully to the ground'* (AS#2)



Objects pushed by animate & inanimate bodies

Imovement: *'there is no force on the rock, as Obelix can easily move it'* (AS#18)



Objects pushed by animate & inanimate bodies

External: *'there is a force on the boat due to the waves of the sea'* (AS#2).

Internal: *'I believe (there is a force in the boat), because compared to the size of the boat it is somewhat heavy ... very heavy'* (AS#19).

Discussion- Inclusive Education

- Autistic adolescents seemed to use the same force models with their typical development peers, on a different frequency though.
- Our findings suggest that adolescents aged 12-16 years, irrespectively of their classification as autistic or typically developing students, have similar alternative ideas in conceptualizing forces
- This assumption give rise and reinforces the academic belief of a holistic, inclusive education for all pupils, regardless of specific talents or difficulties (Amor et al., 2019; Sakiz, 2018)
- Along this line, pupils that lie in special needs spectrum and particularly those with autistic spectrum disorder, can be taught mechanics along with their typical development peers



Publications

- The results of the research have been published in international journals in the area of Science Education

- Kaliampos, G., Mavropoulou, S., Kolias, V., Ravanis, K., & Vavougios, D. (2023). An experimental investigation of alternative ideas of force in autistic adolescents. *Research in Science Education, 53*(5), 867-888.
- Kaliampos, G., Ravanis, K., & Vavougios, D. (2021). A comparison study of alternative conceptions on impetus theory and projectile motion of adolescents with typical development and high functioning autism spectrum disorder. *International Journal of Science Education, 43*(1), 128-156.

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The augMENTOR project

HORIZON-CL2-2021-TRANSFORMATIONS-01-05

A Filippidi, Laboratory Teaching Staff Member, Department of Educational Science and Early Childhood Education, University of Patras



Grant agreement No 101061509



The call - Integration of emerging new technologies into education and training

- Increase the shared **critical understanding of the potential, opportunities, barriers, accessibility issues and risks of using emerging technologies for teaching and learning**, as well considering the framework for the sustainable digitisation of education and learning in the future.
- Support education and training systems with **research on the adaptation and mainstreaming of the use of digitally enhanced pedagogies**, in order to augment and extend learning, while also maintaining its human dimension and social relevance.
- **Share evidence and good practice** on equipping teachers, trainers, educational leaders and learners with the skills necessary for the use of technology in creative, critical, competent and inclusive ways
- **Analyse the needs for adequate teacher training** in relation with new educational technologies.

HORIZON-CL2-2021-TRANSFORMATIONS-01-05

for Pedagogically Sustained Training and Education
Grant agreement No 101061509
Augmented Intelligence for Pedagogically Sustained Training and Education
Grant agreement No 101061509

Needs

- Ensure **inclusive and equitable quality education** and promote lifelong learning opportunities
- Develop **personalized and collaborative learning** towards achieving higher-order thinking skills
- **Leverage emerging technologies** into education and training with a community-oriented, connected and human mindset
- Meaningfully capture and analyze diverse types of educational data sources through **educational data mining and learning analytics techniques**

Challenges

- **Integrate emerging technologies in teaching**, while addressing the complex, multifaceted and established nature of teacher knowledge
- Leverage big data, learning analytics and artificial intelligence, to efficiently **support distance learning**
- **Massively deploy e-learning capabilities** in cases of crises or extreme events
- Identify how different learners experience and benefit, or are excluded from **digitally enhanced learning**
- Enhance **trust and transparency** in tutoring and pedagogical policy making

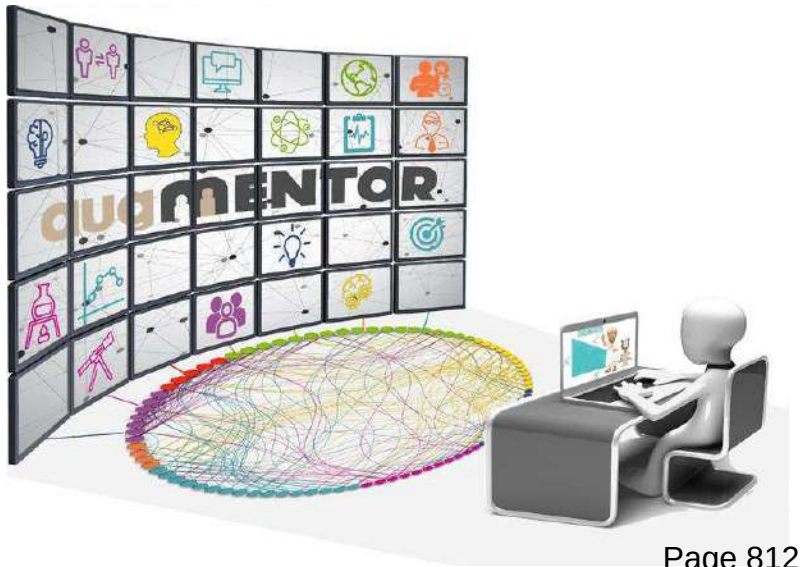
Augmented Intelligence for Pedagogically Sustained Training and Education
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augMENTOR rationale

From technology-rich…

to technology-augmented

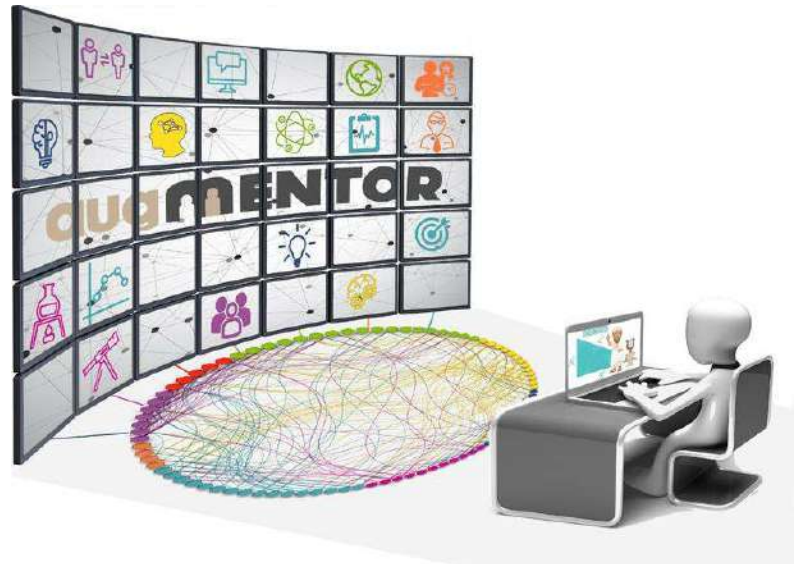
education and training



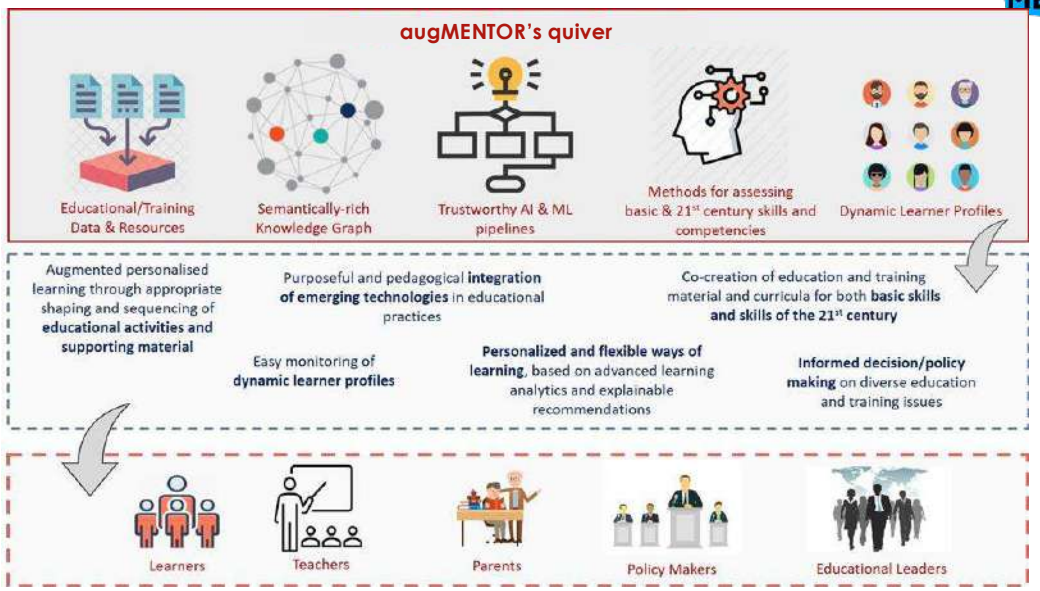
Augmented Intelligence for Pedagogically Sustained Training and Education
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augMENTOR rationale

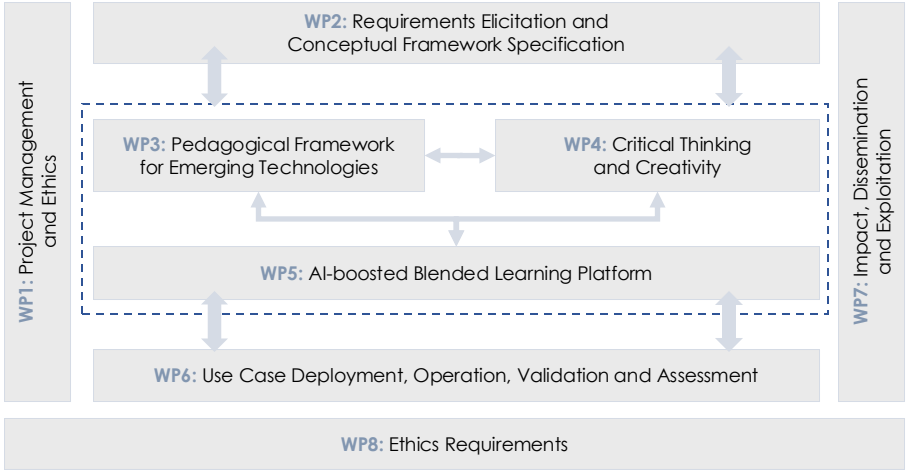
- People and machines working together to **empower humans**
- A novel **pedagogical framework** for technology-augmented education
- **Balance** between the pedagogical and technological dimensions
- **Semantics-based** educational activities
- **Dynamic** learner profiles
- **Personalised** learning



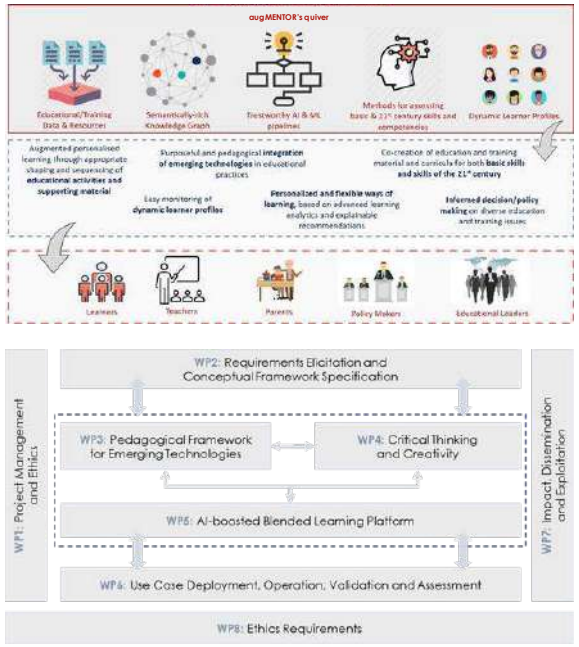
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Project architecture



Augmented Intelligence for Pedagogically Sustained Training and Education
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Technology-augmented education and training



augMENTOR

Augmented Intelligence for Pedagogically Sustained Training and Education

augMENTOR Pedagogical Framework

UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

Vassilis Komis
Andromachi Filippidi

Augmented Intelligence for Pedagogically Sustained Training and Education
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Grant agreement
No 101061509

Levels of AugMENTOR Pedagogical Framework

AugMENTOR Pedagogical Framework: two levels

Macro level offers design principles and micro level operationalizes the classroom activities

- Macro level: organize the general principles of the Framework

AugMENTOR Pedagogical Design Model with Emerging Technologies (PeDeMET)

PeDeMET

- Micro level: define and apply classroom activities

Technology – augmented Educational Scenarios and e-Activities (TESA)

(in situ e-Activities & online e-Activities)

TESA

augMENTOR Pedagogical Framework Components & theoretical foundations

Macro level (PeDeMET)
AugMENTOR Pedagogical Design Model with Emerging Technologies

Micro level (TESA)
Educational Scenarios & e-Activities with Emerging Technologies

Theoretical foundations

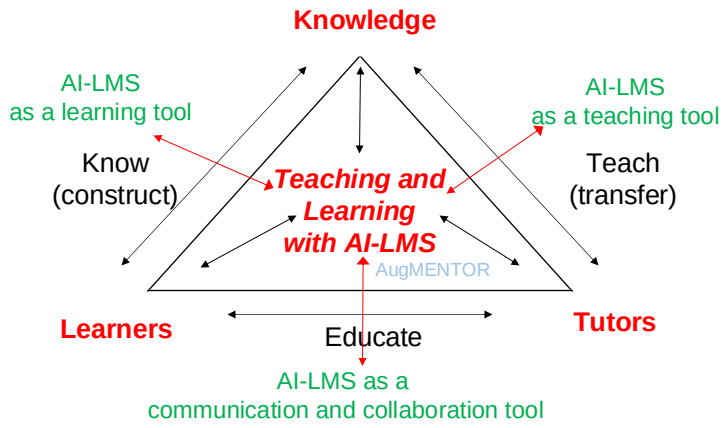
enriched Pedagogical Triangle by Emerging Technologies (learning approach)

T_{ET}PACK (design model for trainers and tutors)

Activity Theory (analytical and prescriptive model)

Enriched Pedagogical Triangle with AI-LMS

Theoretical foundations



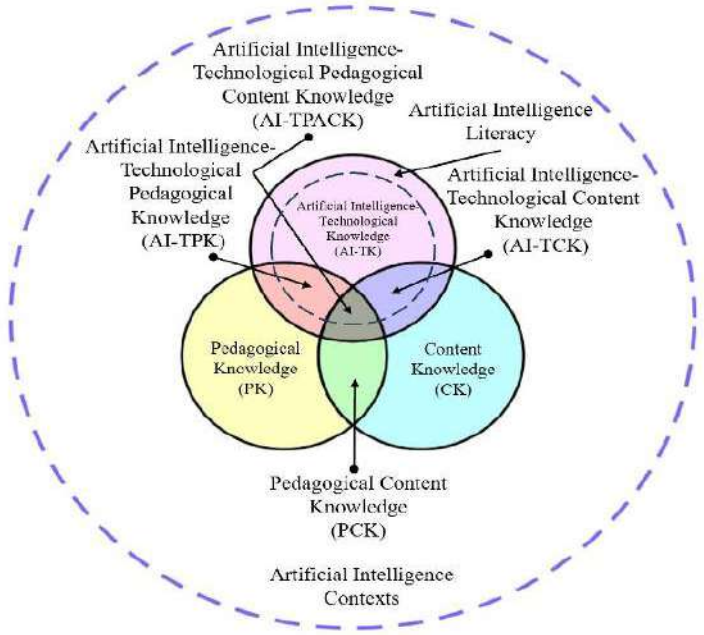
chatGPT

Intelligent Tutoring Systems

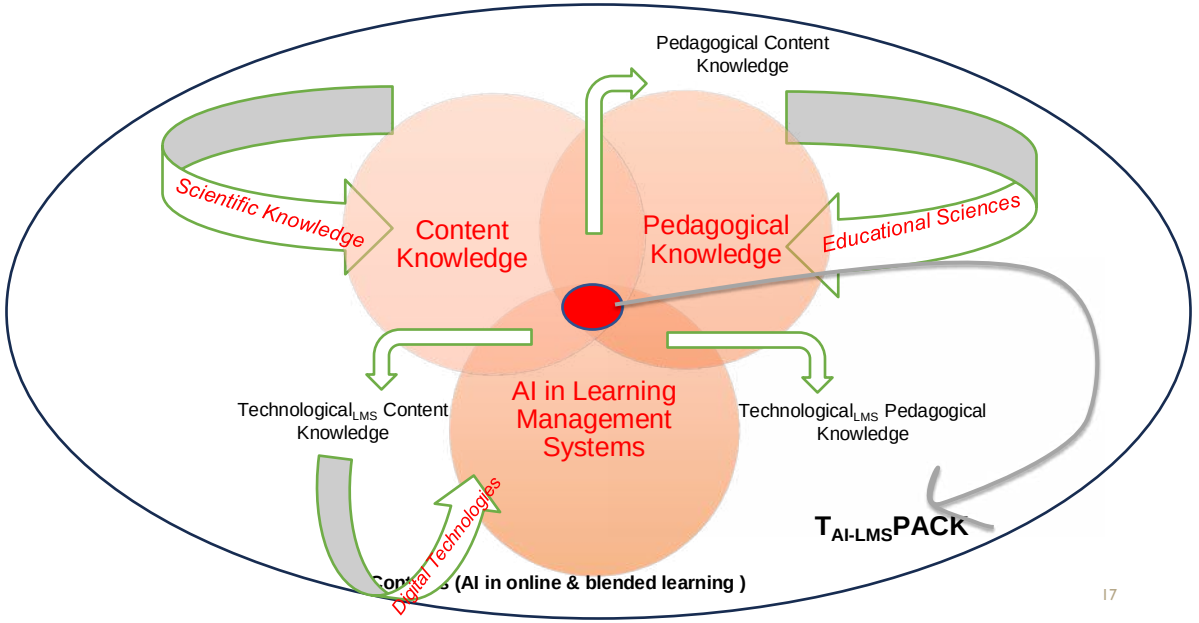
Learning analytics

Machine Learning

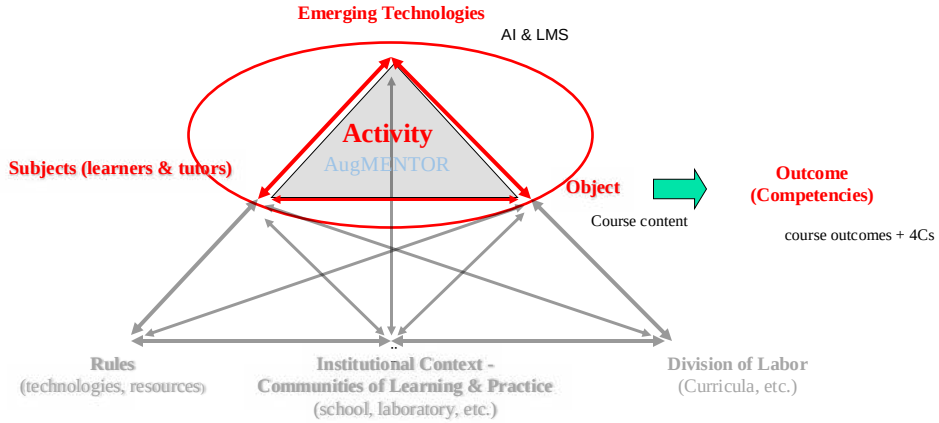
AI - TPACK



Technological$_{ET}$ Pedagogical Content Knowledge



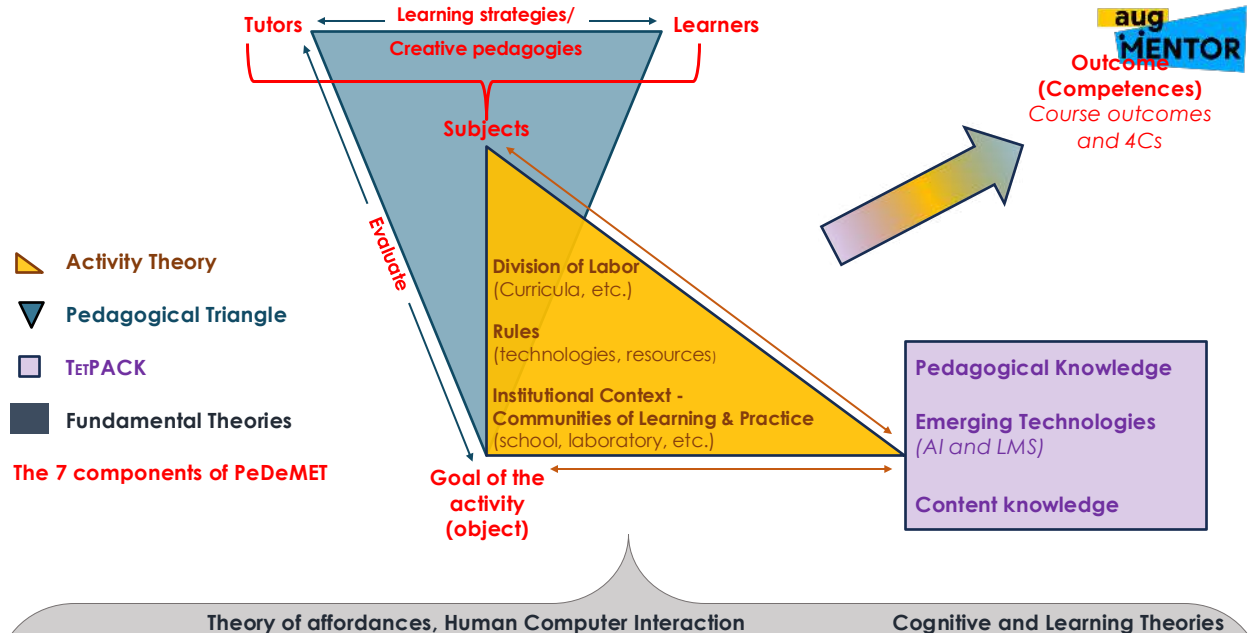
Activity Theory

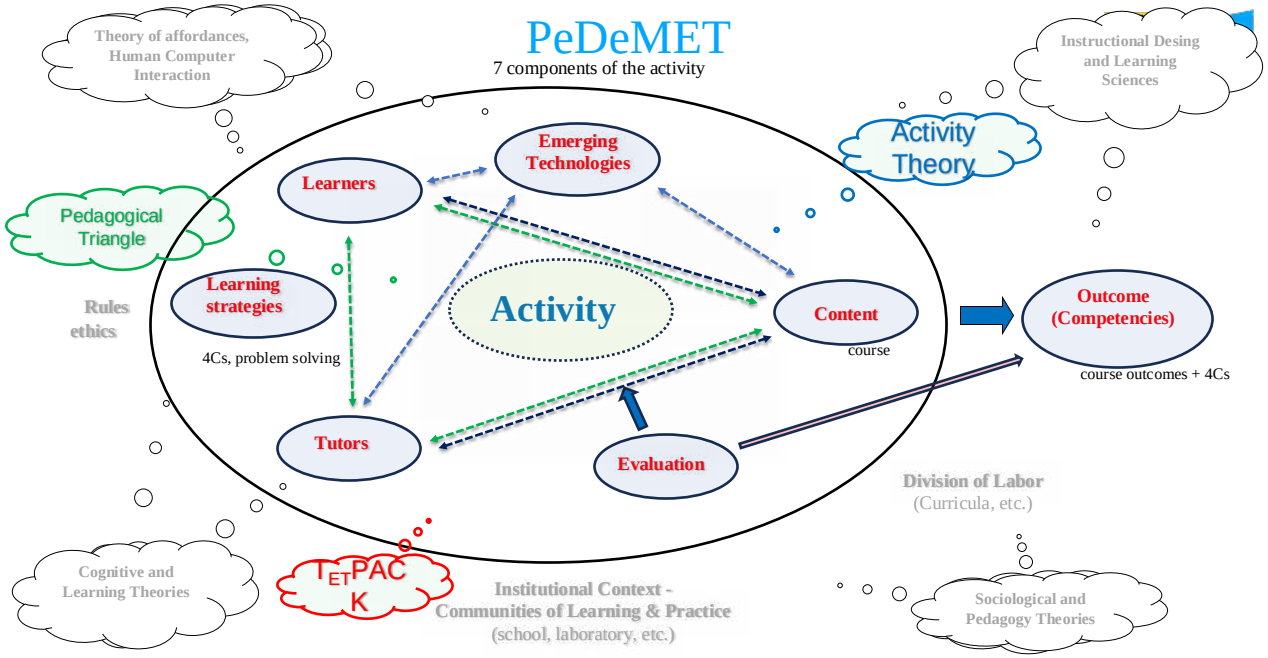


Macro level: PeDeMET

AugMENTOR Pedagogical **De**sign **M**odel with **E**merging **T**echnologies **(PeDeMET)**

organize the general principles of the Framework





Micro level: TESA

Technology – augmented **E**ducational **S**cenarios and e-**A**ctivities **(TESA)**

Micro level: define and apply classroom activity

- Technology – augmented Educational Scenarios
- e-Activities (in situ e-Activities & online e-Activities)

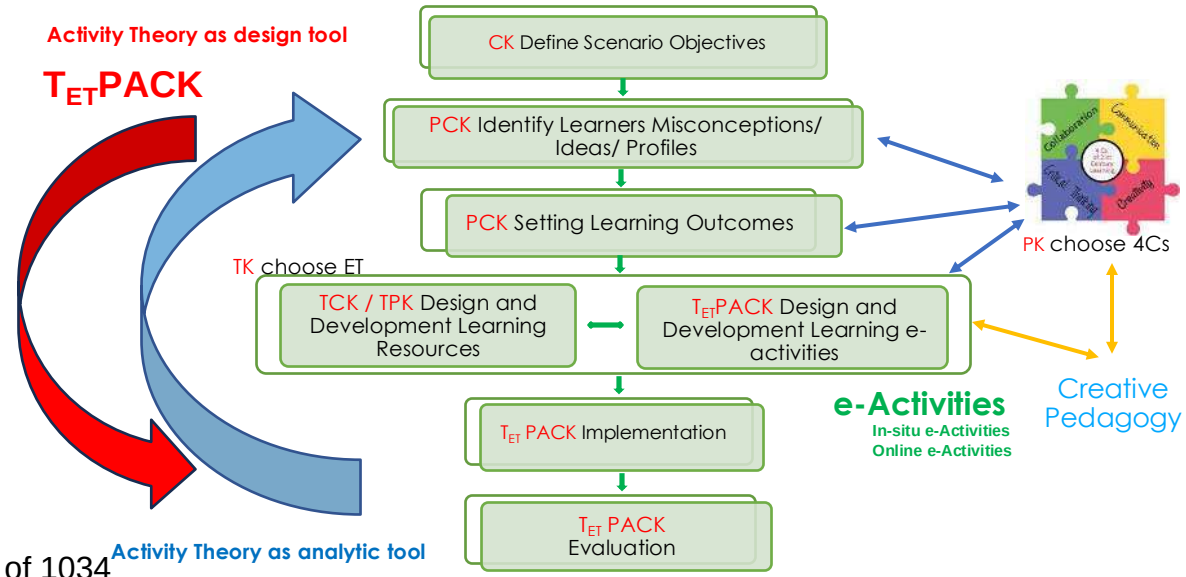
Educational Scenarios with Emerging Technologies

Designing Educational Scenarios

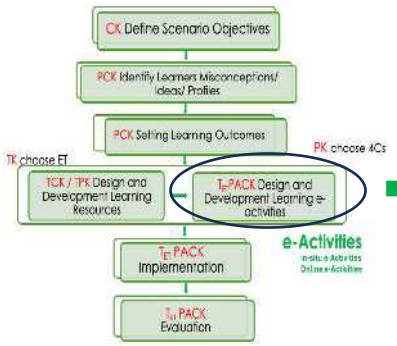
What is an educational scenario?

A process to set up teaching and learning activities involving tutors and learners, using appropriate learning strategies and aimed at achieving learning outcomes, using appropriate emerging technologies (ie AI and LMS), designed to teach and learn specific content or/and 21st competencies (ie 4Cs).

Technology – augmented Educational Scenarios and e-Activities



Technology – augmented e-Activities (in situ & online)



- e-Activities for psychological and cognitive preparation
- e-Activities for new knowledge construction
- e-Activities for knowledge transfer
- Evaluation e-Activities
- Metacognitive e-Activities

Each activity follows one or more learning strategies

Exemple: Upatras Moodle course

Mega Scenario

One semester Educational Scenario divided into 13 weekly based Technology – augmented Educational Scenarios

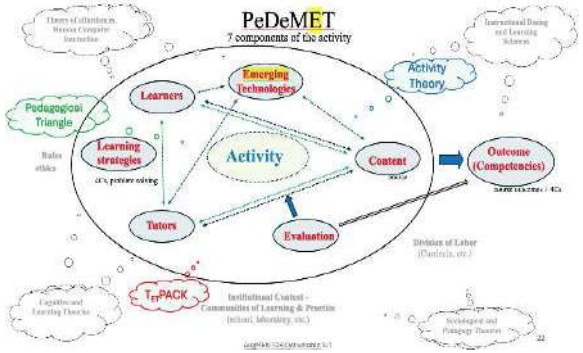
Weekly Scenario

e-Activities (in situ e-Activities & online e-Activities)

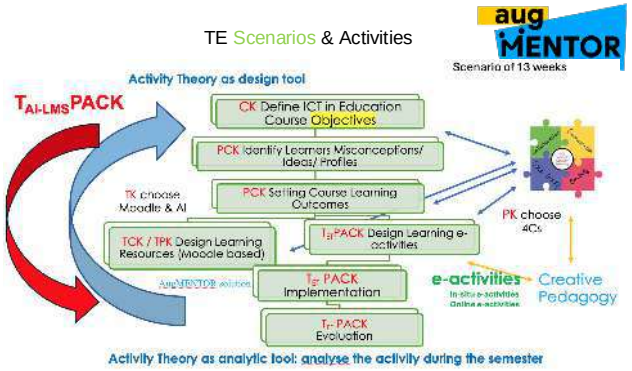
Innovative training program for pre-service teachers

- Redesigning of a course for pre-service candidate teachers at the Department of Educational Sciences and Early Childhood Education, University of Patras, Greece.
- Title of the course "Information and Communication Technologies in Education".
- Aims to help students acquire basic knowledge about the main approaches regarding the introduction and integration of ICT in the educational process.

PeDeMET



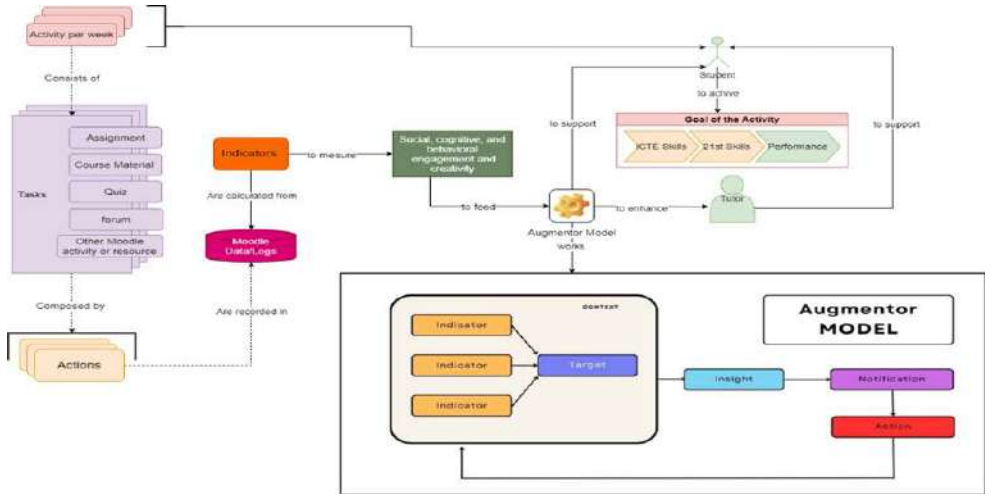
TE Scenarios & Activities



TE Scenarios & Activities

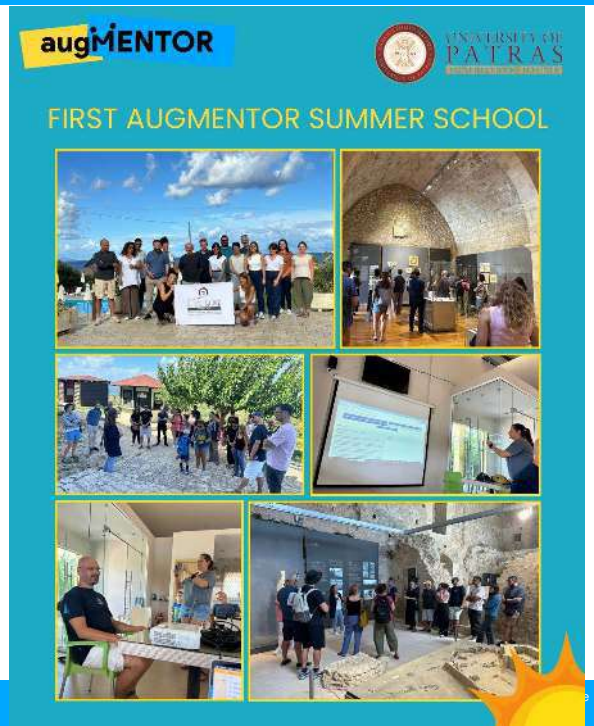


T3.2 The augMENTOR Pedagogical Framework approach





ogically Sustained Training and Education
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for Pedagogically Sustained Training and Education
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ogically Sustained Training and Education
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The implementation of the augMENTOR Solution



- https://augmentor-app.eu-dev.novelcore.org/login

Augmented Intelligence for Pedagogically Sustained Training and Education
Grant agreement No 101061509

Partner logo

Thank you!

Augmented Intelligence for Pedagogically Sustained Training and Education
Grant agreement No 101061509

The impact of research-based practices on policymaking for integrating robotics in Early Childhood Education: the case study of Greece

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Lab of Didactics in Science, Mathematics & ICT
Patras, 11-03-2025

ICTE group
Department of Educational Sciences and Early Childhood Education



Professor ICT in Education
Vassilis Komis



Lecturer ECE- Teacher Educator - Senior researcher
Anastasia Misirli

- Early Childhood Pedagogy - digital playful learning environments and educational robotics
- Computational thinking & Coding in Early Childhood Education
- Teaching & Teacher Education
- STEM Teaching & Learning



Research & Development team
other members

2010

2015

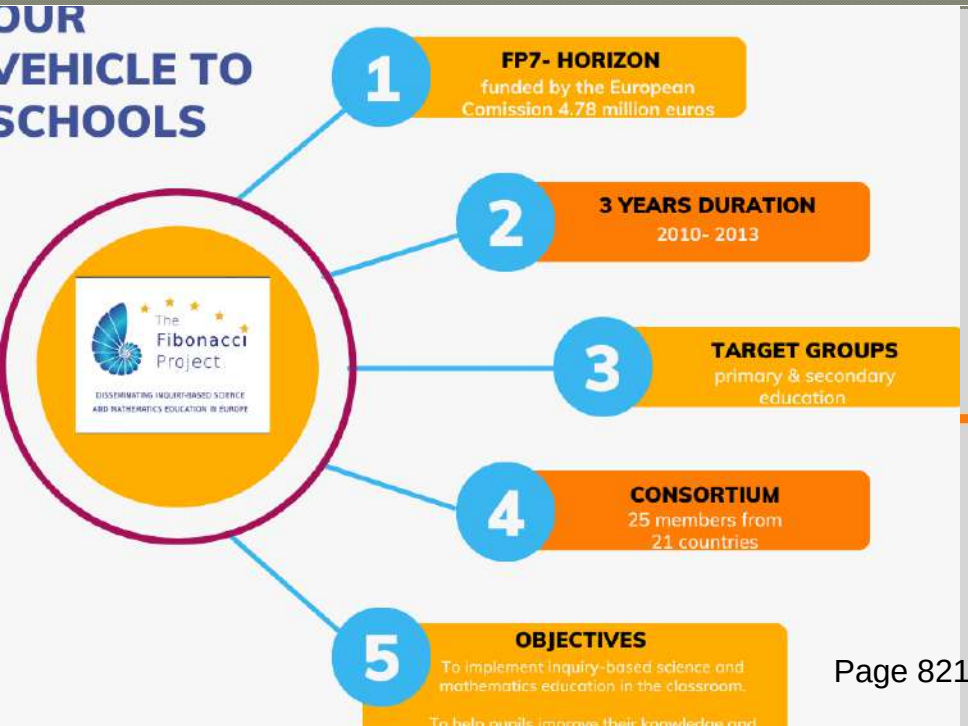


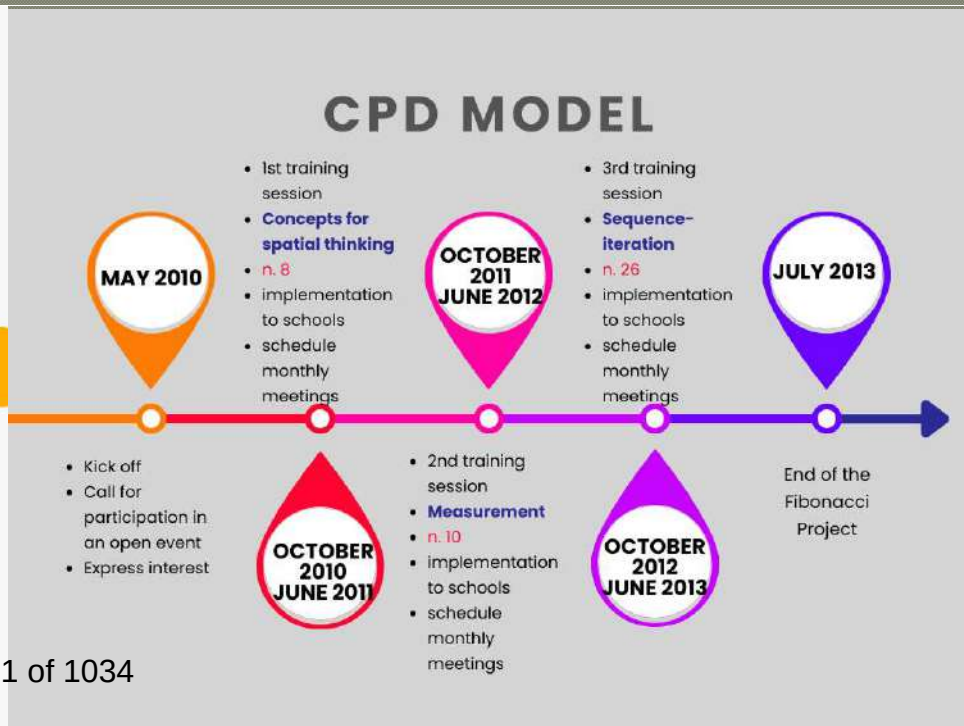
Thesis

- The development of algorithmic thinking and programming concepts in preschool utilising programmable robots.

Research questions

- RQ1) What elements does a developmentally appropriate framework for teaching and learning programming concepts in early childhood children include?
- RQ2) What are the concepts to develop early childhood children's algorithmic thinking
- RQ3) What are the individual cognitive processes associated with and leading to the development of skills for building algorithmic thinking?





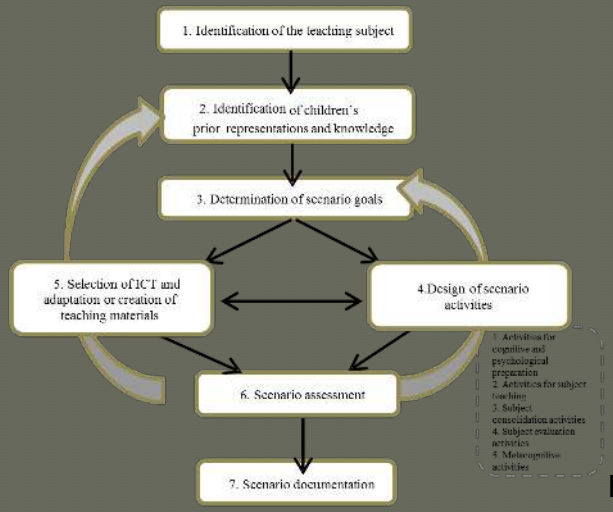
Impact

- longitudinal study (3 years)
- high dissemination effect
- one of the most cost-effective and time-effective sampling methods
- voluntarily participation of educators
- 45 educators
- 674 children
  - 270 girls
  - 256 boys
  - 359 / 5-6 years old
  - 167 / 4-5 years old

Methodology

Design-based Research (DBR) designing a conceptual framework

a. Educational scenario



b. Research protocols

1. Assess children's prior and final mental representations (knowledge) on the programmable robot Bee-Bot (pre & post tests)
2. Evaluate subject-knowledge (algorithmic thinking-programming)
3. Reflection – getting children's voices
4. Reflection – getting educators' point of view

c. Educational material

1. robotic tool
2. 'pseudocode'- graphic representation of commands
3. mats
4. concrete objects

for authentic

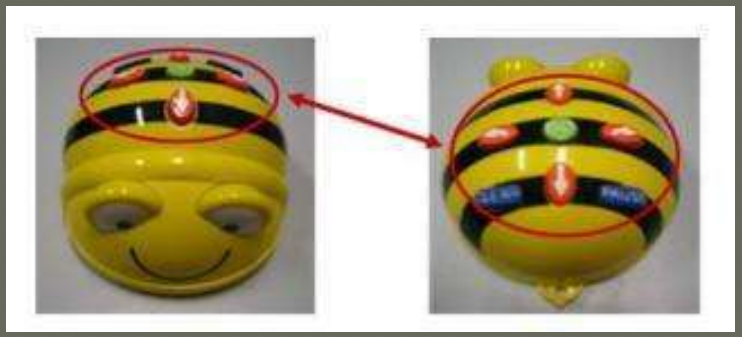
playful learning



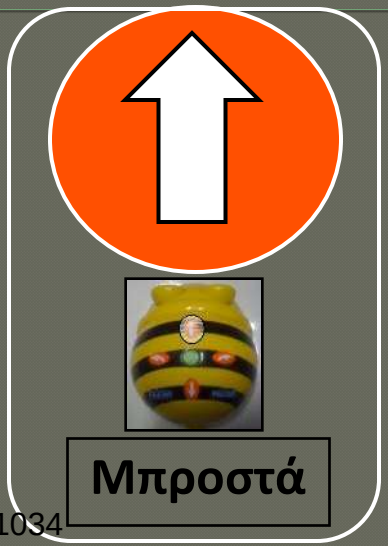
d. Robotic tool – Bee Bot

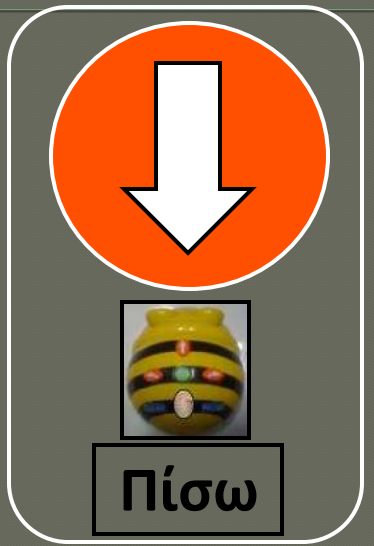


e. Tangible programming - Logo



'Pseudocode'- graphic representation of commands









17





18

Childens' drawings –mental representations





Classroom implementation





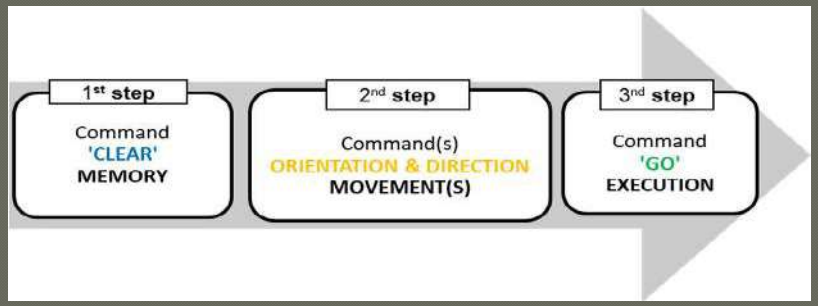


Findings 1/3

- The development of programming concepts and algorithmic thinking to children of preschool age with the use of the programmable floor robot Bee-Bot, may be facilitated through the designing and implementation of the appropriate educational scenarios (Komis & Misirli, 2011; Komis et al., 2013; Misirli & Komis, 2012, 2014)
- The final mental representations (drawings) of children and the corresponding verbal formulations provide elements about the control and operation procedure of the programmable robot in accordance with the relative activities they were taught.
- Transformation to spatial thinking (direction – orientation) and especially orientation
  - significant differences on pre-schoolers' post-test representations as they present an evolution to more complex thinking skills since they accomplished to relate objects not only according to their own for left-right orientation as it was implied by Lockavitch (1975) but moreover according to the orientation of another reference system (Germanos, 1997) that of the programmable toy.

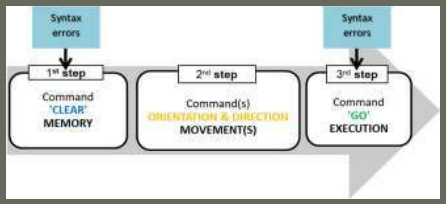
Findings 2/3

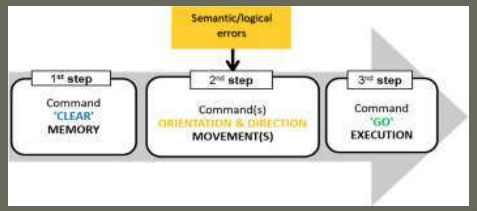
- Sequential programming structure



Findings 3/3

- types of errors





HME-Application for approval

2013

- Applied to the Hellenic Ministry of Education for approval
  - Bee-Bot as developmentally appropriate tool for teaching coding and programming in Early Childhood Education settings in Greece
  - first research results to support our request

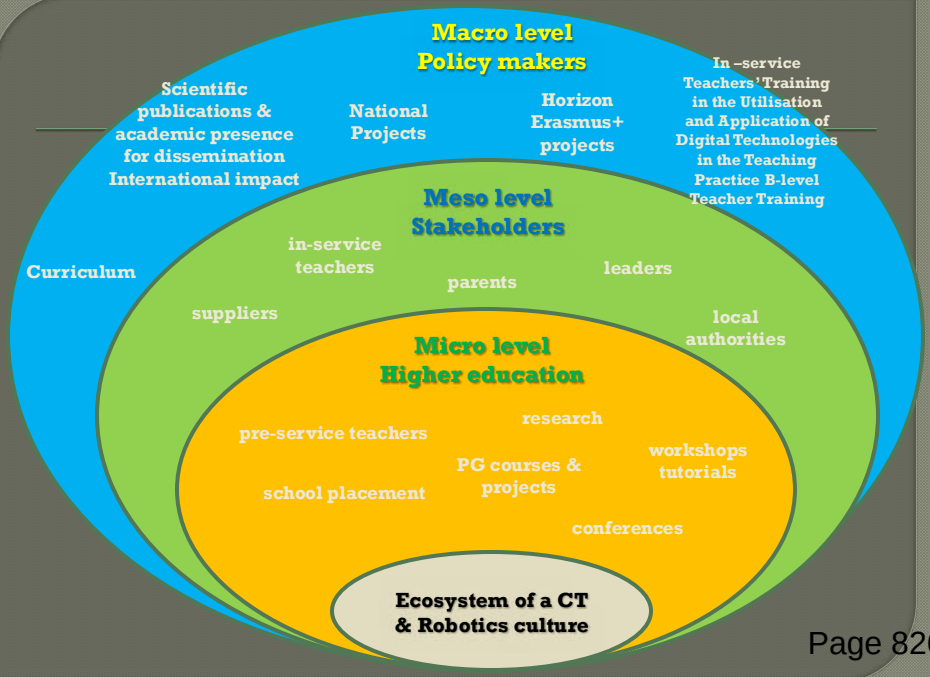


National curriculum

2014

- Reformation of the national curriculum in Early Childhood Education (Early Years & lower Primary)
- Member of the Education Expert Panel

'programmable toys'- among other ICT tools- is introduced under the 'umbrella' of different learning approaches like 'inquiry learning', 'discovery learning' 'experimental learning', 'problem solving'



2015

2023

Research project

2015-2017

Didactique et apprentissage de l'informatique à l'école

DALIE – 'Promoting teaching and learning of computing in primary education'

Partnership of (06) Laboratories between France & Greece: University of Limoges, University of Cergy-Pontoise, University of Poitiers Department of Education, Laboratory of Science Didactics, Department of Educational Sciences and Early Childhood Education-University of Patras (55k€).
http://www.unilim.fr/dalie/

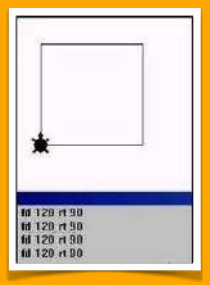
Intellectual output

2016

- A prototype robot 'e-ProBot Lab' (Early Programming Robots Laboratory) was developed in a project with two postgraduate students.

- local event 'Patras Innovation Quest', an exhibition for innovative applied research ideas and start-ups, organised by the Research Development Office of the University of Patras and local entrepreneurs.

The idea, development and implementation have been announced in educational conferences and is a chapter in a scientific book.



Logo programming



Bee bot / Pro bot



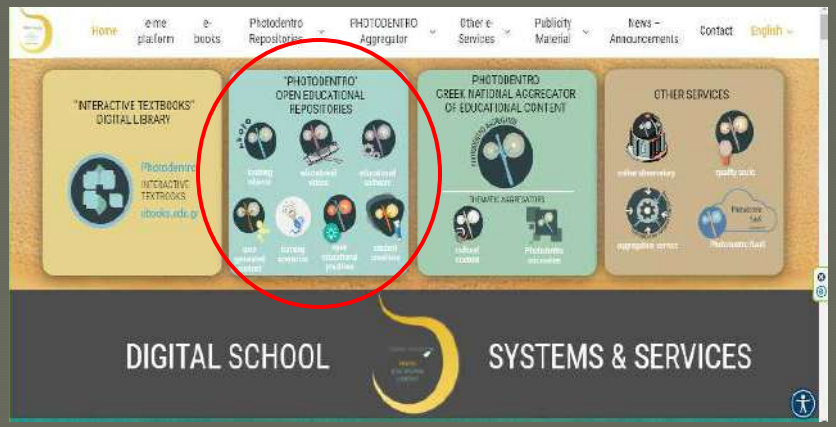
Platform description

- Open Source Hardware and Software
- User-friendly Programming Environment
- Operating System with Independent Programming Language
- Compatible with different types of devices (Computer, Tablet, Smartphone)
- Ability to record learner's actions



Hellenic Ministry of Education Computer Technology Institute (CTI)

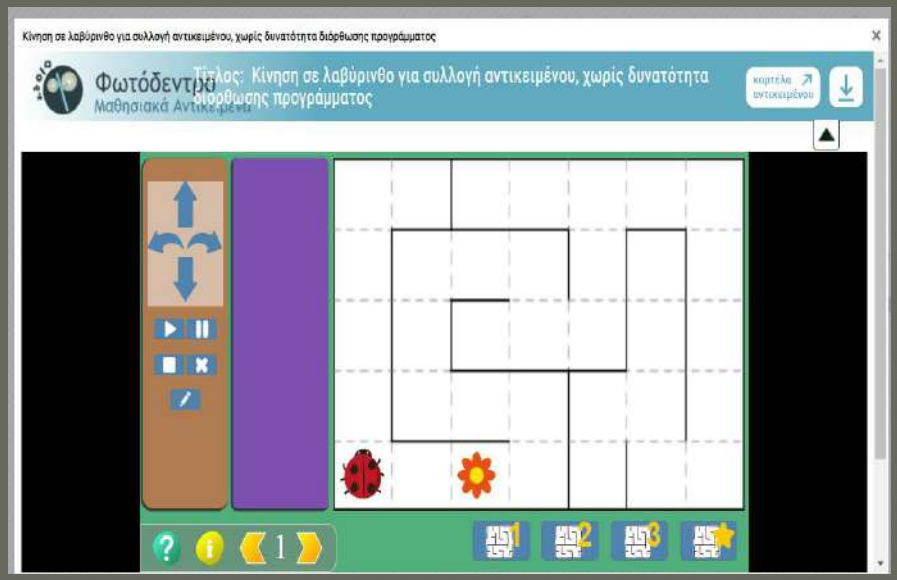
The Digital School project



- https://dschool.edu.gr/en/
- http://photodentro.edu.gr/aggregator/?lang=en



- http://photodentro.edu.gr/aggregator/?lang=en



- http://photodentro.edu.gr/aggregator/?lang=en

Grant

2020 Scholarship/grant: Post-Doc Research Project (2020-2021):

'Robotics and programming languages: how to develop Computational Thinking in Preschool and Primary Education' (MIS 5047126). This research was co-financed by Greece and the European Union (European Social Fund ESF) through the Operational Programme 'Human Resources Development, Education and Lifelong Learning 2014-2020' (41.500€).

Principal Investigator: Pr. Vassilis Komis, Co-Investigator: Dr. Anastasia Misirli, Research associate: PhD candidate Dimitris Nikolos.

The present proposal granted the 19th ranking position among the 48 in total submitted from the University of Patras.

National curriculum

2022

- reformation of the national curriculum in Early Years (Preschool) & Primary Education
- Learning area:
  - 'Child and Communication'
    - Language & ICT
- iii. problem solving with software and familiarisation with programming concepts using programmable toys
- iv. planning, construction and programming with appropriate robotic environments

2023

2025

Institute of Educational Policy (IEP)-Tablets in ECE

Funded by the IEP and the European Union and implemented by the ICTE group in partnership with 2 more Greek Universities (83,042.8 €)

- Action: 'Pilot interventions to support the use of advanced information and communication technologies in pre-school education' MIS 5158662
- *Development of educational software for preschool education and provision of digital educational & training material - Distance training and support for teachers*



https://elearning.iep.edu.gr/study/course/index.php?categoryid=8



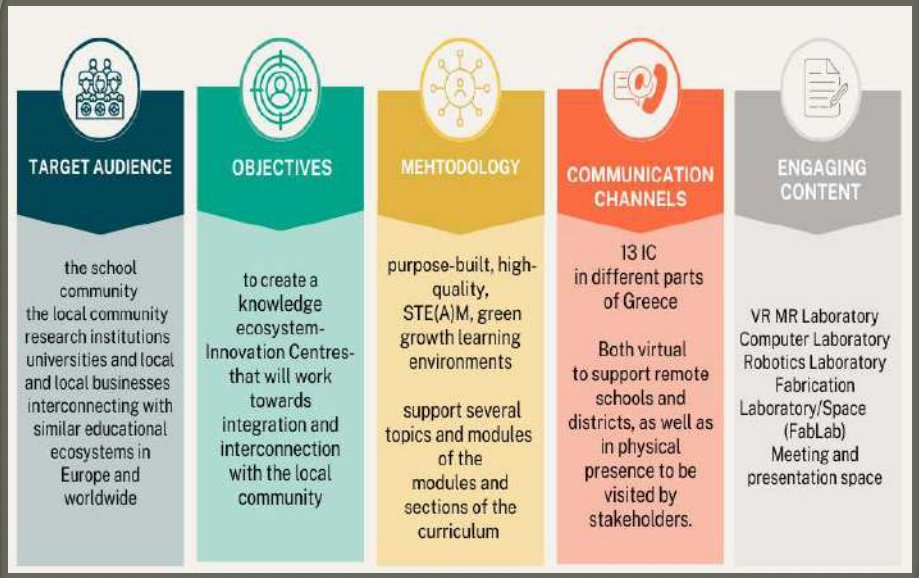
https://elearning.iep.edu.gr/study/course/index.php?categoryid=83&lang=en

CTI-Innovation centres

- Project from the Computer Technology Institute (CTI) in partnership with the Hellenic Ministry of Education
- STEAM
- Summer schools, competitions, hackathons…
- Transfer know-how from HE to practice
- 3 years

http://ic.cti.gr/en/

Budget: 4,700,000 euros



Research projects

2023-25

augMENTOR

Topic identifier	HORIZON-CL2-2021-TRANSFORMATIONS-01-05
Topic	Integration of emerging new technologies into education and training
Type of Action	HORIZON-RIA HORIZON Research and Innovation Actions
Proposal full title	Augmented Intelligence for Pedagogically Sustained Training and Education
Proposal Acronym	AUGMENTOR

Budget: 2,779,937.50 €

 https://augmentor-project.eu/

Research projects

2025

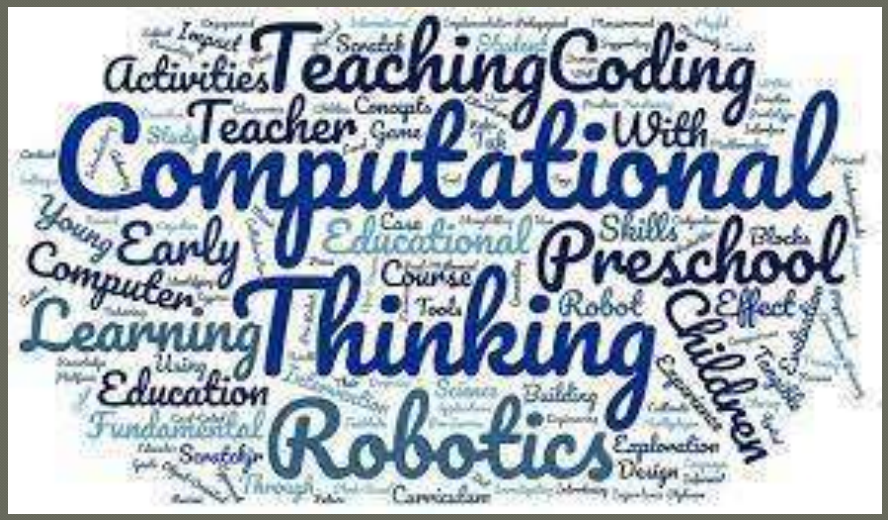
- Erasmus+
- Technology Enhanced Toys (TETs) Educational dimensions of Technology Enhanced Toys in Early Childhood Education and Care and development of 21st-century competencies
- submitted for evaluation

Budget: 400,000 €

Research interests

- Edu Robots Taxonomy
- Technology Enhanced Toys (TETs) & Play
  - systematic review
  - conceptual model for play-based teaching
- Mental representations of different types robots (built bots & use bots)
- Computational Thinking (CT) skills

European Commission



Computational Thinking

- Defining Computational thinking, Computer science, and programming
- Computational thinking frameworks and learning standards
- Computational thinking and early learning and development
- Tools for early CT learning
- Effective and scalable CT education
- Equity and access
- Concluding remarks and key takeaways for policymakers

Computational Thinking

- **OECD - 2022**

The state of the field of computational thinking in early childhood education

- Computer programming and associated Computational Thinking (CT) skills are essential to thriving in today's academic and professional world. There has been a growing focus globally on fostering CT skills as well as on introducing computer programming concepts and languages beginning as early as kindergarten and pre-primary school. Tools, curriculum, and frameworks to promote CT in the early years must be designed and implemented in ways that engage children who cannot yet read and write, who learn through play, and who have a short attention span and limited working memory but also strong natural curiosity. This review summarises empirical and theoretical literature on the state of the field of CT as it relates to early learning and development, a time when young children are being introduced to foundational skills, such as literacy and numeracy, which can carefully be complemented by an exploration of CT

https://www.oecd.org/publications/the-state-of-the-field-of-computational-thinking-in-early-childhood-education-3354387a-en.htm

Computational Thinking

- **OECD Education & Skills Today, July 2022**

Can young children develop early computational thinking?

- **Key points:**
- – Young children can master a range of computational thinking concepts and skills at an emergent level, which can help these children be more equipped for their future.
  – Computational thinking in early childhood education must rely on tools and approaches that are developmentally appropriate for young learners.
  – Early exposure to computational thinking is also important to prevent stereotypes and ensure all young children have equal opportunities to develop their digital literacy.

https://oecdedutoday.com/computational-thinking-young-kids/

Computational Thinking

- **Europe Union - Digital Skills & Jobs Platform**

The state of the field of computational thinking in early childhood education (2022)

https://digital-skills-jobs.europa.eu/en/inspiration/research/state-field-computational-thinking-early-childhood-education-2022

- **NAEYC – 2022**

Message in a Backpack: Helping Your Preschool Child with Computational Thinking (Teaching Young Children, Spring 2022, Vol. 15, No. 3

https://www.naeyc.org/resources/pubs/tyc/spring2022/computational-thinking

Ithaka gave you the marvelous journey.
Without her you would not have set out'
K. Kavafis

Computational thinking and especially programming is a parallelism to Ithaca. It is about the journey and different routes that can be found
and certainly not about the destination.



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Funded by the European Union

HOMODIGITALIS - - Training III

MOOC Design: From Concept to Deployment

Nikolaos Avouris and **Christos Sintoris**, University of Patras

KOLEGJI AAB, Pristina, February 19-20, 2025

KOLEGJI AAB

- College is the largest non-public institution of higher education in the Republic of Kosovo and in the region.
- It was established in 2002, initially with a unique program in Journalism and Mass Communication and continued further with the accreditation of study programs in the field of forensic sciences in cooperation with the Public University of Sarajevo.
- AAB College continued to expand as an institution of higher education by continuously offering study programs in various fields.
- Currently, AAB consists of a total of 14 faculties with study programs at both BA and MA levels.
- AAB College offers teaching in its main campus in Prishtina, and in the two branches in Gjakova and Ferizaj, as accredited by decision of KAA and licensed by MEST.
- Study programs that are offered at AAB comply with the Bologna Declaration principles and are aligned with the provisions of the Law on Higher Education. The faculties along with the programs offered and their respective ECTS credits are listed as an annex to this document.



Learning objectives

- Familiarize with key concepts of Massive Open Online Courses (MOOC)s
- Outline and get experience on the challenges of development of MOOCs
- Explore the role of MOOCs in the strategy of a higher education institution
- Complement hybrid teaching experiences with MOOCs

Training III seminar structure

7 Teaching Modules - 4 Discussion sessions – 1 Hands-on Group Activity

M1. The MOOC Landscape
M2. Development Principles
M3. Content Creation and Curation
M4. Platforms and Technology Tools
M5. Learner Engagement and Community Building
M6. Assessment Strategies
M7. Quality Assurance and Deployment

MOOC design

Training Activity plan
From Concept to Deployment

Day 1

Foundations and Frameworks

- 9:00 – 9:30 AM | Welcome and Introduction
- 9:30 – 10:30 AM | **M1. The MOOC Landscape**

10:30 - 11:00 Coffee break

- 11:00 – 12:00 PM | **M2. Development Principles**
- 12:00 – 12:30 PM | Discussion and Wrap-Up

12:30 - 1:30 PM Lunch break

- 1:30 – 2:30 PM | **M3. Content Creation and Curation**

2:30 – 3:00 PM | Coffee break

- 3:00 – 4:00 PM | **M4. Platforms and Technology Tools**
- 4:00 – 5:00 PM | Discussion and Wrap-Up

Day 2

Engagement-Assessment-Deployment

- 9:00 – 9:30 AM | Review of Day 1
- 9:30 – 10:30 AM | **M5. Learner Engagement and Community Building**

10:30 - 11:00 Coffee break

- 11:00 – 12:00 PM | **M6. Assessment Strategies**
- 12:00 – 12:30 PM | Discussion and Wrap-Up

12:30 - 1:30 PM Lunch break

- 1:30 – 2:30 PM | **M7. Quality Assurance and Deployment**

2:30 – 3:00 PM | Coffee break

- 3:00 – 4:30 PM | **Hands-on Group Activity**
- 4:30 – 5:00 PM | Discussion and Wrap-Up

Instructors



Nikolaos Avouris
Emeritus Professor
University of Patras
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Christos Sintoris
Teaching and Research Associate
University of Patras
sintoris@upatras.gr

Our continium of teaching-learning

UNIVERSITY OF PATRAS
ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ

ΕΛΛΗΝΙΚΟ ΑΝΟΙΚΤΟ ΠΑΝΕΠΙΣΤΗΜΙΟ

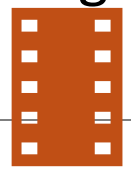
@ Mathesis

a traditional course (UPAT)

- online material suplementary to class activity:

LMS (eclass) delivers handouts, examples, assignments, discussion points

- formal learning and certification

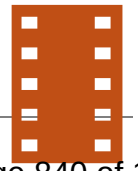


1-2 hour recordings

a distance learning university course (HOU)

- online teaching (synchronous), videos, and handouts, assignments through LMS (moodle)

- formal learning and certification

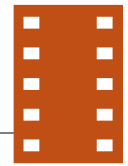


30 min video as additional material

a massive online course (mathesis)

- MOOC pedagogy and structure, segmentation, MOOC platform

- lifelong training and learning, informal certification

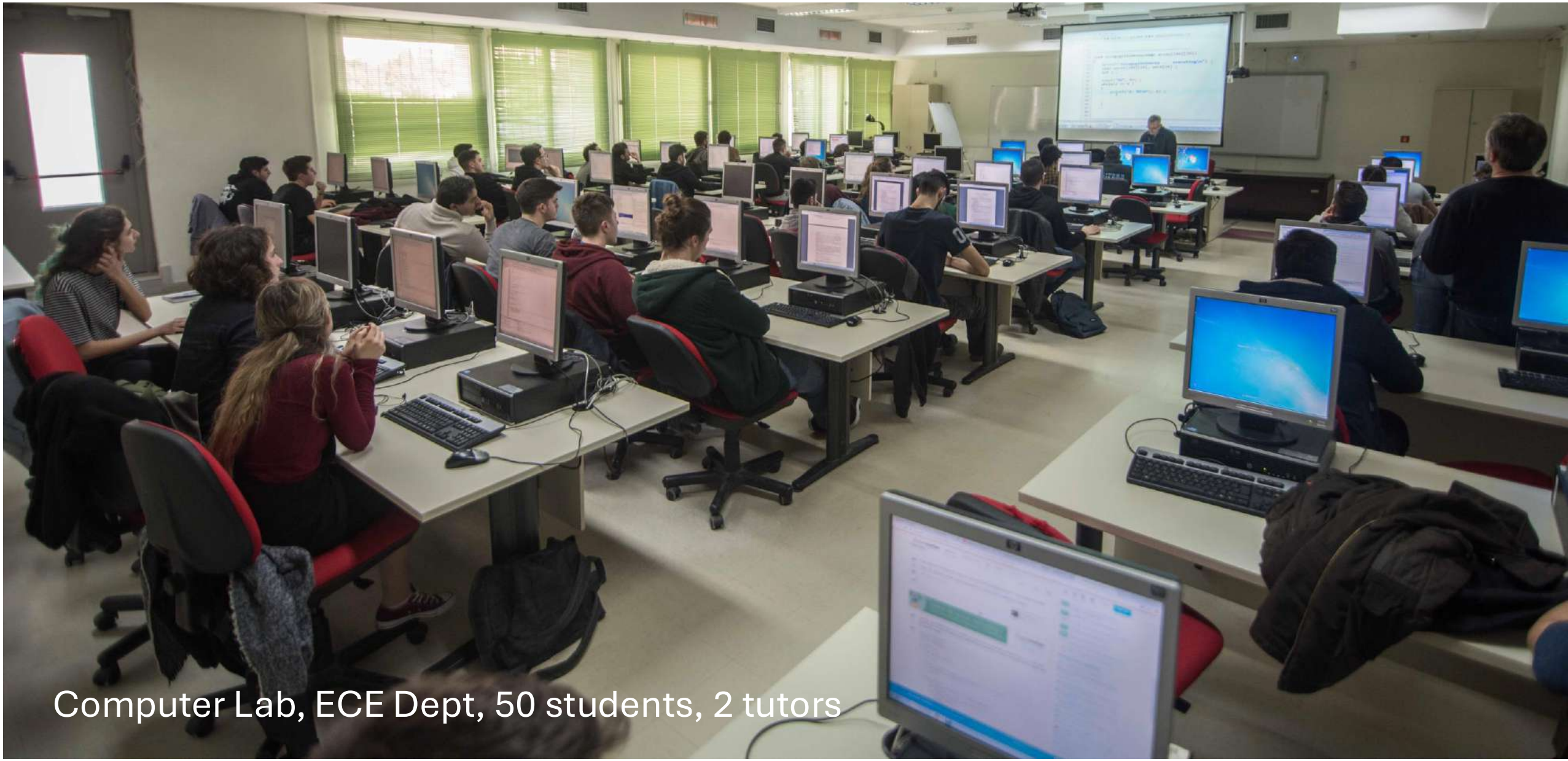


10 min segments followed by self assessment



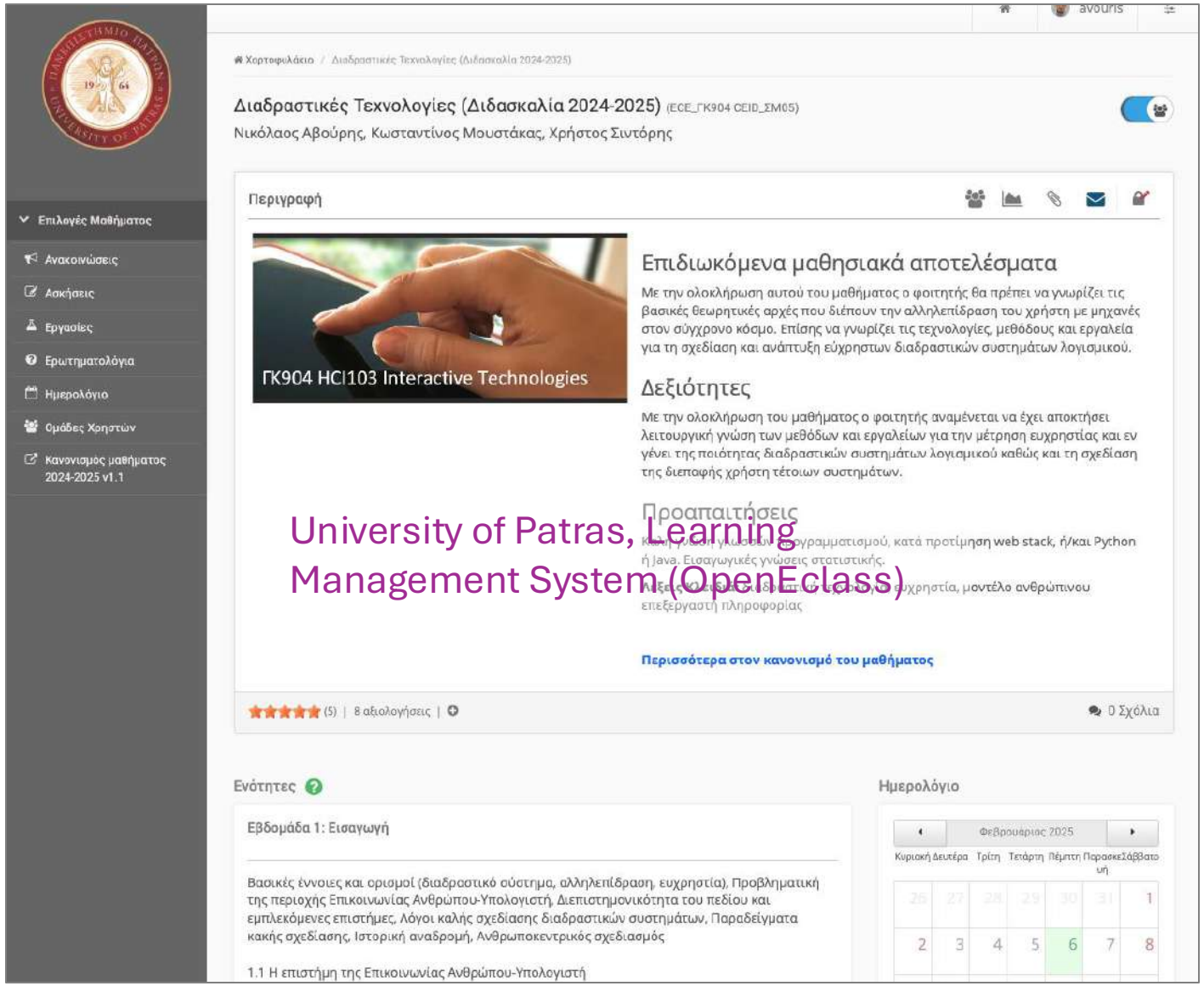
4.10.2022 welcome of new students ECE Dept, BA Hall, 2022-2023

https://www.ece.upatras.gr/index.php/el/departments-events/ypodoxi-protoeton.html



https://www.ece.upatras.gr/index.php/el/diasfalisi-poiotitas.html

University of Patras: LMS + Open Courses

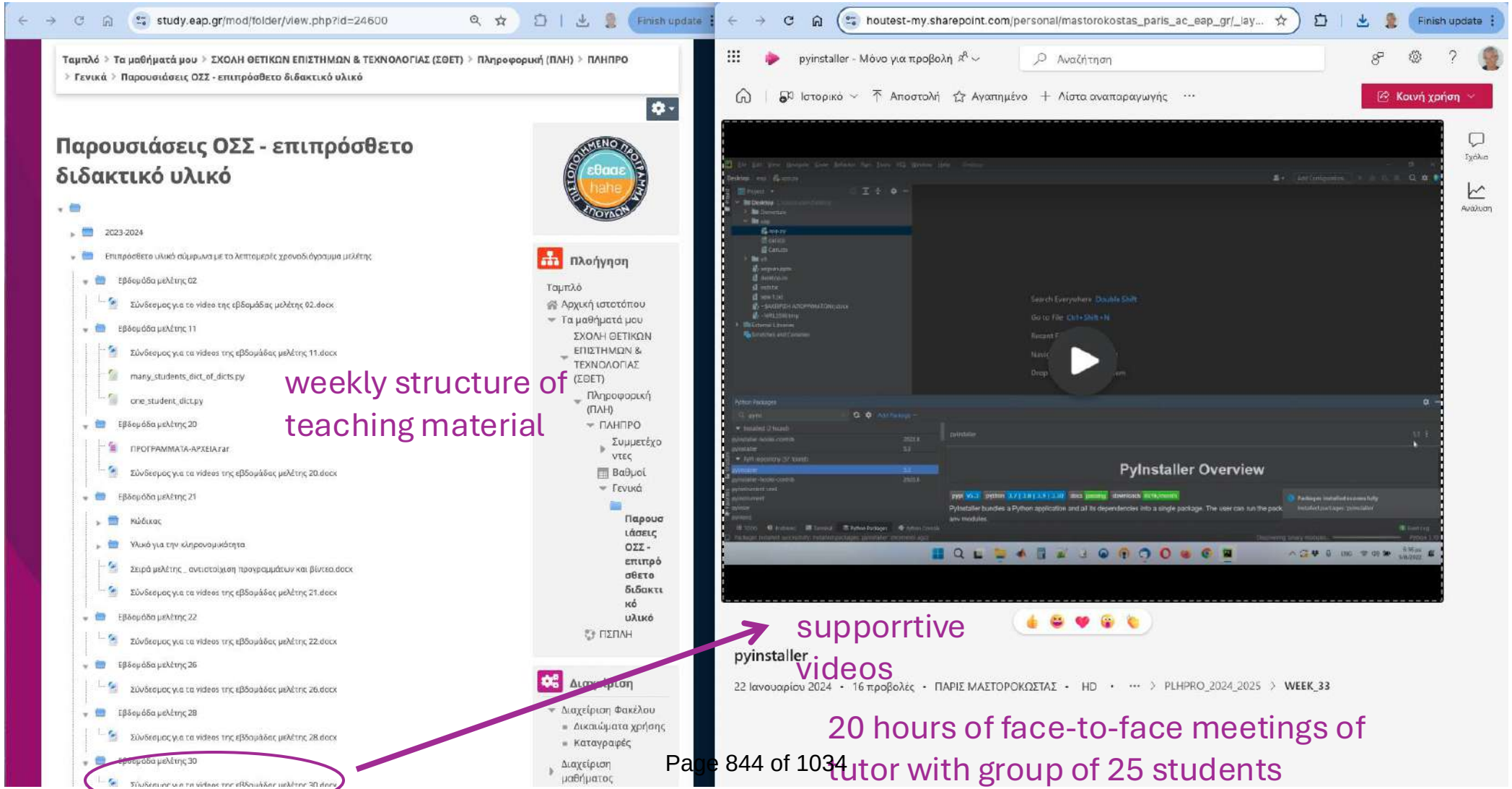


University of Patras, Learning Management System (OpenEclass)



weekly handouts and assignments

Hellenic Open University : online learning



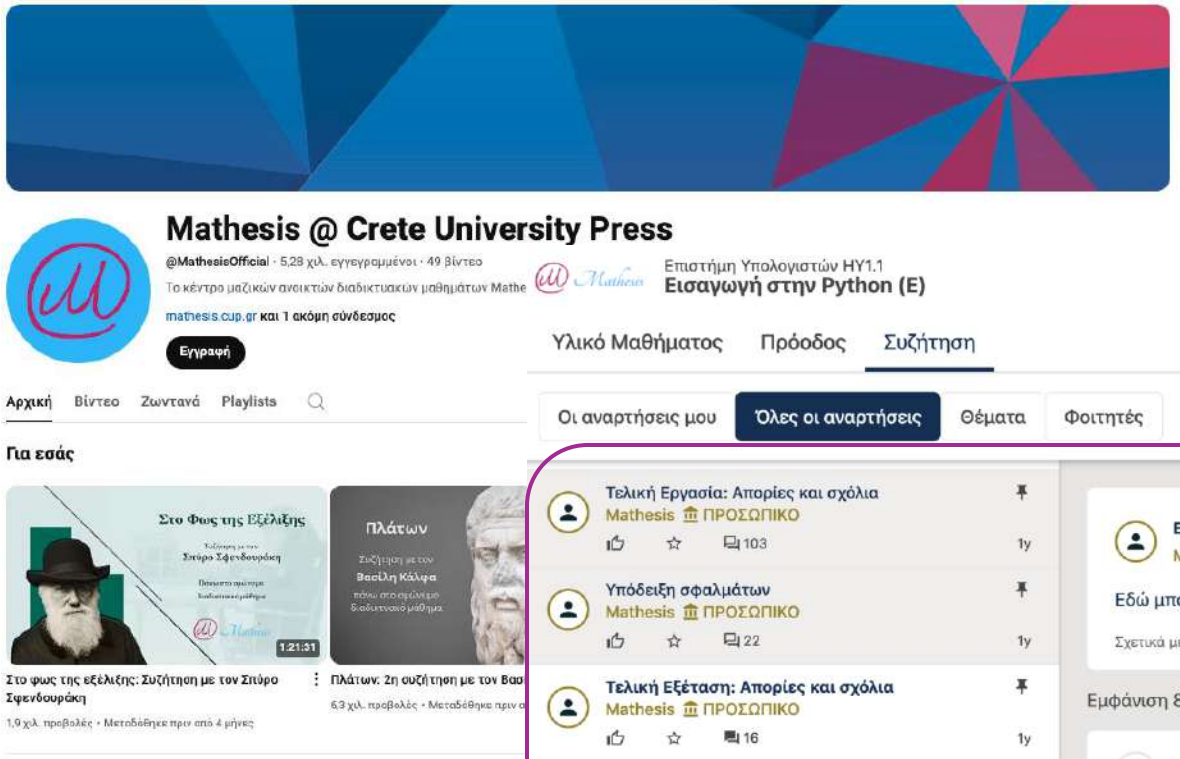
weekly structure of teaching material

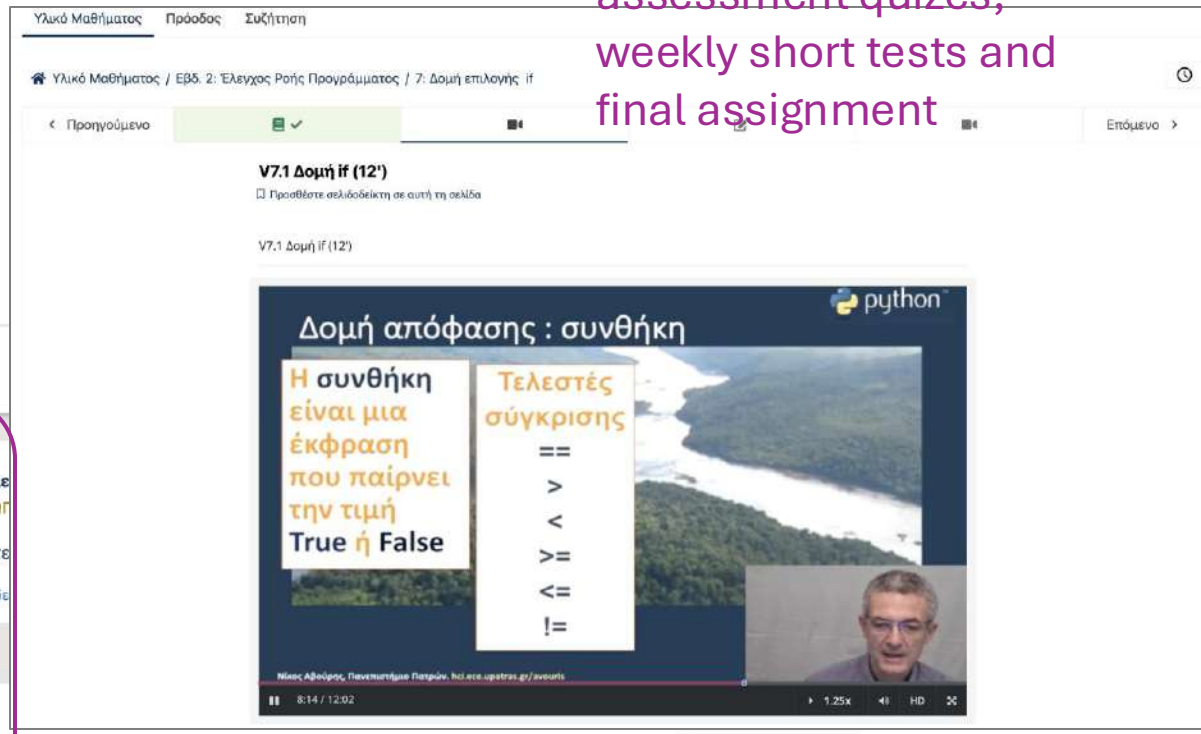
supporrtive videos

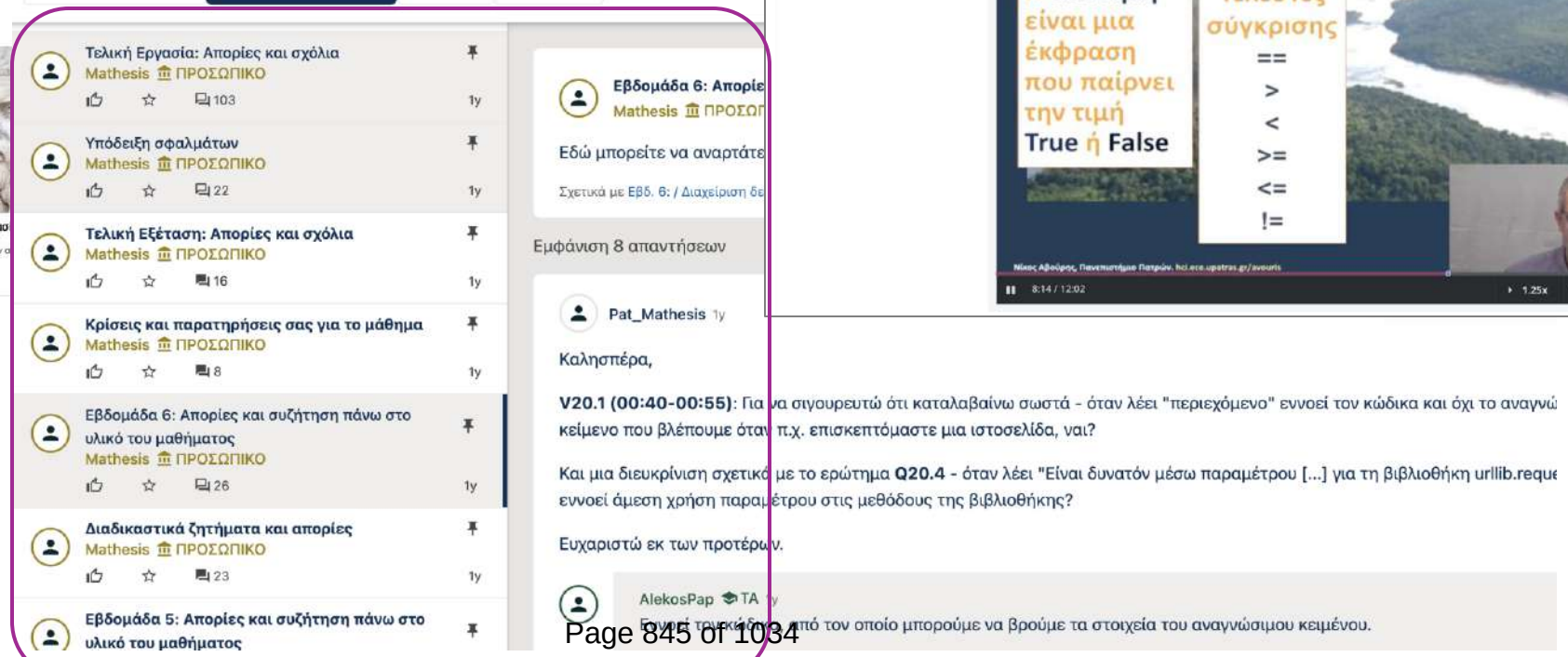
20 hours of face-to-face meetings of tutor with group of 25 students

mathesis.cup.gr: the Greek MOOCs platform

video lectures with self-assessment quizes, weekly short tests and final assignment







moderated forum

M1.
The MOOC Landscape



MOOC = [**M**] + [**O**] + [**O**] + [**C**]

A **MOOC** (**Massive Open Online Course)** is an online course designed for large-scale participation and open access via the internet, often provided by universities, educational organizations, or independent educators. The key features are:

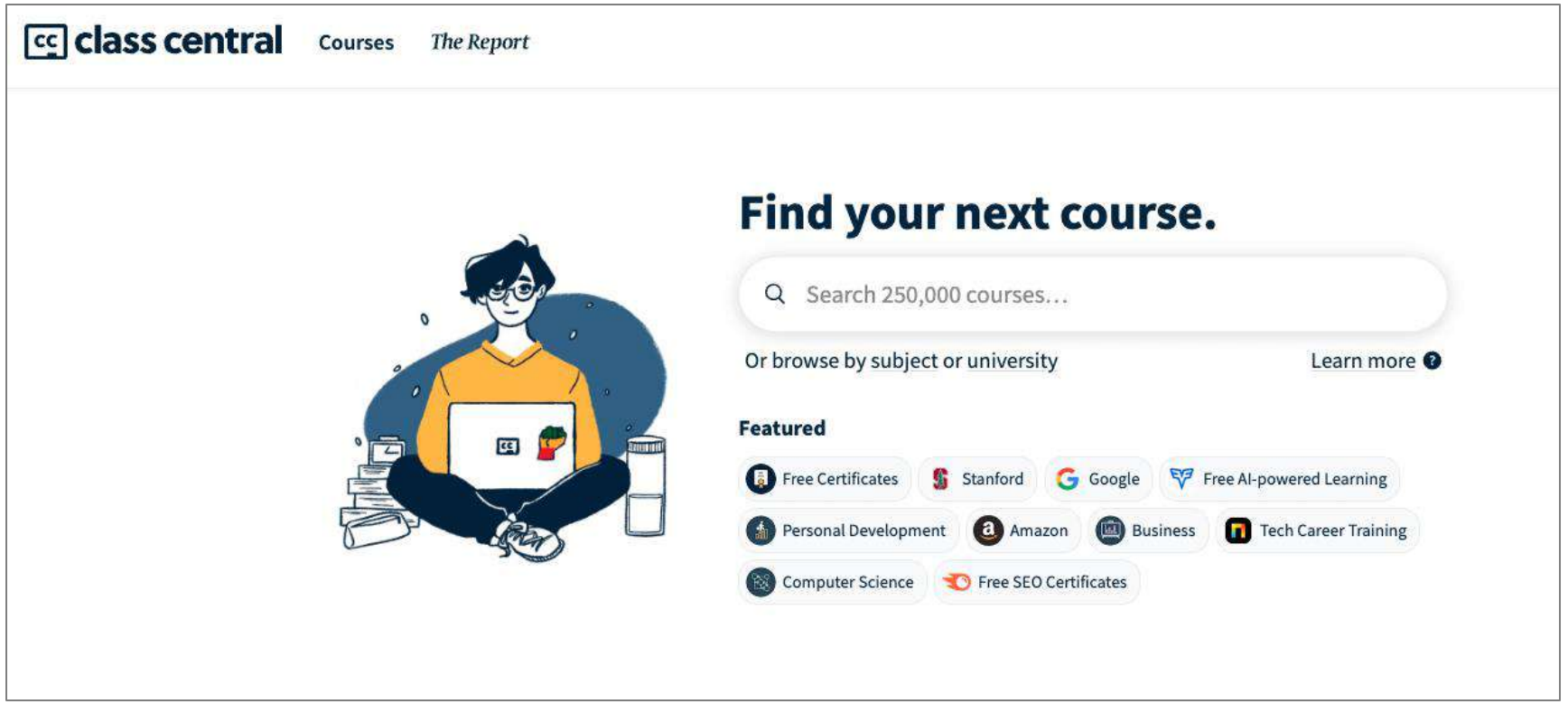
- **Massive**: MOOCs can accommodate a very large number of learners, sometimes tens or even hundreds of thousands, making them highly scalable.
- **Open**: MOOCs are usually open to anyone, often at no cost (though some platforms charge for additional features such as certificates).
- **Online**: All course content, such as lectures, reading materials, and assignments, is typically delivered via the internet.
- **Course**: MOOCs follow a structured curriculum similar to traditional classes, usually with lecture videos, readings, quizzes, and discussion forums.



Questions

1. How many MOOCs have you **enrolled** in ?
2. How many MOOCs have you **completed** ?
3. What **topic** would you like to learn if you had time?
4. Search for the best MOOC that it meets this need

how many MOOCs exist today?



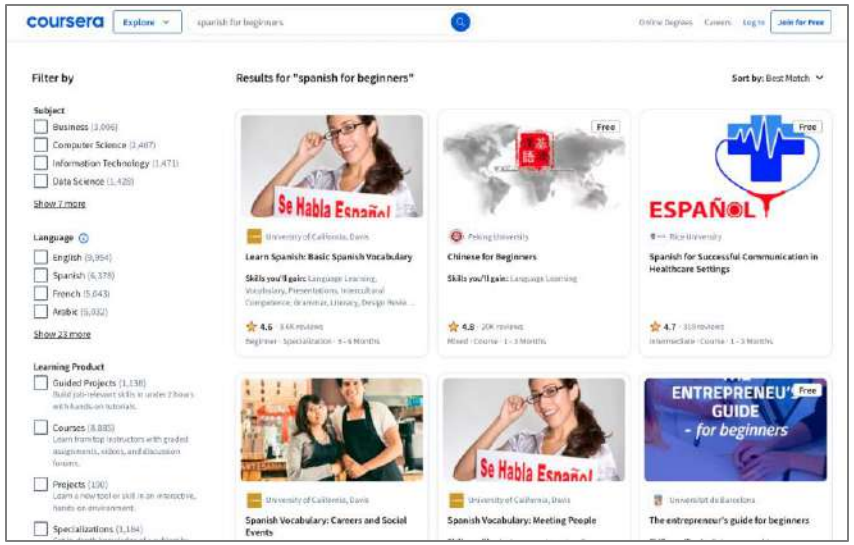
https://www.classcentral.com/

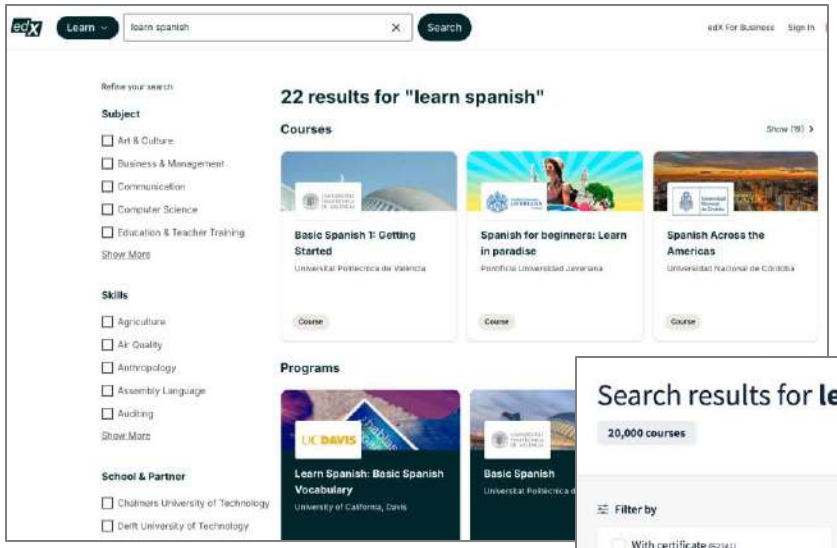


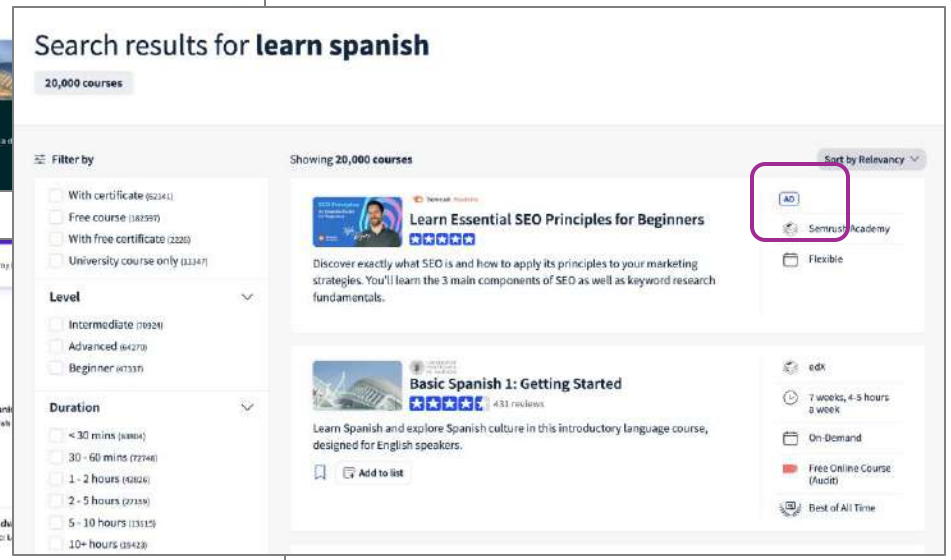
to answer question 4

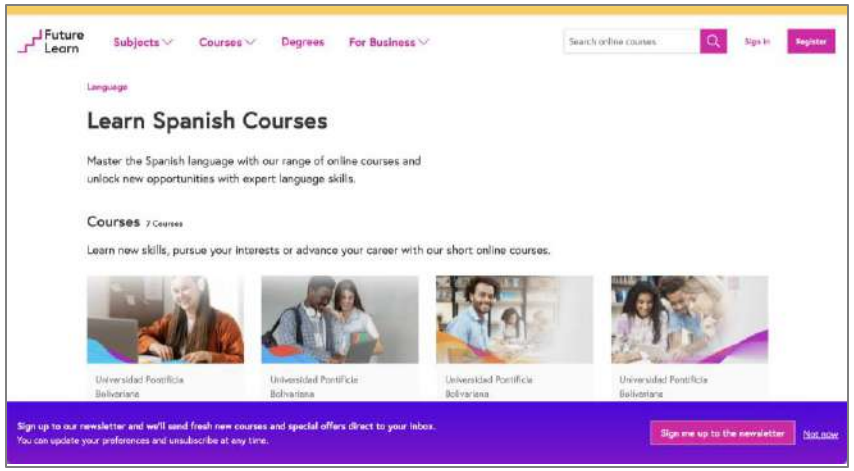
- go to **coursera.org** and **edx.org** and search for the course on your desired topic
- compare your findings and commend on the searching experience
- try further in **futurelearn.com**, and **udemy.com**
- try **classcentral** search instead
- present your findings in the class

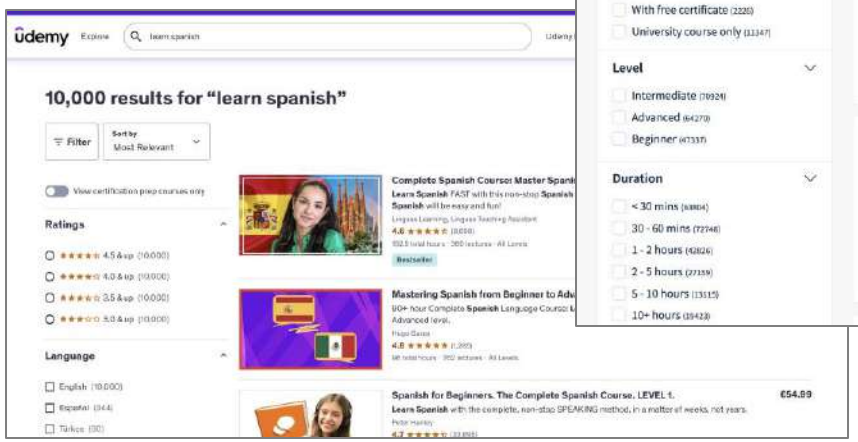
my search findings…







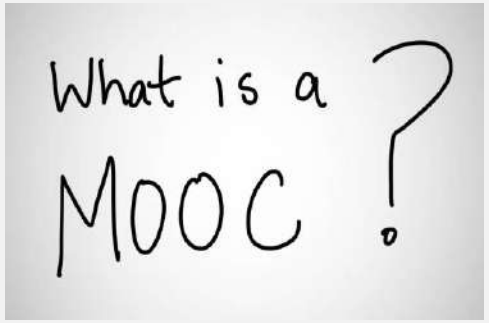




Dave **Cormier**: What is a MOOC? (4′30′′)

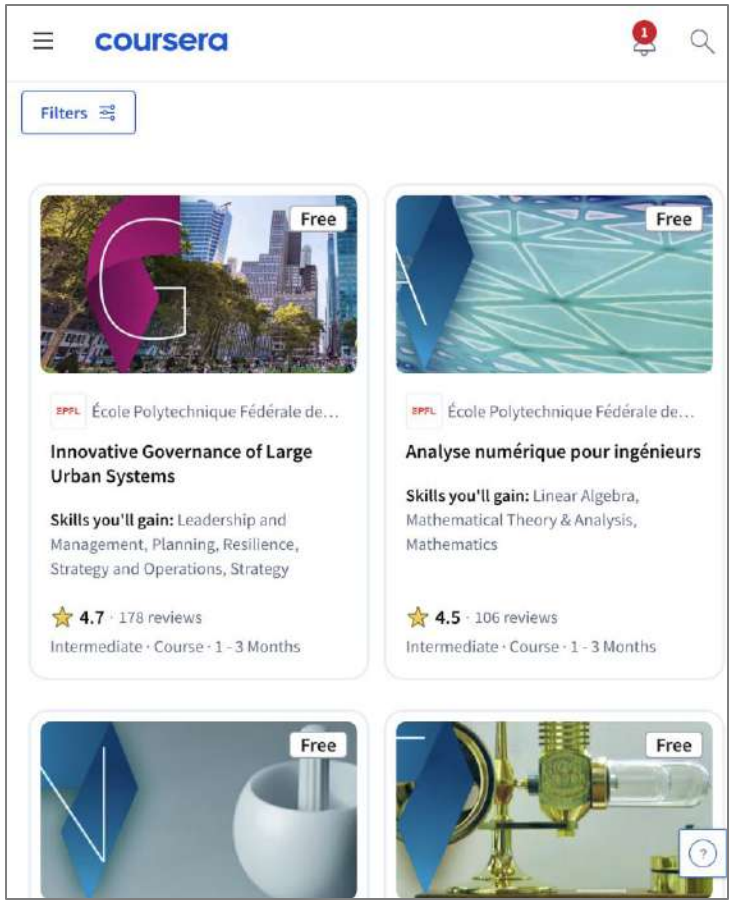
Dave Cormier: https://www.youtube.com/watch?v=eW3gMGqcZQc

Follow this presentation and create a definition of a MOOC according to the presenter.
Note that he insists on the notion of participation, activity, event, network
Do you think that all MOOCs have these characteristics?



Main characteristics of MOOCs according to the EPFL experience

1. Open access
2. Segmented Structure
3. Self-paced Progress
4. Synchronous Interaction
5. Peer assessment



1. Open Access

Freely Available Content
One of the defining characteristics of MOOCs is that anyone with an internet connection can access most or all, of the course content. This openness lowers barriers to entry and reaches learners worldwide.

Licensing & OER
In some MOOC platforms, content is shared under open licenses (e.g., Creative Commons). This can enable learners and other educators to reuse, revise, or remix materials.

Why It Matters

Expands educational opportunities globally.

Aligns with the ethos of open knowledge and open education.

2. Segmented Structure

Small Learning Units
Content is usually broken down into short, focused modules or “chunks” (e.g., **5–15 minute videos**, quizzes, readings). This modular format helps learners digest information in manageable pieces.

Sequential Video Lectures & Exercises
Each segment builds on previous material. Frequent, low-stakes quizzes or tasks encourage active learning and reinforce key concepts.

Why It Matters

Accommodates diverse learning speeds and schedules.

Keeps learners motivated with clear milestones and frequent feedback.

3. Self-Paced Progress

Learner Control
Many MOOCs allow learners to pause, rewind, or revisit content. They can also choose how quickly to move through modules.

Flexible Scheduling
By enabling learners to study at their own pace, MOOCs can accommodate adult learners juggling work and family obligations, as well as traditional students seeking extra learning opportunities.

Why It Matters

Supports varying schedules and different levels of prior knowledge.

Encourages learner autonomy, potentially increasing long-term engagement.

4. Synchronous Interaction

Discussion Forums / Social Exchanges

Even in primarily asynchronous MOOCs, discussion boards, live chats, or scheduled Q&A sessions can foster social interaction. Learners can compare answers, debate topics, and form study groups.

Community Building

Sharing experiences and insights can build a sense of community and deepen understanding. In some courses, instructors or TAs moderate discussions; in others, experienced learners (community mentors) may assist new participants.

Why It Matters

Encourages peer support and collaborative learning.

Can offset the isolation some learners feel in purely self-paced online courses.

5. Peer Assessment

- **Learner-to-Learner Feedback**
  In large-scale MOOCs, automating feedback for all tasks is challenging. Peer assessment models allow participants to evaluate each other's work using rubrics or guidelines.
- **Reflection & Metacognition**
  Reviewing classmates' work can deepen one's own understanding of the course material, prompting reflection on what constitutes quality work.
- **Why It Matters**
- Scales feedback in large-enrollment courses.
- Encourages critical thinking and peer-to-peer engagement.

MOOC in the distant education continium



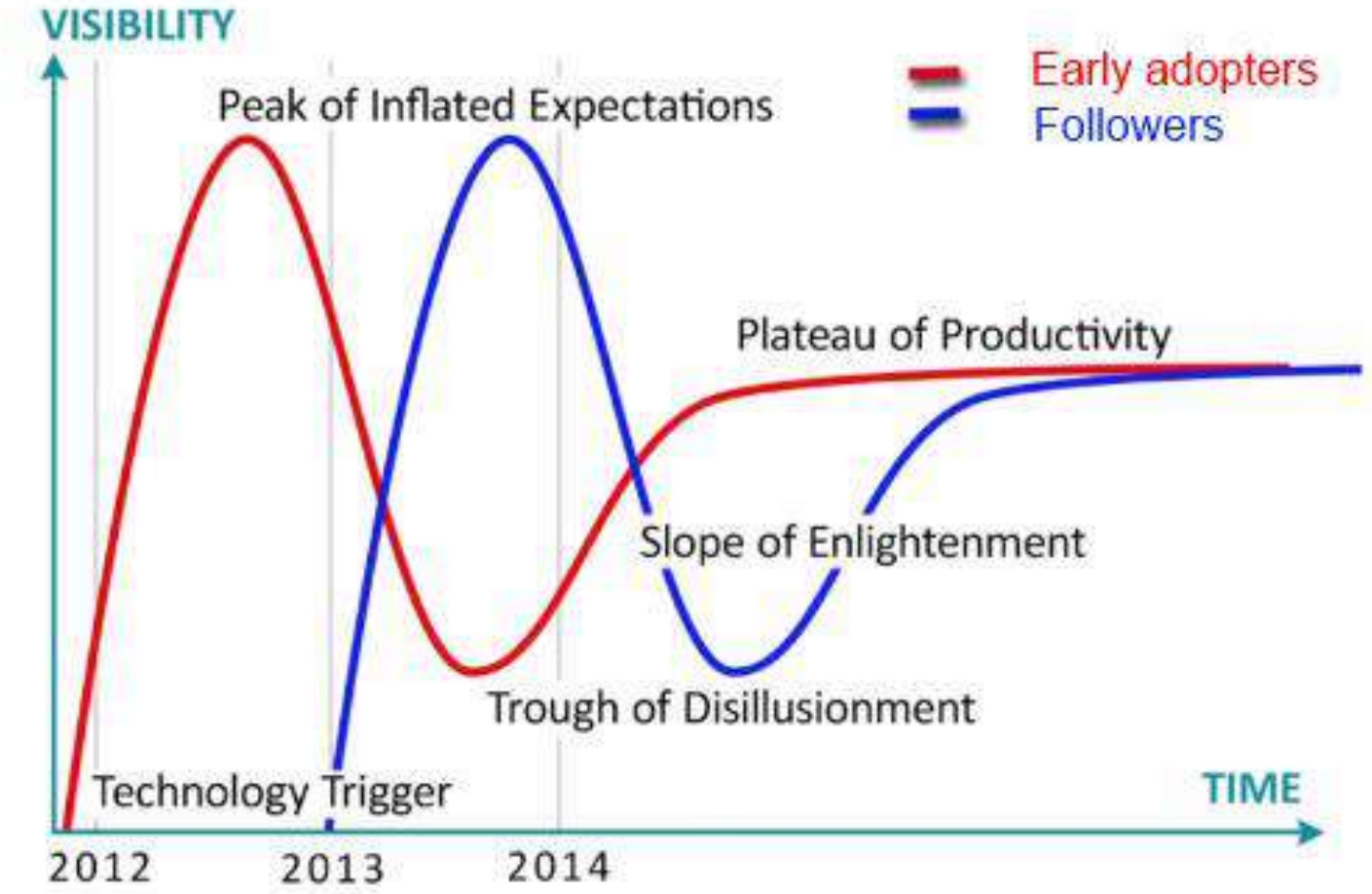
Primary student in regional Queensland takes class via two way radio from Australia's School of the Air, c 1960 via Flickr



- MOOCs are not entirely new; they follow a lineage of "technology-enabled" or distance education methods, going back to **educational radio** in the 1920s, **Broadcasted TV courses**, and other online initiatives in the dot-com era.
- While MOOCs offer massive enrolments (tens of thousands) and are often free, they generally **do not grant official college credit**.

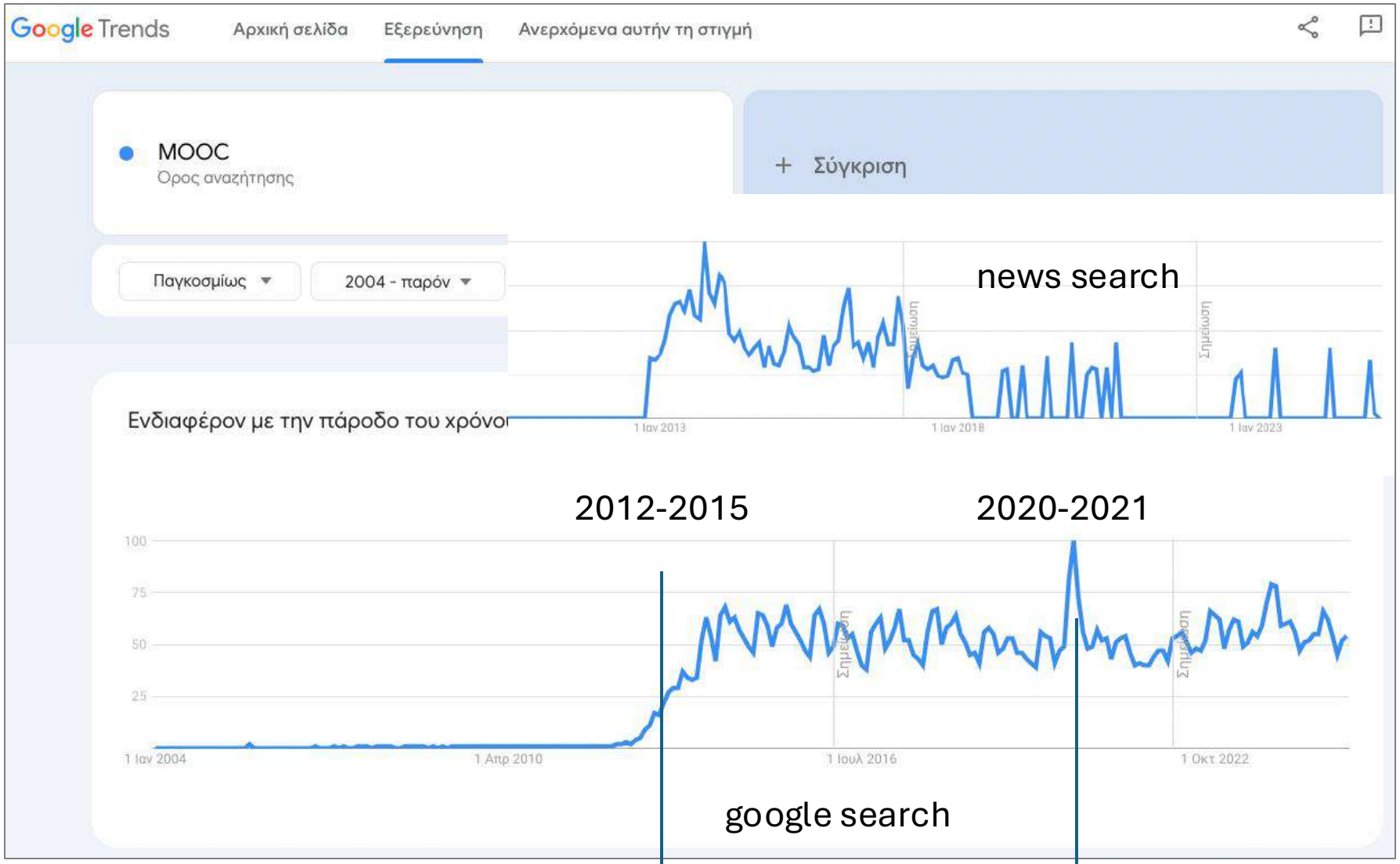
https://agb.org/trusteeship-article/mission-moocs-money/ Mission, MOOCs, & Money" by Kenneth C. Green

MOOCs: the evolution of acceptance and use



http://www.youtube.com/watch?v=xxp1p-pqpls

MOOC: trends



https://trends.google.com/trends/explore?date=all&q=MOOC

Daphne Koller (Coursera), 2012 TEDx Talk



(20’23)



What happened 10+ years later?

Questions:

1. Do MOOCs increase access to higher education?
2. Do MOOCs provide a new pedagogy?
3. Do big data improve teaching?
4. Do computers personalize learning?

https://www.changinghighereducation.com/2012/08/coursera-.html

https://www.tonybates.ca/2012/08/05/whats-right-and-whats-wrong-about-coursera-style-moocs/



Learner profiles of the 17 first edX MOOCs (Ho et al. 2014)

- 66 % of all **participants** have a bachelor's degree
- 74 % of all who **obtained a certificate**, or above have a bachelor's degree
- 71 % were **male**
- average age was **26**
- **40-60** % of all participants came from outside the USA

Ho et al. (2014), HarvardX and MITx: The First Year of Open Online Courses, Fall 2012-Summer 2013

Discussion and wrap-up

- How do we search for a MOOC to meet our learning needs?
- What happened since 2012? promisses-expectations
    1. Do MOOCs increase access to higher education?
    2. Do MOOCs provide a new pedagogy?
    3. Do big data improve teaching?
    4. Do computers personalize learning?
- What was the main point of D. Cormier's presentation "What is a MOOC"?
- Where do the MOOCs fit in the continum of teaching and learning?
- Which elements of the traditional MOOC format do we want to keep or discard in our course design?

M2. Development Principles

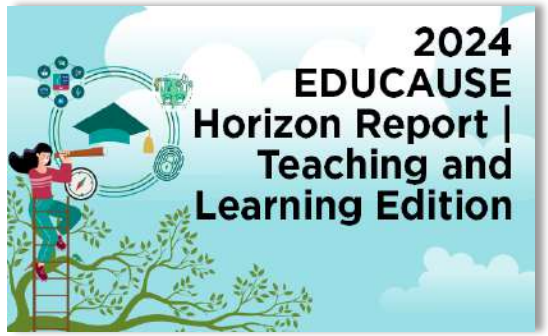


- Development of a MOOC institutional strategy
- Development of an individual course

Trends in higher education & MOOCs

MOOCs were prominently featured in the *Horizon Reports* around the height of their initial hype cycle (roughly 2013–2015).
After that, they tended to blend into broader categories like **online and hybrid learning** rather than appearing as a standalone technology trend year after year. So the hype is over.
The need for them was highlighted during the Covid-19 pandemic.

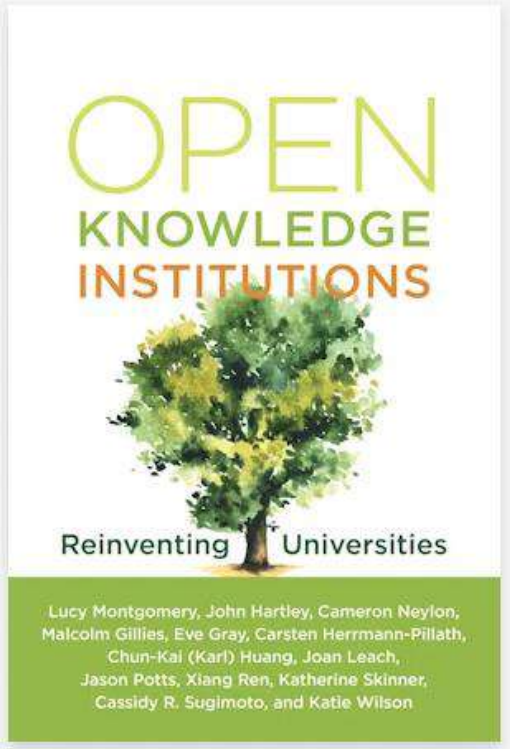




2004-2024, the **Horizon Reports**—first by NMC and later by EDUCAUSE—have served as a key reference for understanding and planning around educational technology trends

https://library.educause.edu/-/media/files/library/2024/5/2024hrteachinglearning.pdf

Universities as **open knowledge institutions**



L. Montgomery et al. 2021, *Open Knowledge Institutions: Reinventing Universities*, MIT Press

- According to Montgomery's *Open Knowledge Institutions: Reinventing Universities,* Universities should transform from relatively "closed" knowledge producers into inclusive, networked "**Open Knowledge Institutions**."
- This involves systematically supporting public engagement to ensure that knowledge creation and dissemination benefit the broader society.
- MOOCs are a key part of this institution's mission to democratize access to knowledge

CC BY

https://direct.mit.edu/books/oa-monograph/5131/Open-Knowledge-InstitutionsReinventing

Open Knowledge Institutions Indicators

1. Publications and data

- 1.1 Open-access publications and repositories
- 1.3 Open data and data repositories

2. Open campus

- 2.1 physical/online accessibility
- 2.2 Open events
- 2.3 MOOCs
- 2.4 Open Educational Resources
- 2.5 Collaboration (academia, industry, government)

3. Diversity

- 3.1 Student diversity
- 3.2 Research and staff diversity
- 3.3 Output (authorship) diversity

4. Community engagement

- 4.1 Participation by/in communities
- 4.2 Investment in and priority to research, translation, communication
- 4.3 Wider research impact

5. Policies and standards

- 5.1 University protocols for openness
- 5.2 Open statements and public documentation
- 5.3 Strategic planning toward openness in all operations

Bartling, S., **Friesike**, S. (Eds.) 2014

The open Science movement

The **Open Science** landscape argues for transparency, collaboration, democratized access, and new forms of research evaluation.

Massive Open Online Courses (MOOCs) are a significant component of the broader “open” ecosystem—alongside open access, open data, and open educational resources (OER).

By lowering barriers to educational content, facilitating collaborative learning, and equipping learners with open science know-how, MOOCs are advancing the Open Science agenda.



Bartling, S., **Friesike**, S. (Eds.) 2014

MOOCs role in open knowledge institutions

1. **Alignment of MOOCs with Open Institutional Strategy**
   If an institution aspires to become an open knowledge institution, its MOOCs should embody that openness—through **open licensing**, **inclusive pedagogies**, and **community-driven content**.
2. **Sustainable MOOC development**
   The cultural and governance shifts of open institutions can help create stable support structures for continuous MOOC development, rather than treating MOOCs as short-term experiments.
3. **Public Engagement**
   Public-facing MOOCs can serve as a key mechanism for universities to broaden access to research, learning, and innovation—making them a powerful example of the open knowledge institution in action.

MOOCs: mission and revenue

- Surveys of university indicate that most see online education (including MOOCs) as fitting two primary goals:
  - **Mission Alignment**: Serving more learners by broadening access.
  - **Revenue Potential**: Increasing net tuition or overall revenue, although actual financial returns from online efforts remain difficult to quantify.
- Question: does online learning primarily serve the **mission**, or is it a **revenue** strategy, or both?

Mission, MOOCs, & Money" by Kenneth C. Green

MOOCs: challenges

- **Quality and Credit**: How to assess the academic quality of MOOCs, and whether (or how) to grant **institutional credit** for these free courses.
- **Transfer and Articulation**: Deciding if (and which) MOOC certificates should count towards a student's degree program.
- **Faculty Concerns**: If a "star professor" can attract tens of thousands of students online, what does this mean for other faculty and for departmental autonomy
- **Infrastructure and Investment**: Creating and supporting MOOCs requires significant technology, staffing, and brand recognition—resources not available to many universities.
- **System-Level Decisions**: Multi-campus systems might standardize "MOOC-like" online courses instead of letting each university develop its own version, raising questions of local control vs. system-wide efficiency.

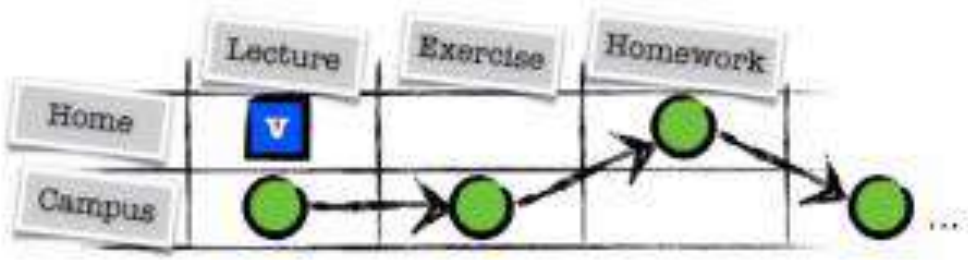
Mission, MOOCs, & Money" by Kenneth C. Green

MOOC models of use

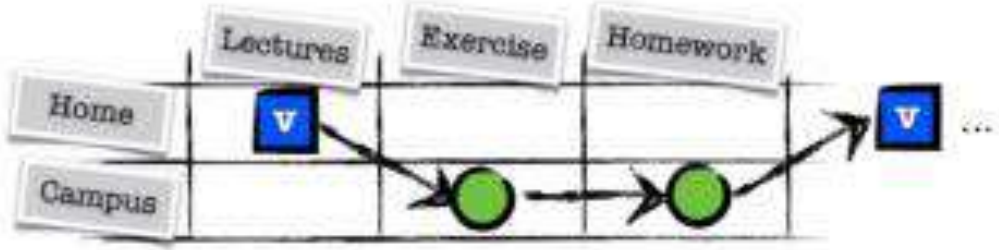
- **Lifelong Learning and Professional Development**
  MOOCs as tools for continuous education and skill-building—accessible to individuals at any stage of their career or personal development.
- **Global Partnerships and Institutional Collaboration**
  Leveraging MOOCs to support universities in developing regions or countries through shared resources, joint ventures, and capacity-building initiatives.
- **Supplemental Resources for Traditional Teaching**
  Using MOOCs as additional course material or blended-learning components to enrich face-to-face instruction.

Examples of teaching: Course formats

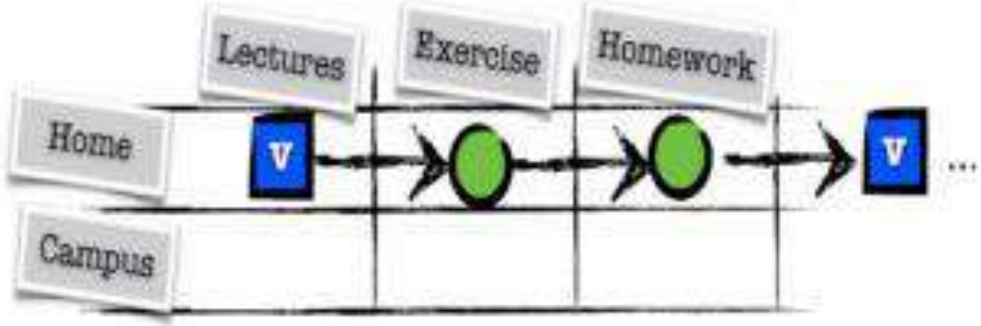
Traditional Teaching



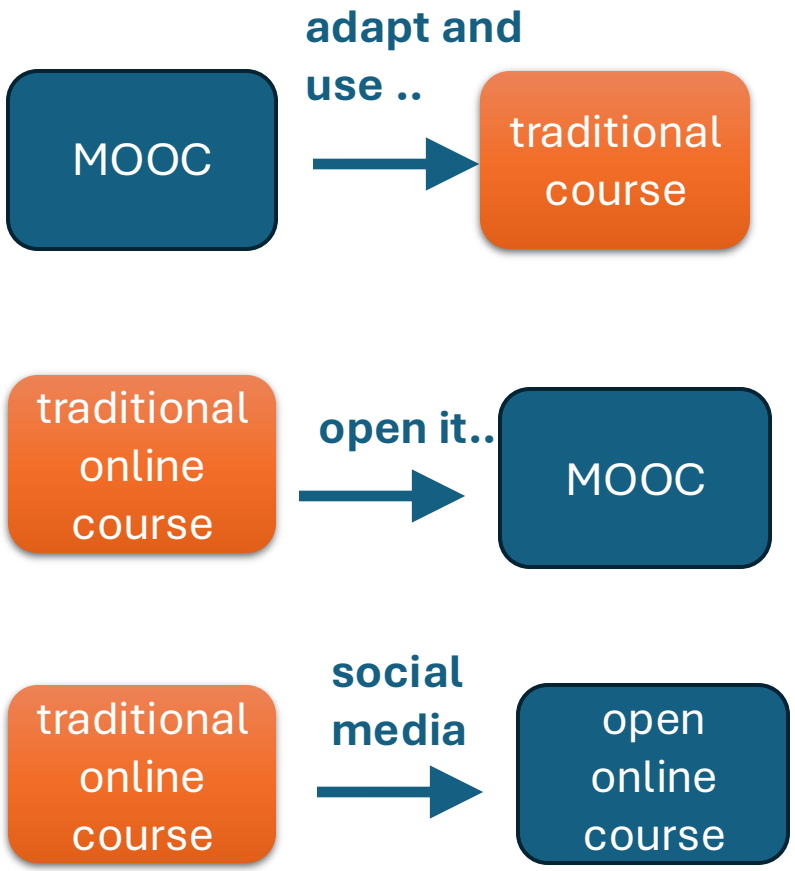
Inverted classroom



Fully on-line

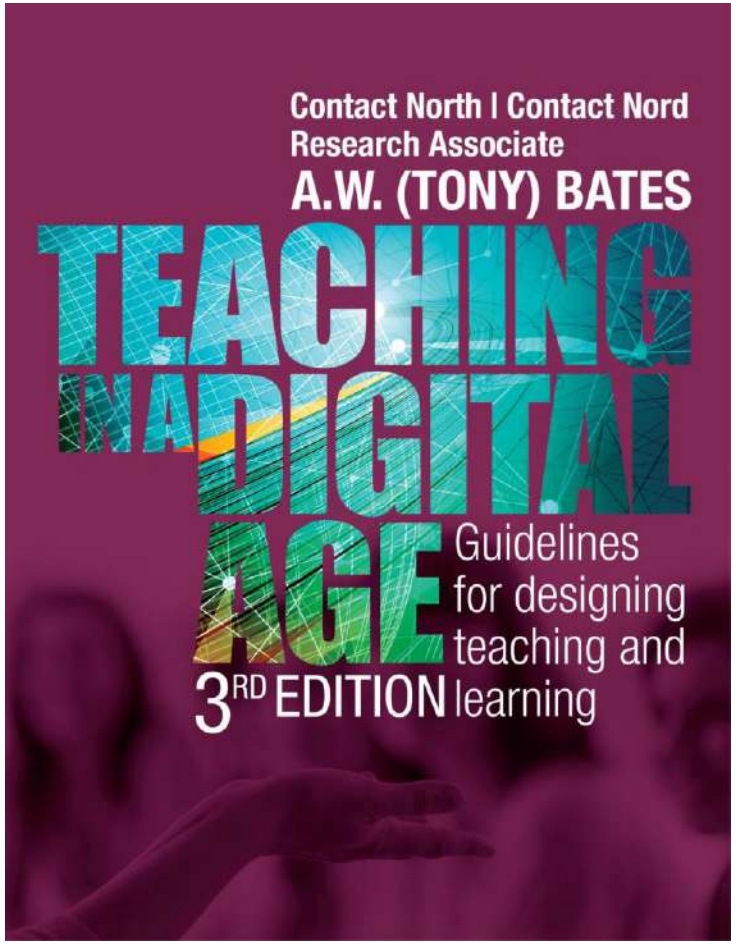


MOOC development strategies



1. First develop a MOOC then examine how it can be adapted for on-campus teaching.
2. A second strategy is to develop a conventional, for-credit online course, in terms of design, then scale it for open access to other participants.
3. A third strategy is to widen access to the teaching of a formal course, using open social media, such as a course wiki and student blogs, developing an online open course

A. Bates: Teaching in a digital age



Teaching in a Digital Age

Third Edition – 2022

Guidelines for designing teaching and learning

Author: A.W. (Tony) Bates

An example of open educational resource (OER) in the form of a book and a course
Pay special attention to the question of the pedagogy of MOOCs

https://pressbooks.bccampus.ca/teachinginadigitalagev3m/

Bates, A. W. (2022). Teaching in a digital age: 11. MOOCs

Watch the video (15 min) and answer the following questions:



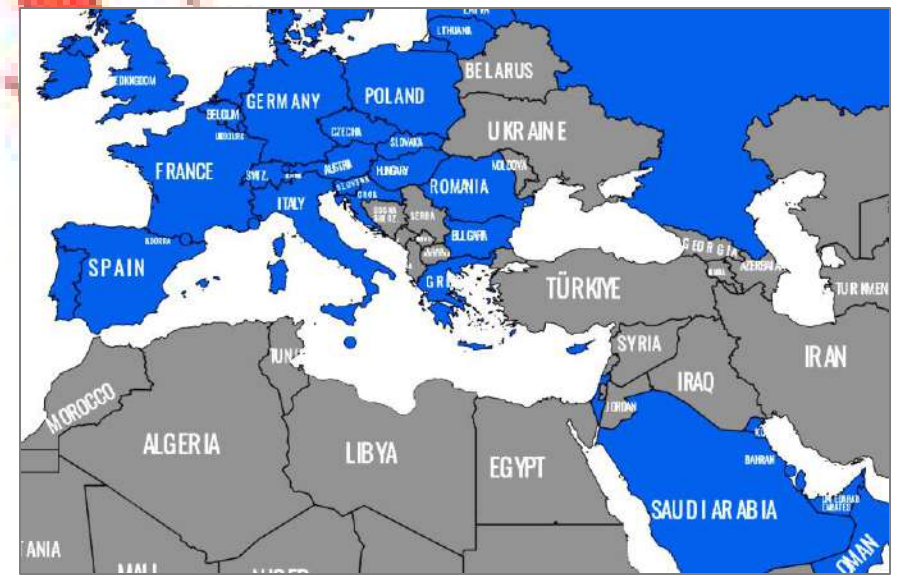
1. What are the main limitations of MOOCs?
2. What are the main advantages?
3. Discuss the pedagogical model
4. What is the future of MOOCs?
5. Discuss the issue of cultural imperialism

course: https://tell.colvee.org/course/view.php?id=20
book: https://pressbooks.bccampus.ca/teachinginadigitalagev3m/

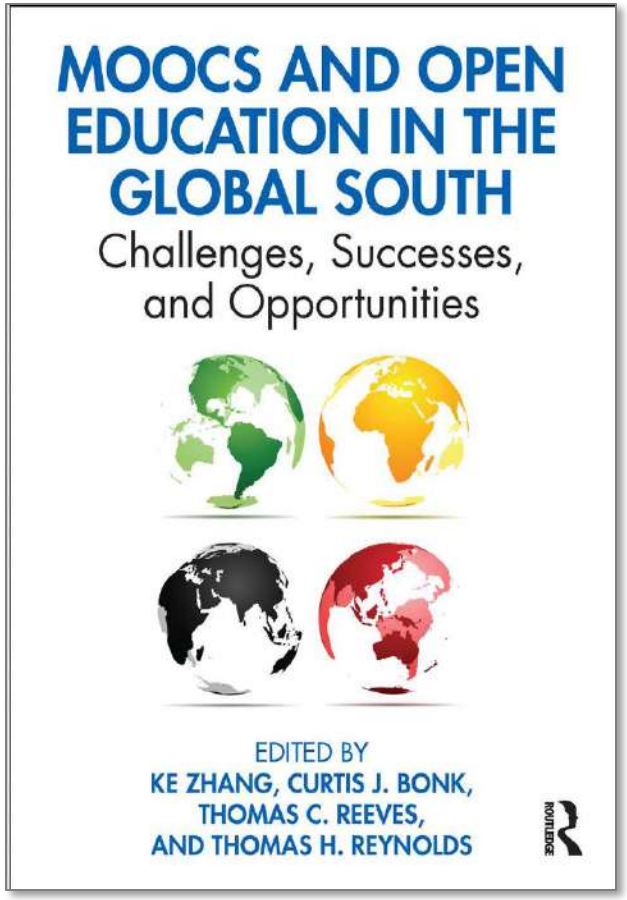
Cultural imperialim through MOOCs in Global North and Global South

High-Low income countries by the World Bank- 2023, Mediterranean and Middle East area.

the **global south**: Africa, Latin America and the Caribbean, Asia (excluding Israel, Japan, and South Korea), and Oceania (excluding Australia and New Zealand)



Zhang et al. 2019, MOOCs and Open Education in the Global South



This book explores how MOOCs and open education are being leveraged in the Global South to provide educational opportunities to populations previously denied access.

It features contributions from experts across Asia, Latin America, the Middle East, Africa, the Pacific/Oceania, and the Caribbean, covering a wide range of topics related to MOOCs and open education

The book demonstrates that MOOCs are not a failed experiment but a potent instrument for change in the Global South.

It discusses how MOOCs can be effectively designed and implemented in different contexts to address various educational needs, from skills development and professional training to addressing global challenges like climate change and civic education.

It also highlights the importance of accreditation, quality standards, and learner motivation in the successful implementation of MOOCs

Many MOOCs have a wide out-reach

2012









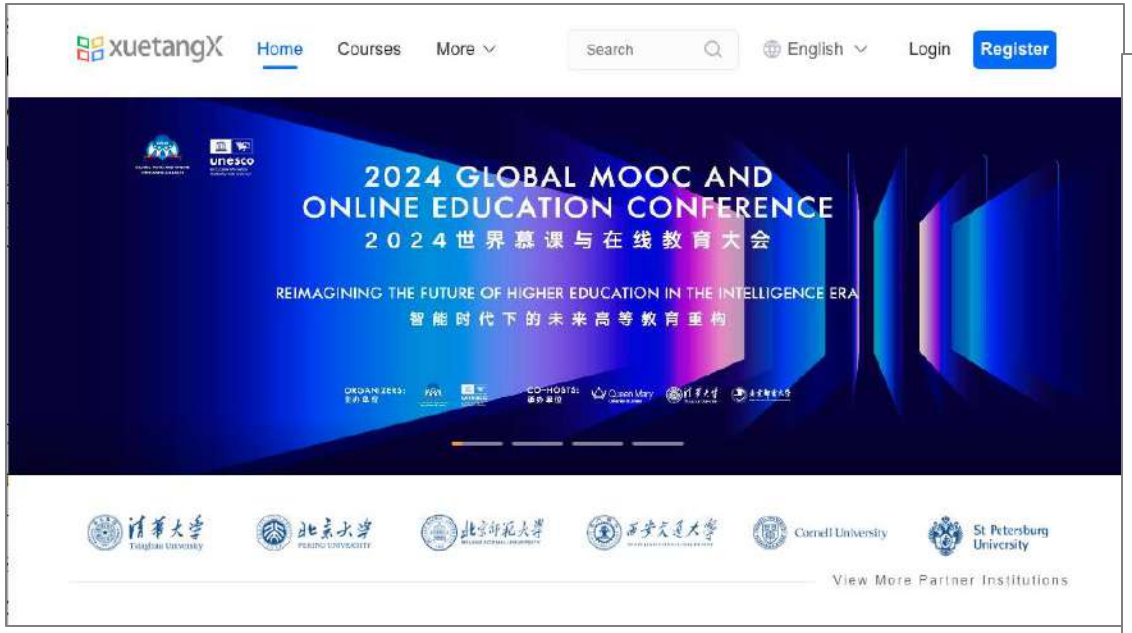
Anant Agarwal Ted Talk 2013, edX

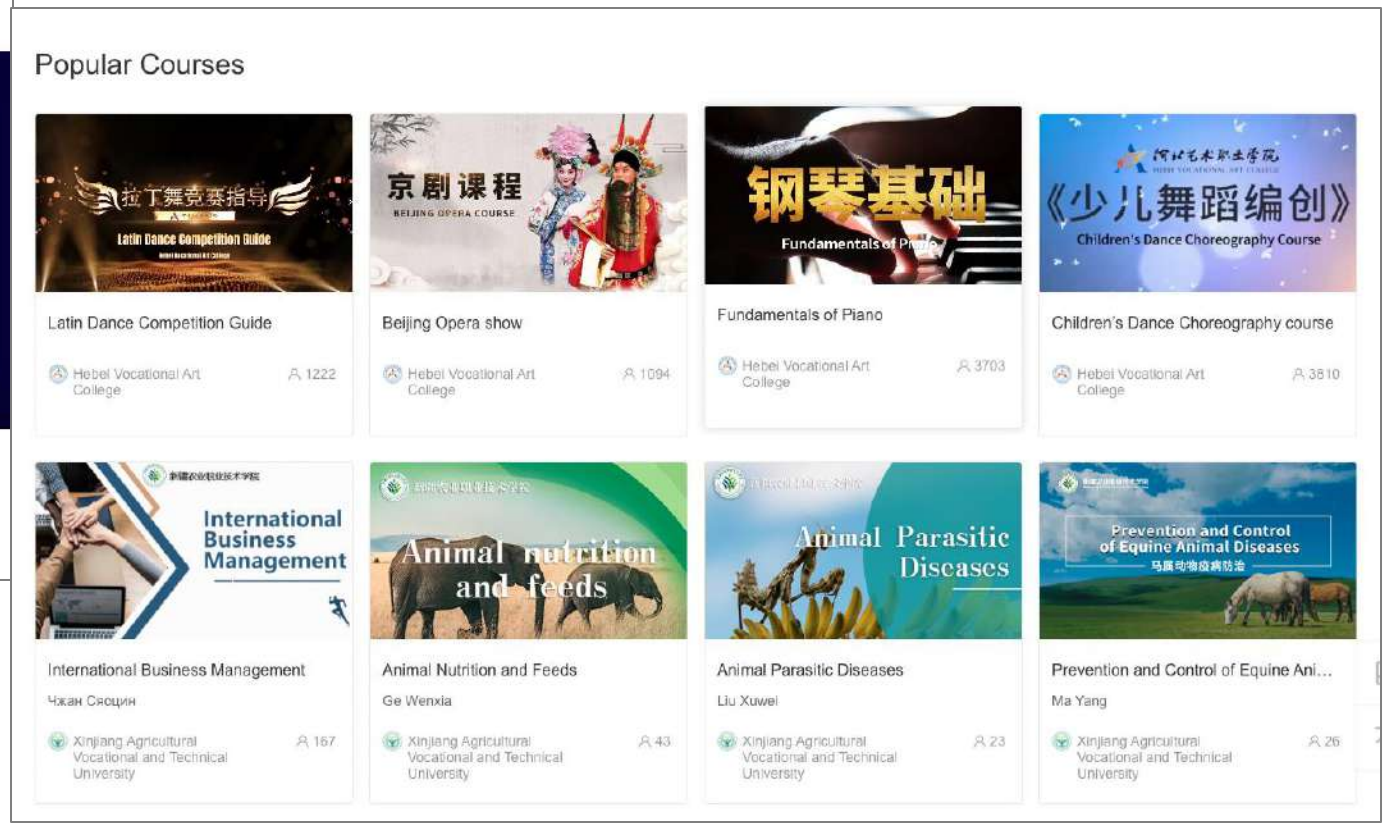
https://www.ted.com/talks/anant_agarwal_why_massive_open_online_courses_still_matter?subtitle=en

MOOC providers in the world

- **Coursera:** The first MOOC platform, over 100M learners, created by the universities of Stanford, Princeton, Yale, London, Munich, Zurich, and many more. (Coursera).
- **edX:** Second MOOC platform, around 50M learners. Content from Harvard, MIT, Berkeley and Oxford, among others. (edX).
- **Udemy**: courses for skills development and professional development, offered by individual instructors usually at low cost. They claim they have 250K courses and 75M learners.
- **FutureLearn:** Largest European MOOC platform (UK-based). Includes various British and European universities; however, courses are sometimes shorter in duration, 17M learners
- **Udacity:** Created as a MOOC platform at Stanford. Now mostly programming courses in cooperation with industry partners such as Google, Facebook or Daimler, 1.6M learners.
- **German** providers: iversity (0.6M learners) and openHPI (0.4M) for **German** MOOCs;
- **French** online courses Fun-MOOC
- **Spanish** learners Miriada X [not running] MexicoX
- **Italian** EduOpen
- **Chinese** XuetangX (Tsinghua University and other universities) 10K courses, 60M learners
- **India** (Swayam), 3K courses, 12.5M learners
- NPTEL
- **Russia** (Open Education, Universarium),
- **Brazil** (Veduca),
- **Philippines** (MODeL-OPOU)
- **Malaysia** (Malaysia MOOC),

China: xuetangX.com

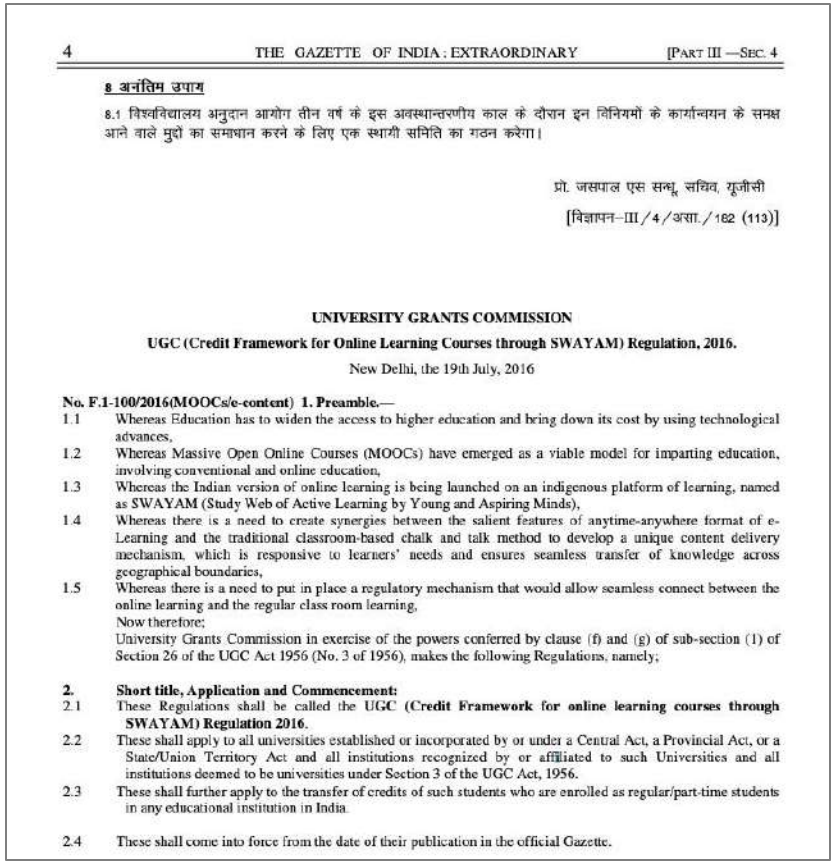




https://www.xuetangx.com/

Swayan initiative (India)

Students in public higher education institutions in India can take up to 20% of their courses from SWAYAM for credit (Mendes, 2019).



4 THE GAZETTE OF INDIA : EXTRAORDINARY [PART III —SEC. 4

8 अनंतिम उपाय

8.1 विश्वविद्यालय अनुदान आयोग तीन वर्ष के इस अवस्थान्तरणीय काल के दौरान इन विनियमों के कार्यान्वयन के समक्ष आने वाले मुद्दों का समाधान करने के लिए एक स्थायी समिति का गठन करेगा।

प्रो. जसपाल एस सन्धू, सचिव, यूजीसी

[विज्ञापन–III/4/असा./162 (113)]

UNIVERSITY GRANTS COMMISSION

UGC (Credit Framework for Online Learning Courses through SWAYAM) Regulation, 2016.

New Delhi, the 19th July, 2016

No. F.1-100/2016(MOOCs/e-content) 1. Preamble.—

1.1 Whereas Education has to widen the access to higher education and bring down its cost by using technological advances,

1.2 Whereas Massive Open Online Courses (MOOCs) have emerged as a viable model for imparting education, involving conventional and online education,

1.3 Whereas the Indian version of online learning is being launched on an indigenous platform of learning, named as SWAYAM (Study Web of Active Learning by Young and Aspiring Minds),

1.4 Whereas there is a need to create synergies between the salient features of anytime-anywhere format of e-Learning and the traditional classroom-based chalk and talk method to develop a unique content delivery mechanism, which is responsive to learners' needs and ensures seamless transfer of knowledge across geographical boundaries,

1.5 Whereas there is a need to put in place a regulatory mechanism that would allow seamless connect between the online learning and the regular class room learning,

Now therefore;

University Grants Commission in exercise of the powers conferred by clause (f) and (g) of sub-section (1) of Section 26 of the UGC Act 1956 (No. 3 of 1956), makes the following Regulations, namely;

2. Short title, Application and Commencement:

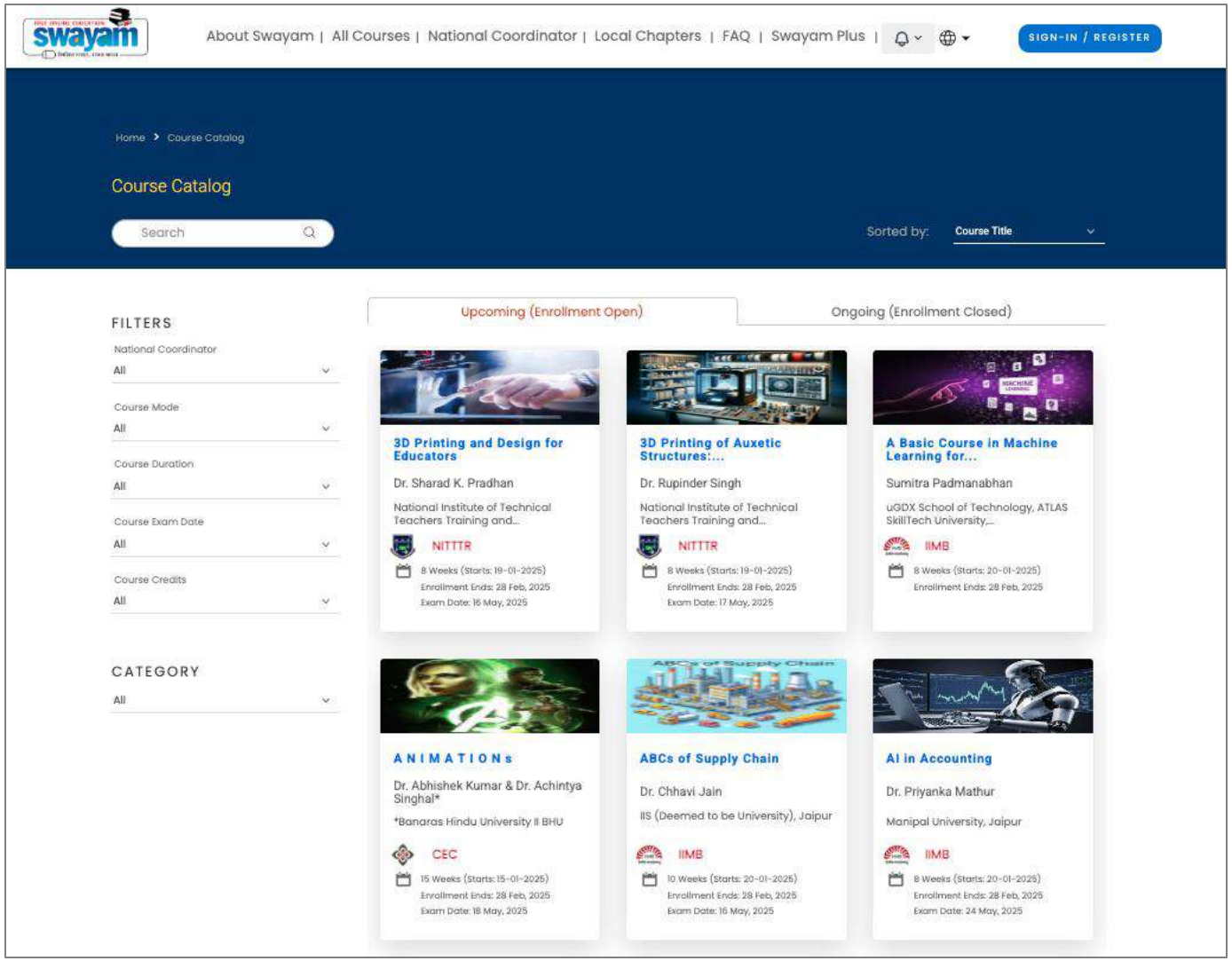
2.1 These Regulations shall be called the **UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016.**

2.2 These shall apply to all universities established or incorporated by or under a Central Act, a Provincial Act, or a State/Union Territory Act and all institutions recognized by or affiliated to such Universities and all institutions deemed to be universities under Section 3 of the UGC Act, 1956.

2.3 These shall further apply to the transfer of credits of such students who are enrolled as regular/part-time students in any educational institution in India.

2.4 These shall come into force from the date of their publication in the official Gazette.

https://www.ugc.gov.in/pdfnews/4064990_UGC-(Credit-Framework-for-Online-Learning-Courses-through-SWAYAM)-Regulation,-2016.pdf



https://swayam.gov.in/explorer

what about the Balkans context?

- Historical note: The Balkans were under various imperial rules (Ottoman, Austro-Hungarian) and also experienced communist governance in the 20th century.
- This combination has created unique developmental challenges (e.g., industrial disruption, transitional economies).
- The Balkan states were not themselves colonizers on a global scale (unlike Western European nations), they often suffered from imperial domination and later peripheral status within broader Europe.



Discuss the MOOCs landscape in the Balcans, how much the countries can develop common MOOCs strategies (e.g. language barriers), do you feel there is a cultural imperialism issue?

MOOC Course Design

Current MOOCs follow mostly traditional pedagogy

- **Constructivism:** Emphasizes that learners build new knowledge upon the foundation of their prior understanding. In MOOCs, this theory suggests **designing activities that let learners interact, reflect, and construct meaning from course materials** rather than passively consume them. For example, **prompting learners to share experiences** in discussion forums or engage in problem-solving activities helps them internalize concepts in personally relevant ways.
- **Connectivism:** Often cited as a theoretical framework for MOOCs, connectivism posits that knowledge is distributed across networks and that **learning involves connecting to and navigating through these networks**. MOOC participants often bring a wealth of expertise and cultural perspectives. Encouraging **peer-to-peer interactions, resource sharing, and community Q&A areas** leverages the “network” aspect.

Instructional **Backward** Design

- Design starts by identifying desired learning outcomes and then determines the assessments and learning activities needed to achieve them.
- In a MOOC, applying backward design ensures that every piece of content and every assignment is purposeful and aligned with the course objectives.
- Instead of simply uploading a series of lectures, instructors first clarify what learners should be able to do by the end of the course and then craft appropriate modules that scaffold these skills.
- This approach quaranties **alignment** of objectives, learning activities and assessment

Aligning Objectives, Activities, and Assessments

Effective MOOC pedagogy is achieved through alignment: what we expect learners outcomes to achieve (objectives), how we help them achieve it (instructional activities), and how we measure their success (assessments) should all be tightly interconnected.

- **Objectives (Learning Outcomes):**

Clearly stated objectives give learners a roadmap of what they are aiming to learn. For instance, if you are designing a module on data analysis techniques, an objective might be: “By the end of this module, learners will be able to select appropriate statistical tests for different research scenarios.”

- **Activities:**

Each learning activity should correspond directly to objectives. Continuing the data analysis example, activities might include interactive tutorials on selecting statistical tests, opportunities for learners to watch worked examples, and practice exercises with real data sets.

- **Assessments:**

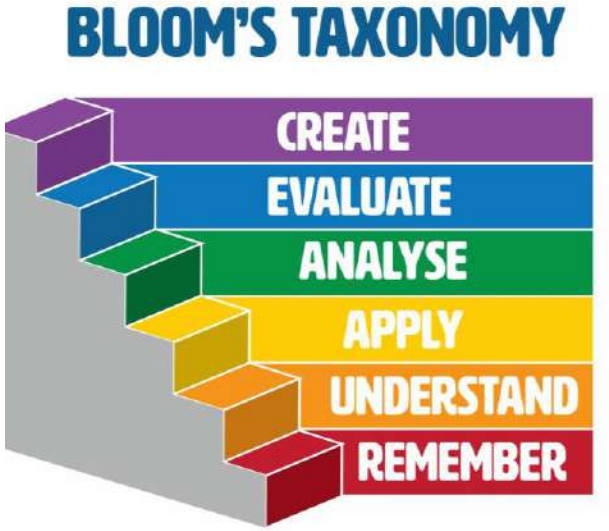
Assessments demonstrate whether learners met the objectives. Formative quizzes could test if learners can accurately pick the right statistical test. Summative projects could require them to apply their skills to a data set and provide a reasoned conclusion. Ensuring these assessments measure the intended outcomes helps maintain pedagogical integrity.

Define Clear and Measurable Learning Outcomes

1. **Identify the core knowledge, skills, and dispositions** students need to develop by the end of the course.
   - Use action verbs to specify observable outcomes (e.g., *analyze, create, evaluate*) rather than vague terms like *understand* or *know*.
   - Align outcomes with higher-order thinking skills if that is your goal (e.g., applying the Bloom's taxonomy).
2. **Ensure each learning outcome is suitable for online delivery.**
   - For instance, if you want students to *collaborate to solve a real-world problem*, confirm you can set up appropriate online collaborative environments (e.g., breakout rooms in synchronous sessions, group wikis, shared documents).

- **Example**
- **Outcome 1**: By the end of this course, students will be able to *analyze* and *critique* ethical issues in a given case study.
- **Outcome 2**: Students will be able to *apply* relevant communication theories to propose interventions in an online forum context.

The verbs in Bloom's Taxonomy



Bloom’s Taxonomy of cognitive learning

It classifies cognitive learning into levels, each building on the previous one. The version commonly used today includes:

1. Remembering Recall or recognize facts and basic concepts (e.g., list, identify, define).

2. Understanding Explain ideas or concepts in one’s own words (e.g., summarize, describe, classify).

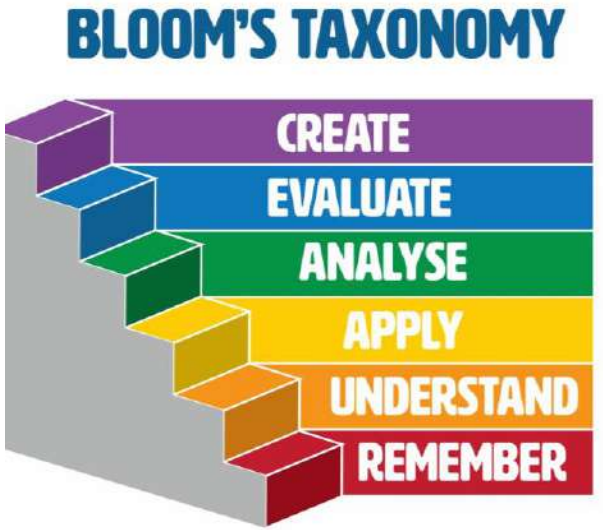
3. Applying Use information in new situations (e.g., demonstrate, solve, implement).

4. Analysing Draw connections among ideas; break down information (e.g., compare/contrast, organize, examine).

5. Evaluating Justify a stance or decision; assess the value or effectiveness of ideas or solutions (e.g., critique, judge, argue).

6. Creating Produce new or original work; synthesize existing ideas to form something innovative (e.g., design, construct, develop).

The verbs in Bloom’s Taxonomy



By Benjamin Bloom (1956) and later revised by Anderson & Krathwohl (2001).

Design Teaching and Learning Activities (TLAs) Aligned with Outcomes

With learning outcomes in place, the next step is to develop learning activities that directly support students in achieving those outcomes. In an online context, activities should be interactive, varied, and appropriately scaffolded.

1. **Select or create TLAs that prompt students to practice the intended skills** and knowledge.

   If an outcome emphasizes *analysis*, design activities requiring critical thinking (e.g., discussion forums, case study analyses, or problem-based tasks).

   For outcomes around *application*, use simulations, scenario-based tasks, or role-play in virtual environments.

2. **Use a mix of synchronous and asynchronous methods** to accommodate different learning styles and schedules:

   Synchronous: Live webinars, virtual classrooms, breakout group discussions.

   Asynchronous: Discussion boards, blogs, self-paced modules, pre-recorded mini-lectures.

3. **Incorporate collaborative tools** (e.g., Google Docs, wikis, Padlet boards) for group work and peer feedback, aligning with outcomes that stress communication or teamwork.

4. **Provide regular practice and feedback loops** so students can gauge their progress.

   Automated quizzes or knowledge checks aligned with each module.

   Peer review platforms or self-assessment rubrics.

examples

- For the learning outcome *“Analyze and critique ethical issues”*:

  Activity: Students watch a short recorded lecture on ethical frameworks, then apply these frameworks to a short case study in a discussion forum. They respond to peers’ critiques, refining their own analysis based on feedback.

- For the learning outcome *“Apply communication theories in an online setting”*:

  Activity: Students work in small groups to create a short online awareness campaign using a shared document. They must justify their choices based on the communication theories studied.

Instructor and Design Guidelines



edX Course Authoring Guide is an extensive documentation that covers how to use the **Open edX** platform, including setting up course structure, integrating problem types, and incorporating multimedia. It also provides insights into accessibility standards, which are central to edX's course design ethos.

Course Quality Checklist

- edX has historically provided checklists and rubrics to ensure **course quality** and **learner engagement**, focusing on:
  - Clear learning objectives at course and module levels
  - Scaffolded learning paths, with incremental skill-building activities
  - Multimedia content that is captioned, well-structured, and accompanied by transcripts for accessibility
  - Frequent formative assessments (problems, quizzes, discussion prompts) and opportunities for practice

Pedagogical Focus:

- edX places strong emphasis on **active learning principles**, encouraging the use of problem-based exercises, interactive simulations, and adaptive assessments.
- They also strongly promote **accessibility** and compliance with WCAG standards, reflecting a commitment to inclusive learning experiences.

https://edx.readthedocs.io/projects/edx-partner-course-staff/en/latest/



check the guidelines

Go to the EdX instructor guidelines and find the guidelines for video and diferent formative assessment types



Design activity – in pairs

- Draw your institution’s policy on MOOCs and Open Educational Resources
- For you MOOC to design:
  - Outline the Learning Outcomes
  - Describe teaching and Learning Activities that match Learning Outcomes – and engage the students through collaborative activities - use edX course authoring guide
  - Inlcude Assessment to meet the Learning Outcomes (Formative and Summative)

M3. Content Creation and Curation



M3 outline (60 min)

Topics:

- Identifying and organizing high-quality content
- Video lectures, reading materials, interactive simulations, and OER integration
- Intellectual Property Rights management
- Content Accessibility
- Balancing synchronous vs. asynchronous activities
- Examples from Greek open courses development projects

Activity:

- Hands-on workshop: Outlining a course unit’s multimedia strategy

Types of Content for MOOCs

We need to combine our own unique expertise with curated content that fills gaps or enriches our course narrative.

Original Content: Lectures, tutorials, screencasts, interactive activities created by the course team.

Curated Resources: Open Educational Resources (OER), scholarly articles, YouTube lectures, TED Talks, podcasts, and other third-party materials.

Other Materials: Infographics, quizzes, transcripts, case studies, real-world data sets, simulations.

Open Educational Resources (OERs)

Free-to-use teaching and learning materials under licenses that permit reuse, revision, and redistribution. It lowers costs for learners, encourages collaboration and adaptation, often peer-reviewed for quality.

Example Repositories: OER Commons, Merlot, Open Textbook Library

Evaluating Resource Quality

- **Relevance and Accuracy:** Does it align with course learning objectives and the latest research?
- **Credibility of Source:** Is the resource from a reputable institution, publisher, or expert?
- **Production Value & Engagement:** Is it clear, well-structured, visually appealing, and accessible to diverse learners?
- **Licensing and Permissions:** Check Creative Commons licenses (e.g., CC BY, CC BY-SA) to ensure legal use.

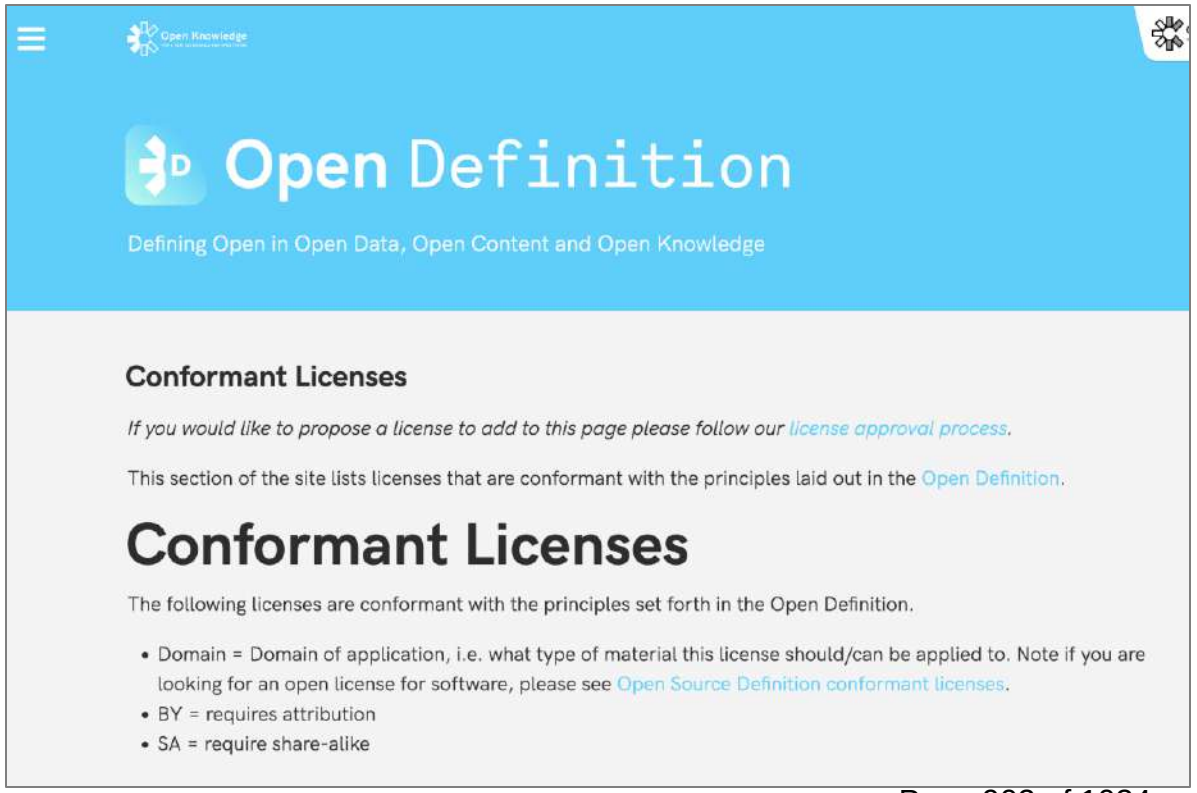


Attribution proper credit for external resources

Question: Make a list of OERs that have been used so far in this course.

why we need to know about open content

- how to use the content of others?
- how to distribute our own content (open courses)



https://opendefinition.org/licenses/

Original Content Creation – **Video Production**

Formats:

- Talking head videos for instructor presence
- Screencasts or “whiteboard” animations for demonstrating processes or problem-solving

Best Practices:

- Micro-lectures” of **6–10 minutes** to keep learners engaged
- Write clear scripts or outlines to ensure focus
- Incorporate captions or transcripts for accessibility
- Use visuals and animations judiciously to support learning (lower cognitive load)

Production Considerations:

- Equipment (camera, microphone, lighting)
- Editing software (Camtasia, Adobe Premiere, iMovie)
- Branding and consistent visuals (e.g., same color schemes, transitions)

Khan: Let us use video to re-invent education

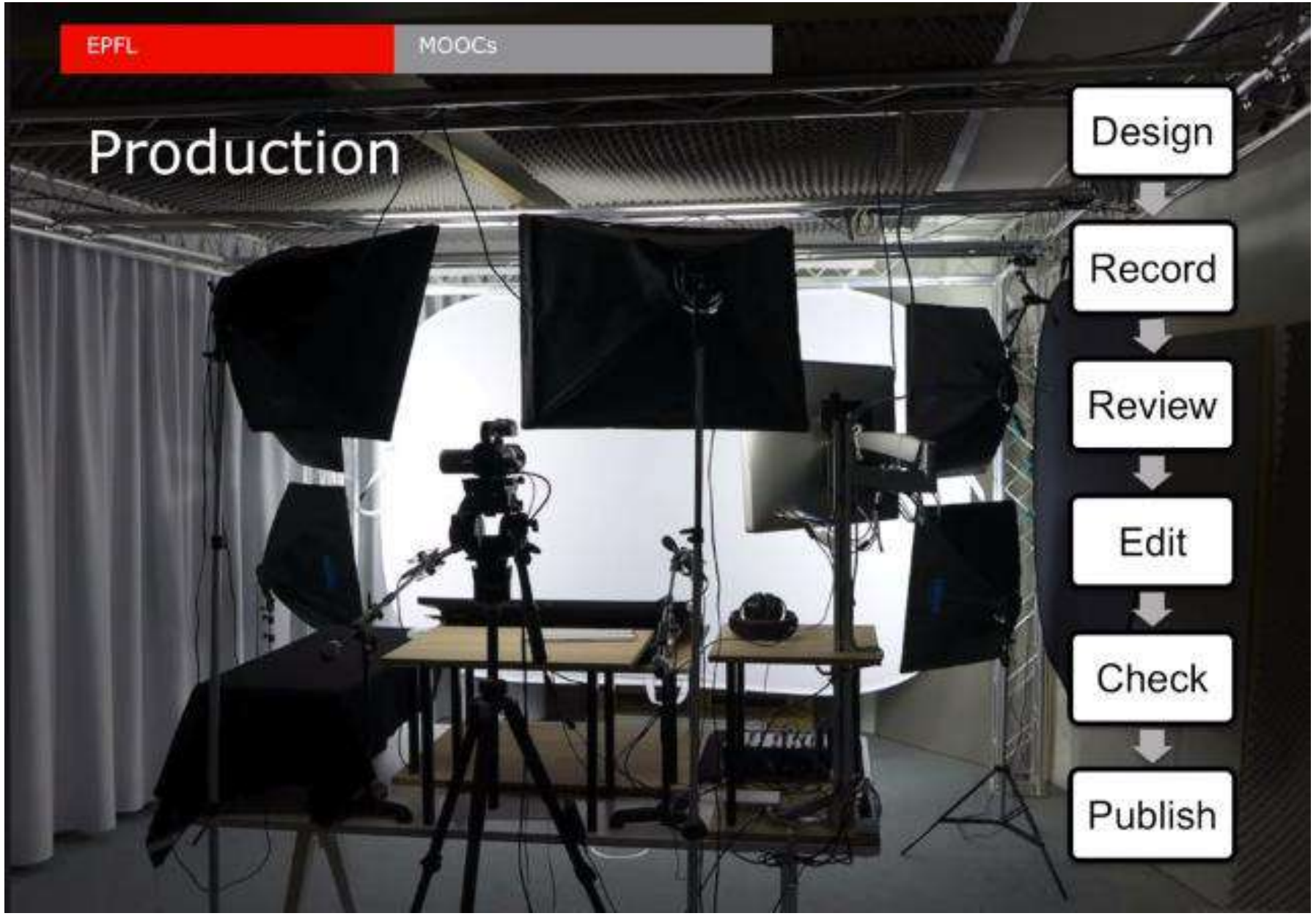


watch this 20’ talk at TEDx and make a short summary of the affordances of video



https://www.ted.com/talks/sal_khan_let_s_use_video_to_reinvent_education?subtitle=en

MOOC Production pipeline



20 MOOCs later: What have we learned? by Patrick Aebischer, President, École polytechnique fédérale de Lausanne (EPFL), Switzerland

Original Content Creation – **Audio/Podcast**

When to Use: Interviews with experts, “informal chat” discussions, or topics that lend themselves to storytelling.

Guidelines:

- Keep segments concise, use clear audio cues or music transitions
- Provide written summaries or transcripts for accessibility

Original Content Creation – **Simulations**

Examples:

- Simulated lab experiments for STEM fields (e.g., PhET Interactive Simulations)
- Scenario-based branching activities for business or social sciences

Engagement Tips:

- Tie simulations to real-world challenges or decision-making tasks
- Encourage reflective questions (e.g., “What would happen if…?”)

Original Content Creation – **Text**

Readings, Articles, Case Studies:

Provide multiple perspectives, real-world data, or deeper exploration.

Guidelines

- Keep text sections short and highlight key takeaways
- Use graphics, bullet points, and headings to improve readability
- Include discussion questions or reading guides

Accessibility and Inclusivity

Follow Guidelines of **Universal Design for Learning (UDL)**

- Provide multiple means of representation (video + text), expression (quizzes + projects), and engagement (discussions + interactive tools).

Guidelines:

- Captioning and transcripts for all audio/video
- Keyboard navigability, alternative text for images, color contrast considerations
- Clear instructions and consistent layout across all modules

UDL Guidelines



https://udlguidelines.cast.org/

Creative Commons (CC) Licenses

1. **CC BY (Attribution)** Allow use, sharing, and modification of the work (even commercially) if the creator is credited.



2. **CC BY-SA (Attribution – ShareAlike)** Allow use, sharing, and modification of the work (even commercially) if the creator is credited, and the new work is licenced under the same terms (ShareAlike).



3. **CC BY-ND (Attribution – NoDerivatives)** Allow use and sharing of the work (even commercially) if the creator is credited, but modifications are not allowed.



4. **CC BY-NC-SA** (Attribution – NonCommercial – ShareAlike) Allow use, sharing, and modification of the work for non-commercial purposes, if the creator is credited and the work is licensed under the same terms.



5. **CC BY-NC-ND (Attribution – NonCommercial – NoDerivatives)** Allow sharing the work only for non-commercial purposes, if the creator is credited and the work is not modified.





Structuring Content in Modules/Weeks

- Define clear learning objectives for each module.
- Organize content in a logical sequence: short lecture → reading material → activity/quiz → discussion prompt.
- Provide regular “checkpoints” so learners can assess comprehension and re-visit earlier topics if needed.
- Break large topics into smaller “chunks” or micro-lessons of 10–15 minutes.
- Encourage active breaks: short exercises, polls, or reflection questions after each segment.

Synchronous vs. Asynchronous Components

Synchronous

Live webinars, virtual office hours, or Q&A sessions. These foster direct interaction but require careful scheduling for a global audience.

Asynchronous

Discussion forums, recorded videos, peer review assignments, and self-paced activities. These provide flexibility, allowing learners to engage on their own schedules.

General Guidelines for content

Aligning Content with Learning Objectives

- Each piece of content should directly support learners in meeting a specific objective.
- Avoid content overload—select the most impactful resources that reinforce the key skills or knowledge.
- Vary the source of curated materials (academics, practitioners, global experts) to enrich the learning experience.
- Start with foundational knowledge, build complexity gradually.
- Offer optional advanced reading or “challenge” tasks for high-achieving or specialized learners.
- Provide additional resources for those who may need more time to grasp foundational concepts.

Different courses and instructional designs



examples of open courses development projects

open courses project: opencourses.gr

The Greek National initiative to develop open courses – inspired by OCW project (2012-15).

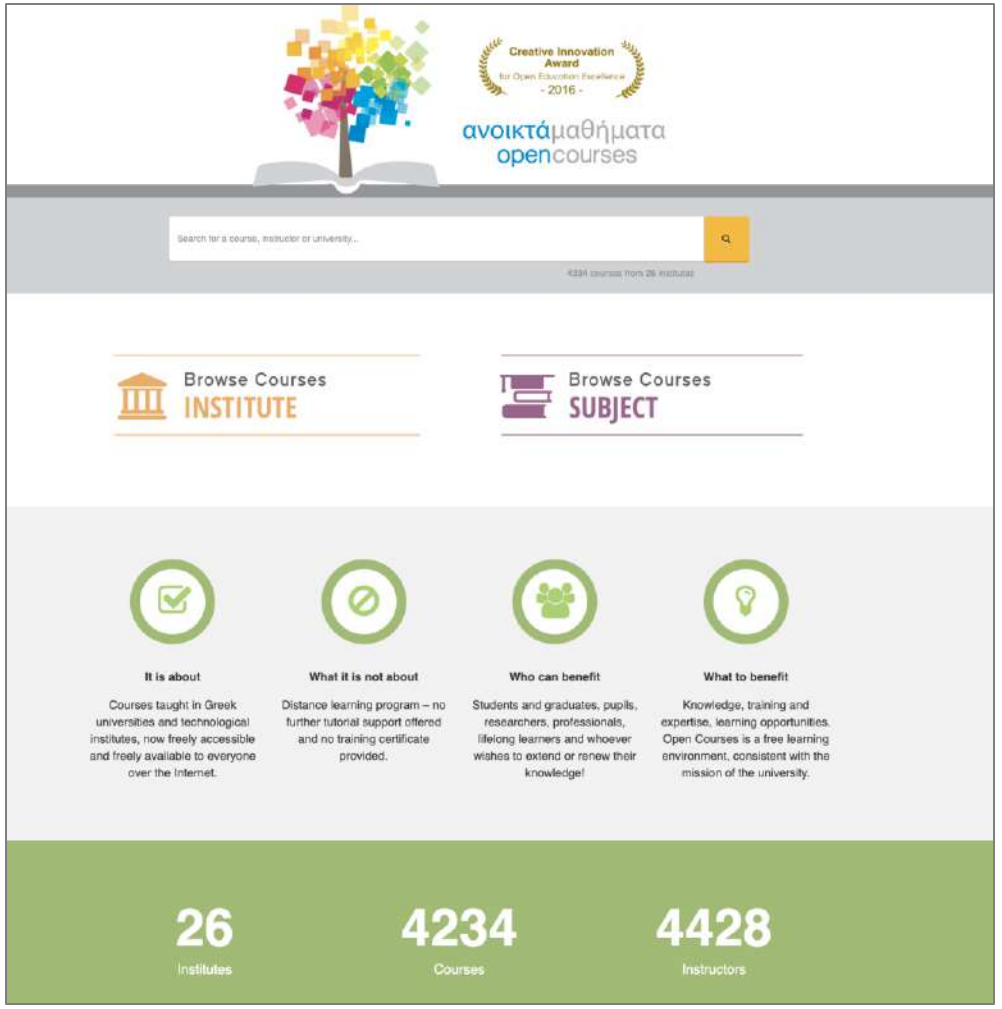
It was about

Courses taught in Greek universities and technological institutes, freely accessible and freely available to everyone over the Internet.

Who benefit

Students and graduates, pupils, researchers, professionals, lifelong learners and whoever wishes to extend or renew their knowledge!

Over 4000 courses from 26 Universities - in Greek



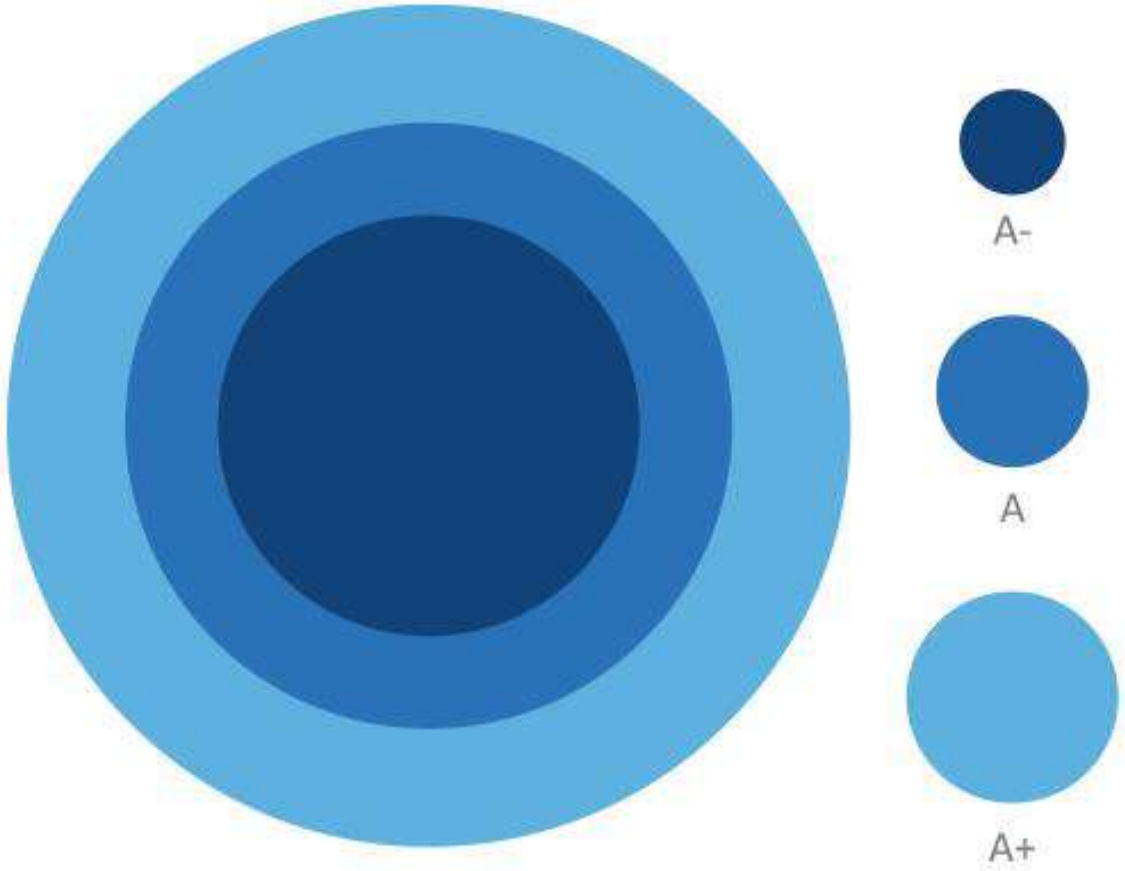
Opencourses.gr **Insentives**: **which of the following apply to you?**

1. **Increase your audience**: Open digital courses may broaden your audience, since you could also address to students at different institutes and faculties. ☑
2. **Promote your teaching work**: Open courses accessible over the Internet can enhance the promotion of both your teaching practice and your writings. ☑
3. **Improve your teaching**: Creating and updating open digital courses creates the conditions of the intellectual challenge to improve your teaching practice. ☑
4. **Upgrading your educational material**: The adaptation of the educational material for the digital environment offers the opportunity to upgrade and optimize the educational content - accessibility. ☑
5. **Open the knowledge**: Open digital courses create an open and free learning environment which is consistent with the mission of public universities. ☑
6. **Join the international movement**: The last decade the dynamics of open education in higher education is growing worldwide. What is the role of the academic teacher? ☑

https://project.opencourses.gr/en/instructors/why-to-contribute/

Greek Open Courses types, A+, A, A-

classification



specifications

A-
- Course description, aims and objectives
- Basic terms, keywords
- Content organized for linear progression via course modules
- Lecture notes, class slides
- References

A
- Narrated class slides

A+
- Self-assessment questions and exercises
- Online resources
- Video lectures (synchronized to class slides)

Minimum specification per course type

Specifications	A-	A	A+
Course objectives description	√	√	√
Keywords or basic terms	√	√	√
Teaching material organized in thematic units or groups of lectures	√	√	√
Objectives per chapter, unit or group	√	√	√
Keywords or basic terms per unit	√	√	√
Presentations, notes per unit or lecture	√	√	√
Bibliography	√	√	√
Self-assessment elements or exercises			
Use of digital library sources			√
Multimedia material::			
i) Video lectures			√
ii) Video lectures synchronized with slides			√
iii) Podcast and slides		√	

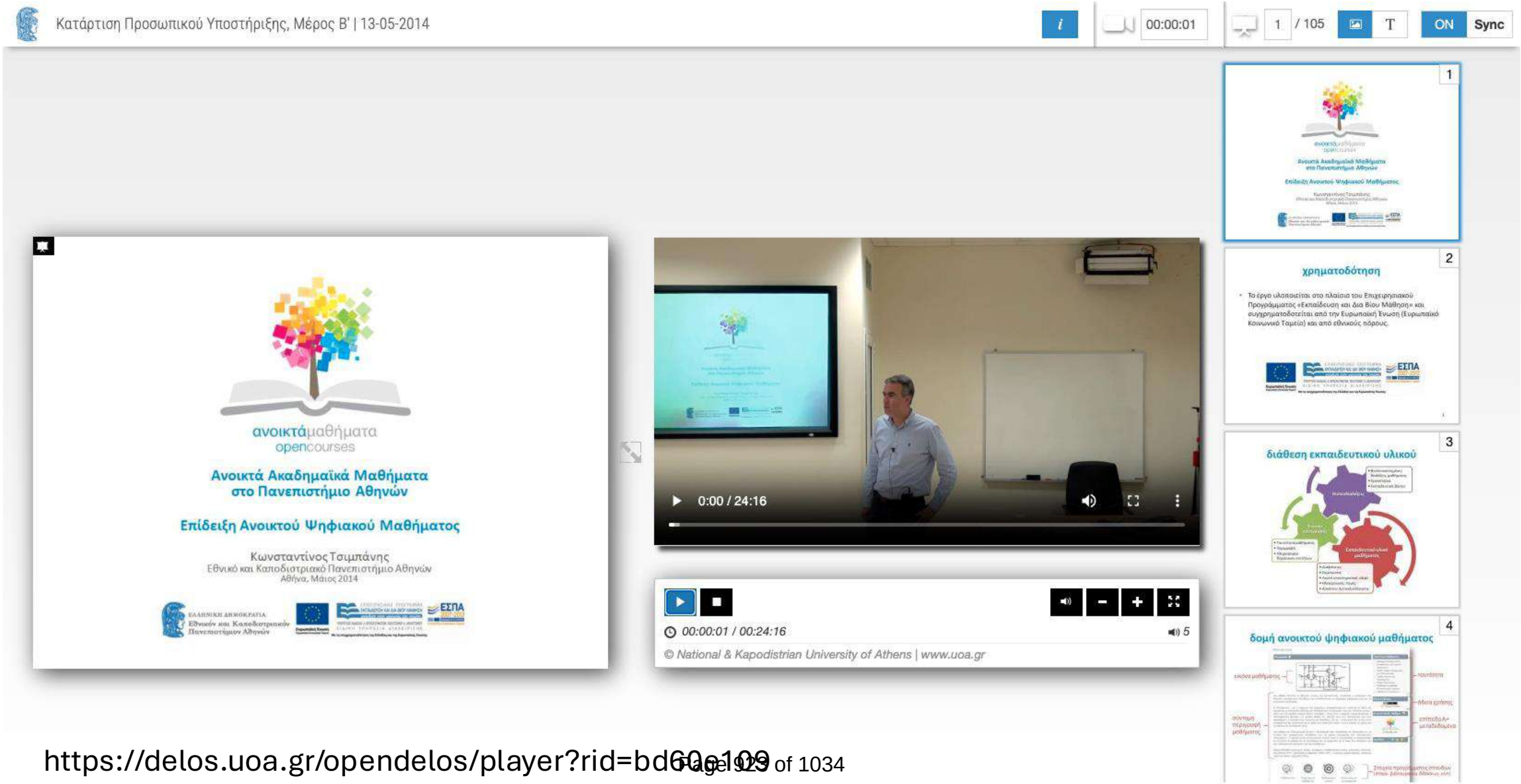
What can be the topic of an Open Course

- Every course that is part of an undergraduate or postgraduate Program of Study can become an Open Course.
- A typical course should cover either the entirety or a self-contained subset of the teaching material (e.g. 10 hours of teaching).
- It can also be a course that is not part of a Study Program—for example, a course introducing first-year students to the institution's academic culture and services, or a course aimed at prospective students that provides an overview and analysis of the Study Program.
- The course can cover the theoretical part or experimental part of a course, in the latter case, contain demos of the lab activity

Content creation and organization

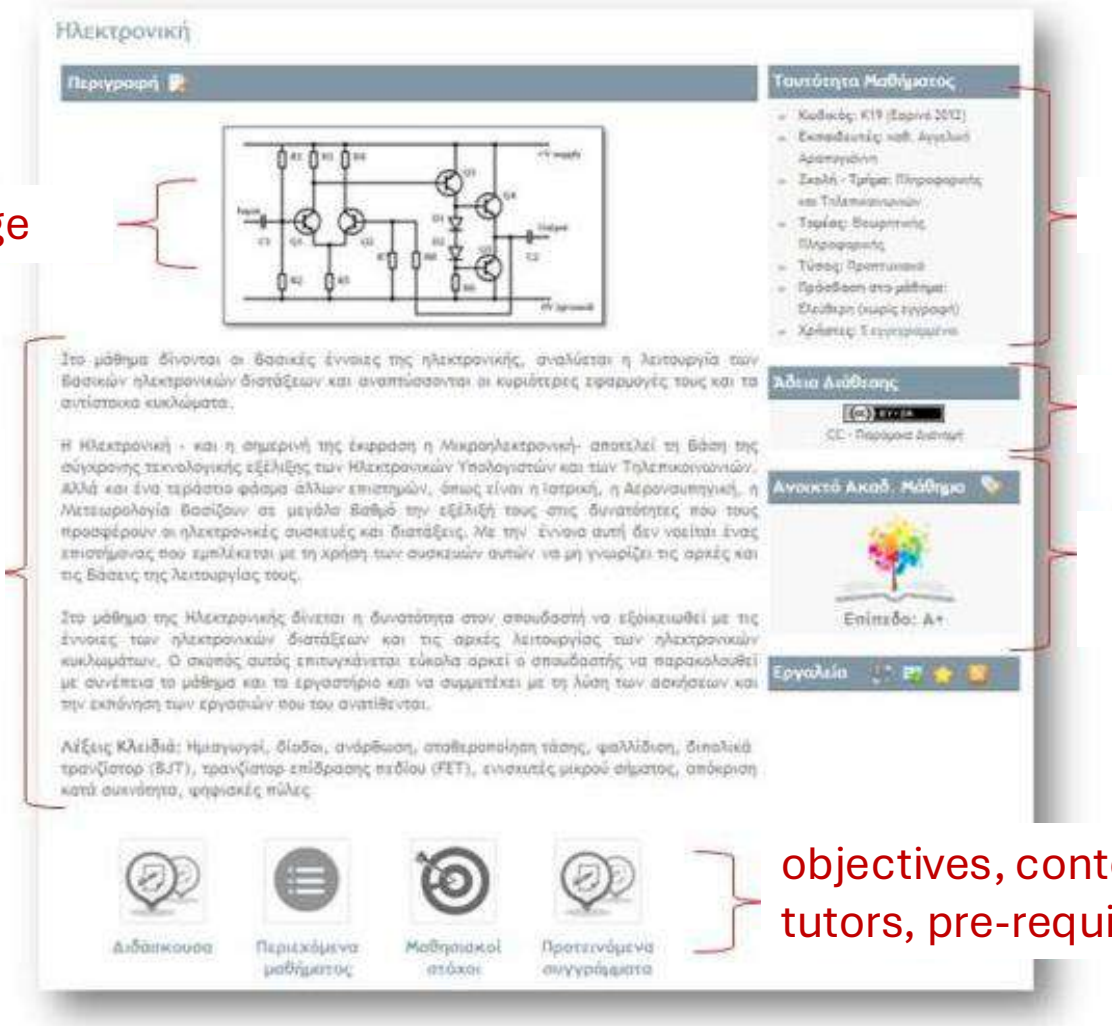
- The Open Course should be organized in units (modules)
- The teaching material should contain handouts, exercises (self-assessment and assignments), videos of lectures and podcasts (narration over slides or screens)
- Additional material like videos from laboratory courses (e.g., typical experiments), field studies and work, excavations, theatrical performances, surgery or medical procedures —anything that the instructor deems appropriate based on the subject matter—or simply recordings of lectures with or without an audience, often synchronized with slides if they are used.
- Video spec encoded using H.264/AAC in an MPEG4 container. It is recommended that the resolution be at least 720p.
- Each module should contain a detailed description of objectives, keywords or key terms, notes, slides, any additional supporting material, as well as bibliographic references or exercises.
- The self-assessment exercises are those supported by the courses' platform (open-Eclass), fill the gap, multiple choice,

Lecture theatre recordings



https://delos.uoa.gr/opendelos/player?rid=bd60e109

open course structure



course image

short course description

course identity

license

course type

objectives, content, references, tutors, pre-requisits

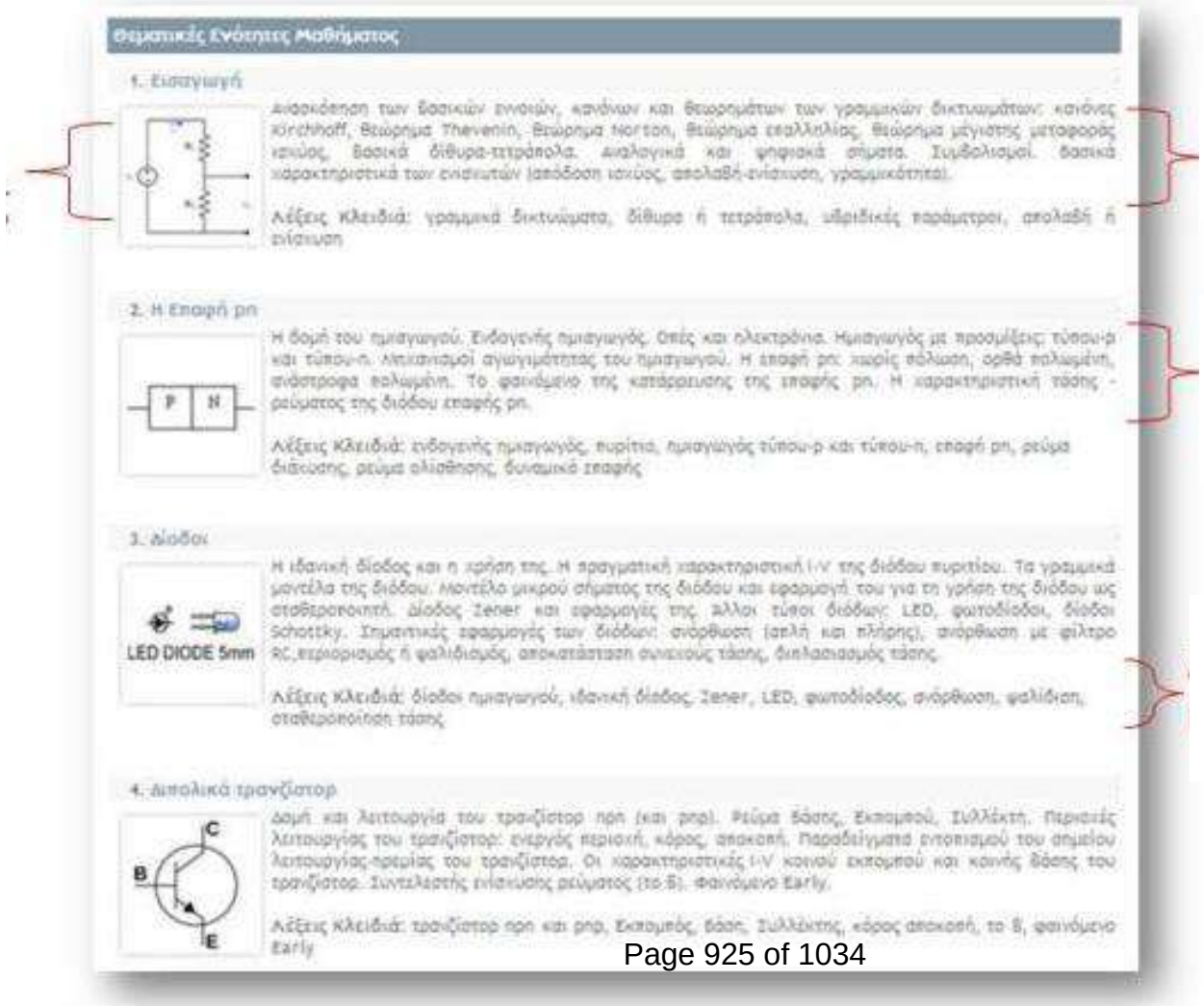
open course structure - modules

module image

module 2

module 3

module 4

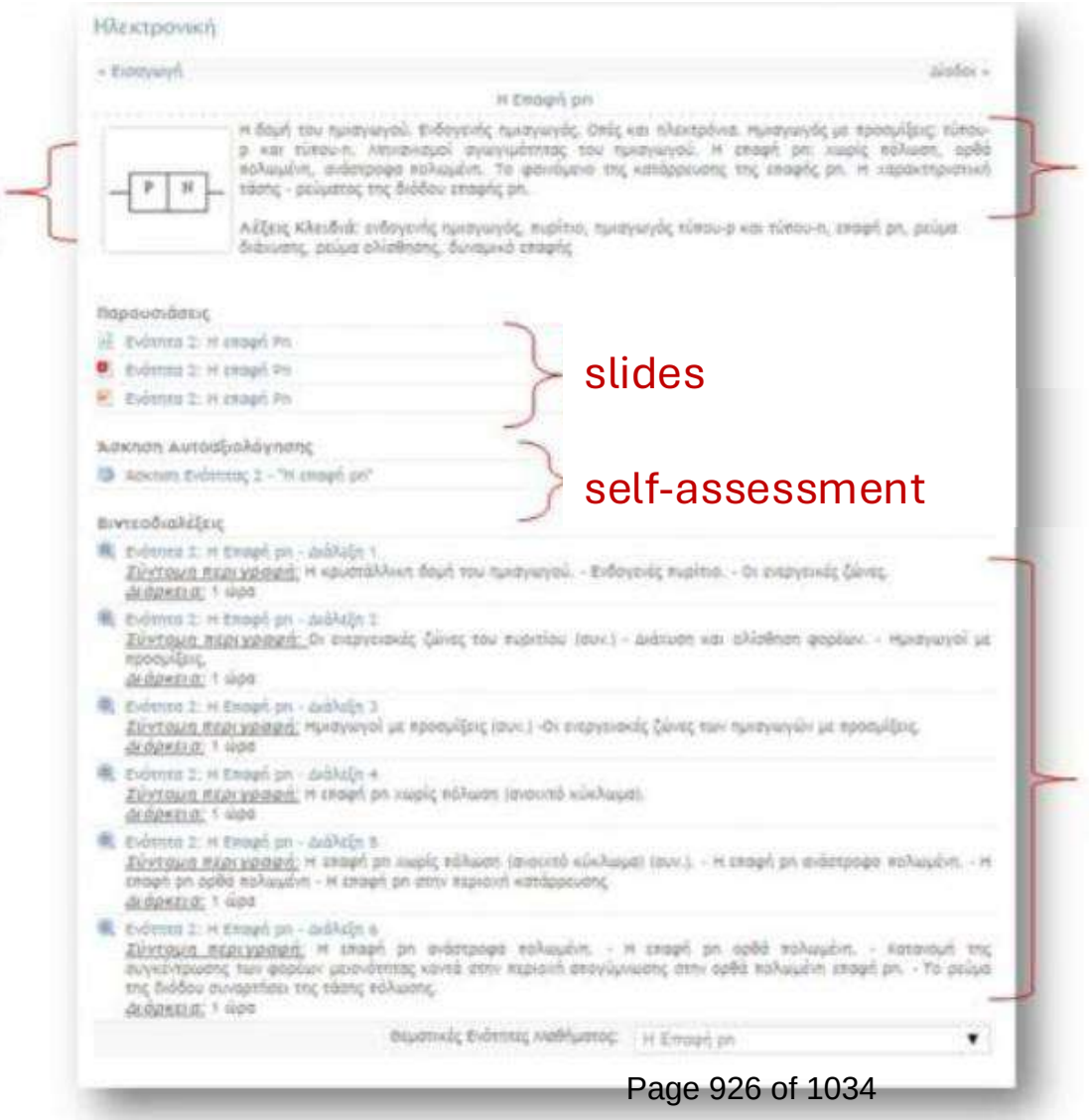


module description

keywords

open course – module structure

module image



module description

University of Patras Open Online Courses

(Funded Project 2012-2015)

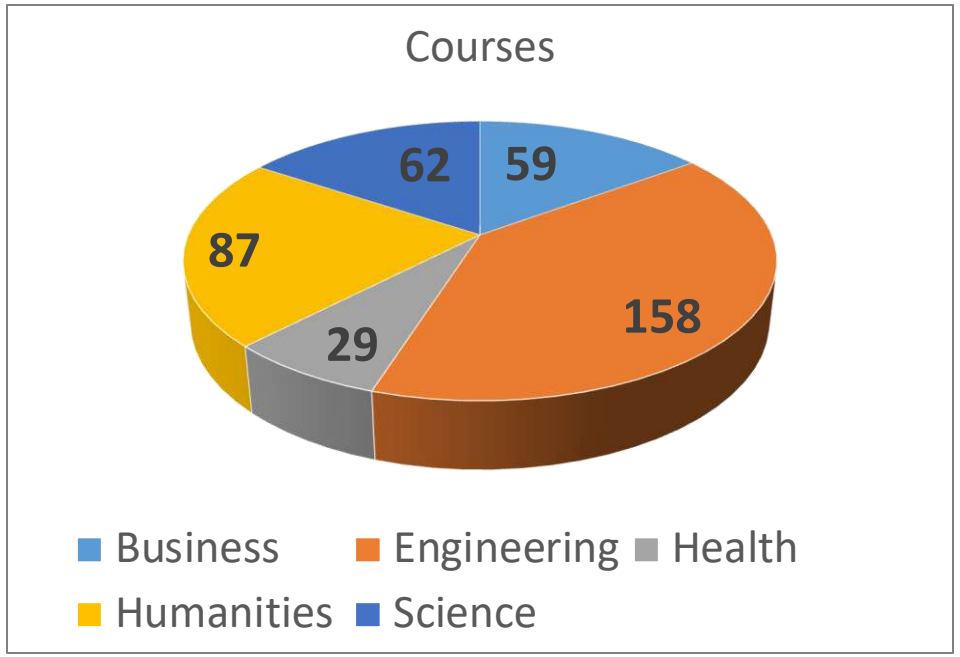
400 courses

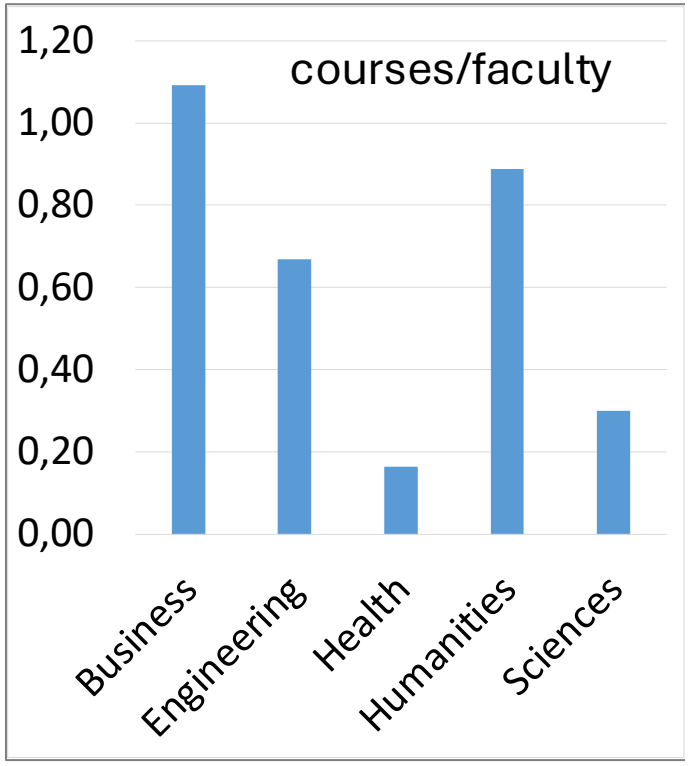
(20% of total)

2K Euro/course

(800K budget)







faculty views at the end of the project

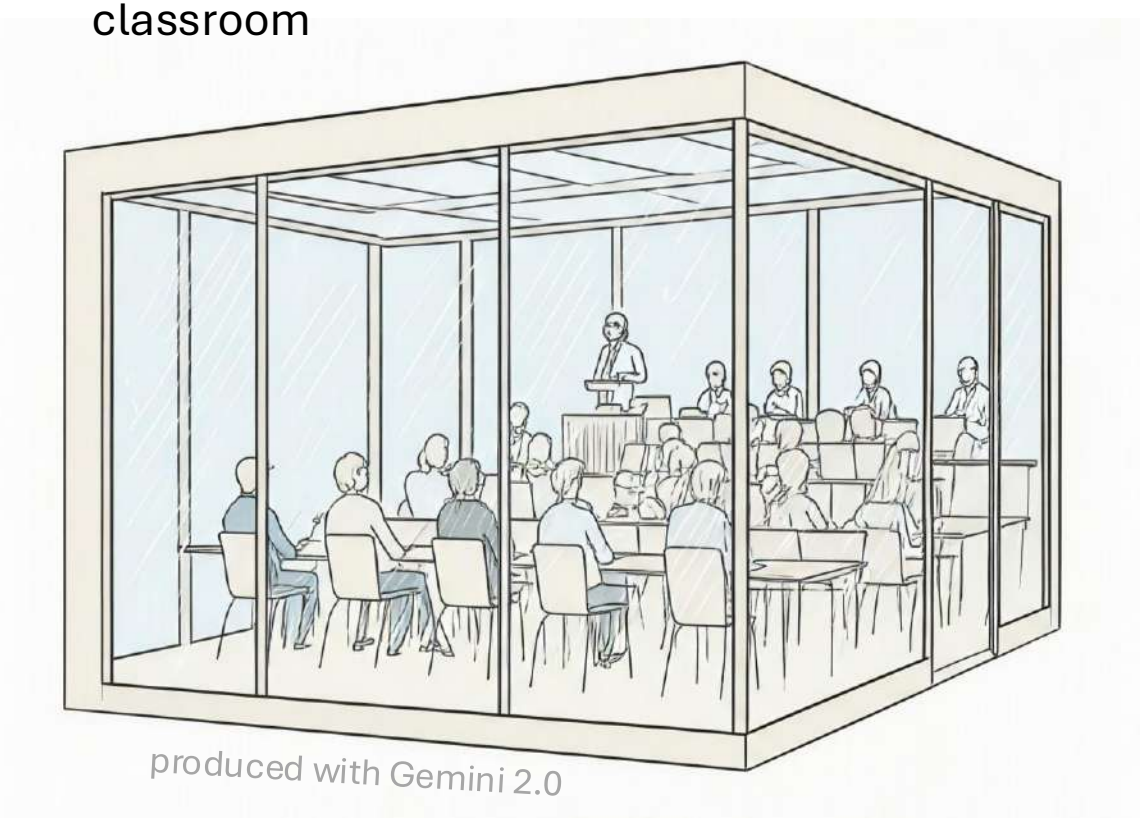
Motivation:

- Increase and improve course content
- Innovate teaching (flipped classroom)
- Good quality teaching, a good advertisement for the university and the course

Challenges:

- Sustainability of the content
- How to capture interaction in the class
- The video is different than face-to-face teaching

I felt that I was teaching in a transparent classroom

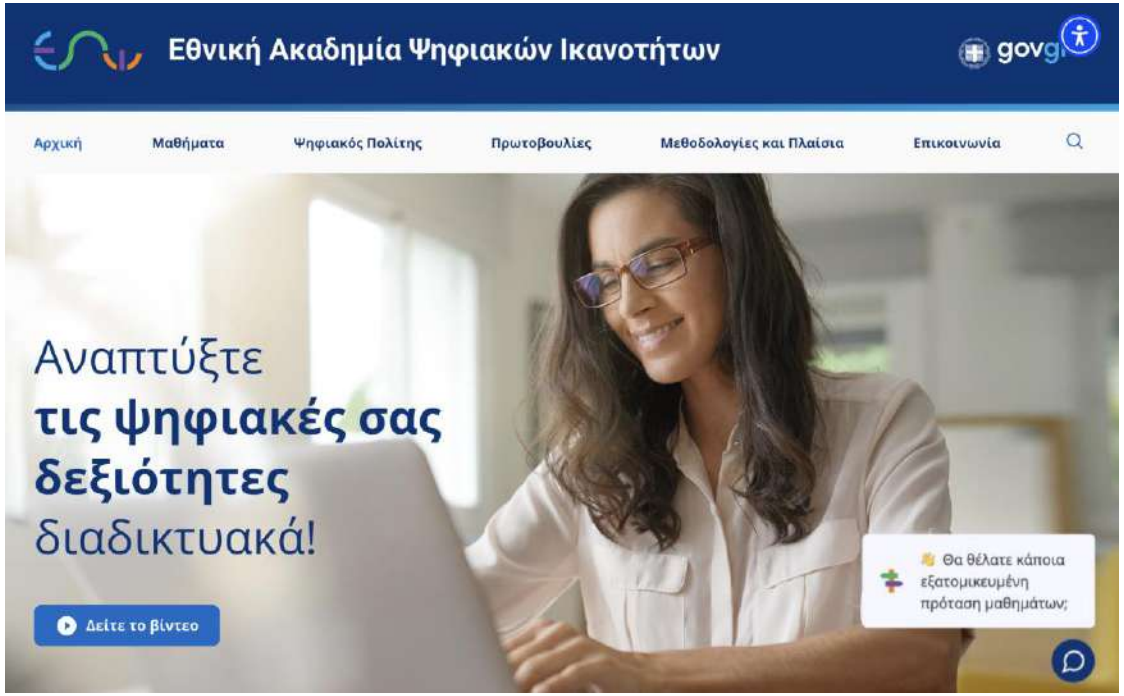


nationaldigitalacademy.gov.gr

Greek digital education platform aimed at helping citizens develop and strengthen their digital skills

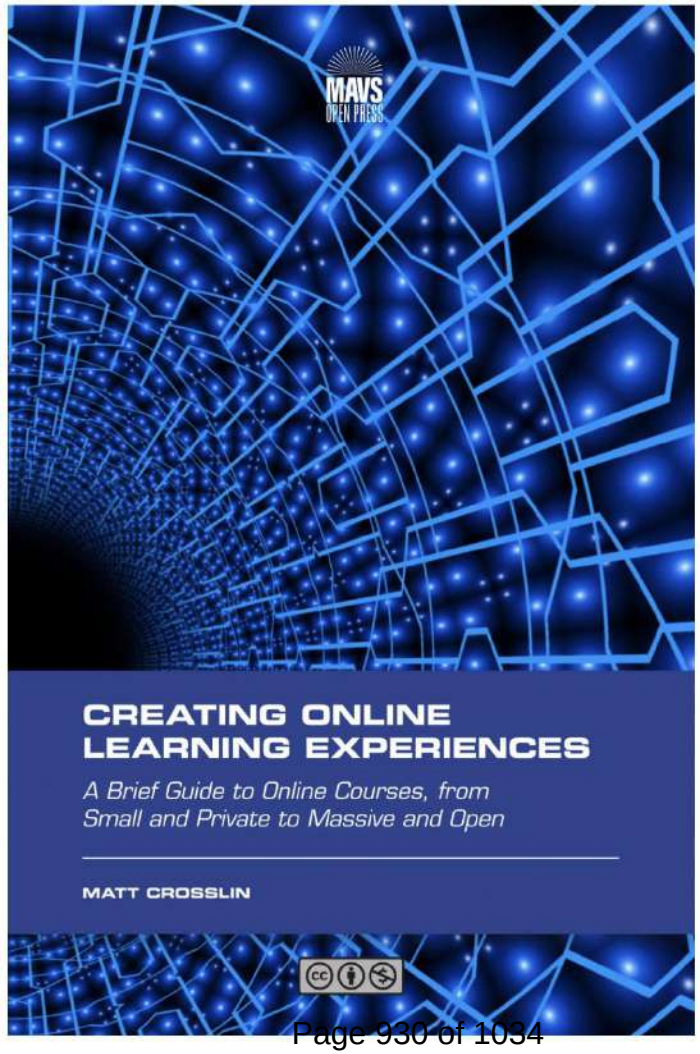
It is based on **DigComp 2.0** (the European Commission's *Digital Competence Framework for Citizens*) a framework that helps individuals, educators, and policymakers define clear learning objectives for digital literacy





further reading

“Creating Online Learning Experiences” by Matt Crosslin et al. – A practical guide on designing effective digital content (**CC BY-NC-SA)**



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activity in pairs (15’) : Design a MOOC module

Instructions:

1. Identify the **Module Objective**: E.g., “Learners will be able to conduct a basic data analysis using Python.”
2. **Choose Content** : Outline the types of content to introduce, reinforce, and allow practice of this skill (e.g., short video, interactive Jupyter Notebook, discussion prompt on data ethics).
3. **Curate at Least One External Resource**: Find an OER video or article on Python basics. Check the license and confirm how it can be integrated.
4. **Plan Sequencing**: Decide the order of the materials and how learners will transition from one piece to another.
5. **Share & Peer Review**: Small groups present their plans, receive feedback on clarity, alignment, accessibility, and engagement potential.

M4. Platforms and Tools



M4 outline (60 min)

Topics:

- Features of major MOOC platforms (edX Open edX, Coursera for Campus, Canvas Network)
- Integrations with LTI tools, analytics dashboards, and mobile-friendly designs
- Ensuring accessibility and compliance with standards (WCAG)

Activities:

- Demonstration of a leading MOOC platform, highlighting instructor dashboards and learner analytics

Available platforms to host a MOOC

- **Major MOOC Platforms**

  They provide access to a large audience, but we have to work within the constraints of a third-party platform. They provide a broad reach and visibility

- **Open-Source or Custom solutions**

  If we want full control over the course structure, branding, and intellectual property and have the resources to build a customized learning experience. They allow us to have full control.

Major MOOC Platforms

- **Coursera** (For universities & organizations) – Stanford et al. Best for high-quality, credentialed courses, but requires an institutional partnership.
- **edX** (Open edX for self-hosting) – Similar to Coursera, MIT, Harvard et al. supports professional certification and degree programs.
- **FutureLearn** – British Open University. Suitable for social learning and European audiences.
- **Udacity** – Best for tech-oriented courses, but mainly partners with companies.
- **Udemy** – Easy to publish and monetize courses, but limited interactivity.
- **Teachable** – Provides more control over branding and pricing.
- **Thinkific** – Similar to Teachable, with a strong focus on course creators.

main platforms





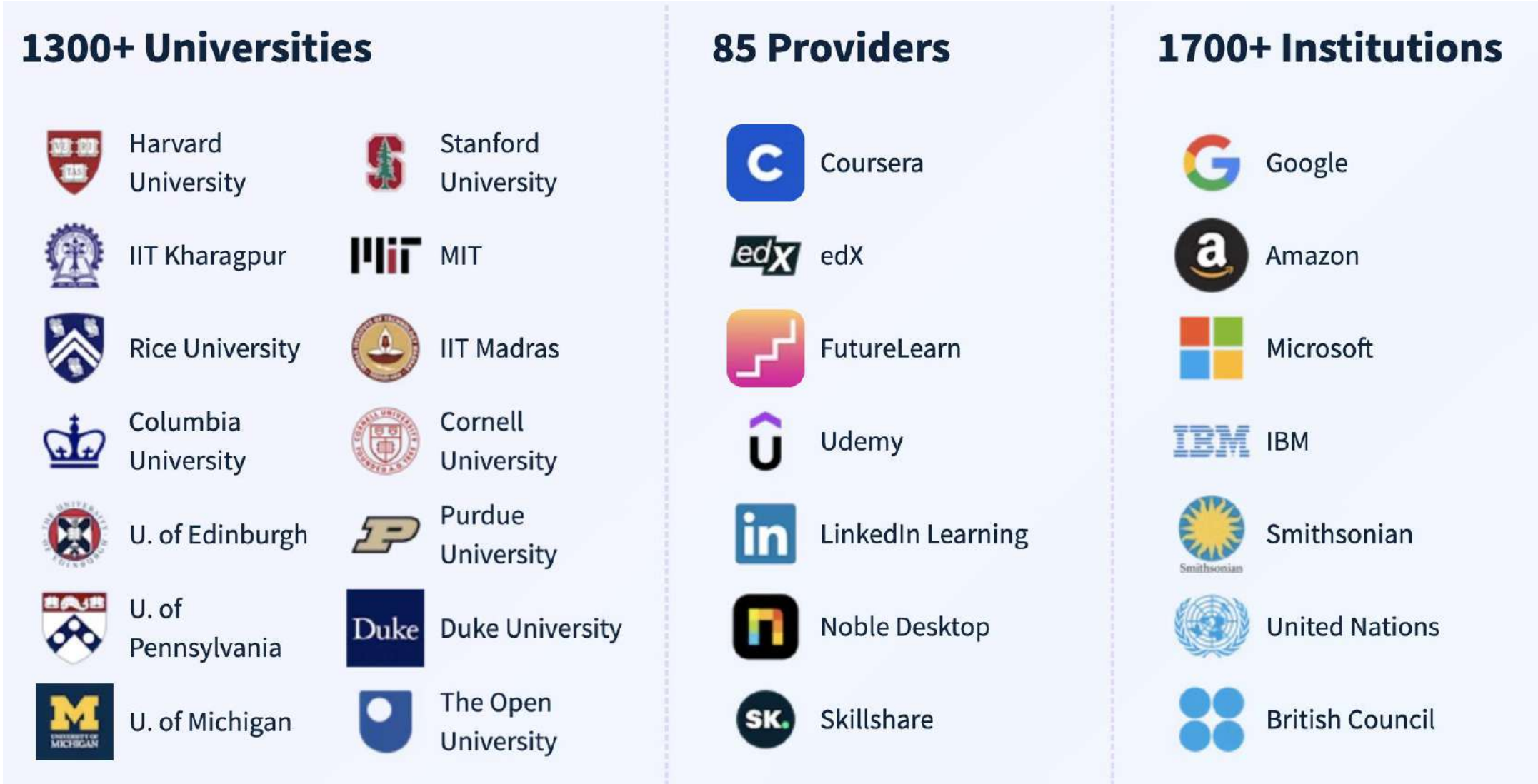








classcentral index



https://www.classcentral.com/

Slef-hosted & Custom MOOC Platforms

- **Open edX** – Powerful and customizable but requires technical expertise for hosting.
- **Moodle LMS**– Best for structured, formal courses, widely used in universities.
- **Canvas LMS** – Intuitive and widely used in academia, offers cloud-based and self-hosted options.
- **WordPress with LearnDash** – A customizable LMS plugin for WordPress.
- **Google Course Builder** – A lightweight open-source option.
- **TalentLMS** – A scalable LMS with good interactivity options.

Sandboxes for experimenting with MOOC development

- **Open edX**: Best if you want *real MOOC features* (self-paced vs. instructor-paced, large enrollment, advanced analytics) and you're comfortable setting up or using a hosted environment.
- **Moodle**: Good for smaller or more traditional courses but can still function for MOOCs; easy to set up a free trial on MoodleCloud.
- **Canvas**: Quick to get started, user-friendly, and has many advanced features. Usually more of a standard LMS approach but can be adapted for large enrollments.

Open edX



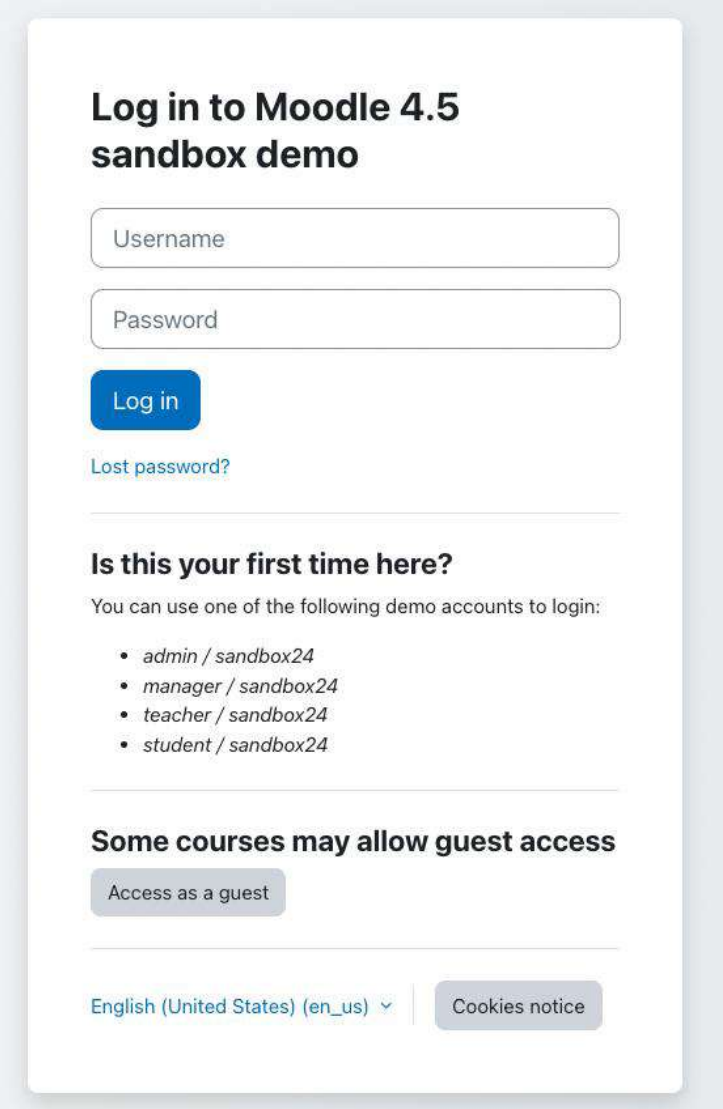
Difficulty:
- **High** (requires advanced system admin skills)

Requirements:
- Ubuntu 20.04+ (no Windows support)
- Python/Django, MySQL, MongoDB, and Elasticsearch
- Tutor (Docker-based deployment) simplifies setup

- **Pros**:
  - Extremely powerful and scalable
  - Supports micro-credentials, interactive learning tools
  - Highly customizable
- **Cons**:
  - Steep learning curve for setup and maintenance
  - Heavy system requirements (4+ cores, 16GB RAM minimum)
  - Keeping up with updates is challenging

https://apps.sandbox.openedx.org/

Moodle



Difficulty:
- **Easy to Moderate**

- **Requirements**:
  - Runs on **Linux, Windows, or macOS**
  - PHP, MySQL/MariaDB, Apache/Nginx
  - Can run on shared hosting, VPS, or dedicated servers
- **Pros**:
  - **Easier to install** than Open edX or Canvas
  - Large community and good documentation
  - Plugins available for added functionality
- **Cons**:
  - UI is not as modern as Canvas
  - Requires manual updates and security patches

https://sandbox.moodledemo.net/login/index.php

Comparison of alternative platforms

Platform	Difficulty for setup	Managed Hosting Availability	Proposed use
Open edX	High (Most Complex)	Yes (Open edX Hosting Services)	Large-scale MOOCs, research institutions
Moodle	Easy to Moderate	Yes (MoodleCloud, Hosting Providers)	Small to mid-sized courses, universities
Canvas LMS	Moderate to High	Yes (Canvas Cloud, Third-Party)	Universities, professional training

Content Creation and Authoring Tools

- **eLearning Authoring Tools:** Tools like Articulate Storyline, Adobe Captivate, H5P, and iSpring Suite that allow for the creation of interactive and multimedia-rich learning content.
- **Video Production Tools:** Tools like OBS Studio, Camtasia, and Kaltura for creating high-quality instructional videos and media content.
- **Simulation and Virtual Labs:** Technologies like Labster and PhET Interactive Simulations for creating virtual environments where learners can perform experiments and engage in simulations.
- **Open Content Repositories:** Platforms like MERLOT, OER Commons, and OpenStax provide access to open resources, which can be used in the creation of online educational content.

Interactive Authoring Tools

- **H5P:** Create interactive videos, quizzes, drag-and-drop activities.

https://h5p.org/ (free)

- **articulate 360 :** More advanced eLearning authoring for branching scenarios and simulations.

https://www.articulate.com/360/ (only 30 days free lisence)

Media Hosting and Streaming

There are various platforms like YouTube, Vimeo, and JW Player for hosting video content, as well as services like Panopto for lecture capture and streaming.

platform	Cost	Ads?	Privacy Controls	LMS Integration	Analytics	Best For
YouTube	Free	Yes (unless premium)	Limited	Basic	Basic	Open MOOCs, large audiences
Vimeo	Paid (from $7/month)	No	Strong	Good	Good	Private MOOCs, professional courses
JW Player	Paid ($10+/month)	No	Advanced	Advanced	Excellent	Universities needing full content control
Panopto	Institutional pricing	No	Strongest	Deep integration	Excellent	Lecture recording & video-based courses

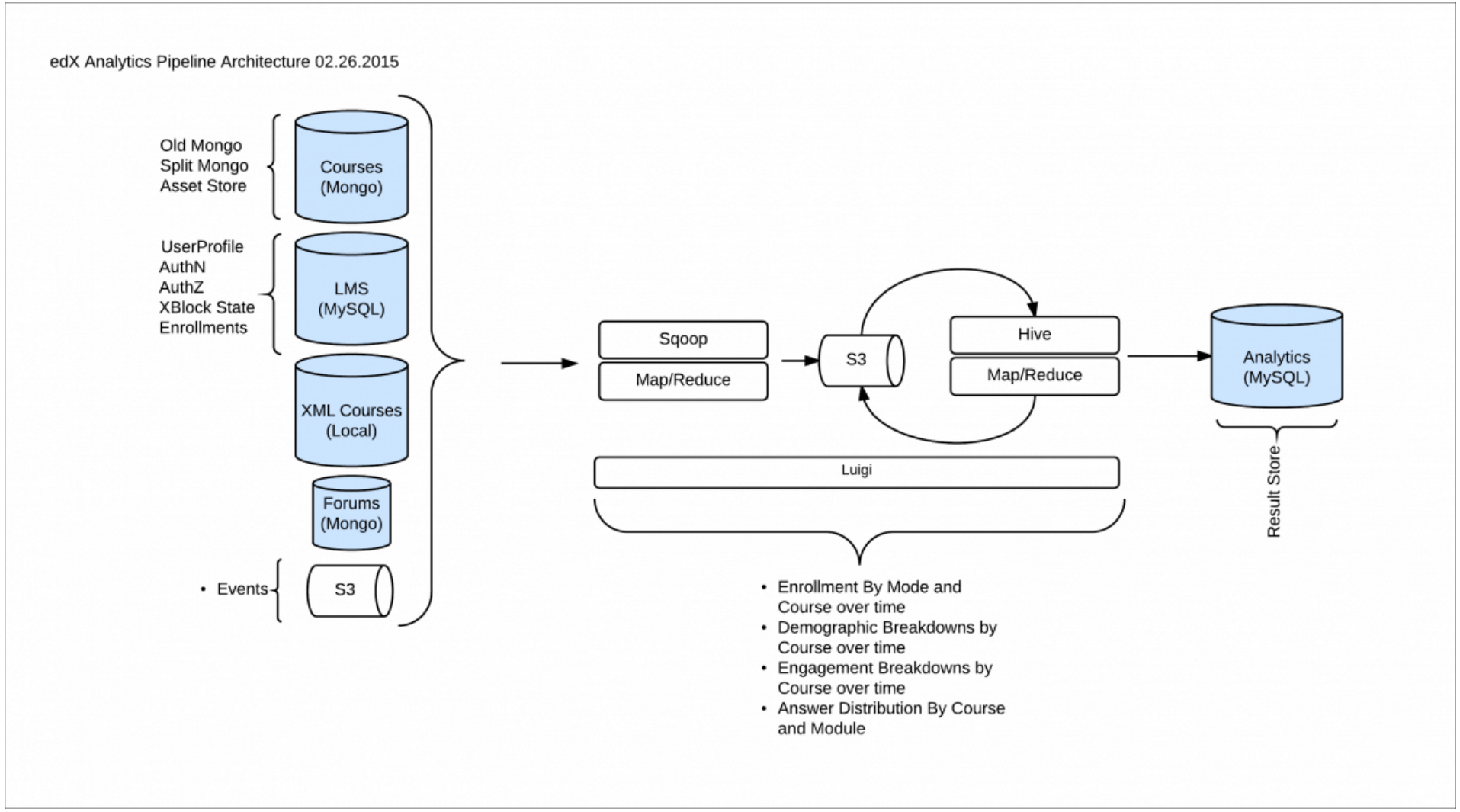
Collaboration and Communication Tools

- **Communication Platforms:** Services available: Zoom, Microsoft Teams, and Google Meet that support real-time communication and collaboration in educational settings.
- **Discussion Forums:** Platforms like Discourse or Moodle forums that allow asynchronous communication, discussions, and peer interactions.
- **Collaborative Workspaces:** Tools like Google Docs, Padlet, and Miro that support synchronous and asynchronous collaborative work on documents, mind maps, and other resources.

Data analytics and Reporting

- **Data-Driven Platforms:** Platforms such as Blackboard Analytics and Canvas Analytics provide insights into student performance and engagement, enabling instructors to track and adapt their teaching strategies.
- **Learning Record Stores (LRS):** Systems like xAPI (Experience API) enable the collection and analysis of learner data from multiple sources to improve learning outcomes.
- **Feedback Systems:** Integration of student feedback surveys, like those on Google Forms or SurveyMonkey, to gauge the effectiveness of the learning experience.

Open edX analytics architecture



https://edly.io/blog/open-edx-technology-stack/

Other elements to consider

- **Certification & Credentials.** Many platforms offer verified certificates or micro-credentials. Learners can add them to their résumés or LinkedIn profiles.
- **Automated Grading & Analytics.** Interactive exercises (e.g., programming assignments, multiple-choice quizzes) can be auto-graded. Analytics give instructors insight into learners' progress and engagement.
- **Gamification & Motivational Features.** Some MOOCs include badges, progress trackers, or challenges that gamify the learning process.
- **Accessibility & Inclusivity.** Providing captions, transcripts, and screen-reader compatibility ensures that content is accessible to a diverse audience.
- **Mobile Responsiveness.** Mobile-friendly platforms let learners access course material anytime, anywhere, catering to global participants.

Current trends and future directions

Microcredentials, Specializations, Nanodegrees:

Growth of “stackable” credentials that can lead to degrees.

Partnerships with universities and industry for recognized certificates.

Shift Toward Corporate Training and Continuing Education:

Enterprise offerings (Coursera for Business, edX for Business).

Pedagogical Innovations:

Use of adaptive learning technology, AI-driven feedback, simulations.

Monetization Models:

Freemium approaches vs. subscription-based vs. paywall after a free trial.

Quality Assurance and Accreditation:

Increased scrutiny of course rigor, learner outcomes, credit pathways.

Emerging Technologies

- **Artificial Intelligence (AI) in Education:** Tools that use AI to personalize learning, such as adaptive learning platforms (e.g., Knewton, Smart Sparrow) and AI-powered tutoring systems.
- **Virtual Reality (VR) and Augmented Reality (AR):** Use of VR and AR in creating immersive learning experiences for subjects like medicine, engineering, and the arts.
- **Blockchain in Education:** Exploring blockchain technologies for credentialing, certification, and secure record-keeping in education.
- **Microlearning and Mobile Learning Tools:** Mobile-friendly platforms like Duolingo or Quizlet that cater to learners on the go, enabling bite-sized learning.

examples of use of AI tools

Adaptive Learning via Xblocks Open edX has a modular XBlock system that allows custom extensions, including adaptive learning paths, as in Oppia XBlock that allows for branching course paths based on user performance.

Integration with AI-Powered Tutoring AI tutors such as ChatGPT-based plugins (currently community-driven), that can provide real-time feedback, personalized hints, and automated Q&A.

Open edX + Mastery-Based Learning (edX Adaptive Learning) using AI-driven algorithms to adjust difficulty levels dynamically. These models can be implemented in Open edX through custom grading policies and sequential unlocking of content.

Learning Analytics + Adaptive Content Tools like xAPI, Open Analytics, or Caliper Analytics can be integrated into Open edX to track engagement patterns and adapt content accordingly. AI-driven predictive analytics can suggest customized learning paths for students.

AI-Powered Assessment Tools Open edX supports AI-enhanced essay grading, code evaluation, and plagiarism detection via: Gradescope (for AI-assisted grading), Turnitin (for plagiarism detection), Codio (for automatic programming assignment grading)

Oppia Xblock

The **Oppia XBlock** is an extension for the Open edX platform that allows educators to embed interactive tutorials, known as "explorations," directly into their courses. These explorations simulate conversations with a virtual tutor, providing a dynamic and engaging learning experience for students. github.com

Key Features:

- **Interactive Learning:** Oppia explorations guide students through concepts by simulating a one-on-one tutoring experience, encouraging active participation and deeper understanding.
- **Seamless Integration:** Once installed, the Oppia XBlock can be added to course units, allowing instructors to incorporate interactive elements without leaving the Open edX environment.

Wrap-up of day #1 - discussion

- Group reflection on Day 1 topics
- Preview of Day 2 topics (engagement strategies, assessments, quality assurance, group activity)
- Participants write down three actionable steps they plan to implement next day

M5. Learner Engagement



M5 outline (60min)

Topics:

- Discussion forums, social learning features, and peer-to-peer interaction
- Gamification elements, badges, and leaderboards to motivate learners
- Encouraging inclusivity and participation across diverse learner populations

Activities:

- Group brainstorming: Designing a discussion prompt and moderation strategy
- Case study analysis of a MOOC with high learner engagement rates

Overview

This **Learner Engagement** and Community Building module focuses on fostering an environment where students feel motivated, supported, and connected, especially in online or blended learning contexts.

This module emphasizes the importance of designing courses that promote active participation, collaboration, and a sense of belonging. c

Engagement Strategies for Online Learning

- **Active Learning Techniques:**
  - **Interactive Discussions:** Encourage active participation through forums, threaded discussions, and group activities.
  - **Collaborative Group Work:** Assign group projects or collaborative tasks where learners must work together to solve problems or create content.
  - **Peer Learning and Peer Feedback:** Promote peer-to-peer interactions where students can teach each other, review each other's work, and provide constructive feedback.
- **Gamification:**
  - Introduce elements like leaderboards, achievement badges, and rewards to make learning more engaging. Platforms like Kahoot!, Quizizz, and Classcraft can be used for incorporating gamification into online courses.
- **Microlearning:** Break down content into smaller, manageable units that can be completed in short bursts, keeping learners engaged without overwhelming them.
- **Real-World Connections:** Incorporate real-world problems and case studies into the curriculum to show the practical application of concepts.

Creating a Supportive Online Community

- **Instructor Presence and Communication:**
  - **Regular Updates and Announcements:** Keeping students informed about course progress and upcoming assignments, which helps students stay on track.
  - **Active Instructor Participation:** Engage with students in discussion forums, respond to questions promptly, and actively participate in activities, showing students that their contributions are valued.
- **Icebreaker Activities:** Use introductory activities to allow students to get to know each other and feel comfortable engaging with one another.
  - Examples include personal introductions, shared interests or experiences, and fun, non-academic quizzes.
- **Discussion Forums and Peer Interactions:** Set up structured discussion topics to allow students to exchange ideas and perspectives. Tools like Moodle, Piazza, and Slack can facilitate ongoing conversations.
- **Student-Moderated Groups:** Allow students to moderate or lead certain discussions, giving them ownership of the community and allowing for deeper engagement.
- **Social Media and External Platforms:** Encourage informal interactions through social media groups (Facebook, LinkedIn) or Slack channels. These platforms can create a sense of camaraderie and ease of communication.

Supporting Student Motivation

- **Intrinsic vs. Extrinsic Motivation:** Understand the difference between intrinsic motivation (inner drive to learn) and extrinsic motivation (external rewards like grades or recognition) and design strategies that tap into both types.
- **Autonomy and Choice:** Give students more control over their learning paths and the types of assignments they choose to complete. Providing options for project topics, assessment methods, and learning materials can enhance motivation.
- **Recognition and Rewards:** Offer recognition through certificates, badges, or praise in class announcements. Celebrating achievements motivates students and boosts self-esteem.
- **Setting Clear Learning Goals:** Help students understand the objectives and purpose of the course from the beginning and establish clear, attainable goals that motivate continuous progress.
- **Providing Timely and Constructive Feedback**: Ensure that feedback is given promptly and is constructive, helping students to understand how they can improve and grow.

Assessment and Feedback for Engagement

- **Formative Assessment:** Instead of only using summative assessments (final exams), incorporate formative assessments throughout the course, such as quizzes, polls, or short essays. These encourage ongoing engagement.
- **Peer Review and Feedback:** Implement systems for peer review, where students can evaluate and provide feedback on each other's work. This can enhance critical thinking and foster a sense of community.
- **Self-Assessment:** Encourage learners to reflect on their learning by using self-assessment tools, journals, or learning logs. This can boost intrinsic motivation and self-directed learning.

Tools for Engagement and Community Building

- **Discussion Forums and Blogs**: Platforms like Moodle, Piazza, and WordPress can be used to set up discussion boards, blogs, or wikis for collaborative learning and sharing of resources.
- **Social Media and Group Chats**: Tools like Facebook Groups, Slack, or Discord are excellent for creating informal, peer-led communities where students can interact freely.
- **Collaborative Tools**: Google Docs, Trello, and Miro enable students to co-create content, manage projects, and brainstorm collaboratively.

Evaluating Engagement and Community Building Efforts

- **Surveys and Feedback**: Use tools like Google Forms, SurveyMonkey, or internal course evaluation systems to collect feedback on how students perceive the sense of community and engagement in the course.
- **Analytics and Tracking**: Many learning management systems (LMS) offer engagement analytics that track how often students participate in discussions, complete assignments, and access course materials. This data can help assess engagement levels and identify areas for improvement.

MOOC forum design issues

The paper by Ntourmas et al. (2019) investigates the impact of forum design on the effectiveness of Teaching Assistants (TAs) in supporting learners in Massive Open Online Courses (MOOCs). The study was conducted on two MOOCs delivered through the OpenEdX platform and employed a mixed-methods approach, including a participatory ethnographic study and formal usability evaluation.

The findings indicate that the OpenEdX forum design has several issues that **hinder TAs' ability to effectively support learners**. These issues include problems with navigation, information overload, and the lack of clear guidelines for TAs. The study suggests that these design flaws negatively affect the learning experience of students by making it difficult for TAs to provide timely and relevant support.

The research highlights the importance of addressing these design issues to improve the effectiveness of MOOC forums. By doing so, it is expected that TAs can provide more efficient support, which in turn can enhance the overall learning experience for MOOC participants

Ntourmas et al. (2019) Evaluation of a Massive Online Course Forum: Design Issues and Their Impact on Learners' Support

MOOC forum design issues

Instructor Influence: Other studies have explored how instructor interventions in discussion forums can impact learner participation. For instance, high levels of instructor activity may lead to shorter dialogues, potentially reducing student engagement34.

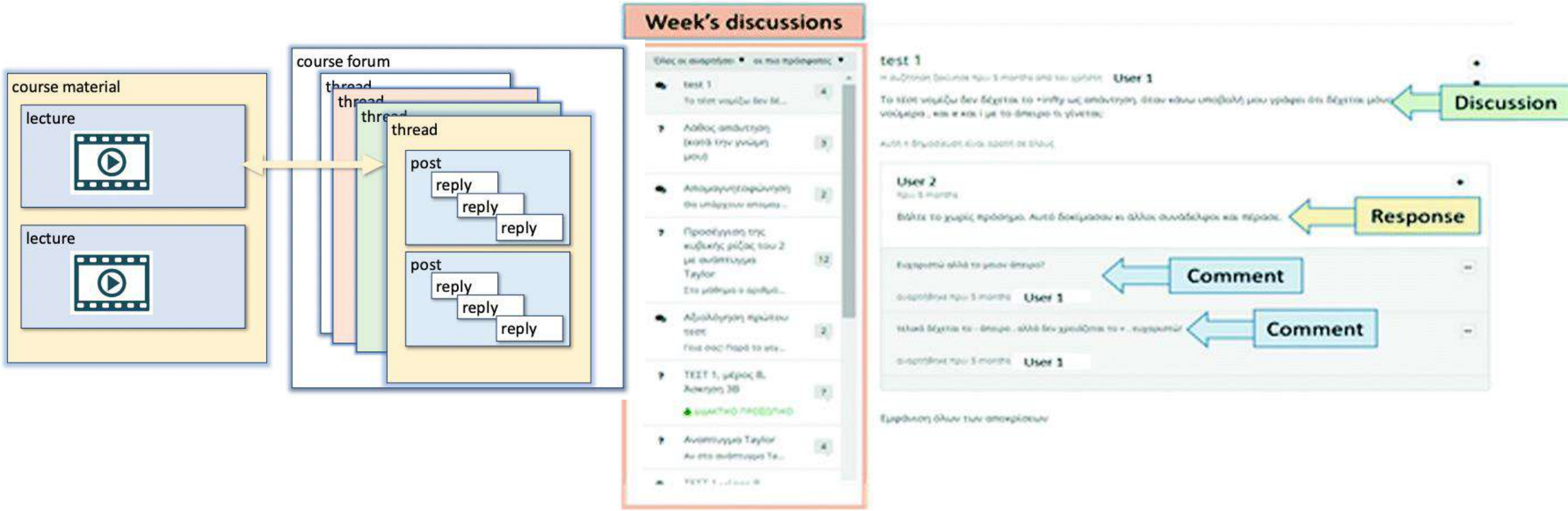
Forum Usage Patterns: Research has shown that forum usage tends to decline over the duration of a course, but active participation is correlated with better course performance. Engagement in both content-based and non-content-based discussions contributes positively to learning outcomes56.

Emotional Sentiment Analysis: Some studies have investigated how the emotional tone of posts in forums relates to learner retention. Positive engagement is often associated with higher completion rates, while negative sentiments can correlate with dropouts56.

Usability Issues: Previous research has highlighted that poorly designed forums can lead to decreased learner engagement, emphasizing the need for effective organization and usability features in online learning environments

Neha and Kim (2023), Designing effective discussion forum in MOOCs: insights from learner perspectives

MOOC forum design issues



Ntourmas et al. (2019) Evaluation of a Massive Online Course Forum: Design Issues and Their Impact on Learners' Support

MOOC forum user analysis

The paper "Untangling chaos in discussion forums: A temporal analysis of topic-relevant forum posts in MOOCs" by Yang et al. (2022) explores how learners engage meaningfully in discussion forums within MOOCs by analyzing participation patterns over time. The key findings include:

- **Classification of Topic-Relevant Posts**: The study successfully classified topic-relevant forum posts in MOOCs using latent semantic analysis and machine learning algorithms. This classification helps in distinguishing relevant posts from irrelevant ones, addressing the issue of information overload in MOOC forums.

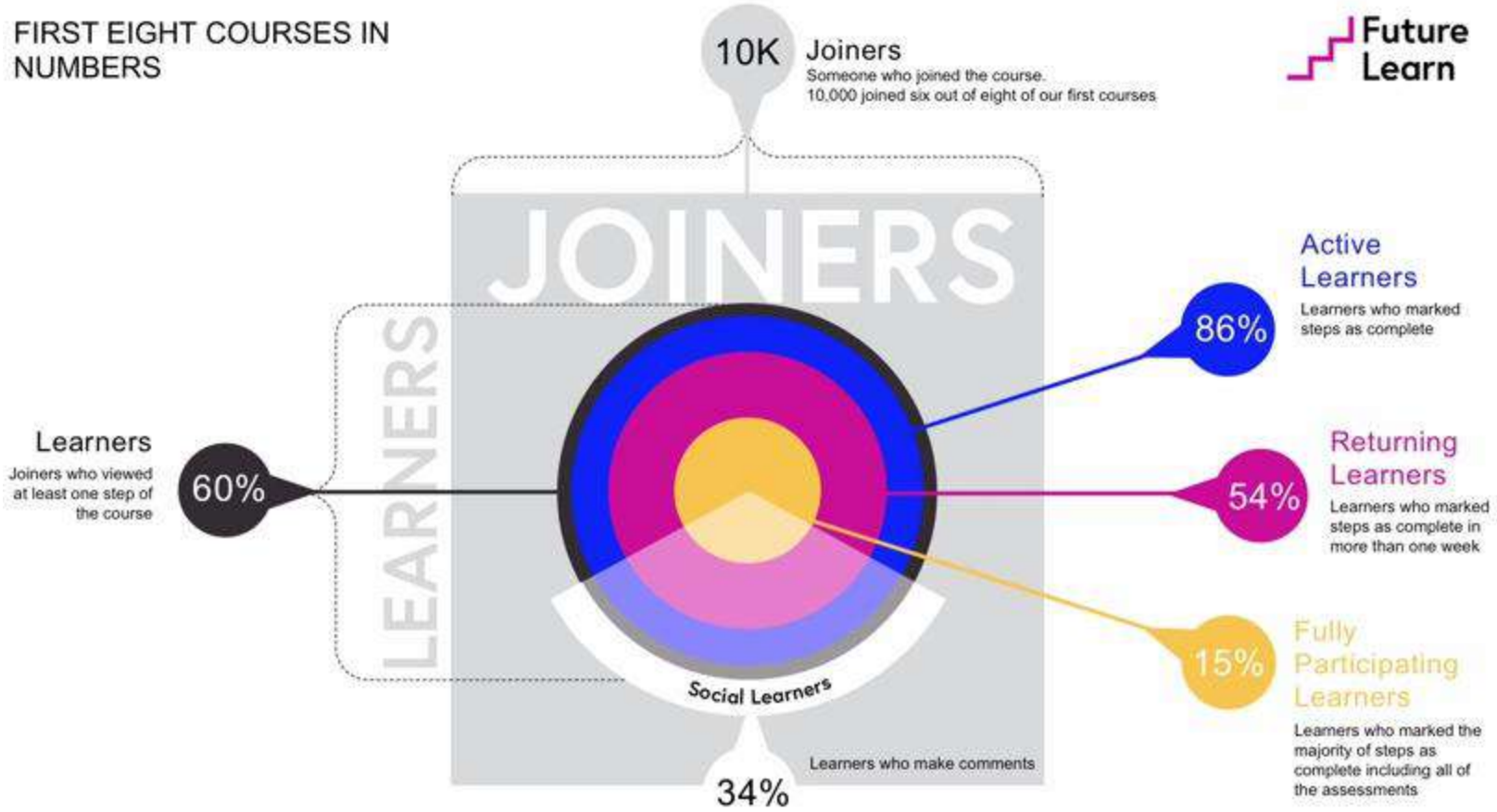
- **Identification of Learner Clusters**: Five distinct clusters of learners with different longitudinal profiles of topic-relevant forum posting were identified. These clusters represent different patterns of engagement over time, providing insights into how learners interact with the forum content.

- **Temporal Dimension of Participation**: The research confirmed the importance of the temporal dimension of learners' meaningful forum participation in MOOCs. It showed that the longitudinal trajectory of online meaningful participation is associated with learner performance, highlighting the significance of timing and consistency in forum engagement.

- **Implications for Effective Forum Discussions**: The findings suggest that understanding and leveraging the temporal patterns of forum participation can enhance the effectiveness of forum discussions and support learner performance in MOOCs. This can inform strategies for better facilitating and managing online discussions to improve learning outcomes.

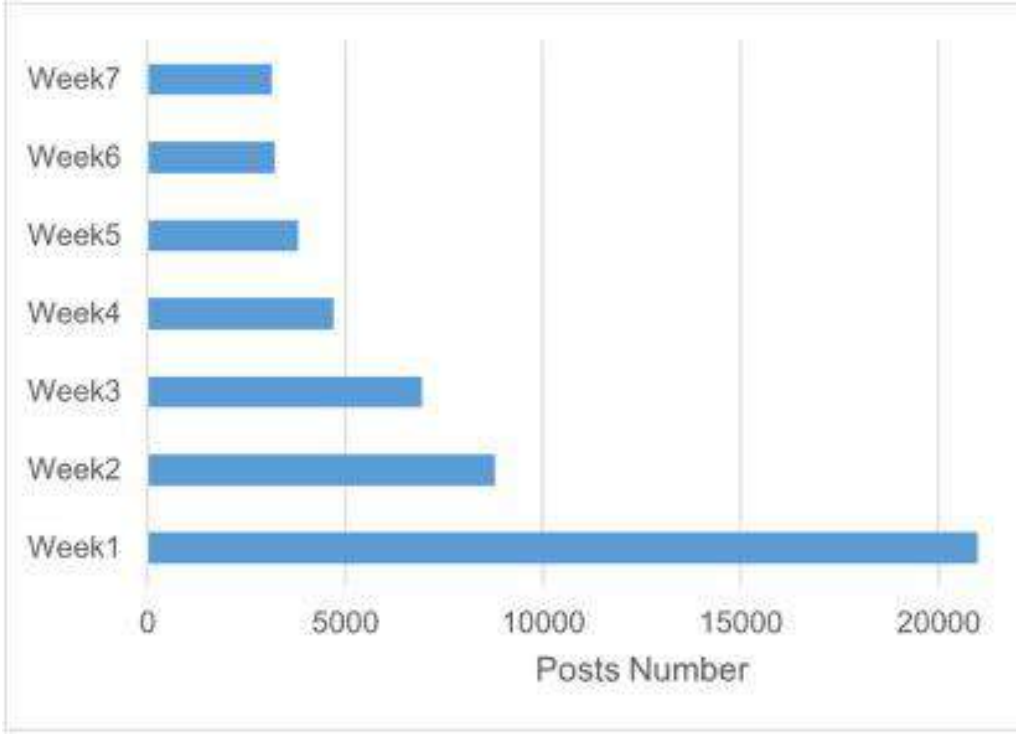
Untangling chaos in discussion forums: A temporal analysis of topic-relevant forum posts in MOOCs" by Yang et al. (2022)

Actual participation
(from the first 8 FutureLearn MOOCs)



Temporal participation: Learner Types

- **Light Learners** (43%). They posted lightly during the seven weeks
- **Transient Learners** (36%) activity only the first week
- **Heavy starter learners** (7%) Maintained activity during the first and less the next two weeks
- **Moderate persistent learners** (6%) High level of participation in the entire course
- **Entropic learners** (6%) due to the pattern of initial higher energy state of posting gradually dissipating to a low energy state



Yang et al. (2022) Untangling chaos in discussion forums: A temporal analysis of topic-relevant forum posts in MOOCs"

Badging and Gamification

- Engagement can be achieved by using gamification techniques such as awarding badges, points, or achievements for completing assessments or mastering skills.
- This approach provides extrinsic motivation, encourages friendly competition, and can incentivize continued participation and progress in the course.
- A challenge involves potential for overemphasis on extrinsic rewards, which may undermine intrinsic motivation for learning.
- **Examples:**
  - **Achievement Badges:** Learners earn badges for completing certain tasks, achieving specific learning milestones, or participating in specific activities.
  - **Leaderboards:** Tracking and showcasing top performers in activities such as quizzes, assignments, or discussions.

Forum Gamification: an example Badge System Parameters

User action in Forum	Points
Start new discussion	20
Provide new answer	10
Look at new answer	8
Gain ‘like’ in their post	5
Get new view in their discussion	1
Their answer was declared as ‘correct answer.’	10



Bronze badge (**low** participation) in level **2**

Silver badge (**medium** participation) in level **5**

Gold medal (**high** participation) in level **15**

Helper badge by giving 10 **right** answers

Forum Gamification: findings

- Regarding the academic performance of the users, it was found that the forum increased the user's academic performance in the assignments, as the users had the forum to support them more than their lab work, for which there was no forum support.
- This can be seen from the paired t-test about the users who participated in both activities, especially for the experimental group.
- The lurkers in the forum benefit academically, in line with the studies of (Alzahrani, 2017) and (Brunton et al., 2022).

M6. Assessment Strategies



M6 outline (60min)

Topics:

- Formative vs. summative assessments
- Quizzes, peer assessments, auto-graded assignments, and project-based evaluations
- Strategies for maintaining academic integrity

Activities:

- Hands-on activity: Designing a sample assessment plan for one MOOC unit
- Peer feedback session: Reviewing each other’s assessment approaches

The role of Assessment in education

1. Evaluating Learning Progress (Formative and Summative)
2. Guiding Instruction and Adjusting Teaching Strategies
3. Student Motivation and accountability
4. Certification and Validation of Competencies

1. Evaluating Learning Progress

Positive Aspects

- Formative assessments (e.g., quizzes, assignments) give students and instructors timely insights into how well students are understanding the material. The immediate feedback helps students identify their weak areas and address them before the final exam.
- Summative assessments (e.g., final exams, end-of-course projects) provide a broad snapshot of students' overall learning. They allow instructors to see whether the primary learning objectives have been met.

Negative Aspects

- When students place too much emphasis on summative assessments, they may view exams solely as a final hurdle, neglecting the continuous learning process.
- Ineffectively designed assessments may not accurately reflect a student's level of understanding, leading to unreliable measures of progress.

2. Guiding Instruction and Adjusting Teaching

Positive Effect:
Assessments offer valuable information about students' understanding of the material. When a large number of students struggle with a particular concept or question, instructors can adjust their teaching approach to focus more on that topic, which ultimately boosts the overall effectiveness of their instruction.

Negative Effect:
Relying too heavily on assessment data can lead to "teaching to the test," where educators concentrate only on likely exam topics, rather than fostering a richer, more comprehensive understanding of the subject. Moreover, excessive or unnecessary assessments can detract from the learning experience and create undue stress for students.

3. Promoting Student Motivation

Positive Effect:

Assessments, especially exams, encourage students to stay current with the material and study regularly, which supports better time management and self-discipline. By knowing their understanding will be tested, students are more likely to fully engage with the course content.

Negative Effect:

When students become overly focused on grades, they may prioritize performance over genuine learning, resorting to surface-level study or memorization rather than deep exploration of the subject. In addition, high-stakes assessments (e.g., final exams) can lead to test anxiety, which may hamper both performance and effective learning.

4. Certification and Validation of Competency

Positive Effect:

Assessment outcomes act as a formal confirmation of students' skills and knowledge, providing the evidence needed for academic advancement, job applications, or further education. This external validation is often crucial in showcasing a student's readiness for professional roles or higher-level studies.

Negative Effect:

Poorly designed assessments may not accurately capture true capabilities, leading to certifications that offer an unreliable picture of a student's competence. Furthermore, some students might "game" the system by focusing on test-specific strategies (e.g., memorization) instead of truly mastering the material, undermining the value of the certification.

Summative: Measuring Learning Outcomes

- Helps determine whether learning objectives have been met.
- Provides clear benchmarks for student performance.
- Can be used for certification and progression to further education or career opportunities.
- May lead to teaching to the test rather than fostering deep understanding.
- Can create stress and anxiety, potentially hindering learning.
- One-time exams might not accurately reflect a student's abilities or progress.

https://www.coursera.org/learn/assessment-higher-education/discussions/forums/vh0zocCeEeeYBA47k-OCuA/threads/2fTA5tAoEe-1nBId42gAHQ

Usefulness of Assessment (U)

U = Reliability * Validity * Education Effect * Acceptance * Cost effectiveness

R = reliability

- The assessment will always give the same results to different groups of students with same characteristics
- Depends on Length of exam, number of questions, transparency, clarity of language, clarity of expectations of both students and teachers

V = Validity

- Does the test measure what we want to measure?
- Does the test alignes with the learning objectives and measures in what degree these objectives have been reached.

E = Education effect (Learning)

- Does the assessment stimulates students to learn?
- Does it help students to start timely?
- Does it provide valuable feedback?
- Does it provide information on how to improve next time (feed forward)?
- Does it provide information on to achieve high level learning outcomes (feed up)?

A = Acceptability

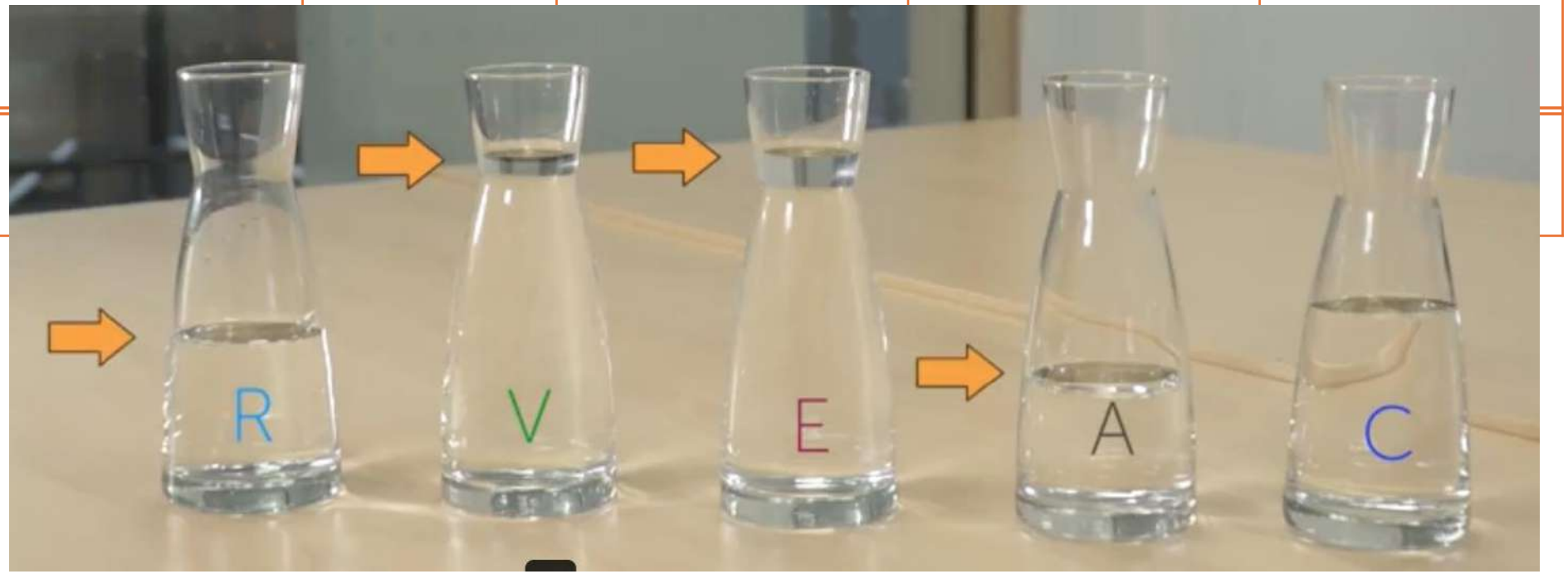
- It should be accepted by all stakeholders (students, teachers, management)
- Any new method introduced should require previous committment

C = Cost Efficiency

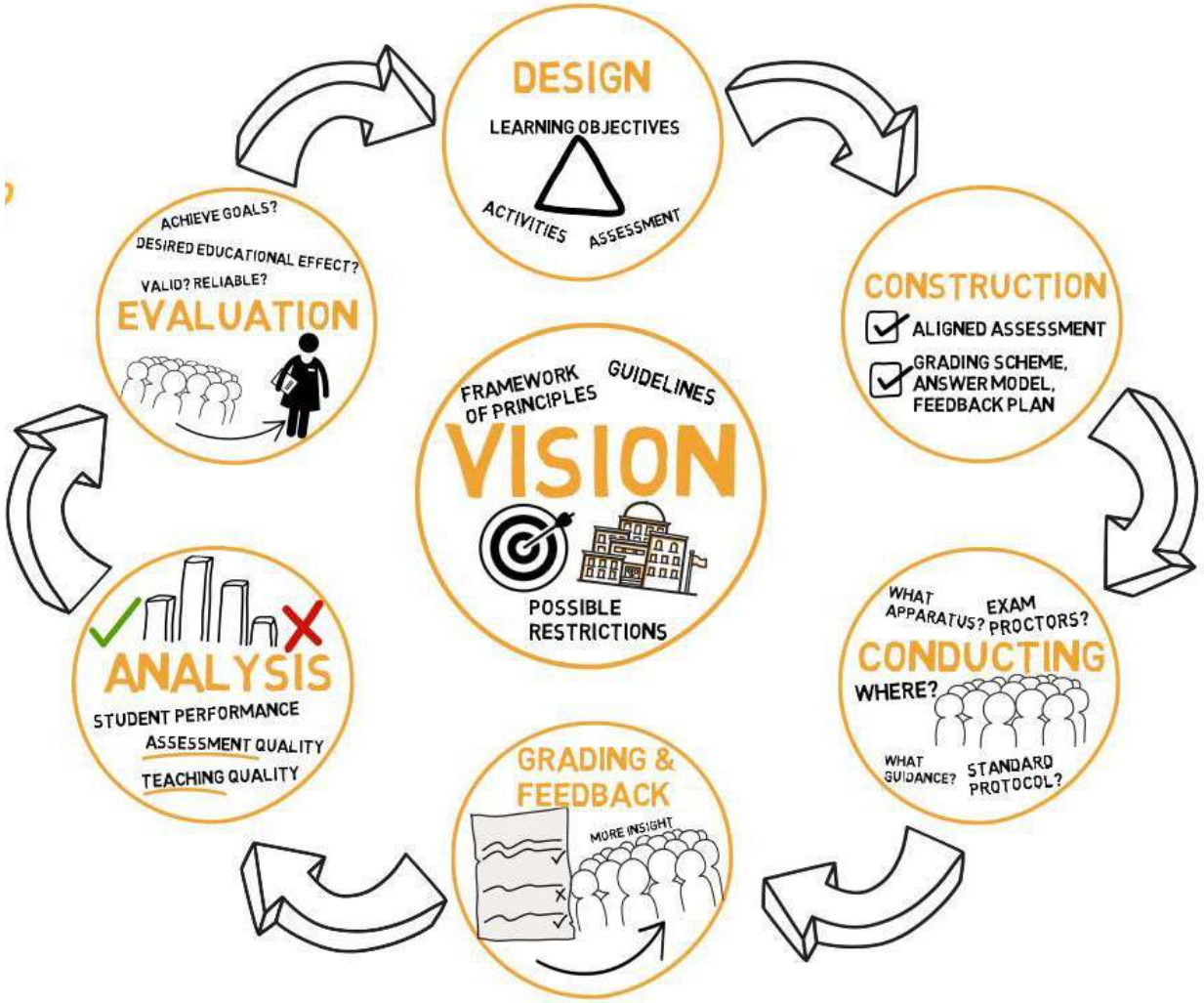
- In all assessment methods, costs are involved, for the staff, locations, technology, etc.
- The cost efficiency is the number of students divided by the cost.

Assessment Utility Formula Factors

Method of Assessment	Reliability	Validity	Educational Effect	Acceptance	Cost Efficiency



Assessment lifecycle

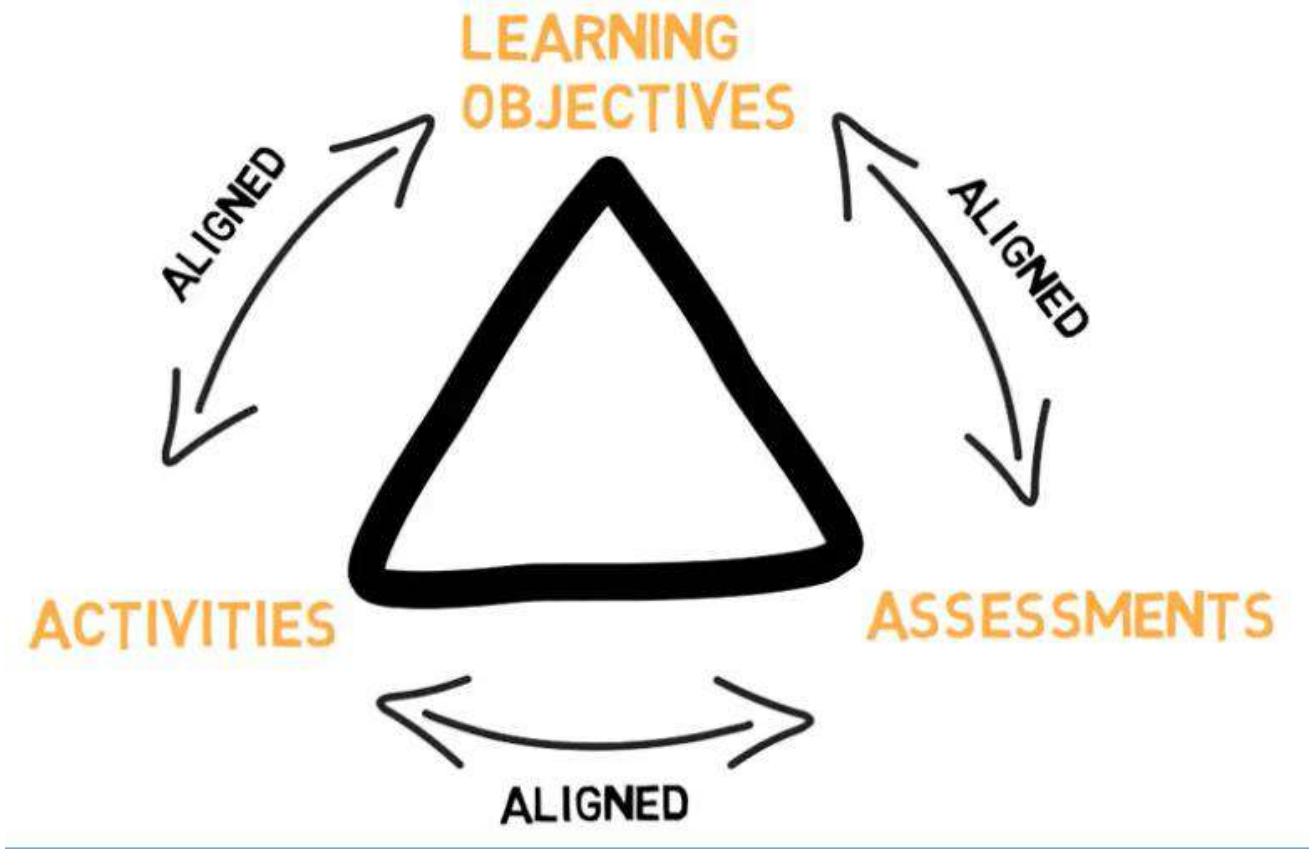


(Framework – Guidelines)

1. - Assessment Design
2. - Assessment Construction
3. - Conducting the Assessment
4. - Grading and Feedback
5. - Analysis of Student Performance
6. - Evaluation of the Assessment and Re-design if needed

https://www.coursera.org/learn/assessment-higher-education/supplement/490eC/constructive-alignment-overview

Constructive Alignment (Biggs, 1996)



Higher Education **32:** 347–364, 1996.

© 1996 *Kluwer Academic Publishers. Printed in the Netherlands.*

Enhancing teaching through constructive alignment

JOHN BIGGS
Department of Educational Psychology, Measurement, and Educational Technology, University of Sydney, NSW 2006, Australia

Abstract. Two lines of thinking are becoming increasingly important in higher educational practice. The first derives from constructivist learning theory, and the second from the instructional design literature. Constructivism comprises a family of theories but all have in common the centrality of the learner's activities in creating meaning. These and related ideas have important implications for teaching and assessment. Instructional designers for their part have emphasised alignment between the objectives of a course or unit and the targets for assessing student performance. "Constructive alignment" represents a marriage of the two thrusts, constructivism being used as a framework to guide decision-making at all stages in instructional design: in deriving curriculum objectives in terms of performances that represent a suitably high cognitive level, in deciding teaching/learning activities judged to elicit those performances, and to assess and summatively report student performance. The "performances of understanding" nominated in the objectives are thus used to systematically align the teaching methods and the assessment. The process is illustrated with reference to a professional development unit in educational psychology for teachers, but the model may be generalized to most units or programs in higher education.

Create Assessment Methods That Measure the Intended Learning Outcomes

In constructive alignment, assessment tasks must *directly* evaluate how well students have met each learning outcome. For online courses, it's vital to ensure assessments are clear, accessible, and valid measures of learning.

1. **Match the Assessment Type to the Learning Outcome**

   - If we want to assess *application of concepts*, consider a project or problem-based assignment rather than a simple multiple-choice test.

   - If the outcome includes *critical reflection*, ask for reflective journals or video reflections where students articulate their reasoning.

2. **Develop Transparent Criteria and Assessment Rubrics**

   - Provide rubrics that map each learning outcome to specific performance levels (e.g., incomplete / emerging / proficient / excellent).

   - **Share these rubrics in advance** so students understand the expectations.

Create Assessment Methods That Measure the Intended Learning Outcomes

3. **Use Authentic Assessments** wherever possible (i.e., tasks resembling real-world challenges or professional contexts).

   - Group projects, case analyses, simulations, or e-portfolios.

   - Asynchronous discussions graded for depth of insight rather than just participation.

4. **Offer Formative and Summative Opportunities**

   - Formative (ungraded or low-stakes): Ongoing quizzes, draft submissions, peer reviews.

   - Summative (graded): Final essays, projects, case study reports, presentations, or reflective portfolios.

5. **Ensure Academic Integrity** in online contexts.

   - Use plagiarism-detection software for written tasks.

   - Design open-ended, higher-order thinking questions that reduce the likelihood of cheating.

Examples

- For learning objective *“Analyze and critique ethical issues”*:
  - **Assessment**: Students submit a recorded video presentation critiquing a newly provided ethical dilemma. They reference specific ethical theories and address peer feedback. Assessment Rubric criteria include *depth of analysis, clarity of argument, and use of course concepts*.
- For learning objective *“Apply communication theories in an online forum”*:
  - **Assessment**: A culminating group project where students must create and moderate an online forum on a contemporary topic, demonstrating how they apply communication theories. Rubric criteria include *appropriateness of strategy, engagement tactics, theoretical justification, and peer collaboration*.

MOOC student assessment

- Formative Assessments
- Summative Assessments
- Methods of assessment used
  - automatic
  - peer-assessment
  - self-assessment
  - technology-enhanced

Bates, Teaching in the Digital Age, chapter 5:
https://tell.colvee.org/mod/book/view.php?id=646&chapterid=1075

MOOC student assessment

Formative Assessments

- **Quizzes and Practice Tests**: Short, frequent quizzes or practice tests that provide immediate feedback to students on their understanding of specific topics. These help identify areas where students may need additional support and reinforce learning.
- **Discussion Board Participation**: Students participate in online discussions related to course topics, and their contributions can be assessed based on the quality, relevance, and depth of their posts. This encourages active engagement and collaborative learning.

MOOC student assessment

Summative Assessments

- **Final Exams or Projects**: These are comprehensive assessments conducted at the end of the course to evaluate students' overall understanding and application of the course content. They can be in the form of written exams, practical projects, or a combination of both.
- **Capstone Assignments**: These are culminating projects that require students to integrate and apply the knowledge and skills they have acquired throughout the course to solve a real-world problem or complete a significant task.

MOOC student assessment methods

Automated Assessments

- **Multiple-Choice Questions (MCQs)**: These are commonly used in MOOCs due to their ease of grading and ability to test factual knowledge and basic understanding. They can be automatically marked, providing instant feedback to students.
- **Fill-in-the-Blanks and Matching Questions**: Similar to MCQs, these types of questions can also be automatically graded and are useful for assessing recall and recognition of key terms, concepts, and their relationships.
- **True/False Questions**: These are simple and quick to create and grade and can be effective for testing basic comprehension of concepts.
- **Numeric Response Questions**: Used for subjects like mathematics, physics, and other fields where numerical answers are required. Students enter a numerical value as their answer, which can be automatically checked.

https://tell.colvee.org/mod/book/view.php?id=646&chapterid=1075

MOOC student assessment methods

Peer Assessments

- **Structured Peer Review**: In this method, students evaluate and provide feedback on each other's work based on predefined criteria or rubrics set by the instructor. It helps students develop critical thinking and evaluation skills, and can be used for more complex assignments like essays, projects, and presentations.
- **Calibrated Peer Review**: A variation where students first review sample work graded by the instructor to understand the grading criteria, and then apply the same criteria to their peers' work. This aims to improve the consistency and accuracy of peer assessments.

MOOC student assessment methods

Self-Assessment

- **Reflective Journals or Logs**: Students maintain a journal throughout the course, reflecting on their learning experiences, challenges, and progress. This helps them take ownership of their learning and provides insights into their thought processes.
- **Self-Grading Quizzes**: Students complete quizzes and grade their own answers based on provided solutions or explanations. This encourages them to take responsibility for their learning and understand their strengths and weaknesses.

MOOC student assessment methods

Technology-enhanced-Assessment

- **Automated Essay Scoring**: Some MOOC platforms use advanced algorithms, and natural language processing techniques to automatically grade essays (Automated Essay Scoring, AES). While not perfect, these tools can provide an initial assessment and feedback on aspects like grammar, structure, and coherence.
- **Learning Analytics**: By analyzing students' interactions with the course content, such as time spent on videos, participation in forums, and performance on quizzes, instructors can gain insights into their learning behaviors and identify at-risk students who may need additional support.

AI models replacing peer assessment

- Golchin, et al. (2025), **Grading Massive Open Online Courses Using Large Language Models** - This paper explores the feasibility of replacing peer grading with LLMs, focusing on automated feedback mechanisms and their effectiveness across various courses.
- Morris, et al, (2023), **Using Transformer Language Models to Validate Peer-Assigned Essay Scores in Massive Open Online Courses (MOOCs)** : The findings suggest that LLMs can effectively validate peer-assigned scores, potentially offering a more objective measure of student performance. This could lead to improved grading practices in MOOCs, enhancing both learner experience and assessment quality.
- Alcarria et al. (2018) **Enhanced Peer Assessment in MOOC Evaluation Through Assignment and Review Analysis** - This study looks into improving peer assessment processes through analytical methods, providing insights into enhancing reliability and validity in MOOC evaluations.

Learning Analytics for Student Assessment in MOOCs

- **Misiejuk & Wasson (2023),Learning Analytics for Peer Assessment: A Scoping Review -** Learning analytics can be integrated into peer assessment activities to provide insights into student interactions and feedback quality. The review examined how learning analytics can facilitate peer assessment, highlighting the use of automated assessment and visualizations to enhance peer feedback.
- **Cobos & Olmos (2018) A Learning Analytics Tool for Predictive Modeling of Dropout and Certificate Acquisition on MOOCs for Professional Learning,** developed a learning analytics tool for predictive modeling of dropout and certificate acquisition in MOOCs. This tool uses data mining techniques to analyze student interactions and predict their likelihood of completing the course, allowing for timely interventions.
- **Ferguson, R., & Clow, D. (2015). Consistent commitment: Patterns of engagement across time in massive open online courses (MOOCs)** they studied consistent commitment patterns in MOOCs, identifying how student engagement changes over time

Multiple-Choice questions Q&A

Efficiency in Grading
•MCQs can be graded quickly—often automatically using scantrons or online platforms—making them especially suitable for large classes.
Objectivity
•Since there is typically one correct answer (or a set of correct answers in more complex formats), the scoring process is largely free from subjective bias.
Broad Content Coverage
•Well-designed MCQs can sample a wide range of course material, ensuring that students are assessed on diverse topics rather than a narrow subset.
Immediate Feedback
•Many testing systems can provide instant results, helping both instructors and students identify areas of misunderstanding or weakness quickly.
Consistency and Reliability
•The standardized format of MCQs makes it easier to compare performance across different groups or over time.

Limited Depth of Assessment
•MCQs often emphasize recognition or recall rather than higher-order skills like analysis, synthesis, or critical thinking.
Guessing and Test-taking Strategies
•Students can sometimes guess answers correctly without truly mastering the material, which can undermine the validity of the assessment.
Difficulty in Writing Effective Questions
•Crafting MCQs that are unambiguous and truly measure understanding (rather than just test-taking savvy) can be challenging.
Lack of Constructive Feedback
•Although students see if they were right or wrong, MCQs provide limited insight into *why* an answer was incorrect, reducing opportunities for deeper reflection and learning.
Narrow Response Options
•MCQs do not allow students to explain their thinking processes or demonstrate creativity, making them less suitable for assessing complex reasoning or problem-solving skills.

Multiple-Choice questions Q&A
1. Question

☐ The questions are phrased independently. There are no answers needed from previous questions (errors are not cumulative).
☐ The language used in the question is grammatically correct, unambiguous and concise.
☐ Only one topic/problem is focused on per (sub) question.
☐ The questions are phrased positively. Whenever negations are unavoidable, not or none are underscored.
☐ The question is not a trick question.
☐ The question contains no unintended hints for answering the question.
☐ The question can be answered without reading the answer possibilities first.
☐ The question is clearly distinguished from the introduction.

Multiple-Choice questions Q&A
2. Answers

☐ The alternatives all provide an equal answer to the question. *Directive: no alternatives like 'all of the above' or 'none of the above'.*
☐ The alternatives are phrased positively. Whenever negations are unavoidable, not or none are underscored.
☐ There is minimal overlap between the alternatives. *Directive: one answer is 100% correct, the rest 100% incorrect.*
☐ The question and answers are grammatically compatible.
☐ The alternatives are ordered logically (or consistent random). For example by alphabet or in numerical order.
☐ Important concepts from the question are not repeated in just one of the answer alternatives (distractor).
☐ The alternatives are formulated clearly, unambiguously, and concise.

Multiple-Choice questions Q&A
3. Contextual Information

☐ The use of contextual information (e.g. pictures, figures, text, and tables) is functional.
☐ There are correct and clear references in the question(s) to the provided contextual information.
☐ The context contains no unnecessary information (unless the objectives include the ability to filter relevant information).
☐ The context is presented clearly and the information is correct.

Multiple-Coice Questions guidelines

1. Each item should reflect specific content and a single mental behaviour.
2. Items should be based on important content to learn, avoiding trivial information.
3. Novel material should be used to assess higher-level learning.
4. Content of each item should be independent from others.
5. Avoid overly specific or general content and opinion-based items.
6. Ensure vocabulary is appropriate for the test-takers

Haladyna T., Downing S., and Rodriguez M. (2002) A Review of Multiple-Choice Item-Writing Guidelines for Classroom Assessment"

further reading on assessment

Centre for Quality Support and Development (CQSD)

University of Reading

An A–Z of Assessment Methods

Assignment	Mode of Assessment	What's Involved?
Abstract	Written	Students are required to write an abstract of a research paper/article within a specified word limit e.g. 300–500 words.
Annotated bibliographies	Written	Students produce a list of texts, primary sources and internet sites on specified or agreed topics to a particular referencing convention. They annotate these with a commentary, which could include an evaluation of what they have read.
Articles for different audiences	Written	Students are asked to write on a particular topic(s) to an agreed length in a specific style e.g. a journal, newspaper or magazine.
Assessment stations	Practical / Written	Developed in medicine, students move around a series of testing stations being assessed on a number of learning outcomes, each for a fixed period of time. Useful to assess a wide range of skills and knowledge.
Book, website, journal article or programme review	Written / Oral	Students write an account or present an oral presentation on designated articles or other programmes e.g. TV/radio. These often include an evaluative element to demonstrate depth of reading and level of understanding in concise formats.

https://sites.reading.ac.uk/curriculum-framework/wp-content/uploads/sites/35/2022/03/A-Z_of_Assessment_Methods_FINAL_table.pdf

hands-on activity: Design and Peer-Review Multiple Choice Questions (MCQs)

Instructions

1. **Identify a Topic:** Have each learner choose a specific concept or learning goal from their MOOC topic (e.g., a key theory, principle, or process).
2. **Create 3–5 MCQs:**
    1. **Vary Complexity:** Include at least one lower-level question (factual recall) and one higher-level question (application or analysis), referencing Bloom's Taxonomy.
    2. **Craft Effective Distractors:** Distractors should be plausible enough to reveal misunderstandings but not so ambiguous as to confuse well-prepared learners.
    3. **Maintain Clarity:** Ensure each question is concise, unambiguous, and clearly aligned with the intended learning outcome.
3. **Peer Review:**
    1. Participants exchange their sets of MCQs with a partner (or a small group).
    2. Reviewers should evaluate each question's clarity, difficulty level, and alignment with the identified learning objective. They should also check if the distractors are realistic or if any correct answer stands out too easily.
4. **Revision:**

    Based on the feedback, each creator revises their MCQs to address any issues identified (e.g., vague wording, overly obvious or confusing distractors).
5. **Reflection (Discussion or Written):**

    Reflect on what you learned about designing MCQs, including any challenges you faced and how you overcame them. - Discuss how thoughtful MCQ design can improve assessment validity and reliability

M7. Deployment and Quality Assurance



Deployment and Quality Assurance

The **Deployment** Strategies focuses on the planning, execution, and management of deploying MOOCs on online learning platforms. This module provides a comprehensive guide to the different strategies for deploying courses, addressing factors such as platform selection, scalability, learner support, marketing, and tracking performance.

The **Quality Assurance** and Continuous Improvement of MOOCs module focuses on the systematic processes and strategies to ensure that the design, delivery, and outcomes of MOOCs (Massive Open Online Courses) meet high educational standards.

It also highlights the importance of **continuous evaluation of course content**, **delivery methods**, and **learner support** to enhance the quality of the learning experience and the success of the course over time.

Deployment Strategy

- Deployment of a MOOC refers to the process of making the course accessible to learners, ensuring that it is properly launched, operational, and maintained throughout its lifecycle.
- A well-planned deployment ensures that the course reaches the target audience effectively, operates smoothly, and delivers a high-quality experience for learners. A successful deployment considers not only technical factors but also learner engagement, marketing, and ongoing support.
- Deployment vs. Delivery: Deployment refers to the initial setup, launch, and distribution of the course, whereas delivery involves the ongoing operation of the course after it has been launched.

Platform selection

The first step in deploying a MOOC is selecting the appropriate platform that aligns with the course's objectives, target audience, and delivery model. Key factors to consider include:

- **Technical Infrastructure:** The platform should have the technical capacity to handle the expected volume of users and deliver content smoothly (e.g., video hosting, interactive elements, quizzes).
- **Scalability:** Choose a platform that can scale to accommodate a large number of learners without compromising performance (e.g., edX, Coursera, Udacity, Moodle, or self-hosted solutions).
- **Customization Options:** Platforms may offer various customization options for branding, layout, and functionality. It's essential to ensure the platform allows you to tailor the user experience to the specific needs of your course.
- **Integration with Other Tools:** The platform should integrate easily with tools for assessments, learner engagement, analytics, and communication.
- **Data Privacy and Security:** Platforms must comply with relevant regulations (e.g., GDPR, FERPA) and ensure the privacy and security of learner data.

Content quality check

Before deployment, the course content needs to be finalized, tested, and uploaded to the chosen platform. Consider running a beta test or pilot with a small group of users to gather feedback and identify any technical or content issues.

This includes:

- **Multimedia Elements:** Ensure all video lectures, readings, assignments, and supplementary materials are finalized and uploaded to the platform and work as expected.
- **Assessments:** Develop and finalize all assessments (quizzes, assignments, peer reviews, etc.) and ensure they are integrated into the course framework and work as expected.
- **Course Structure:** Make sure the course follows a clear and logical progression, with modules, lessons, and assessments organized in a way that supports learner engagement.

Deployment of Learner Support

Learner Onboarding: Create an onboarding process that guides learners through the platform, explains the course structure, and introduces them to key tools (forums, quizzes, etc.). This could include an introductory video or a “Getting Started” module.

Learner Support: Provide ongoing learner support throughout the course, including:

- **Help Desks and Forums:** Ensure learners can access support if they encounter technical or content-related issues.
- **Real-Time Communication:** Provide live chat or office hours for real-time interaction with instructors or support staff.
- **Content Updates:** Periodically review course materials and assessments to address any learner feedback or changing trends in the subject area.

Scalability and Growth Strategies

- **Handling Large-Scale Enrollment:** Ensure that the platform and infrastructure can handle a large number of simultaneous learners without affecting performance. This may involve cloud hosting, load balancing, and CDN (Content Delivery Network) implementation to ensure fast content delivery.
- **Automated Systems for Assessment and Grading:** Use automated grading systems for quizzes and assignments to reduce the workload of instructors and ensure scalability in large courses.
- **Adaptive Learning:** Implement adaptive learning technologies that adjust the content and pace based on individual learner progress and needs.
- **Scaling Learner Support:** Consider using AI-driven chatbots for providing support or frequently asked questions (FAQs) to assist large numbers of learners.

Quality Assurance Processes

1. Introduction to Quality Assurance (QA)
2. QA Frameworks
3. Course Design and Development
4. Learner-Centered Design and Engagement
5. MOOC Quality Assurance Methods
6. Course Evaluation Strategies
7. Course Maintenance and Updates
8. Instructor and Facilitator Training
9. Learner Support and Retention Strategies
10. Sustainability and Scalability in MOOCs

1. Introduction to Quality Assurance (QA)

- **Definition of Quality Assurance:** QA in MOOCs refers to a set of processes that ensure a course is designed, delivered, and evaluated according to agreed-upon standards to provide a positive and effective learning experience for participants.
- **Importance of QA in MOOCs:** Ensuring quality is essential due to the large scale of participation, diversity of learners, and the varied educational backgrounds of students. QA frameworks help maintain consistency, ensure fairness in assessment, improve course outcomes, and sustain learner satisfaction.
- **QA vs. Quality Control:** Quality Assurance focuses on the prevention of issues and continuous enhancement through systematic review and feedback - quality control deals with post-delivery checks and remediation.

2. QA Frameworks

ENQA (European Association for Quality Assurance in Higher Education) and the **Bologna Process** influence how universities in the European Higher Education Area (EHEA) approach quality assurance.

- The Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) outline principles for internal and external quality assurance that apply to all programs (face-to-face, blended, or online).

Focus on **Program-Level** and **Institutional QA**

- ESG guidelines place strong emphasis on learning outcomes, student-centered learning, assessment methods, teaching staff qualifications, and continuous improvement.
- While ESG is not as detailed about online course design as QM, it encourages institutions to ensure that all delivery modes (including fully online) meet high standards of coherence, transparency, and student engagement.

3. Course Design and Development Standards/1

- **Course Objectives and Learning Outcomes:** Ensuring that courses have clear, measurable learning objectives aligned with the course content, activities, and assessments. These objectives should meet the diverse needs of learners from different backgrounds and with different goals.
- **Content Quality and Relevance:**
  - Ensure that content is up-to-date, relevant, and accurate. Use evidence-based practices to design learning materials that are aligned with the needs of the learners and industry standards.
  - Integration of multimedia elements, such as video lectures, readings, interactive exercises, and quizzes, should enhance engagement without overwhelming the learner.

3. Course Design and Development Standards/ 2

- **Accessibility and Inclusivity:** The course design should meet accessibility standards (WCAG) to ensure learners with disabilities can fully participate. This includes captions, transcripts, and alternative text for images.
- **Alignment of Assessment Strategies**: Ensure that the assessments are aligned with the course objectives and that there are clear rubrics for grading.

4. Learner-Centered Design and Engagement

- **Personalization of Learning:** Incorporating adaptive learning technologies to tailor content and assessments to individual learner needs and preferences.
- **Engagement Strategies:** Foster engagement by using active learning, discussions, peer assessments, and gamification. Consider using interactive platforms like H5P, Padlet, or Slack to create a more engaging and collaborative learning environment.
- **Motivation and Support Systems:** Offer tools that help keep learners motivated, such as badges, certificates, and real-time progress tracking. Provide timely feedback and opportunities for learners to track their progress.

5. MOOC Quality Assurance Methods

- **Data-Driven Decision Making**: Continuously assess course effectiveness using data analytics. Collect data on learner participation, progression, completion rates, assessments, and engagement. Use tools like Learning Management Systems (LMS), Google Analytics, or xAPI to track learner activity and outcomes.
- **Feedback Loops and Learner Surveys**: Collect both qualitative and quantitative feedback from learners through surveys, polls, and direct feedback tools like Google Forms, SurveyMonkey, or built-in LMS feedback forms. Analyze the feedback regularly to identify strengths and weaknesses in the course content, delivery methods, and support mechanisms.
- **Instructor Feedback**: Encourage instructors to self-assess their teaching strategies and identify areas for improvement. Peer reviews can also be valuable in gathering feedback from colleagues or other instructors.
- **Benchmarking**: Compare the performance of your course to other similar courses. Use key performance indicators (KPIs) such as learner satisfaction, completion rates, and learner achievement to benchmark your course against industry standards or similar offerings.

6. Course Evaluation Strategies

- **MOOC Formative Evaluation:** Conduct ongoing evaluations during the course delivery to identify problems and make adjustments. This might involve **weekly check-ins**, quizzes, and reviewing **learner engagement metrics**.
- **MOOC Summative Evaluation:** After the course ends, perform a thorough evaluation to assess the overall effectiveness. This should involve reviewing learner outcomes (e.g., exam results, final project quality), participation rates, and feedback from learners and instructors.
- **Course Completion Rates:** Analyze course completion rates to identify patterns. If many students drop out early, it may indicate issues with course design or delivery (e.g., unclear objectives, overly difficult content, or lack of engagement).

7. Course Maintenance and Updates

- **Content Updates:** Regularly **review and update course content** to keep it current and relevant. This could involve adding new readings, case studies, or materials that reflect recent advancements in the field.
- **Technology Upgrades:** Keep track of **technological advances in the platforms and tools** used for course delivery. For example, updates to LMS, interactive video tools, or assessment platforms may offer new opportunities to improve learner experience.
- **Monitoring Industry Trends:** Stay informed about trends in online education, learner expectations, and technological developments. Participate in networks and communities of practice (e.g., MOOCs providers like edX, Coursera, FutureLearn) to learn from others and keep improving.

8. Instructor and Facilitator Training

- **Professional Development:** Continuous training for instructors and facilitators on best practices in online teaching, technology integration, and learner engagement. Use MOOCs themselves as a model for providing professional development opportunities.
- **Collaboration and Peer Support:** Encourage instructors to collaborate and share best practices. This can include peer review of course content, sharing success stories, and discussing challenges.

9. Learner Support and Retention Strategies

- **Onboarding and Orientation:** Provide a comprehensive onboarding process for new learners. This includes clear instructions on how to navigate the course, how to access resources, and how to contact instructors or support staff.
- **Technical Support:** Ensure there is an easily accessible support system for students to resolve any technical issues they may encounter with the course platform or tools.
- **Engagement and Retention Programs:** Develop initiatives like weekly check-ins, personalized reminders, and progress tracking to keep learners engaged. Additionally, offer study groups, discussion forums, or mentorship programs to support retention.

10. Sustainability and Scalability in MOOCs

- **Scalability Challenges:** Explore strategies to scale quality assessments, learner support, and content delivery to accommodate large numbers of students without compromising quality.
- **Cost-Effectiveness:** Develop strategies for maintaining quality while minimizing costs. This could involve using open educational resources (OER), leveraging AI and automation for grading and feedback, and optimizing course delivery.
- **Sustainable Practices:** Ensure that the course remains sustainable in the long run, both in terms of content relevance and technological infrastructure.

Key Performance Indicators (KPIs) for QA

- **Learner Satisfaction:** Regular surveys and feedback mechanisms to assess how satisfied learners are with the course.
- **Learner Retention:** Track how many students complete the course and analyze why students drop out if applicable.
- **Learning Outcomes Achievement:** Measure whether learners are meeting the course objectives, including performance on assignments, quizzes, and exams.
- **Instructor Engagement:** Evaluate how engaged instructors are in course delivery and how effectively they interact with learners.

Group Activity



Activity instuctions

- This is a group activity that involves summing up all the hands-on experience of the workshop, design and development of a MOOC of your interests.
- You would be asked to experiment with the sandbox of Open EdX and Moodle Cloud, you will be required to experiment with interactive components using h5p.org
- You will work as a group on your project and you will be expected to present your project to the workshop participants
- More detailed instructions will be provided at the workhsop

* Free accounts and familiarity with Open Edx sandbox, Moodle Cloud and h5p are useful.

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