EMOS

Data & AI Literacy

Framework & Applications

30.11.2022

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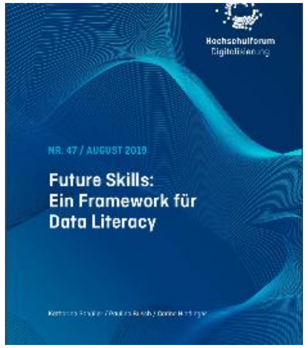
Overview



HFD Data Literacy Framework

2019: Systematic Review, Research Report, Competence Framework

2020: English version

DATA LITERACY CHARTA

Data Literacy Charter

Stifterverband, DStatG and many more

>100 signatories from the beginning

German & English version

Stadt | Land | DatenFluss

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Ed.: DVV, sponsored by BMBF

Patronage of the Federal Chancellor

Awards:

- *App of the month July (German Academy for Children's and Youth Literature)*
- *Comenius-EduMedia-Award (Society for Pedagogics, Information and Media e.V.)*
- *Shortlist for „Innovation of the year", German OnlineCommunication Award*
- *German Design Award*

AI Campus
The Learning Platform for Artificial Intelligence

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Data-Informed Decision Making in a Pandemic

2nd Ideas Competition, Focus: Data Literacy

Development of ~15 new MOOCs

IEEE SA STANDARDS ASSOCIATION

Project Authorization Request

Standard for Data & AI Literacy, Skills, and Readiness

Partners a.o.: DStatG, FENStatS, Stifterverband, KI-Campus, PARIS21

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Research

The HFD Data Literacy Framework

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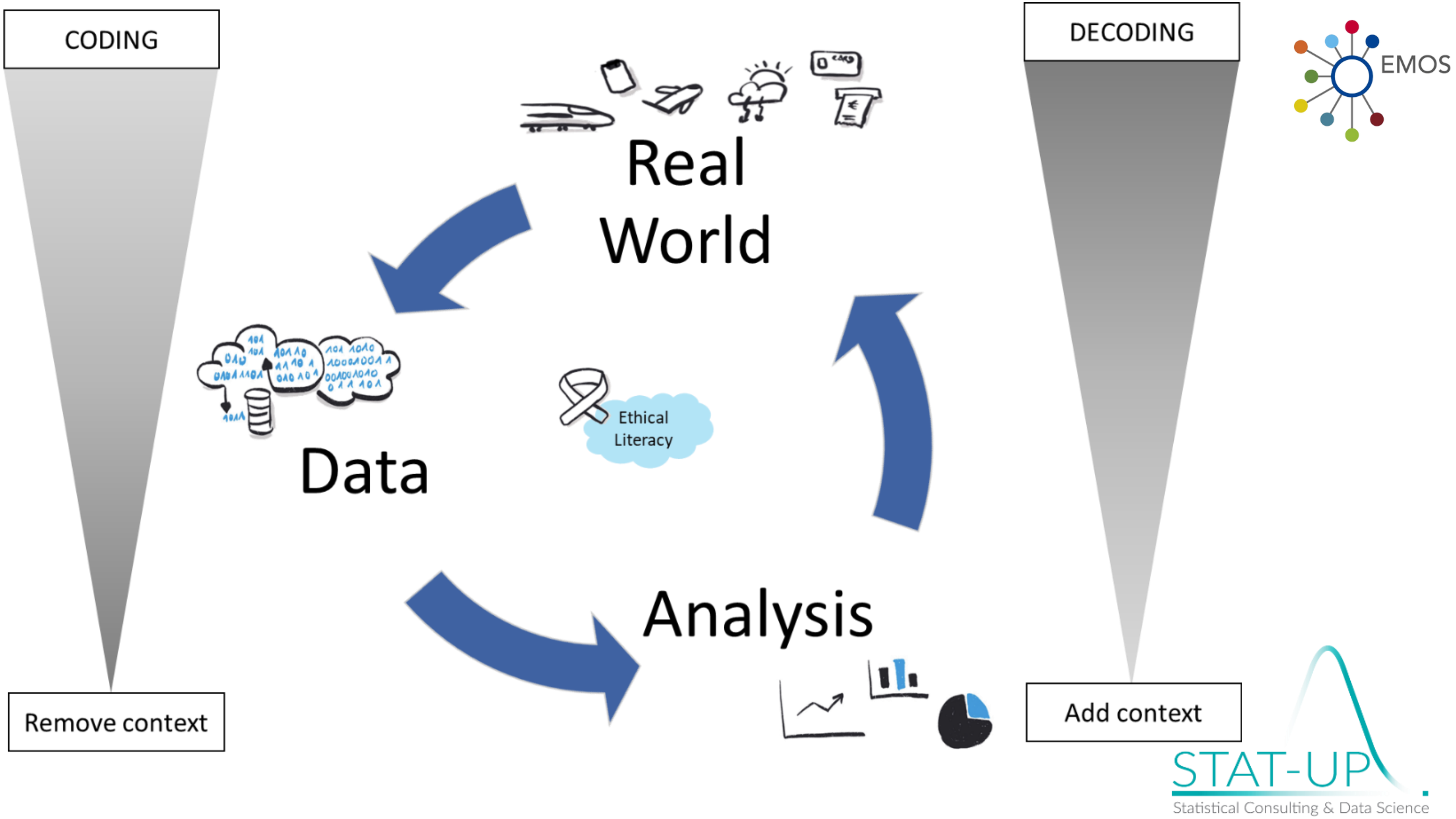
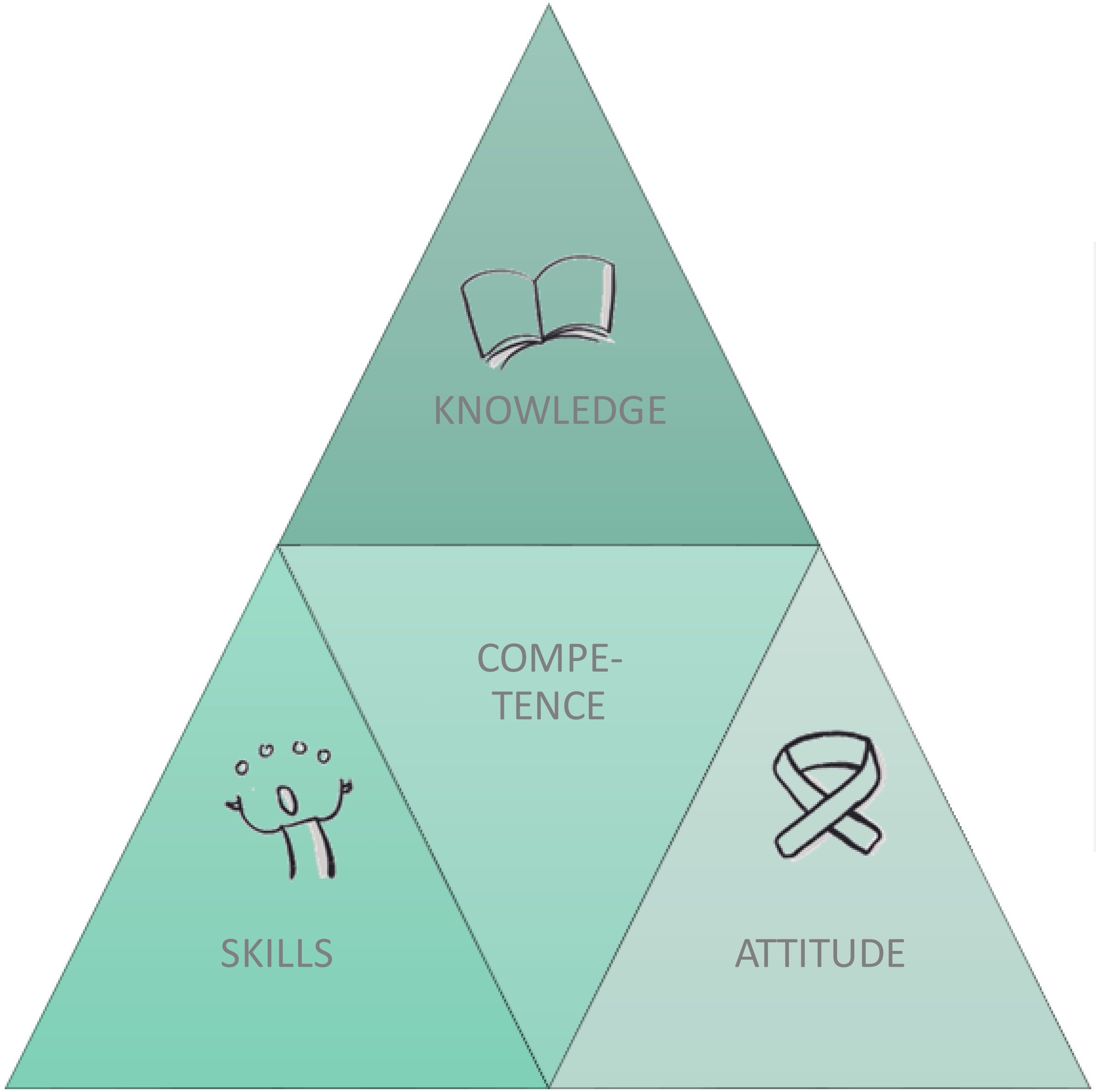
Data-informed Decision Making



Dimensions of Future Skills



According to the KSAVE-model, **Future Skills** comprise three **competence dimensions** that must be represented in all competence areas:

- specific knowledge (“knowledge"),
- the abilities and skills to apply this knowledge (“skills") and
- the willingness to do so, i.e., the corresponding value attitude (“attitudes, values, ethics").

(see Data-Literacy-Charta)

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Industry: Predictive Maintenancy # 6

Requirement

Requirements document for maintenance object

- Use standardized terms
- Collect data in an automated process
- Merge unstructured data from different data procurers

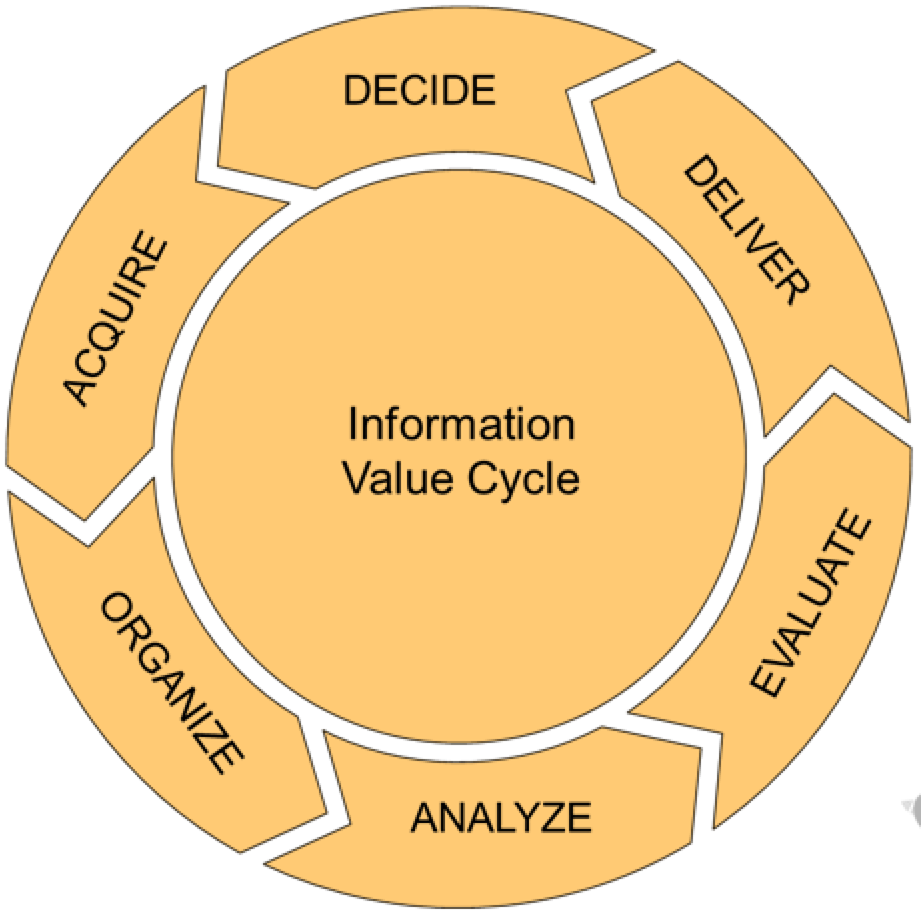
- Dealing with (un-) structured data
- Checking assumptions and data quality
- Safe handling of databases

Raw Data

Factual data table with structured data; delta between ideal and real maintenance measures

- Prepare structured data
- Clean and transform data
- Detect outliers, missing/implausible data, etc.

- Knowledge of maintenance strategy
- Data management and data validation
- Data enrichment, e.g. geodata, weather data



Smart Data

Validated information on assets, measures carried out incl. maintenance history, associated location data

Recommendation on maintenance cycles and storage related to maintenance strategy

Actionable

- Derive different maintenance strategies (e.g. maintenance cycles, optimal stock level)
- Evaluate costs

- Understanding technical relations
- Knowledge of maintenance processes
- Planning competence

Relations between property features, location characteristics, etc.; forecasts of maintenance requirements

Knowledge

- Determine factors affecting maintenance requirements
- Failure forecasts
- Time forecast for repairs

- Knowledge of components and repair process
- Modelling competence
- Visualization and communication of complex models

Input/Output Tasks Competencies

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Requirements for a Framework

Competence Framework

Stages & Dimensions

- All stages of the knowledge/value creation process from data
- Competence dimensions:
  1. Knowledge,
  2. Skills,
  3. **Attitudes, Values, Ethics**

Operationalizability

- Allows the competencies to be translated into specific and testable learning or competency objectives

Measurement

Areas & stages

- Cognitive and affective learning areas
- Learning stages:
  1. Reaction,
  2. Learning success,
  3. **Behavior,**
  4. **Result**

Applicability

- Transparency regarding the possibilities and limitations of inferring competencies from observable behavior.
- Validity, reliability and objectivity
- Cost-benefit ratio (money, time, required skills of examiners)

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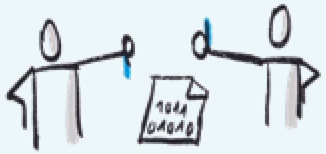
Reflection of interdisciplinarity



1. What do I want? (Domain expert)
2. What can I do? (Data expert)
3. What am I allowed to do? (Data protection expert)
4. What should I do? (Data ethicist)

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The HFD Data Literacy Framework # 8

|A| Establish Data Culture

|B| Provide Data

|C| Exploit Data

Remove context

SYSTEM

A.1 Identify Data Use Cases

A.2 Specify Data Use Cases

A.3 Coordinate Data Use Cases

F.3 Evaluate Impact

F.2 Act Data-Driven

F.1 Identify Potential Actions

OBJECTS

B.1 Plan

- B.1.1 Model Data Use Cases
- B.1.2 Meet Data Protection/Security

B.2 Obtain

- B.2.1 Identify Data Sources
- B.2.2 Integrate Data

B.3 Prepare

- B.3.1 Verify Data
- B.3.2 Preprocess Data

E.3 Reconstruct Data Concept

E.2 Trace Back Data Sources

E.1 Decode Transformations

DATA

C.1 Analyse Data

C.2 Visualise Data

C.3 Verbalise Data

D.3 Interpret Data Analyses

D.2 Interpret Data Visualisations

D.1 Interpret Data Verbalisations

DATA PRODUCT

|F| Derive Actions

|E| Interpret Data

|D| Interpret Results

Add context

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Example C1: Analyse Data

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Competence		Dimensions			Levels
Labelling	Description	Examples of knowledge	Examples of skills	Examples of attitude	Examples of ascending levels
C.1: Analysing data	Uses analysis methods from various fields (statistics, analytics, …hine …ing), …the hol… …ose- …nted …ner	Knowledge of procedures for different tasks (description, exploration, prognosis) as well as their requirements, … …sses …	The skill to map measurable relationships in models The ability to identify and select appropriate analytical methods based on the issue … …y …g.	Willingness to implement and adapt models in an iterative and often time-consuming process Sceptical basic attitude in data analysis Willingness to weigh up and accept information losses in the analysis process Willingness to comply with "good analytics standards", even if …	(1) Can handle basic statistical methods such as mean value and standard deviation (2) Can handle and use more complex models, can assess which methods provide meaningful results for which questions and data, and recognises the limitations of analytical results (3) Masters and uses highly complex models and recognises

- Knowledge about estimation methods and algorithms
- Knowledge about possible causes of artifacts

- Ability to represent measurable relationships in models
- Ability to anticipate future uses of analysis results

- "Analytical fairness" as a basic attitude, i.e. willingness not to perform analyses if the risk of misuse is high

Example D1: Interpret Data Analyses # 10

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Competence		Dimensions			Levels
Labelling	**Descriptio n**	**Examples of knowledge**	**Examples of skills**	**Examples of attitude**	**Examples of ascending levels**
D.1:	Interprets ... ts ... cs ... y ... the ... ly or ... ly ... ed ... etatio	Knowledge of statistical key figures such as mean values, ... points, ... significance, and limitations Knowledge of the ...	Can draw conclusions about which characteristics of the data a key figure/ makes statements about Understands which key figures ... balised) ... tion ... special ... ations ... the	Willingness to question explicitly communicated, given interpretations in data verbalisations Willingness to search for and question implicitly communicated interpretations Willingness to question one's own contextual knowledge regarding its	(1) Can understand simple statistical terminology and interpret its relation to data, knows basic forms of manipulation by statistics and reports and the criteria to be observed (2) Has an advanced understanding of terminology and can differentiate clearly between

- Knowledge of statistical terminology
- Knowledge of statistical fallacies (e.g. correlation vs. causality)

- Can draw conclusions about which charac-teristics of data a key figure makes statements about
- Can question to what extent interpretation of results depends on one's own contextual knowledge

- Openness to new findings, even if they contradict previous convictions

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Applications (I)

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Target Groups and Motivation

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Data and information... Aren't they the same thing?

Data is used everywhere - but what do I get out of it?

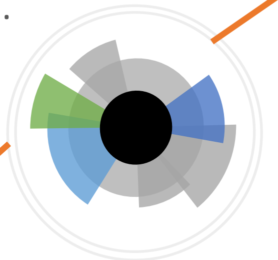
I'm constantly reading AI, IoT, Big Data... What is that actually?

WHAT are the technologies behind digitization?

✓ **Drivers:** Big Data, AI, IoT, Data Flow/ Communication ...

WHERE does change through digitization take place?

✓ **Fields of application:** Health, mobility/smart city, work/economy ...



I know what Big Data and AI are... but how do they affect my life and my job?

HOW can we act confidently in a digitized world?

✓ **Digital skills:** especially data literacy

12 lessons of 3 learning units each + basic module basic knowledge + outlooks

15 minutes per learning unit

10 weeks total duration when working on one learning unit/day

Adaption of Competence Fields

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|A| Establish Data Culture

A.1 Identify Data Use Cases
A.2 Specify Data Use Cases
A.3 Coordinate Data Use Cases

|F| Derive Actions

F.3 Evaluate Impact
F.2 Act Data-Driven
F.1 Identify Potential Actions

|B| Provide Data

B.1 Plan
B.1.1 Model Data Use Cases
B.1.2 Meet Data Protection/Security

B.2 Obtain
B.2.1 Identify Data Sources
B.2.2 Integrate Data

B.3 Prepare
B.3.1 Verify Data
B.3.2 Preprocess Data

|E| Interpret

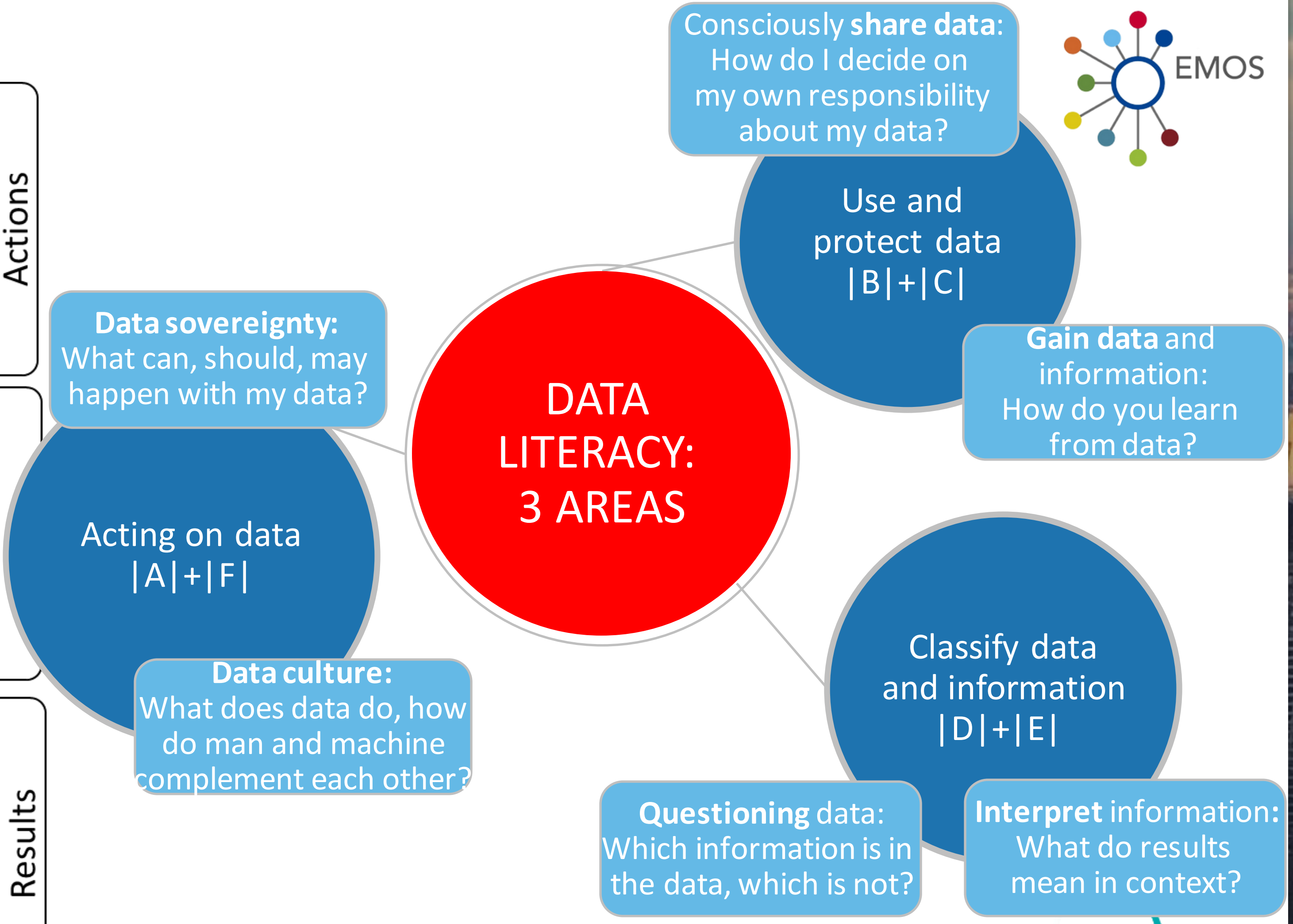
E.3 Reconstruct Data Concept
E.2 Trace Back Data Sources
E.1 Decode Transformations

|C| Exploit Data

C.1 Analyse Data
C.2 Visualise Data
C.3 Verbalise Data

|D| Interpret Results

D.3 Interpret Data Analyses
D.2 Interpret Data Visualisations
D.1 Interpret Data Verbalisations



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Learning Objectives

	LEADING QUESTION	UNDERSTAND [knowledge]	APPLY [skills]	EVALUATE [attitude]
ACT ON DATA	What can, should, may happen with my data?	a. Knows opportunities for using data in various application areas b. Knows details of current developments in data use	a. Identifies obvious opportunities for data use in the work environment and in private life b. Identifies innovative opportunities for data use in the w.e. and in private life	a. Is critical-open-minded about data use in the application areas b. Reflects on data use with regard to several criteria (e.g., benefits and costs)
	What does data do, how do man and machine complement each other?	a. Knows basics of current technologies and methods b. Knows central strengths and weaknesses of the technologies	a. Finds out about new technologies in a targeted manner b. Develops first own ideas for the use of new technologies	a. Shows interest in the opportunities of new technologies b. Questions technologies with regard to potential risks
CLASSIFY DATA AND INFOR-MATION	Which information is in the data, which is not?	a. Differentiates key terms (e.g., date vs. information) b. Differentiates a wider range of technical terms	a. Can assess the significance of data in simple cases b. Can assess the significance of data also in more complex situations	a. Reflects on and evaluates the significance of data b. Distinguishes clearly between facts and interpretations
	What do results mean in context?	a. Recognizes that data and analysis must always be viewed in context b. Knows different techniques of contextualization	a. Can classify data and evaluations in the obvious context b. Classifies data and evaluations in a diff. manner in various contexts	a. Questions evaluations in front of the respective context b. Questions evaluations in different contexts, according to several criteria
USE AND PROTECT DATA	How do I decide on my own responsibility about my data?	a. Knows the basic principles of data protection b. Knows essential rules of data protection	a. Detects privacy compliance in simple cases b. Anticipates impending, more subtle privacy issues	a. Recognizes the value of data privacy and security b. Weighs where the release of own data is justified
	How do you learn from data?	a. Knows basic principles of how knowledge is created from data b. Knows possible causes of erroneous conclusions during evaluation	a. Can find and use nearby data sources b. Combines data and recognizes correlations	a. Reflects on the strengths and weaknesses of data sources b. Reflects on possible fallacies from data

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Structure and Content

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ACTING ON DATA

CLASSIFY DATA AND INFORMATION

USE AND PROTECT DATA

ARTIFICIAL INTELLIGENCE

BIG DATA

DATA FLOW AND DIGITAL COMMUNICATION

INTERNET OF THINGS

MONITORING OF BODY DATA

HEALTH INFORMATION ON THE NET

THE DIGITAL HEALTH SYSTEM I

THE DIGITAL HEALTH SYSTEM II

DYNAMICALLY OPTIMIZED TRAFFIC FLOW

DYNAMICALLY OPTIMIZED PUBLIC TRANSPORT

THE SMART PUBLIC SPACE

ASSISTANCE SYSTEMS IN THE CAR

THE FLEXIBLE WORKPLACE

DIGITAL LEARNING IN THE WORK PROCESS

INTELLIGENT RECRUITING

SMART FACTORY

[level 1]

[level 2]

[understand]

[apply]

[evaluate]

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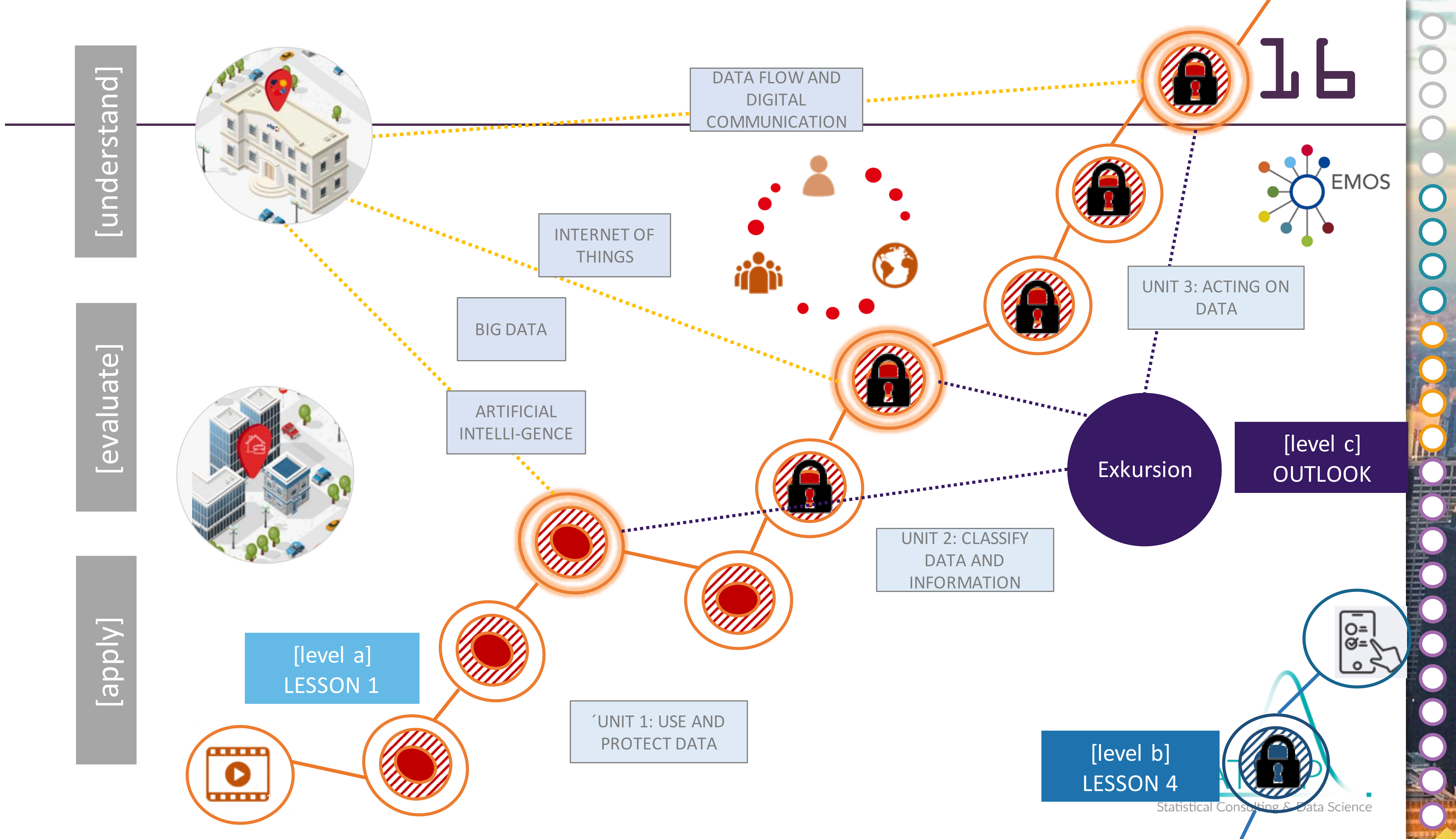
[understand]
[evaluate]
[apply]
DATA FLOW AND DIGITAL COMMUNICATION
INTERNET OF THINGS
BIG DATA
ARTIFICIAL INTELLI-GENCE
EMOS
UNIT 3: ACTING ON DATA
Exkursion
[level c] OUTLOOK
UNIT 2: CLASSIFY DATA AND INFORMATION
[level a] LESSON 1
´UNIT 1: USE AND PROTECT DATA
[level b] LESSON 4
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Look and Feel

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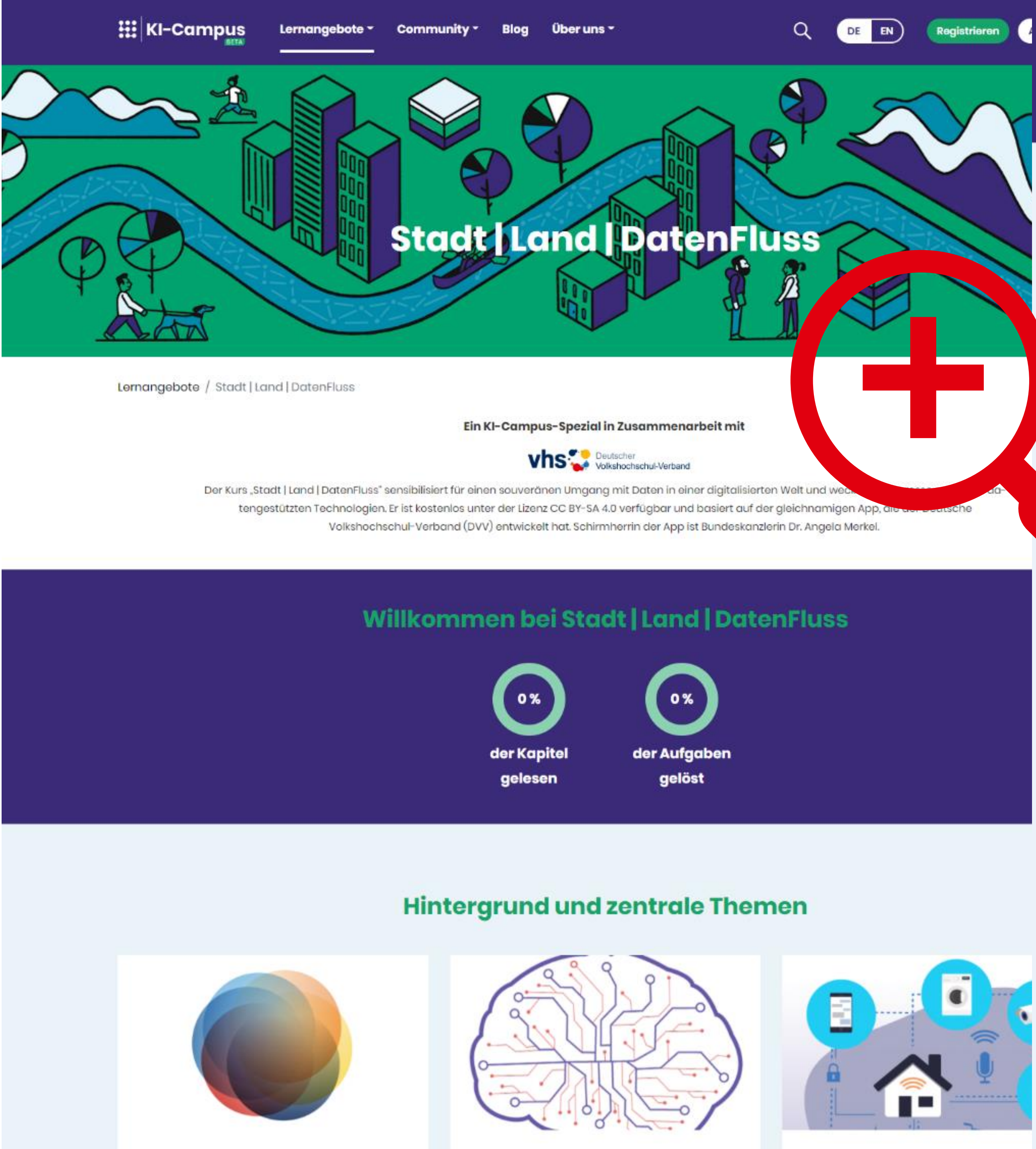

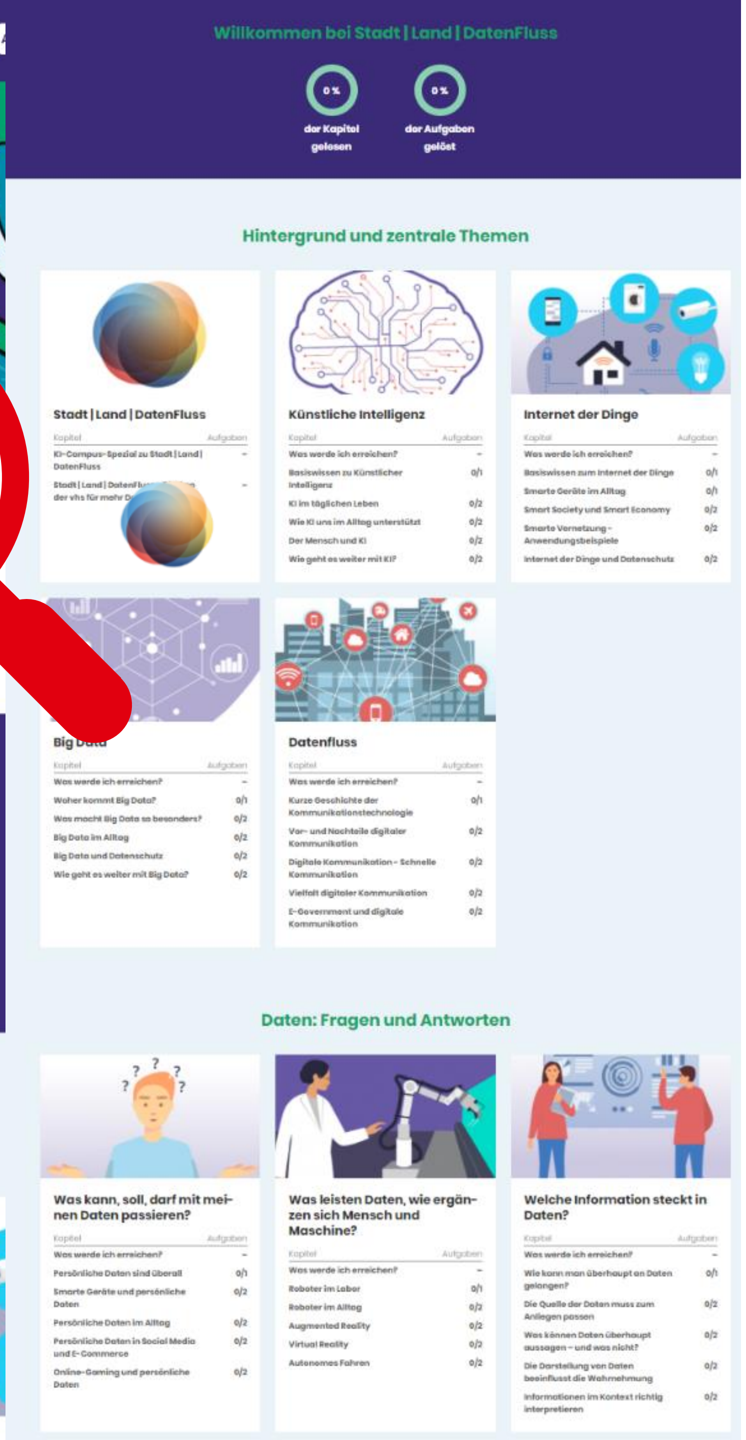

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AI-Campus: Home-page

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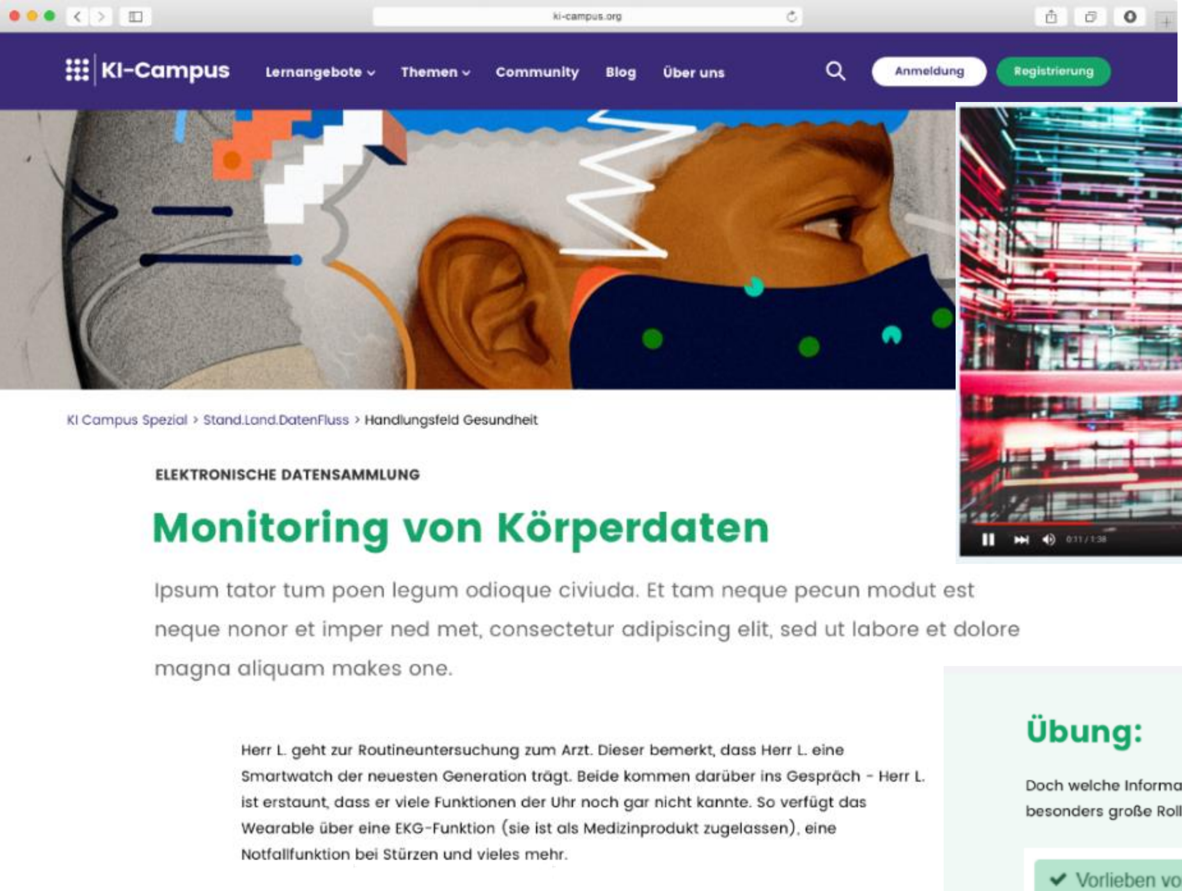
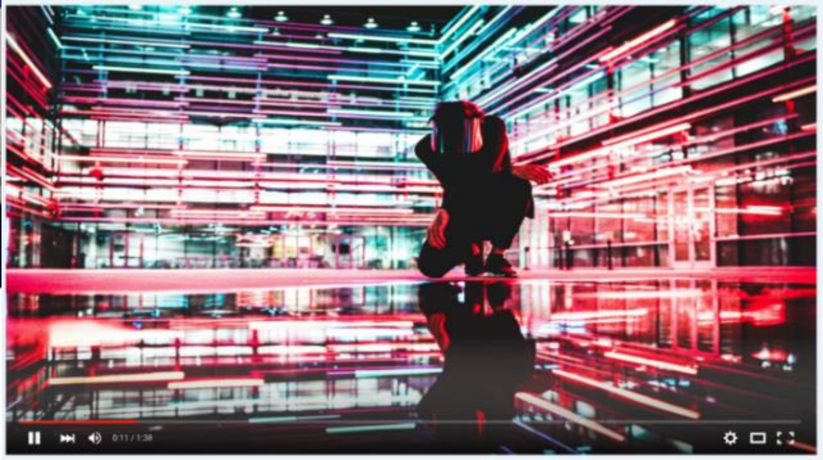
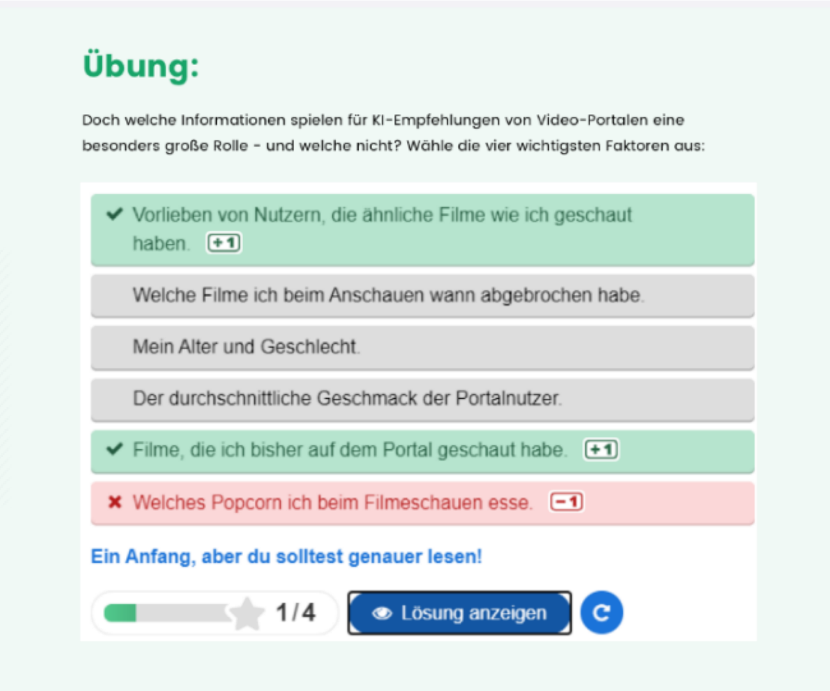
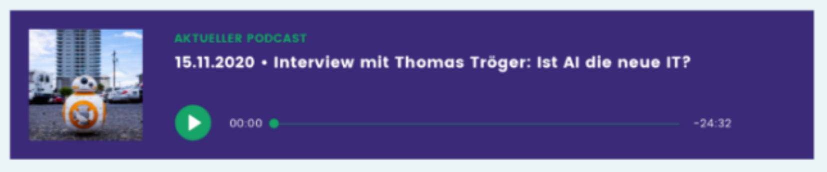
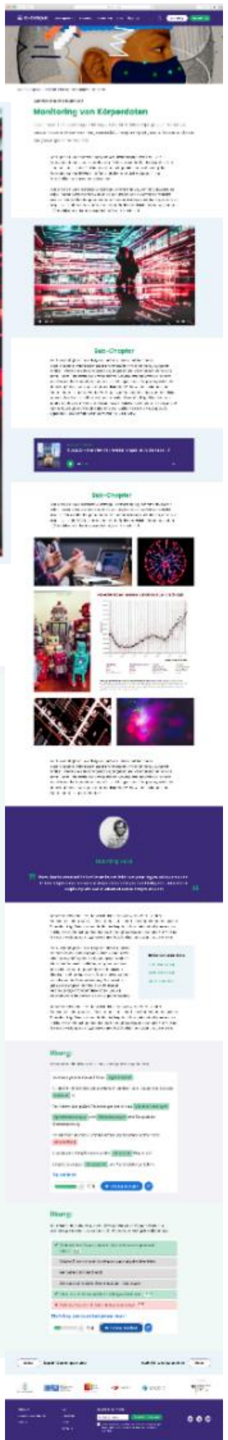
AI-Campus: Chapter











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AI Campus

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App vs. Web

IMPLEMENTATION AS AN APP	IMPLEMENTATION AS BROWSER VERSION
ACCESS • Download from the app stores • Easy access (without login) • Storage of learning status on end device	ACCESS • Accessibility via website of the KI-Campus • Integration in platform (optional login) • Central storage of learning status
LEARNING SITUATION • Affective approach: Playing • Short learning units • Desire for entertainment • Selective learning of content	LEARNING SITUATION • Cognitive approach: Learning • Focused, longer learning sessions • Need for concentration • Linking content to context
FUNCTIONALITY • “Everyday life” in design and approach • Short texts (optimized for smartphone display) • App-appropriate graphic design • Predefined learning paths • Animations	FUNCTIONALITY • Reduced graphics prevent distraction • Links to web content • Embedding options (e.g. Wikipedia) • Extension with didactic scenarios (tutoring, peer learning) • Optional deepening (advanced courses)

TWO OFFERS THAT COMPLEMENT EACH OTHER IDEALLY

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Applications (II)

Data-Informed Decision Making in a Pandemic

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DIDMP: European Cooperation Project # 22

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Expertise

International Working Group on
COVID-19 and Statistical Literacy

FENStatS
Federation of European National Statistical Societies

Funding

AI Campus
The Learning Platform for Artificial Intelligence

GEFÖRDERT VOM
Bundesministerium für Bildung und Forschung

Implementation

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Not Another Paper, Please

During the Covid 19 pandemic, **decision-makers in politics and business** were in trouble.

- Many, sometimes **conflicting, interests had to be weighed against each other**
- in order to **find compromises that would minimize the damage** in all areas of public and private life.

In order to support these decisions, **insights gained from data were used**.

→ FENStatS Covid-19 WG collected best practices from Europe / rest of the world…

→ … but who would read that?

Develop an **online course** to allow users explore

- how exactly **data-driven decisions** are made
- what the **limitations of using data** in complex decision-making situations are

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Goals and Intended Target Groups

Show how data can be used to improve and support decision-making

+

Understand the principles, opportunities and limitations of data decision-making

[1] POLITICIANS

+

[2] JOURNALISTS

+

[3] MANAGING DIRECTORS

+

[4] GENERAL PUBLIC

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Course Contents

[1] Introduction

Data and information must always be embedded in a context

[2] Establish a Data Culture

Planning on what information and data is important, as well as planning on what can be left out

[3] Provide Data

How to collect the necessary data and get to know different ways to do so

[4] Exploit Data

How to generate useful data and to avoid the misuse of visualisations

[5] Interpret Results

Learn to interpret the data product and how it needs to be distinguished from facts

[6] Interpret Data

Evaluate the relevance and reliability of your data by taking into account its origin

[7] Derive Actions

Evaluate the direct and indirect impact of your decisions

[8] Recapitulation

Data can support decision-makers, but it cannot – should not – replace them

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The Role of Indicators

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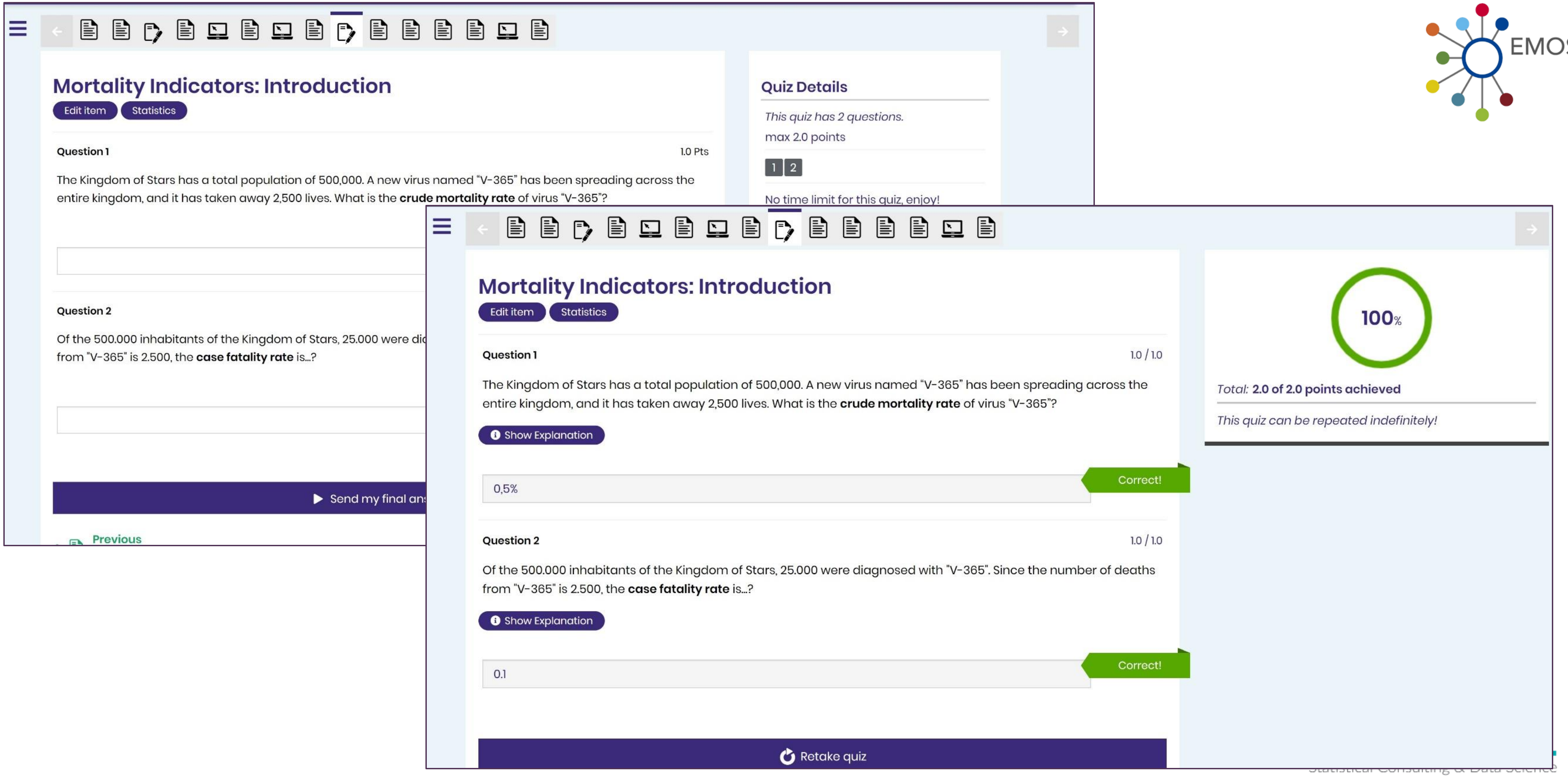
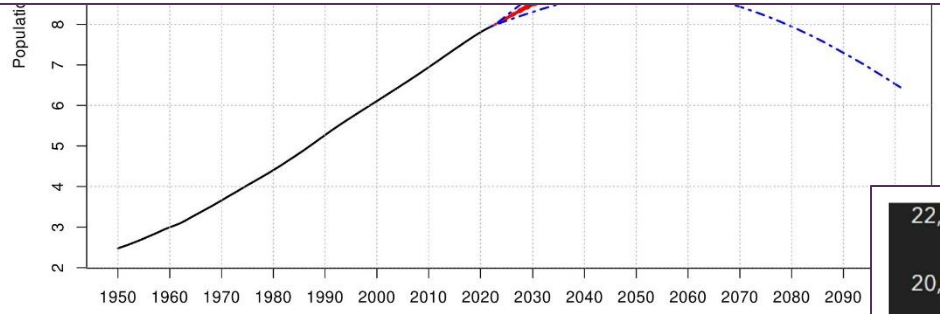


Forecasts and their Limits



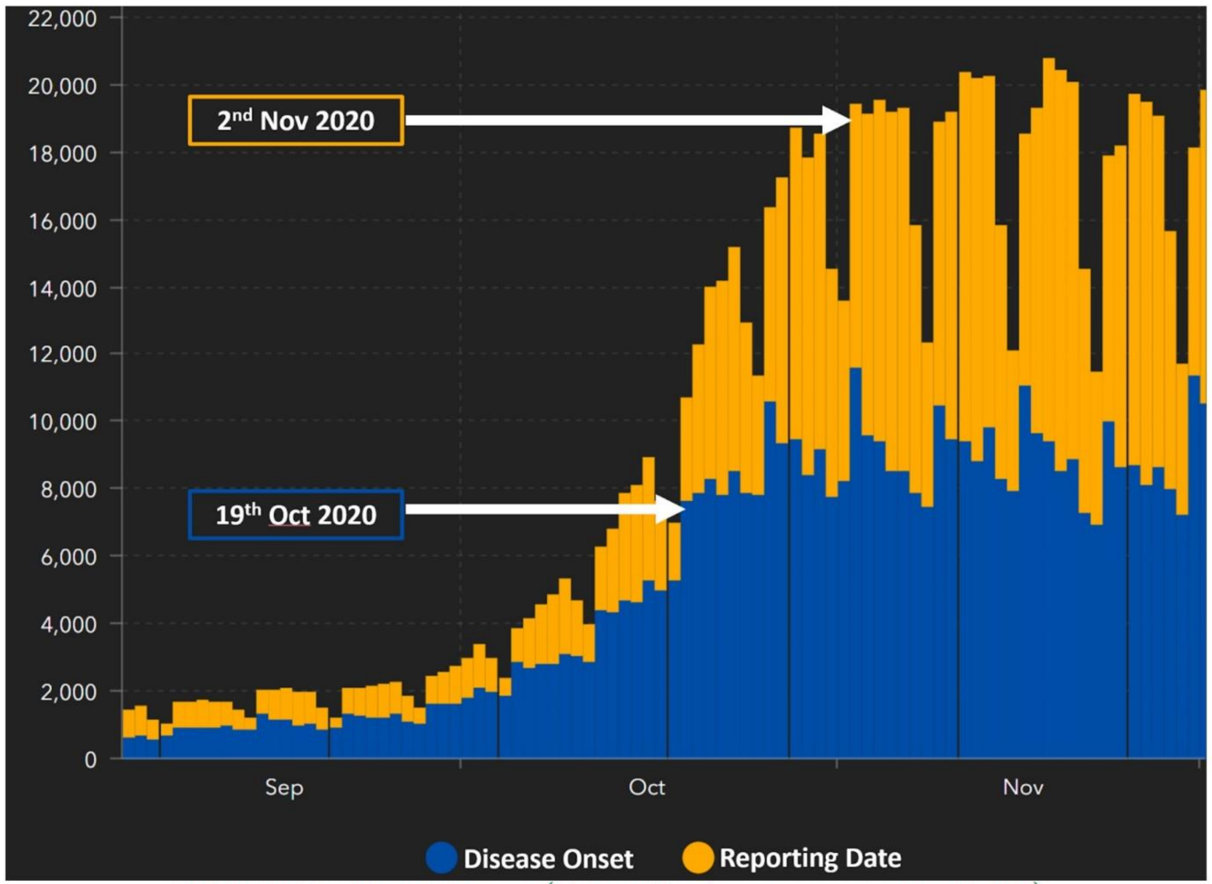
The future population growth according to different scenarios and assumptions based on previous develo
Different levels of uncertainty are visualized here. The median scenario estimates a population of about 11 billio
influential factors which were accounted for, there is an 80% probability that the population size will be betwe
(dashed red lines, 80% prediction interval).United Nations Population Division; accessed on 27.03.202

What can and can't forecasts do?

> *Forecasts* are statistically estimated, future values of a target variable.

Regular observations of a process over time are often stored in the form of data as a time series. Statistical and used to create forecasts based on these past events.

However, as the definition states, forecasts are only estimates. A forecast is not a prediction about the future th hundred percent certainty. It only makes statements about the range in which certain values (e.g. the size of th probably develop in the future, **if circumstances stay as they are in the present or in predefined scenarios**. Not with absolute certainty - even if some like to claim that.



RKI COVID-19 Dashboard Germany (with modifications, accessed on Dec 29, 2021)

Definitions determine Data

Short-Time Working Policies in Germany

In Germany, short-time working was one of the main state interventions to prevent a rising unemployment rate during lockdowns. Basically, the German government provided partial compensation of lost wages for people whose working hours had to be reduced. This enabled employers to reduce their employees' working hours instead of firing them altogether.

We want to address two general issues here:

- **Different methods** of analyzing the **same data** can lead to **different results**. For instan poverty rate, if you take the same income data but use different definitions of "poverty
- **"You can't manage what you don't measure"**. Our simulation depends on a lot of assu of the effects of short-time working policies was not high, and thus the amount of relia very limited. This makes it difficult for decision makers to assess if the policies are enou

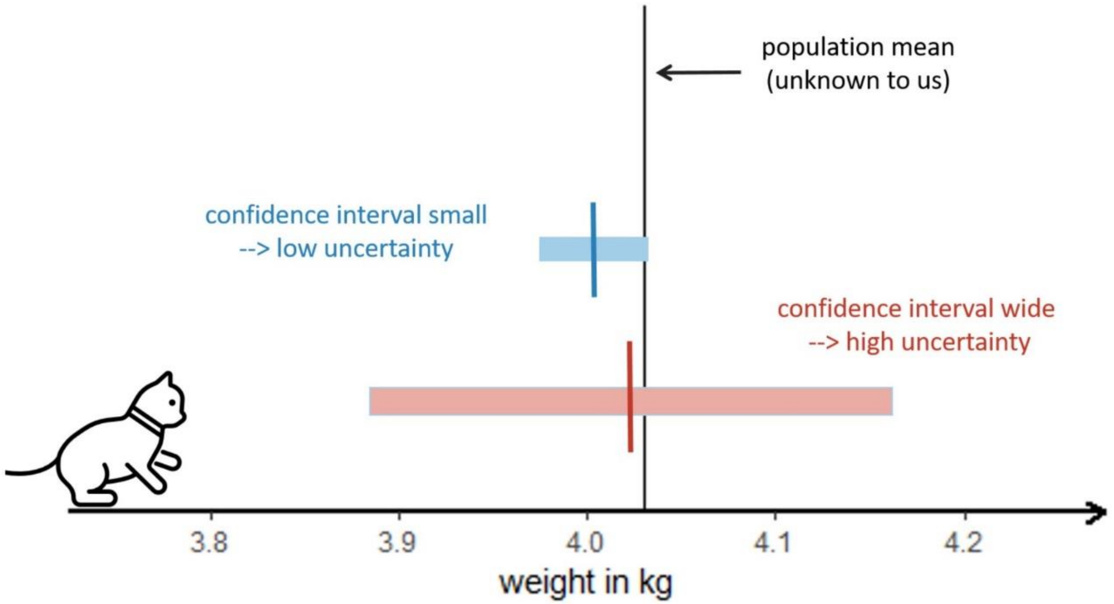
We will now start with an introduction to statistical definitions of poverty:

A person is considered *poor*, if their income is below a certain threshold (a *poverty l* line is called *poverty rate*.

Definitions of poverty differ mainly in how the poverty line is defined. They can be sorted in *poverty*

- A larger sample size leads to less uncertainty (i.e. a smaller confidence interval).
- A higher variability inside the sample leads to more uncertainty (i.e. a wider confidence interval).

And vice versa.



Inference from Samples

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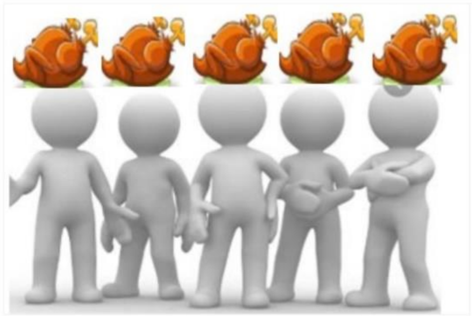
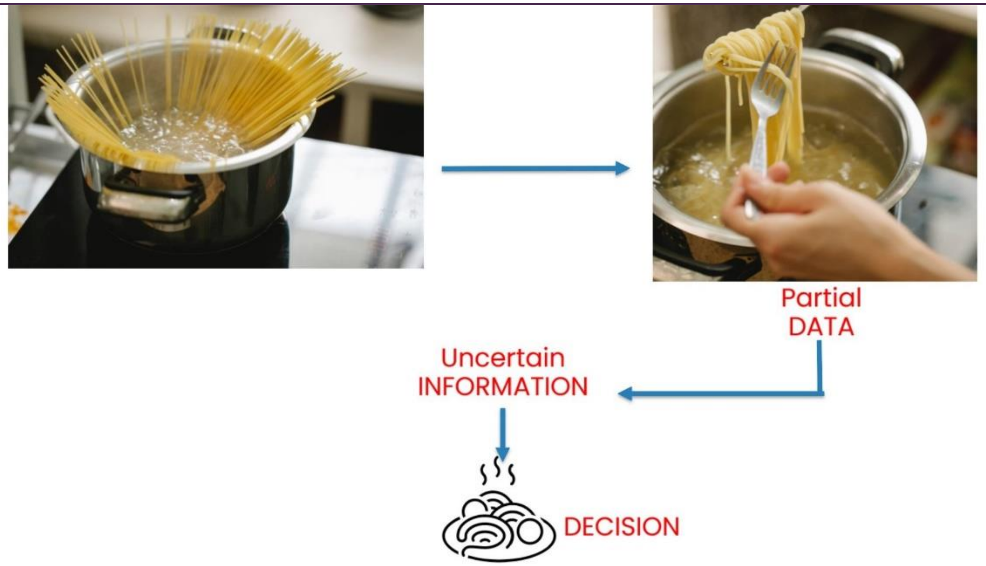
Consider the chicken example again:

Perfect equality	Maximum inequality
	

According to what you've just learned, which of these two chicken distributions has the **higher variability**?

- ◯ Perfect equality
- ◯ Maximum inequality



Have you ever started cooking spaghetti and thrown away the package before checking the recommended cooking time?

How do we know when the spaghetti is ready? What should we do? It would be **impractical to taste the entire pot of spaghetti**. Although we are interested in the readiness of every single spaghetto, trying the entire pot would obviously miss the point.

Yet all we need to do is pick up and taste one random spaghetto - this is our sample data. Then, we generalize the sample data to the entire pot and decide whether or not to turn off the stove. This is drawing inference!

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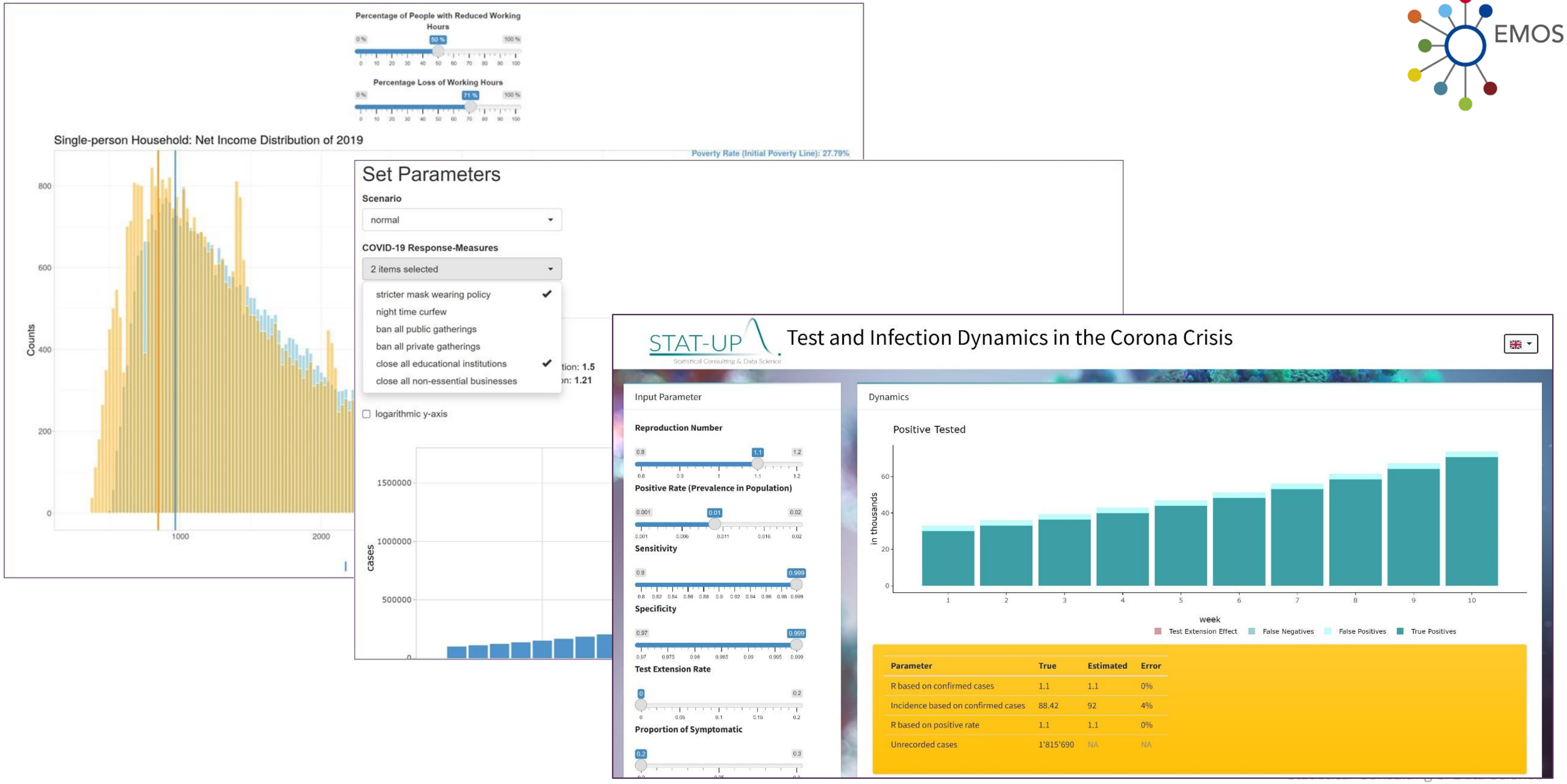
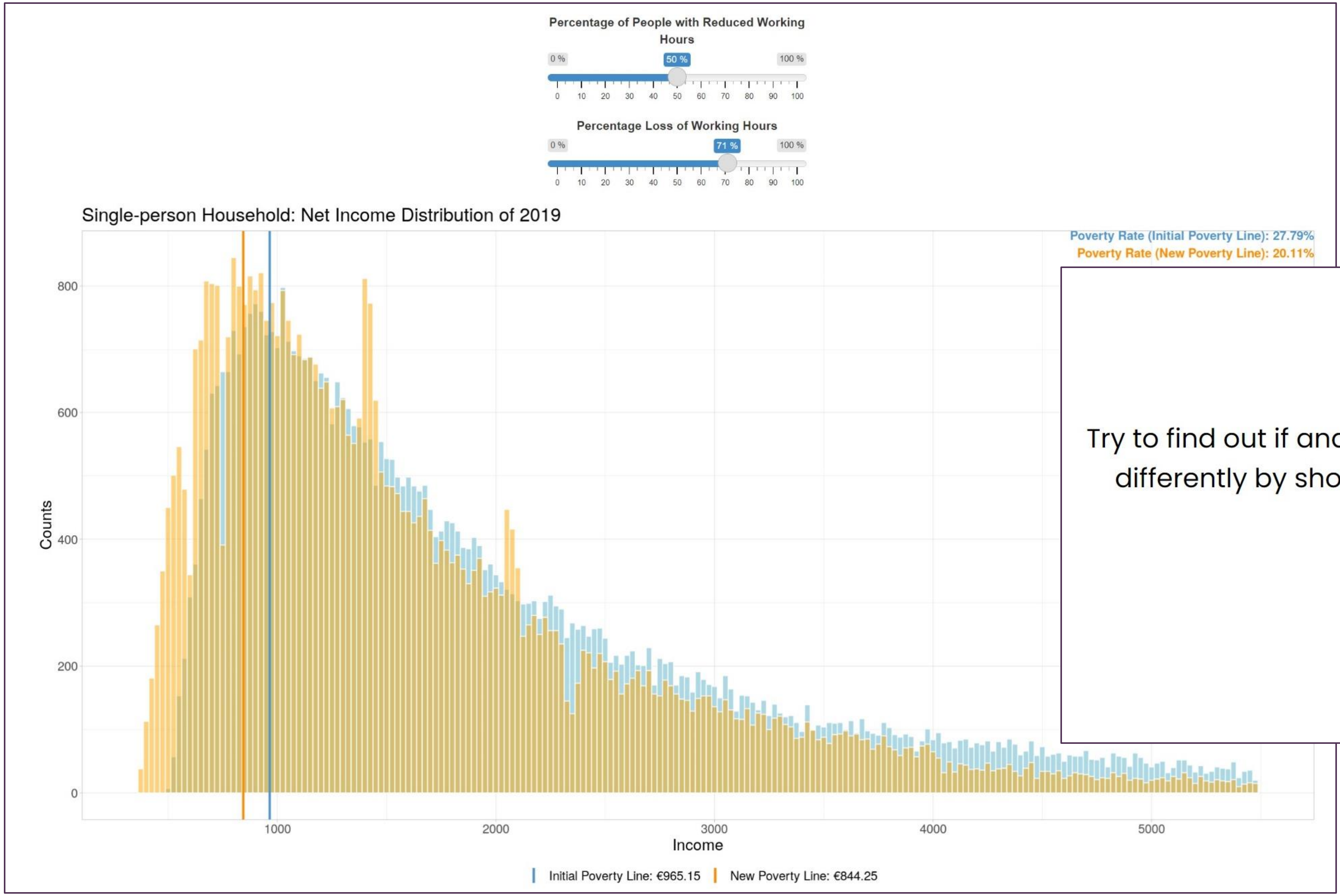
App: Test and Infection Dynamics



App: Short Time Working Policies



Try to find out if and how women and men are affected differently by short time working policies. Is one sex affected more?

Turn

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Certificate: Record of Achievement

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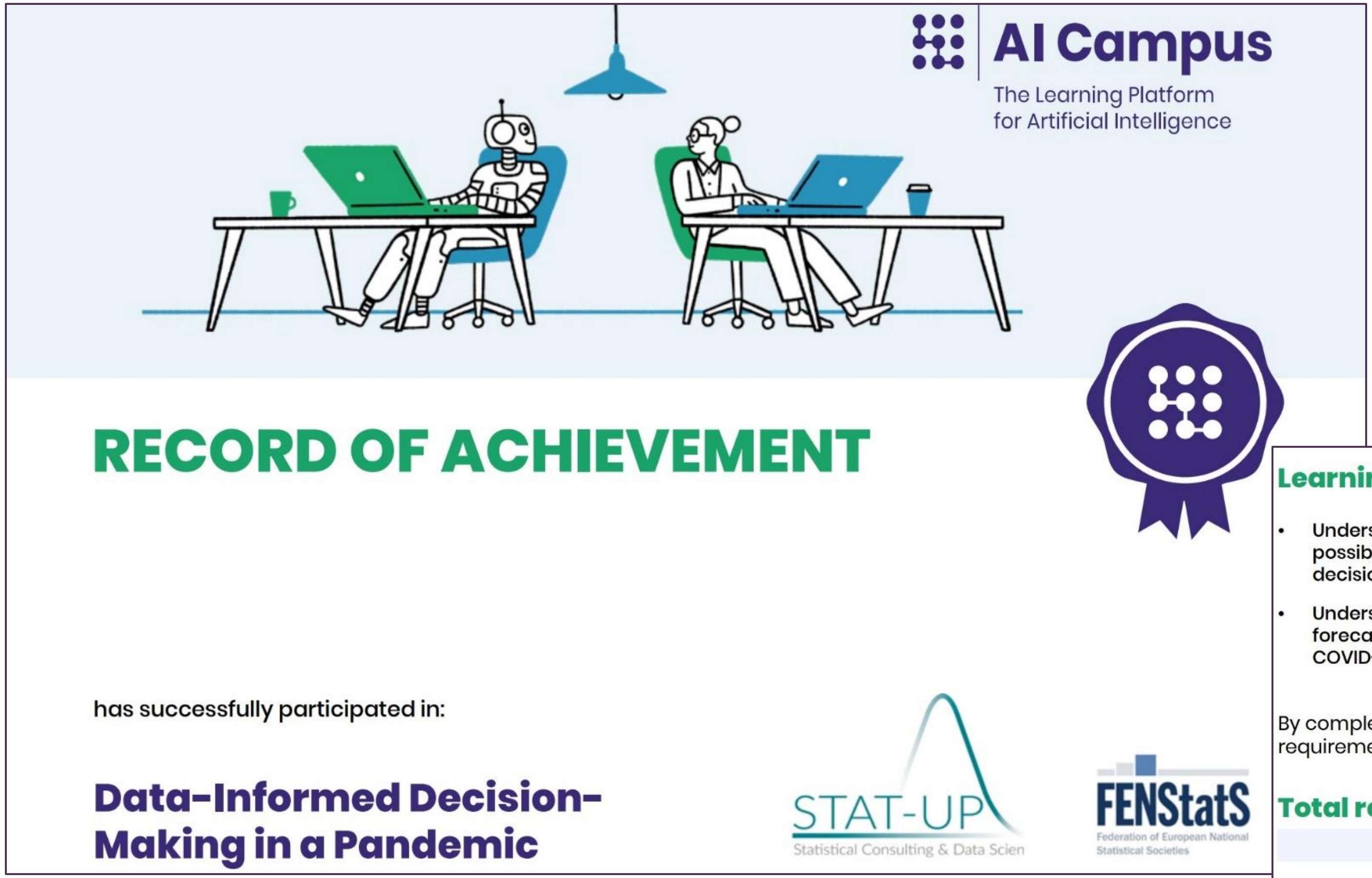
AI Campus

The Learning Platform for Artificial Intelligence

RECORD OF ACHIEVEMENT

has successfully participated in:

Data-Informed Decision-Making in a Pandemic

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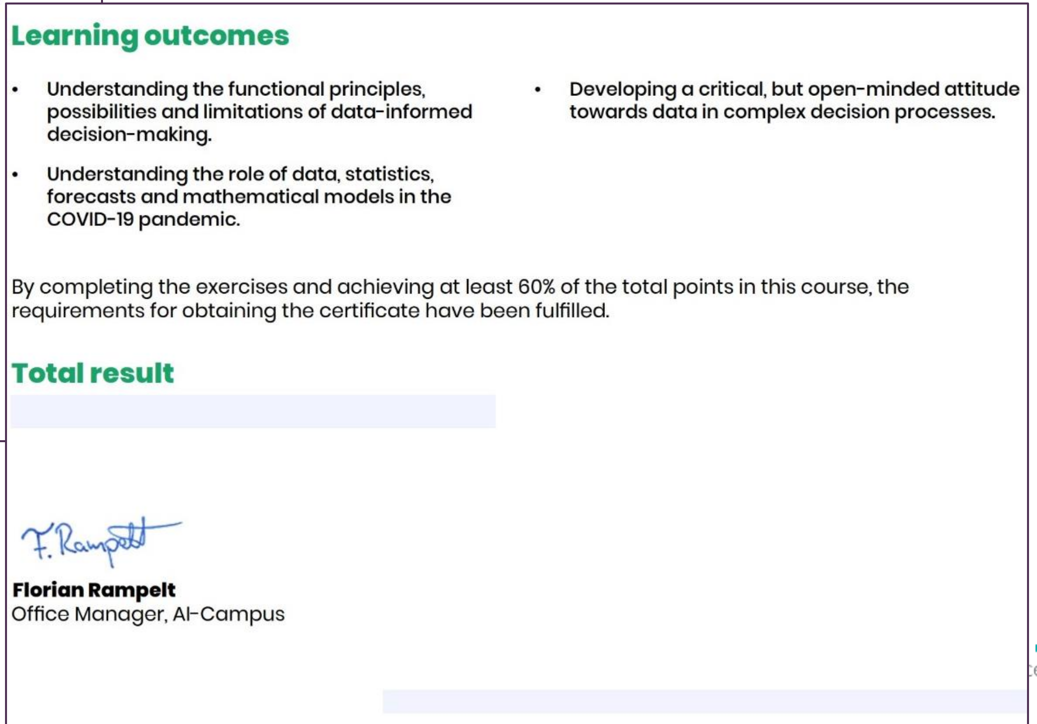
FENStatS

Federation of European National Statistical Societies


Learning outcomes

- Understanding the functional principles, possibilities and limitations of data-informed decision-making.
- Understanding the role of data, statistics, forecasts and mathematical models in the COVID-19 pandemic.
- Developing a critical, but open-minded attitude towards data in complex decision processes.

By completing the exercises and achieving at least 60% of the total points in this course, the requirements for obtaining the certificate have been fulfilled.

Total result

F. Rampelt

Florian Rampelt

Office Manager, AI-Campus

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Outlook

The Data Literacy Charter

Data & AI Literacy Standard

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Data Literacy Charter (shortened)

PREAMBLE

With the Data Literacy Charter, the signatories express their common understanding of data literacy in the sense of comprehensive data literacy and its overall importance in educational processes.

Data literacy enables people, businesses, and scientific institutions as well as governmental or civil society organizations,

- to actively participate in opportunities to use data;
- to deal confidently and responsibly with one's own and other people's data;
- to use new drivers and technologies such as Big Data, Artificial Intelligence or Internet of Things to meet individual needs, address societal challenges and solve global problems.

GUIDING PRINCIPLES

Five principles characterise the importance and role of data literacy as a key competence of the 21st century.

(1) DL must be accessible to all people. We are committed to ensuring that DL and the respective set of skills and competences are widely taught and can be acquired by all people.

(2) DL must be taught throughout life in all areas of education: in curricula and educational standards of schools, teacher training and higher education, and in DL programmes for extracurricular and vocational training.

(3) DL must be taught as a transdisciplinary competence across all subjects from three perspectives: the application-oriented (*What is to be done?*), the technical-methodological (*How is it to be done?*) and the socio-cultural (*What is it to be done for?*)

(4) DL must systematically cover the entire process of insight and decision-making with data and includes the areas:

- Use and protect data
- Classify data and information derived from it
- Act in a data-driven way

(5) DL must include knowledge, skills, and values for a conscious and ethically sound handling of data. Data ethics is a central component of any set of data-related skills and competencies, reflected in all sub-areas of DL.

CLOSING

- Reference to further information
- List of signatories (incl. photos & citations)

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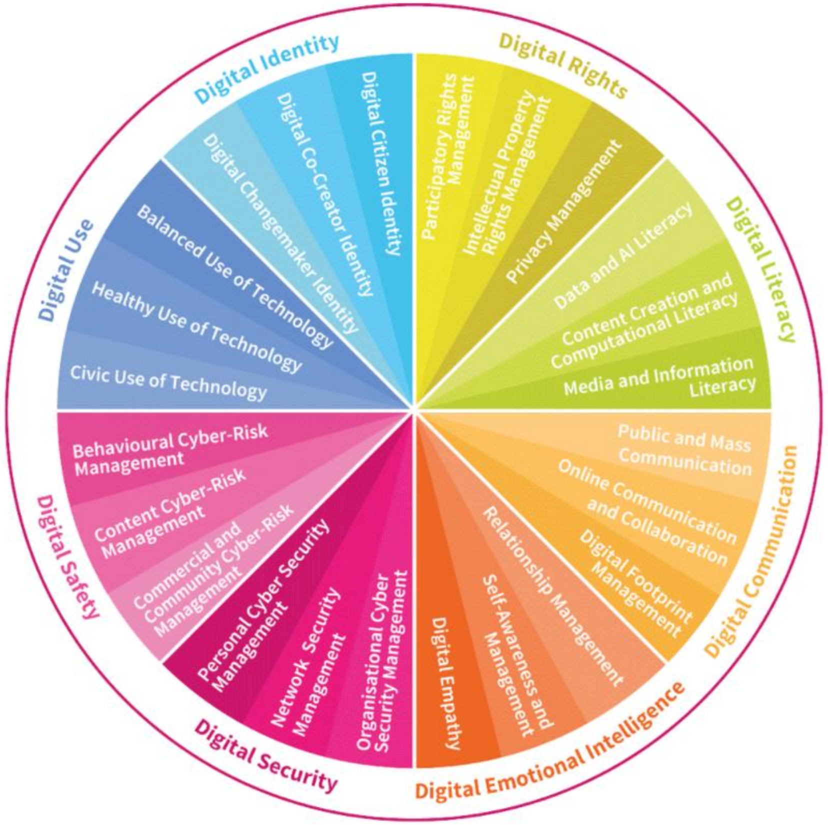
On the way to a Global Standard

DQ Global Standards (IEEE 3527.1™)



- Data and AI literacy is the **ability to collect, manage, evaluate, and apply data** and to **develop, use, and apply artificial intelligence (AI)** and related algorithmic tools and strategies in a critical manner, in order to guide informed, optimized, and contextually relevant decision-making processes.
- Scope: **establish a global standard** that encompasses a common framework to ensure that data and AI literacy building efforts are coordinated globally
- Standard is built upon the Data Literacy Framework (DLF) of Hochschulforum Digitalisierung / Stifterverband and the Data Literacy Charter (DLC)
- Combines perspectives from academia & industry, different disciplines and cultures

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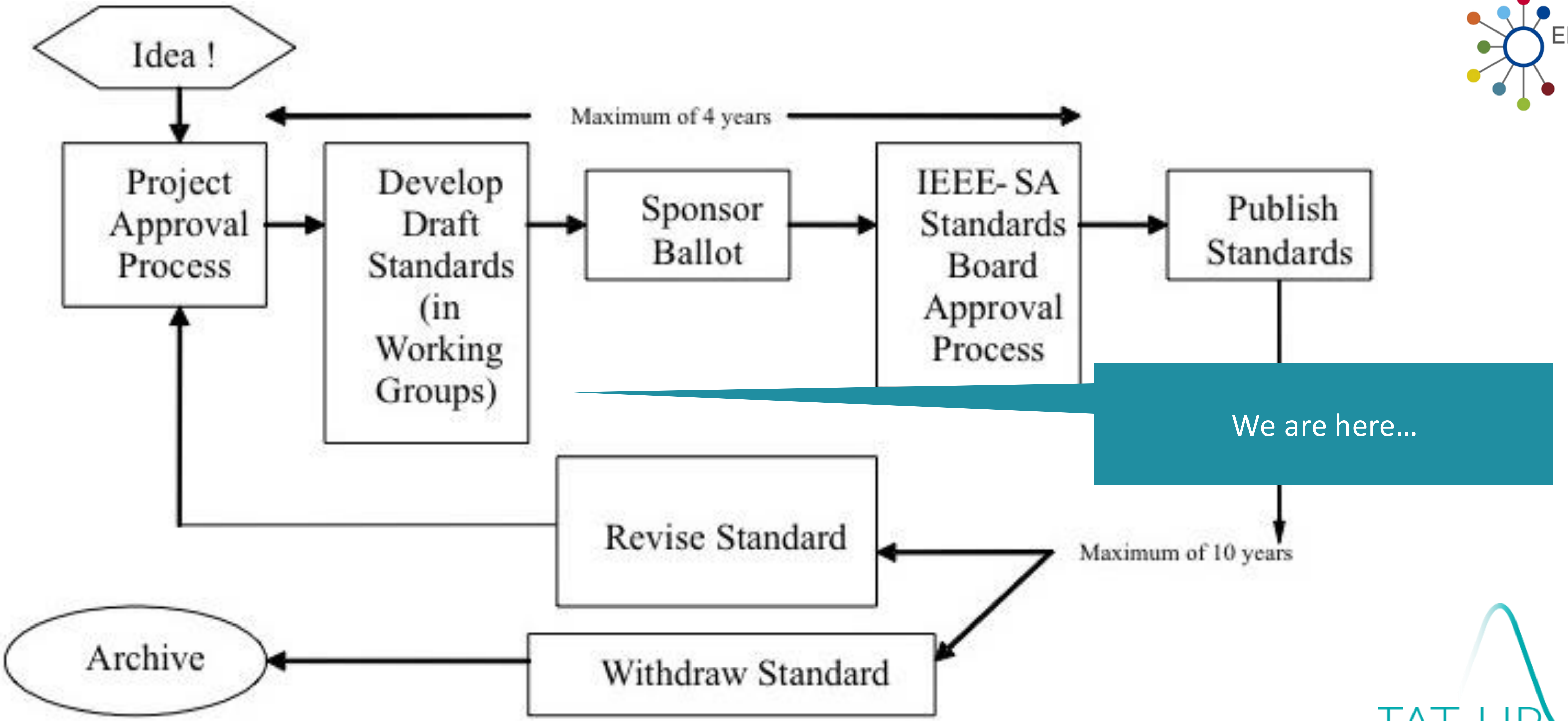
The Standard Process



First steps: Systematic Review

ELEMENT	HFD-DLF	SLDF-DLF	DQ-DAILF	AH-DCF	LM-AILF	FWM-AIL	CBM-AIL
Stakeholders / roles and their needs	No	Yes (2 groups)	No	Yes (5 groups)	Yes (2 groups)	Yes (4 groups)	Yes (3 groups)
Activities / tasks ordered within a process	Yes (not systematically associated wi roles)	Yes (associated with roles)	Yes (ac ies) / No (process; mentions "d making proces	No	Yes (activities) / No (overarching process)	Yes (activities) / No (overarching process)	Yes (activities) / No (overarching process)
Competence demonstrators according to KSAVE	Yes	Yes	Yes		No	No	No (demonstrators) / Yes (distinguishes between mental state, understanding, and behavior)
Competence levels	Yes syst associated with roles)	with roles)	associated with roles)	Yes (competencies are associated with roles, but no definition of levels within competencies)	Yes (competencies are associated with roles, but no definition of levels within competencies)	Yes	Yes (competencies are associated with roles, but no definition of levels within competencies)

(German) Scientists:
„We have to research the literature“

(American) Practitioners:
„This is not a study group“

Working on the Draft

Sie sind im Vorschlagsmodus

P7015™/D1

Draft Standard for Data and Artificial Intelligence (AI) Literacy, Skills, and Readiness

Developed by the

Artificial Intelligence Standards Committee
of the
IEEE Computer Society

Approved <Date Approved>

IEEE SA Standards Board

Certain words (shall, should, may, can) have a special meaning

Pre-determined structure, standardized content (e.g. definitions, sbbreviations, acronyms…)

index: A composite set of measures that reflect a concept such as well-being. An example of an index is the OECD Better Life Index [REF]. Some use the term indicator and index synonymously.

NOTE—For the purposes of IEEE Std 7010, the terms should not be used synonymously.

indicator [statistical]: A measure of a discrete element of a domain. One domain can have one or more indicators.

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The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (*shall* equals *is required to*).[7,8]

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (*should* equals *is recommended that*).

The word *may* is used to indicate a course of action permissible within the limits of the standard (*may* equals *is permitted to*).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (*can* equals *is able to*).

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

2. Definitions, acronyms, and abbreviations

2.1 Definitions

For the purposes of this document, the following terms and definitions apply. The *IEEE Standards Dictionary Online* should be consulted for terms not defined in this clause.[9]

… for information only

…stems and software …d periodically as a …ocabulary) database and is publicly accessible at <computer.org/sevocab>.

NOTE 3—ISO publications are available from the ISO Central Secretariat (https://www.iso.org/). ISO publications are also available in the United States from the American National Standards Institute (https://www.ansi.org/).

Statistics ≠ Computer Science: Indicator ←→ Measure?

Sneak Preview: Our Draft

4.1 **Field of competence A: Establishing a data and AI culture – from systems to measurable objects**

Activity: Coding
Input: System
Output: Objects and their relations
Product: Requirements

New definiton „Competence Demonstrator“ (> „Value Demonstrator“, IEEE 7000-2021)

A1: Identify potential data & AI use cases		
Identify knowledge gaps and background information, identify specific problems that can be solved with the help of data and/or algorithmic tools and strategies, evaluate potential value contribution of data and algorithms		
Demonstrators: Knowledge	**Demonstrators: Skills**	**Demonstrators: Attitudes**
Possess theoretical and practical knowledge of the field of application or the discipline and, if applicable, related disciplines Oversee relevant literature and professional requirements (norms, rules, quality standards, processes, restrictions) related to data & AI use cases in the respective discipline Understand how data and algorithmic tools and strategies can be used for decision-making in the respective discipline	Identify and assess relevant gaps in knowledge regarding the potential value of data, algorithmic tools and strategies Distinguish relevant from irrelevant information about the system with respect to the potential application Evaluate organizational context to identify demands, roles and responsibilities of potential stakeholders, domain experts, and project sponsors Enable decision makers to select a use case by facilitating discussions	Ready to learn from data by questioning existing rules and processes and by admitting and accepting knowledge gaps Open to answer specific questions with the help of data, algorithmic tools and strategies Evaluate externalities on customers, society, and environment, including ethical considerations

Revised table structure

T

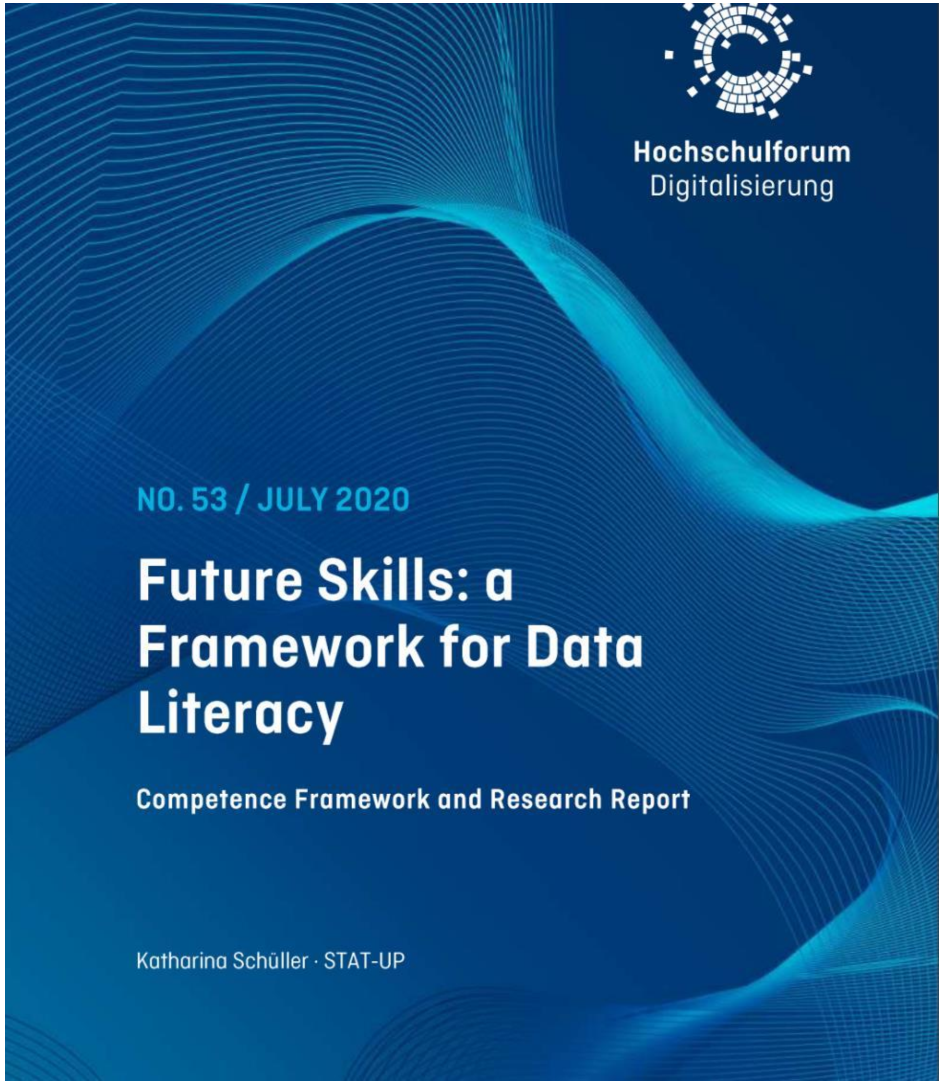
Apolog...
Competenci... we established that they are all profes... ...ills. In terms of general AI literacy, there are
M... ...eigen

Howard Deiner
18:17 7. Sept.

This is an excellent point. We are trying to help people understand why things like targeted marketing occur. And Google searches are biased by company and client concerns: you are not the customer. Does trustworthiness come into play? Explainable AI perhaps?

Know the organizational context (departments, roles, potential stakeholders, current and past data/AI projects)	between different stakeholders, evaluating feasibility and impact, and drafting a business case	
Examples of ascending levels		
Examples: Basic	**Examples: Advanced**	**Examples: Expert**
Identify obvious use cases, e.g., through copying published use cases for typical problems with standard data sources/ algorithms	Identify innovative use cases, e.g., through creative recombination of standard applications	Identify disruptive use cases, e.g., through anticipating new algorithmic technologies, data sources, user groups

Further Reading



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