
LEARNING
THE DIGITAL

The handbook is part of the series "Facilitator Handbooks" created in the frame of the project DIGIT-AL Digital Transformation in Adult Learning for Active Citizenship

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Competendo Facilitator Handbook

LEARNING THE DIGITAL

2021/22

CONTENTS

INTRODUCTION TO THE TOOLKIT

0.1 Aim, target and structure

This toolkit is the result of a collective effort among the DIGITAL project partners to translate into educational terms the theoretical insights developed in the Reader Series:

Smart City, Smart Teaching: Understanding Digital Transformation in Teaching and Learning

About bringing the social, economic, cultural and political impact of digital change into education and learning, provided by the DIGIT-AL project.

→ https://dttools.eu

The content is designed as a combination of thematic introductions for the educator and didactic material ready to be used in one's own training context. The principle that guided us in drafting the text was to imagine a non-formal training context. The chapters each begin with a short overview. The resources they contain are categorised as follows:

Tasks: training methodologies organised in several steps that guide the educator in experimenting with his/her learners

Resources: references to relevant publications or audio/video resources

Inspirations: references to resources or practices that can easily be transferred to an educational context

Checklists

Interviews

Materials and spatial requirements

We indicate the necessary materials and spatial requirements for each task. We assume in-person learning and the widely established practices of non-formal education as the standard. A typical setting might require the specifications listed below.
For in-person settings:

- Whiteboard or flipchart, paper, markers, pens, cards and tape or self-sticking cards.
- A space big enough to arrange the group in a circle, usually without tables.
- Space for group work, ideally in different rooms or in corners of a large room if big enough for distraction-free group conversations.
- For documentation/sharing outcomes/questions: a digital (e.g. Etherpad, Pinnet, or messenger group) or real wall or flipchart.
- Projector, internet access and usable devices for learners.

For digital settings:

- A pad, whiteboard or similar tools, e.g,. an Etherpad or Pinnet.
- A video conference tool or a combination of video conference tools enabling individual or group (breakout room) participation, e.g., BigBlueButton or Jitsi.
- Internet access and usable devices for learners.

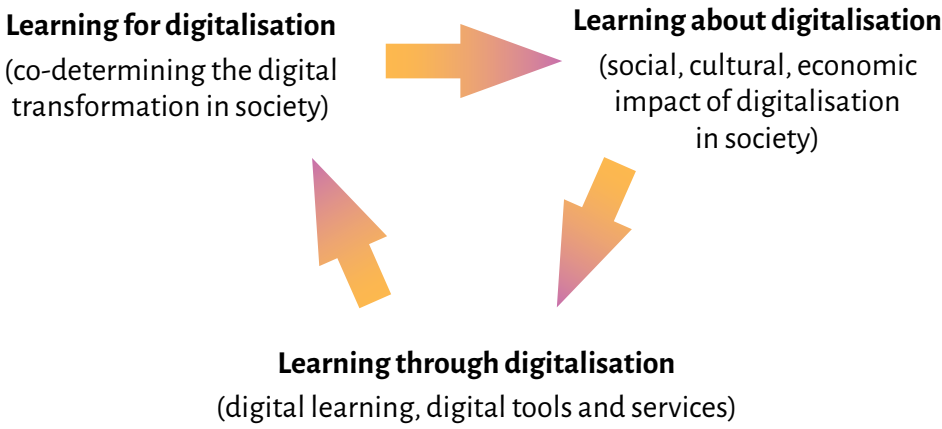
0.2 The educational perspective

The educational approach this handbook uses in exploring the theme of digital transformation is based on *Education for Democratic Citizenship and Human Rights (EDC/HRE)*. It is strongly connected to the idea that education should move from a perspective focused solely on technology to a position that supports learners to evaluate critically how technology impacts their world, to apply adequate technologies and take a stand on these, considering the dilemmas of democratic participation, governance, and rights.

EDC/HRE calls upon the need to move from digital skills towards developing "*digital competences*", aiming for a "literacy of the digital". It holistically integrates three specific dimensions:

- Learning *for* digitalisation: co-determining the digital transformation in society.
- Learning *about* digitalisation: social, cultural, economic impact of digitalisation in society.

- Learning *through* digitalisation: digital learning, digital tools and services.



Following this methodological approach, we have kept in mind the following three guiding questions:

- ➔ What role and potential does EDC/HRE have for learning about 'the digital' and for empowering Europeans to take a position and voice their opinions?
- ➔ How do we need to apply the concept of digital competence in order to teach and learn 'the digital' holistically?
- ➔ How can these aspects be facilitated and integrated, especially in non-formal learning settings?

0.3 The tools we recommend

Digitalisation has changed the way learning and education are organised and facilitated. New tools, apps and platforms are constantly appearing in learning processes. The digital social sphere has become an omnipresent reality in education and learning. Many expect also that learning processes may involve digital analysis (and AI), so that digitalisation in education encompasses far more than online meetings and online elements embedded in in-person learning. Learning *through* digitalisation also includes the question of how learners can and should make use of data, Big Data and digital services in regard to organisation, planning, collaboration and competence recognition.

What tools and apps we use says a lot about us. We have compiled here some that we consider particularly useful and reliable from the point

of view of sensitivity to rights and the process through which they were created. Many popular apps and tools will not be found in this list for that reason.

What are our selection criteria?

Democratic civic education in particular is called upon to make conscious and critical choices. At Competendo, we are convinced that Open Software, Open Educational Resources and applications that do not inappropriately and non-consensually commercialize user data are superior to other options. This may complicate educational processes, but it also may make them fairer and more creative. Specifically, we believe in focusing on:

- Free and Open Source
- Non-profit
- High level of privacy
- Non-monetized use of data

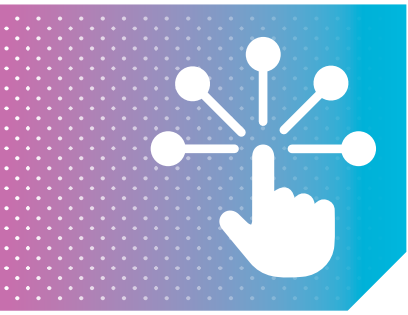
Here you will find a continuously updated list of tools meeting these criteria:
➔ https://competendo.net/en/Apps_and_Tools

0.4 Authors and license

In the process of writing, various chapters have been intertwined and shifted in order to offer an inductive structure of reasoning that starts from the wider aspects of digital transformation and leads to the personal sphere.

The chapters are a common brainwork of Marco Oberosler (CCI), Elisa Rapetti (DARE Network), Valentina Vivona (CCI), Gustavo Briz (inducar), Ines Carvalho (inducar), Nils-Eyk Zimmermann (AdB) and Georg Pirker (AdB).

Daniela Kolarova (Partners Bulgaria), Sulev Valdmaa (JTI), Iveta Verse (EDC) and Ramon Martinez (DARE network) have contributed with valuable feedback and recommendations.



Chapter 1
LEARNING THE DIGITAL AS COMPETENCE-BASED LEARNING

Educators are confronted with the key question of what knowledge, skills, attitudes and values they need to facilitate to meet the demands of the digital transformation. Digital competences are viewed in this handbook as key competences for successful, autonomous and democratic living in present and future societies, acknowledging that the digital sphere represents a new paradigm for organising society as a whole. Rather than purely looking at technical competences, the focus here is more holistically enabling learners to build their own critical position towards the digital transformation and to participate successfully in society. The text also presents the main European competence frameworks addressing the topic of digital competences, thus highlighting the institutional debate around this issue. A set of competences which are particularly relevant for this publication are identified. Ultimately, the structure of the publication is explained, highlighting the topical focuses and connections between the different chapters.

1.1 A digital framework for democratic citizenship and human rights education

The handbook explores – on the basis of our publications in the "Smart cities, smart teaching" series – how to facilitate digital competence from the perspective of *Education for Democratic Citizenship and Human Rights (EDC/HRE)*. Digital transformation is an extremely pervasive phenomenon. All cultural, social, economic and political processes are affected in some way: from self-perception to art and culture, from education to journalism,

Different aspects of digital transformation

- work, working space
- platformisation, AI
- media, journalism
- the digital self
- activism, participation
- education
- culture

→ https://dttools.eu

from work to data collection and platforms, and from activism to the management of democratic institutional processes.

The digital sphere is not only a supporting technology but represents a genuine new paradigm for organising society. Becoming aware of this fundamental shift is the first step towards interpreting *our role* as actors in society in a new light, as conscious citizens who understand that they cannot escape these transformations, but can contribute to shaping them. This is especially critical for those who play roles in formal and non-formal educational contexts, in promoting active participation in communities and in political processes in general.

In discovering and teaching this new form of citizenship, it is critical to avoid assuming certain aspects are antithetical to one another; for example, *digital citizenship* is not opposed to *analogue citizenship* (Fuggetta, 2018). Citizenship extended to the digital environment ensures faster and wider reach, and should simultaneously maintain the same principles of informed, responsible and ethical communication. Recognition of the 'real' and the 'virtual' as two sides of the same coin acknowledges the complexity of human relations in both spheres. As such, one avoids disorientation on the part of the learners, who experience the digital as an embedded aspect of their social sphere and of their life.

Digital technology comprises and modifies the importance of the space in which the relationship takes place and at the same time multiplies the effects of actions apparently disconnected from the physical/material dimension. Already more than a hundred years ago, the educator John Dewey sensed how the medium through which relations between human beings occur can be independent of space (Frau-Meigs et al., 2017).

> *A book or a letter may institute a more intimate association between human beings separated thousands of miles from each other than exists between dwellers under the same roof.*
>
> Dewey, 1916 in Frau-Meigs et al., 2017, p. 45

The digitally enforced modernisation of society and developments towards knowledge society amplifies this transformative capacity. The task of educators is to develop a critical approach to digital transformation and to promote the human, professional and personal development of the individual in regards to the (technical) evolution.

Positioning from an EDC/HRE perspective is to be understood as an ethical

and normative perspective that is open and willing to *cross-fertilise* with different educational approaches. Non-formal education and lifelong learning constitute the broader horizon into which the reflections and methods presented here fit. The learning area of 'the digital' in both e-skills and understanding of digital transformation is referred to by several international and European competence frameworks, including the recommendations of the Council of the European Union. Digital competence is identified as one of the eight key competences for lifelong learning. It is defined as 'the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society' (EU 2018/C 189/01).

Education for Democratic Citizenship

"Education for democratic citizenship means education, training, awareness-raising, information, practices, and activities which aim, by equipping learners with knowledge, skills and understanding and developing their attitudes and behaviour, to empower them to exercise and defend their democratic rights and responsibilities in society, to value diversity and to play an active part in democratic life, with a view to the promotion and protection of democracy and the rule of law". (Charter on Education for Democratic Citizenship and Human Rights Education, CoE 2010)

Technology and the phenomenon of digital transformation are constantly evolving and have complex effects on how societies are organised at all levels, which is why it is necessary to promote lifelong learning processes for all citizens and professionals, especially those who have educational tasks in formal and non-formal contexts.

Digital and analogue in educational processes

There is a lively debate among practitioners using digital tools in education over the innovative contribution of digital education to pedagogy. Learning processes might be qualitatively poor despite integrating technology – just think of all the boring PowerPoint presentations you've sat through in your life. On the other hand, educational processes designed without using *new* technology might also be experienced as insightful, innovative and helpful. Digital and analogue are not counter to one another, but work together as integral parts of our cultural practice. The discussion in education and learning needs to focus on the synergies between them.

Digital and analogue together open a wide range of new possibilities, such as simplifying things organisationally, being able to respond to special needs, bringing the world into the learning space, stimulating communication and cooperation, and designing learning processes across individual educational offerings that are closed in format. Concepts like immersion or experiments with augmented reality illustrate the huge potential of technology for a new way of cultural expression and perception.

However, since media and technology are *tools* just like the ones we are used to applying in in-person learning settings, educators must similarly be able to choose among them by the same criteria which they apply for analogue methods. Additionally, they need to be aware about the new implications that digital measures and digital platforms bring into learning processes through datafication.

1.2 Learning to be(come) digitally competent

The hypothesis from which this publication starts considers learning processes as emancipatory. Learners should have the opportunity to initiate a transformative process through guided or independent training, not only in an individual personal dimension, but in a collective and social sense – becoming proactive *champions of digital citizenship*.

In short, they develop their awareness of being citizens "*learning to transform oneself and society*" a term used by UNESCO in their framework about Education for Sustainable Development (UNESCO, 2012) and given more importance in the Global Citizenship Education framework (UNESCO, 2015, p.15): "Global citizenship education aims to be transformative, building the knowledge, skills, values and attitudes that learners need to be able to contribute to a more inclusive, just and peaceful world."

Such an ambitious goal combined with a far-reaching digital transformation implies at the educational level a realignment of the competences needed to consciously exercise one's role in society and possibly co-determine the direction in which it is oriented. The publication uses the term *digital competences* rather than digital skills or digital literacy. The latter categories, in fact, are often understood as particular technical knowledge – such as knowing how to navigate a social platform or particular programming languages – which does not in itself help to build a critical stance in the learner with respect to the objectives being pursued. Educators and

learners should therefore shift from an educational perspective focused purely on technical skills to a digital competence that focuses on aspects of digital literacy *alongside* the learning of technical tools.

> *The digital competency clearly involves more than knowing how to use devices and applications (...) which is intricately connected with skills to communicate with ICT, as well as information skills. Sensible and healthy use of ICT requires particular knowledge and attitudes regarding legal and ethical aspects, privacy and security, as well as understanding the role of ICT in society and a balanced attitude towards technology.*
>
> Janssen et al., 2013, p. 480

In addition, distinguishing technical skills from digital competences avoids the risk of digital transformation becoming a topic for 'insiders' and 'experts'. Of course, because it is related to the rights and collective responsibilities of all citizens, it should be relatable for people from a variety of backgrounds. The use of the term 'digital competences' should therefore be understood in the broadest sense, linked not only to the technical dimension but, above all, to the social and cultural dimension. A key feature of digital competence are the communication skills which relate to numerous cognitive, social and emotional characteristics including logical thinking and clarity, friendliness and respect, empathy and compassion.

Digital Toolbox Competendo

Explore the Digital Toolbox Competendo for further background and inspiration about digital transformation as an issue of Education for Democratic Citizenship/Human Rights Education.

→ https://competendo.net

The emphasis on the *learning to be* dimension contributes to the essentially behavioural nature of the competences required to understand and navigate the digital transformation. *Learning to be* becomes the focus of educational action and imposes a reconsideration of the educator's role. The educator increasingly becomes the facilitator of collective experiential learning processes. The very etymology of the term "competence" emphasises the collective dimension of learning understood as searching (in latin *petere*) carried out together with others (*cum*).

Transformative Competences

Observing the current development of digitalisation in Europe and the myriad demands that education must prepare citizens for the digital age, it is becoming evident that critically assessing digital transformation (critical thinking), understanding of the positive and negative impacts of it (systemic thinking) and the ability to co-create transformation (participation) are needed.

> *Evidence shows that to keep up with digital developments, simply improving digital literacy is not enough. The European Skills and Jobs Survey show adults in jobs requiring at least moderate-level ICT skills also require a strong level of complementary skills, such as foundation skills (literacy, numeracy), soft skills (planning and organisation) and behavioural skills (communication and teamwork).*
>
> Cedefop, 2017, p. 3

Such a concept goes beyond a media or information competence and links strongly to other competences such as learning to learn, proactivity, or other social abilities such as problem-solving, conflict resolution and reconciliation skills. Digital competences, then, should be considered as transformative competences; the challenge is to overcome an overly-close association with computer literacy or digital literacy as a mere development of traditional literacy. Other aspects must be included in education promoting digital competence, for example data literacy, the crucial ability "to derive meaningful information from data, the ability to read, work with, analyse and argue with data, and understand what data mean". Communication and living together in our society are affected by the generation of data that is increasingly diverse, on information extraction from this data by algorithms, and on the application of this information via machine-mediated assistance (OECD, 2019).

OECD uses the term *21st century skills* in educational debates on the digital transformation. Grounding the work in key competences that lead to the foundations of the PISA studies, the OECD uses the term in the "Future of Education and Skills 2030" as a meta-category of competences. These support the learners in acting, reflecting and anticipating. The three transformative competences are

- Reconciling tensions and dilemmas;
- Creating new value;
- Taking responsibility.

1.3 The main European digital competence frameworks

The issue of digital competences has shifted to the centre of the European cultural and political debate and pedagogical approaches (e.g., media pedagogy, data literacy, robotics, ICT training, art education). The variety of the contributions by academics from universities, practitioners and professionals from CSOs and representatives of public institutions that have nurtured this debate has been systematised in various competence frameworks and educational contexts. Below, we list in chronological order the main documents from the European context. Some of them start from a general citizenship perspective while others refer to a specific sector, where the educational one emerges as the most important. In general, there is a tendency towards a holistic understanding of digital competence as a complex set of values, attitudes, skills and knowledge.

2013 DigComp 1.0: focus: citizens

2015 DigCompOrg: focus: educational organizations (Kampylis, Punie & Devine, 2015)

2016 DigComp 2.0 focus: citizens (Vuorikari et al., 2016)

2017 DigComp 2.1 focus: citizens (Carretero Gomez et al., 2017)

2017 DigCompEdu focus: educators – teachers and trainers (Redecker, 2017)

2017 Reference Framework of Competences for a Democratic Culture (Council of Europe, 2017)

2019 CoE Digital Citizenship Education Handbook (Council of Europe, 2019)

2020 LifeComp (Sala et al., 2020)

2022 DigComp 2.2 (in progress).

Here we look at the most recent frames available, DigComp2.1 and DigCompEdu.

The *DigComp* model has its roots in the research activity that the Joint Research Centre of the European Commission (JRC) started in 2005 to support policy-making regarding the potential of digital technologies in certain priority fields: education, the world of work, personal growth and social inclusion. It brings a useful perspective for planning in the field of education, training and employment – most technical/digital skills and for digital competences assessment and certification.

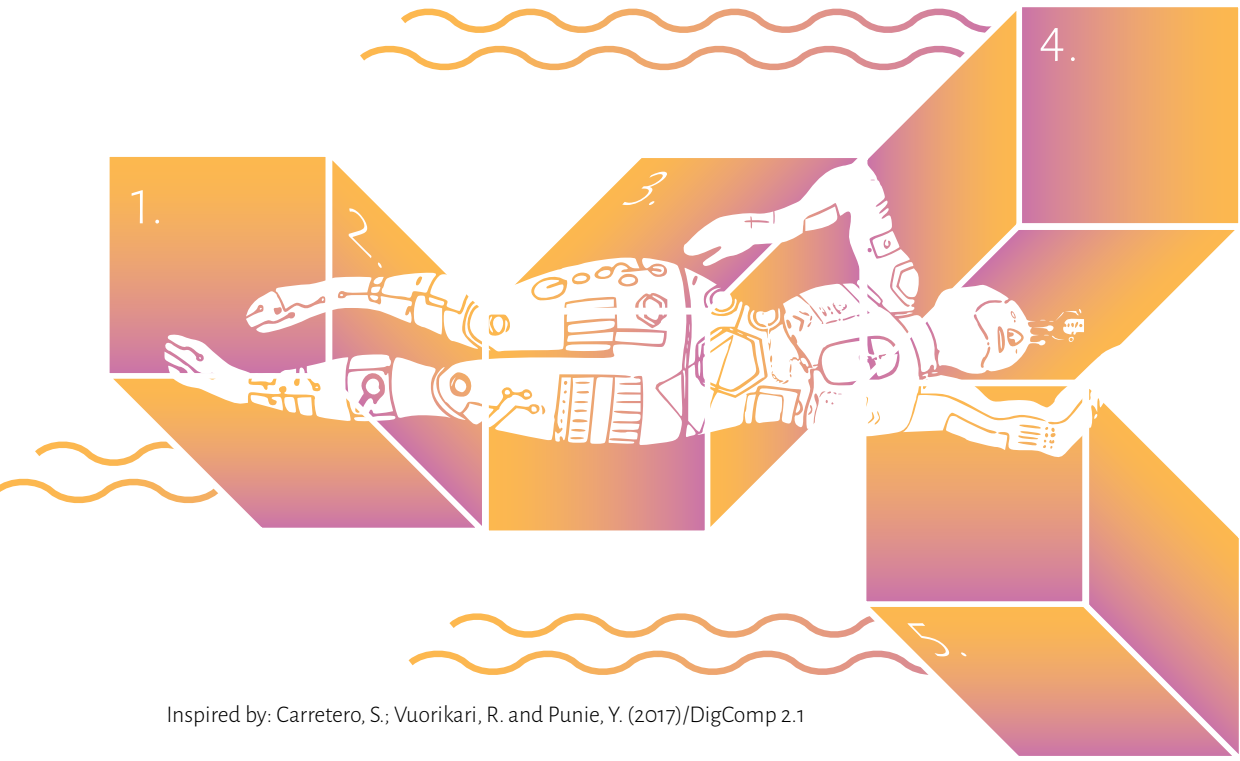
The framework has been progressively refined; an update of the framework is expected to be released in the first part of 2022.

DigComp competence areas:

1. Information and data literacy
2. Communication and collaboration
3. Digital content creation
4. Security
5. Problem solving

Although the areas of competences are very useful for assessing the level of basic skills with respect to the use of digital tools (especially in terms of comparison between different countries, age groups, gender, etc.), they do not address more deeply cultural and social dimensions of the digital transformation and integrate less explicitely the citizenship dimension and its consequences. For each competence, eight levels of proficiency are identified, ranging from "basic" to "highly specialised" according to three criteria: the complexity of the tasks, the autonomy required and the cognitive domain involved.

In terms of assessment, the examples provided refer to two domains: the world of work and the world of learning with an exclusive focus on the



Inspired by: Carretero, S.; Vuorikari, R. and Punie, Y. (2017)/DigComp 2.1

formal sector. However, for each competence, examples are given for only one level of mastery. This, in our opinion, limits the possibility of comparison between the different levels. Moreover, the examples provided mainly refer to the dimension of "knowing how to do" rather than "knowing how to be".

The update of DigComp to 2.2 is expected for spring 2022 and takes several developments into account, for instance the increasing relevance of AI and data-related skills, including a further recognition of learners as users and creators. The update process involved a European Community of Practicioners.

DigCompEdu (Redecker, 2017) focuses specifically on the world of formal and non-formal education. The digital competence framework was developed for teachers and trainers and identifies a set of 22 competences divided into six areas:

DigCompEdu competence areas

1. Involvement and professional development
2. Digital resources
3. Teaching and learning practices
4. Assessment of learning
5. Enhancement of students' potential
6. Promoting the development of students' digital competences

The proposed categorisation is graphically represented by the intersection of three macro-areas of competence:

1. The *professional competences* of the teacher/trainer intended as digital competences functional to the communication and to the professional interaction with the other actors of the educational organization; to the improvement of the organization in which one works; to one's own professional growth as teacher/trainer (area 1);
2. The *didactic competences* of the teacher/trainer which revolve around the ability to design, implement and evaluate the educational intervention in light of the opportunities and constraints offered by a learning environment based on – or at least, supported by – the use of digital technologies (areas 2, 3, 4, 5);
3. *Learner competences* are understood as those transversal digital competences whose development in the learner strongly depends on the ability of the teacher/trainer to master them and use them in his/her educational activity (area 6).

DigCompEdu was published in 2017, the same year in which the latest updated version of DigComp was made available. This contemporaneity should be understood as an indicator of continuity and correlation between the two publications. It is no coincidence that the student's digital competences take up the five areas already proposed in DigComp (information and media literacy; digital communication and collaboration; digital content creation; responsible digital use; problem solving).

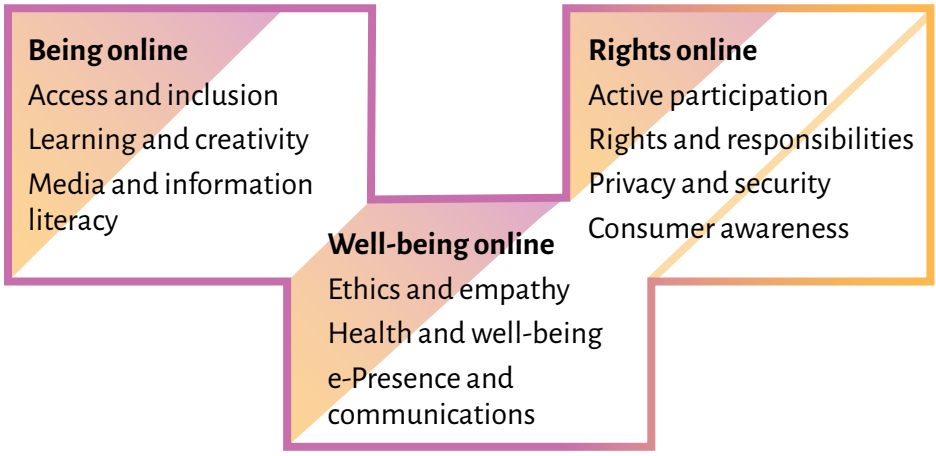
Moreover, an interesting element that emerges from the DigCompEdu framework is the proposed *rethinking of the figure of the teacher/trainer*. The great potential of digital technologies is in fact identified in their ability to shift the educational focus onto the learners, creating opportunities for educational personalisation and facilitating forms of collaborative and self-regulated learning. The challenge for those who play the role of teacher/trainer is identified in the ability to govern these processes through a careful planning phase that leads to identifying and practicing the most appropriate forms of support for learning at the individual and collective level. The reference model for the teacher/trainer is therefore always closer to the figure of the facilitator of processes rather than that of the depository of knowledge.

The *Digital Citizenship Education Handbook* CoE (2019) originates from the EDC/HRE sector. The Council of Europe's concept for digital competences is anchored in the Reference Framework of Competences for Democratic Culture (RFCDC). It is interesting to note that in the same year RFCDC was published (2017), the Council of Europe commissioned a comparative study (Frau-Meigs et al., 2017) of the concept of digital citizenship and concluded that digital citizenship refers to the following dimensions:

- competent and positive engagement with digital technologies (creating, working, sharing, socialising, investigating, playing, communicating and learning);
- participating actively and responsibly (values, attitudes, skills, knowledge) in communities (local, national, global) at all levels (political, economic, social, cultural and intercultural);
- being involved in a double process of lifelong learning (in formal, informal, non-formal settings);
- continuously defending human dignity.

RFCDC explicitly refers to both the physical and digital dimensions and identifies 20 competences relevant to various educational domains: democratic citizenship education, human rights education, intercultural education and digital citizenship education (RFCDC, vol.1, p.32).

To facilitate the adoption of this perspective in educational practice, the Council of Europe has systematized the reasoning behind digital competences in the publication "Digital Citizenship Education Handbook". Here, a set of ten digital domains has been defined and grouped into three areas: being online, well-being online, rights online.



Digital Citizenship competence dimensions

The areas and competences listed are not only the transposition of citizenship competences into the digital sphere. Rather, these competences recognize the need for citizens to develop awareness of the role of the digital sphere in society and their lives, that it is an integral part of how people relate to one another, and that it concerns institutional and civil democratic process as a whole.

LifeComp (Sala et al., 2020) is the most recent competence framework developed by the Joint Research Centre (JRC) of the European Commission's science and knowledge service. The "European Framework for Personal, Social and Learning to Learn Key Competence" adds an important aspect for any key-competence-based learning to the family of competence frameworks. The document explicitly refers to all the frameworks dedicated to the citizenship, digital and entrepreneurship competence developed by the European institutions with the aim of creating a common European language and meaning to promote the acquisition of life skills for all European citizens. The competence set is presented as flexible and adaptable to formal, non-formal and informal learning contexts and aimed at children, young people and adults. It adopts a holistic perspective in which learning areas and competences are interconnected and developed along three dimensions: "awareness, understanding and action".

This framework is based on several elements. Firstly, the awareness of the rapid transformations of contemporary societies and the need for citizens to be able to evolve their competences in an equally rapid way. Secondly, the recognition of the centrality of social and emotional education as a dimension capable of triggering virtuous behaviours at an individual level – physical and mental wellbeing – up to the improvement of performance and the motivation to adopt pro-social behaviours. Thirdly, technology and the digital sphere are the more general context in which relations between people as well as political, social and economic processes take place, so it has to be part of the way of understanding reality, of the way of learning as well as of specific skills to be acquired.

LifeComp is organized around three learning areas: "personal, social, learning to learn", which are each defined by three competences.

LifeComp competence areas

Personal Area

- Self-regulation: Awareness and management of emotions, thoughts and behaviour
- Flexibility: Ability to manage transitions and uncertainty, and to face challenges
- Wellbeing: Pursuit of life satisfaction, care of physical, mental and social health; and adoption of a sustainable lifestyle

Social Area

- Empathy: The understanding of another person's emotions, experiences and values, and the provision of appropriate responses
- Communication: Use of relevant communication strategies, domain-specific codes and tools, depending on the context and content.
- Collaboration: Engagement in group activity and teamwork acknowledging and respecting others

Learning to learn

- Growth mindset: Belief in one's and others' potential to continuously learn and progress
- Critical thinking: Assessment of information and arguments to support reasoned conclusions and develop innovative solutions.
- Managing learning: The planning, organising, monitoring and reviewing of one's own learning.

(Sala et al., 2020, p. 20)

The competences and the digital sphere are described in a transversal way in the different competences listed and in their descriptors. This integration is very important from the perspective of this publication as it is the direction for fostering a holistic awareness and understanding of the digital transformation, which becomes an object of study, a dimension through which to learn and the set of learning tools for the development of specific and technical skills.

Competence frameworks in non-formal learning?

This chapter focuses intensively on competence frameworks, but it is important to note also that many facilitators in non-formal education have doubts regarding their applicability and argue that competence-centred learning promotes educations systems with pre-defined purposes.

We must admit that certain assumptions behind the development of many competence frameworks seem to be less relevant in non-formal settings. Non-formal learning does not usually lead to validation and certification. Additionally, it does not aim to deliver learning experiences that must be comparable across education policy boundaries and systems. Furthermore, training and seminars don't follow a curriculum or take place over a long course, so that it is not realistic to assume that all competences in a framework can be addressed as systematically as in formal education.

Finally, non-formal learning involves specific topics, tackles different competence frameworks, often has a transversal nature and is sometimes a process where the development of competences takes place in an open way – what learners learn might be negotiated or explored during the process and is not planned in too much detail in advance.

That being said, we do recommend that facilitators in non-formal education explore the world of competence frameworks, despite not being the primary targets of them:

- Competence frameworks are tools for giving orientation to educators and learners in absence of the chapter structure of a schoolbook. As opposed to providing strong topical guidelines, they remind educators to focus on individual needs and abilities. Instead of thinking about "what elements do I have to teach?",

the question shifts rather to, "what should learners be able to do afterwards?"

- A competence-based description of learning goals and outcomes helps educators and learners alike to (self-)assess, recognize and describe competence level and to progress through a learning process more precisely, as it invites close consideration of individual strengths and areas for development. Competence frameworks might offer guidance in (self-)description and recognition of non-formally acquired competences and must not be used necessarily for formal validation.
- Competences are transversal, that is, they are useful in different situations. There is no single competence framework that includes all transversal competences, so educators and facilitators may need to develop learning activities which pull together ingredients of different competence frameworks to meet the specific learning goals of their organization or education institution to make a meaningful whole. This requires a systemic thinking approach where we learn how things relate and interact, and helps to understand the nature of a competence better. In this sense, competence frameworks can also be considered as systematic catalogues.
- And finally, other forms of describing dimensions exist aside from competence-centred learning, in the form of seminar plans, concept notes, etc. Educators have the freedom to identify the form that best fits the needs of the learner.

1.4 Ingredients of holistic learning for, about and through digitalisation

The starting point of this handbook was the realisation that people are in different roles affected by digitalisation, e.g., as users, learners, trainers, employees and active citizens. This multitude of roles that each person takes on demands an approach using themes and varied tools for framing and understanding the digital transformation.

We propose teaching and learning paths for thematic deepening and competence development that can be followed internally within each chapter or between chapters on the basis of the training project you intend to pursue, the topics you intend to address and the competences you want to acquire.

The pathway starts by promoting a critical understanding of how the digital world and the underlying technology have been conceived, developed, and narrated (Chapter 2); and what implications this structure has in terms of rights and inequalities at a global level (also addressing sustainability issues) (Chapter 3). A specific focus is placed on AI – how it works, how it is being used today and potential future uses. A critical perspective explores how norms, normality and reality are affected by AI systems and how they can reinforce bias mechanisms and discrimination (Chapter 4). The fifth chapter explores the relationship between activism and analogue and online participation. Specifically, it looks at how the public sphere has been transformed by digital transformation and how education for human rights, participation and activism need to be rethought by including the digital dimension – both in content, in the types of rights to be claimed, and in methods of activism and dialogue in the civil society space and with institutions (Chapter 5). The last two chapters focus on the transformations that the digital sphere has generated in the processes of communication, relationship and information retrieval and sharing. These transformations are not understood as having to do only with the digital world, but with a paradigm shift concerning new forms of sociality – communication, collaboration, conflict, debate, etc. (Chapter 6). Similarly, a path is proposed for reflecting on the consequences of the digital sphere on continuous lifelong processes and identity (Chapter 7).

These paths can be described by several key-concepts and understandings pointed out in the figure below.

Digital rights as an extension of offline rights (all chapters)

Many discussions revolve around legal issues and efforts to *extend fundamental rights and democratic principles to the digital sphere* (or to consistently enforce them in this sphere). This is a different approach to defining "online rights". For instance: non-functioning prosthetics, robots or restricted access to a public space through a biometric system are quite "analogue" rights violations – but with a strong digital component. Both dimensions are relevant.

Also, it is necessary to look at aspects of inclusivity, non-discrimination, freedom from norms, surveillance, inclusivity, access, freedom of speech/expression, autonomy, integrity (of services and devices), property (not only copyrights but also individual property rights related to data), or customer rights.

Platformisation (Chap. 2, 3)

Platforms have shifted the way work and services are organised or infrastructures are managed. A more systematic and critical understanding of platforms, platform power and platformisation impact could help lifelong learners in their choices.

Datafication (Chap. 2, 3, 5)

Measuring, data flows and tracking are playing an increasingly important role in all areas of life, starting with one's own body, in one's own four walls, at work and in public. We identify a digital self-competence, the ability to control and create the individual representation in the digital sphere.

Learn to understand the technical concepts (Chap. 2, 3, 4)

Here, the methodology behind the aforementioned aspects gains relevance – knowledge about *artificial intelligence* or *Big Data* competence is becoming obligatory for all, not only IT experts.

Data-economic and network-cultural knowledge (Chap. 2, 3)

Under the heading of platform regulation, there is a debate on competition and technology policy about which form of digital economy is socially desirable and how the future internet should be structured and developed (*data-economic* knowledge, and ability to co-create *network-cultures* since these are social and cultural constructions).

Global and environmental interdependencies (Chap. 3)

Global interdependencies play a crucial role – raw materials, value chains of hardware and software, energy needs, digital access and exclusion, and data colonialism are keywords that may garner more attention. The environmental impact of digitalisation also needs to be further explored– the individual footprint and also the systemic contribution of digitalisation to more sustainability on local, national and global levels.

Participation and inclusion (Chap. 5, 6)

Digitalisation has changed the way people participate in society. It affects all domains of participation from information to consultation, self-organisation and common decision-making. Education might support citizens to make the best use of available data, digital platforms, and opportunities to digitally facilitated communication, advocacy and collaboration. Especially EDC/HRE adds a human rights and democratic perspective regarding the way we organise inclusively and democratically, and also in regards to the choice of digital tools and strategies.

Communication (Chap. 6, 7)

New "instant" communication habits, social media, digital empowerment, new information opportunities and information disorder have changed and continue to change the way people communicate and relate to each other. Prompting reflection on various tools of communication and its contents leads to better understanding of the opportunities and risks of an overabundance of messages and information exchange.

Digital self, physical and psychological impact (Chap. 7)

Digitalisation impacts individual and social identity. It offers potential for representation and has consequences for each individual. The physical and psychological impact of digitalisation, the question of how digitalisation can lower social divides or how it enables humans to manage work and activities more easily and capably should be explored in a constructive and critical way. This also includes the fact that digitalisation might build new barriers, foster addiction or act as an instrument of control as opposed to supporting human autonomy, freedom and participation.

Competences addressed throughout the publication

The DigComp framework is especially dedicated to digital transformation, but we also find the LifeComp and CoE Digital Citizenship perspective as very relevant to include in regard to a holistic *pedagogy of 'the digital'*. In particular, these competence sets from LifeComp and the CoE Digital Citizenship Education Handbook should be highlighted. Especially from the LifeComp framework:

Noteworthy aspects from LifeComp

Flexibility: Ability to manage transitions and uncertainty, and to face challenges.

- Readiness to review opinions and courses of action in the face of new evidence
- Understanding and adopting new ideas, approaches, tools, and actions in response to changing contexts
- Managing transitions in personal life, social participation, work and learning pathways, while making conscious choices and setting goals

Critical thinking: Assessment of information and arguments to support reasoned conclusions and develop innovative solutions.

- Awareness of potential biases in the data and one's personal limitations, while collecting valid and reliable information and ideas from diverse and reputable sources
- Comparing, analysing, assessing, and synthesising data, information, ideas, and media messages in order to draw logical conclusions
- Developing creative ideas, synthesising and combining concepts and information from different sources in view of solving problems

Noteworthy aspects from the CoE Digital Citizenship Education Handbook

Being online

Access and inclusion concerns access to the digital environment and includes a range of competences that relate not only to overcoming different forms of digital exclusion but also to the skills needed by future citizens to participate in digital spaces that are open to every kind of minority and diversity of opinion. Being online includes also an active role of citizens, not only as users but especially as (co)producers of data and content, or as active citizens in the analogue and digital spheres.

Well-being online

e-Presence and communications refers to the development of the personal and interpersonal qualities that support digital citizens in building and maintaining an online presence and identity as well as online interactions that are positive, coherent and consistent. It covers competences such as online communication and interaction with others in virtual social spaces, as well as the management of one's data and traces.

Rights online

Rights and responsibilities are something citizens enjoy in the physical world, and digital citizens in the online world also have certain rights and responsibilities. Digital citizens can enjoy rights of privacy, security, access and inclusion, freedom of expression and more. However, with those rights come certain responsibilities, such as ethics and empathy and other responsibilities to ensure a safe and responsible digital environment for all.

Privacy and security includes two different concepts: privacy concerns mainly the personal protection of one's own and others' online information, while security is related more to one's own awareness of online actions and behaviour. It covers competences such as information management and online safety issues (including the use of navigation filters, passwords, anti-virus and firewall software) to deal with and avoid dangerous or unpleasant situations.

Consumer awareness relates to the fact that the World Wide Web, with its broad dimensions, such as social media and other virtual social spaces, is an environment where often the fact of being a digital citizen also means being a consumer. Understanding the implications of the commercial reality of online spaces is one of the competences that individuals will have to deal with in order to maintain their autonomy as digital citizens.

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Chapter 2
NETWORK(ED) CULTURE(S)

This chapter explores the internet as technical, social and cultural construction shaped by the interaction of machine and human. It deals with narratives and visions about the Internet, how networks are structured and how the different shapes influence democracy. This text also explores how participation in the internet leads to new forms of collaboration and creativity. The chapter connects the socio-cultural aspects of an open and participatory network culture with technical, economic, ecological and political provisions determining digitalisation as we encounter it in our everyday lives.

2.1 Network culture, network cultures

In a networked digitised society, it is often assumed that many aspects of meaningful participation in society are likely and easy to be realised. Creativity, participatory sharing, transparency, access, use of digital technologies allow for permanent and non-hierarchical interaction and form constants of a network culture independent from time and place.

Network culture as such is a social and technological construction and when transferred to digitalisation, we must explore the way network construction and governance models facilitate social and cultural practices partially dependent on the rather technical aspects of devices, technologies and platforms.

These topics overlap with core questions of EDC/HRE in regard to deliberation about the "society we want to live in" and become one of the core aspects to work with when exploring digital transformation. The approaches of non-formal learning thus support key competences like creativity, tolerance of ambiguity, and openness to working on open-ended processes.

In a networked society, permanent interaction of people and machines on various levels raises several questions. In regards to the human (quantified)

body, we need to question the governance of technology, how computing shapes relations between people, and what societal ideas define specific network cultures. Global interconnectedness as a paradigm and as a result of digitalisation should also be recognized in education about network cultures, such that it raises the question of how values and human rights are reflected, respected or left aside in cultural digital practices of networks.

Declaration of independence of cyberspace

45 min

standard (see introduction)

8+

freedom, participation, access, inequality, exclusion, discrimination

Does the Internet provide space for participatory, emancipatory and unrestricted interaction? Does it support a net-culture which is equally enjoyed and accessed from all over the world? Ignite a debate on the vision of the Internet as an emancipatory, participatory instrument related to participants' everyday experience.

Goals

- Reflect on the different assumptions about the Internet
- Understand how the Internet affects democratic principles and values
- Envision the Internet of the future

Steps

1. Read the declaration that John Perry Barlow formulated in 1991, the *Declaration of the Independence of Cyberspace*:

"...Cyberspace consists of transactions, relationships, and thought itself, arrayed like a standing wave in the web of our communications. Ours is a world that is both everywhere and nowhere, but it is not where bodies live. We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here...."

Access the full text on:

➔ https://www.eff.org/de/cyberspace-independence

2. Split the participants into subgroups of 4 to 7 people and ask them to identify key aspects.
3. Discuss the following questions:

- What areas of life are touched by the declaration of independence?
- To what extent has the declaration become real?
- Where is it realised and where do you see challenges?
- What are possible tactics to ensure an independent and free cyberspace today?
- In a digitalised world, where does communication happen and what actors are involved?
- Is cyberspace something separated from "real life"?

4. Report and exchange on the group discussion and relevant topics in the plenary.

Variation

Additional task, which might be given to the participants: "Make a short modern *Declaration of the Independence of Cyberspace*". Does it differ from Barlow's one from 1991? How and why?

Our world in data?

45 minutes in small groups and 20 minutes or longer in plenary

standard (see introduction) 8+

freedom, participation, access, (in)equality, exclusion, discrimination

This task focuses attention on several aspects of the Internet which have impact on its nature as a democratic space with the help of statistics and visualisations.

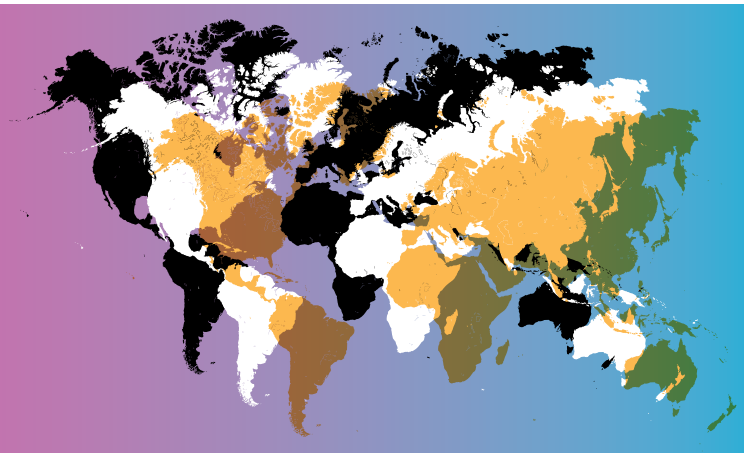
Goal

To explore the dimensions of tech affordability, provision and conditions of access, regulation and censorship, dominant social media platforms, reality of digitalisation in everyday use; and the global dimension of the Internet

Steps

1. Based on the discussion about the Internet and cyberspace freedom (see the previous task), you can focus your attention on several aspects which characterize the Internet today. Maps and visualisations based on data that are regularly updated allow us to explore these aspects.

2. Split the participants into small group of 4 to 7 people.
3. Distribute different maps/resources to the small groups and let them cross-check with the findings about the freedom of cyberspace. What do the data say about freedom and democratic values in the Internet? To what extent does this match your vision?
4. Allow participants to present afterwards in plenary, and use it as a starting point for digging deeper.



Possible sources for where to find data and graphics:

- Average internet download speed: https://t1p.de/hz4y
- Geographical spread of social networks: https://vincos.it/world-map-of-social-networks/
- Internet censorship map (Wikimedia Commons): https://t1p.de/wl120
- Waste of Electrical and Electronic Equipment (WEEE): https://globalewaste.org/map/

Others:

- Number of people using social media platform, 2004 to 2018: https://ourworldindata.org/rise-of-social-media
- And other data from Our World in Data, comprising inter alia regularly updated key research about the Internet: https://ourworldindata.org/internet
- Download speed – cost relation https://t1p.de/iklb1 and other data from Mozilla's Internet Health reports on topics of equality, discrimination, and justice: https://foundation.mozilla.org/en/insights/internet-health-report/
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- Reuters annual digital news reports: https://digitalnewsreport.org/ providing information on media use, information channels, information habits of people, media market worldwide. Media use across countries worldwide can be explored and also compared.
- Waste of Electrical and Electronic Equipment (WEEE): https://globalewaste.org/map/
- and other statistics: https://globalewaste.org/
- Internet Affordability Report: published annually by the Alliance for Affordable Internet (A4AI), a global coalition aiming to increase internet access and affordability globally: https://a4ai.org/

Reflection

The data visualisations offer an entry point to discovering what social media platforms govern and how they dominate certain areas of social interaction worldwide, how they develop over time, and how they are interrelated. Here, a direct connection to questions of platform power of regional governance systems can be made.

By providing information about internet connectivity, broadband availability and technical infrastructures enabling access and use of cyberspace, we can draw conclusions about access conditions and infrastructural conditions for free, regular and affordable access to the internet. The question of tech affordability, i.e., where high-speed web services are available and what the average income related costs are for a user might widen the picture about what aspects of digitalisation are accessible and how they are characterised. What digital instruments do we have in mind when working on digitalisation: high-tech low-tech? What are adequate instruments, low-tech or high-tech resources?

- In which areas of the world is what kind of content censored?
- Are we aware of censorship?
- Is censorship always a violation of rights or does it also protect certain Human Rights aspects?

Digital sustainability: what different economic, societal and technical questions arise to help answer the dilemmas of a full and just realisation of the independence of cyberspace?

Experience

The exercises can be used to ignite a thorough debate, but also can be used to deepen discussion on topics or to have a critical reflection on learning processes of topics related to digitalisation, as they focus attention on our global interconnected and networked societies.

Another approach to expand on the same issue may be a role-based analysis. The groups could be given the task to describe a 'Day with the Internet' for different hypothetical users:

- teenager in Germany
- school teacher in some African country
- fighter for democracy in Russia
- retired person in Estonia
- journalist in P. R. China
- etc.

Map the web

The Internet is probably one of the most, if not the most, important technologies of our time. It is the primary way our civilisation stores and shares all kinds of information (personal info, economic info, medical info, scientific info, and much more). As such, it is important that we understand at a basic level how the Internet works. When we know this, we can make better decisions about how we use it, and what information we share there. With the exercise "Map the Web", the Mozilla Foundation supports learners in sharing what they already know about the Web, and to collaborate in filling gaps and answering questions. They work together to organize this information into a visual and spatial "map" that shows the relationships between lots of elements of the Web, from servers to websites to tweets to mobile phones. In a final section of the activity, learners are asked to "perform the Net" by acting out relationships:

- → Explain how parts of the Internet are related
- → Demonstrate how information travels across the web using manipulatives, sketches or through physical movement
- → Locate an IP address and explain what information it conveys
- → Explore the full exercise on: https://mozilla.github.io/web-lit-core/map-the-web/

This and similar exercises were developed by the Mozilla foundation and aim at supporting web-literacy by exercising with learners concrete experiential learning about the Web. More exercises on web literacy can be discovered at https://mozilla.github.io/web-lit-core/

Legal aspects

UNESCO Convention on the Preservation of the Intangible Cultural Heritage deals with the issues of living everyday culture, knowledge and skills of mankind. **Human rights include many cultural** rights such as the right to participate in cultural life and enjoy one's culture.

UNESCO's seven Cultural Conventions are intended to safeguard and nurture some aspects of culture and creativity, from tangible and intangible heritage to the diversity of cultural expressions and creative industries.

UNESCO Internet Universality ROAM -X Indicators are a set of 303 indicators that aim to assess the state of internet development at the national level according to the so-called ROAM-X principles.

* Cross-cutting isuues are: development, equality, demography, economy, governance, ICT development

ROAM-X indicators reflect on the universality of the Internet as a tool/ cultural good and universal infrastructure where human rights apply and must be ensured accordingly. The indicators mirror the diverse regulation and legal instruments of the state and of all parties involved in the Internet. Also, they help to monitor whether the provision of the Internet follows benchmarks such as support of sustainable development, respect of human rights, inclusiveness, and involvement of all stakeholders according to their needs.

→ https://en.unesco.org/internetuniversality

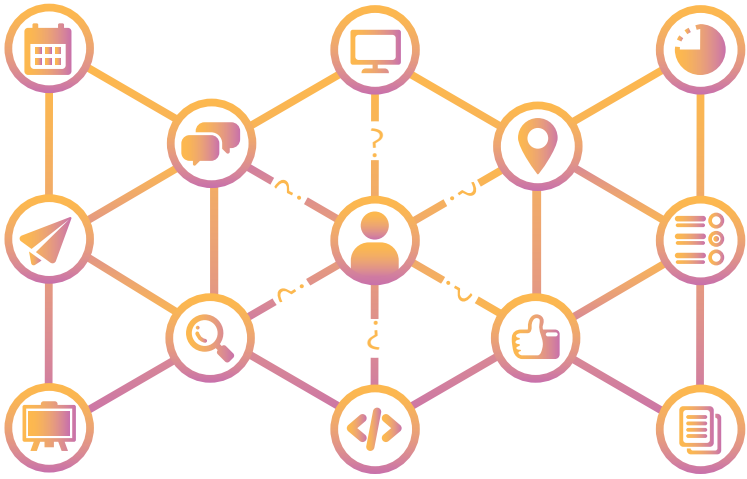
The catalogue of the ROAM-X indicators also provides hints as to what

data and sources might help to verify assumptions. Explore the state of the Internet for your country using data from industry organisations or civil society and statistical research organizations like Eurostat.

→ Download the framework and descriptors here: https://unesdoc.unesco.org/ark:/48223/pf0000367617

Souter, D.; van der Spuy, A. (2019): UNESCO'S Internet Universality Indicators: A Framework for Assessing Internet Development. United Nations Educational, Scientific and Cultural Organization, Paris. Available in Open Access under the attribution-ShareAlike 3.0 IGO (CC-BY-SA 3.0 IGO) license.

2.2 If all is networked in a networked culture, what is our relation to networks?



Digital transformation relates to several spheres which determine our life realities in manifold ways. In a more digitalised world of interconnected global transactions between people, goods, things and machines, various aspects determining our networked cultures are reframed, further developed and challenged in philosophical, social, economic, environmental, and political dimensions.

In a digitalised communication sphere, we have to be aware that any communication is mediated by binary code. Aside from human-to-human interaction, there are variety of other possible actors involved, possibly influencing or even governing the communication processes intentionally or unintentionally.

Two small exercises for inspiration

- To prompt initial thinking about the topic, think among your group about occasions when they *interacted with non-humans to communicate*. How did it feel? To go deeper, provide examples of unintentional communication, e.g., facial recognition, ID card controls, use of apps, calls with service lines, communication with chatbots.
- To get an idea of how digital communication works and how non-human actors enter the communication process, let your group *play with binary code converters*, such as the one by RapidTables: https://www.rapidtables.com/convert/number/ascii-to-binary.html

Since any form of information can be converted into code, consider among your group ways that machines can influence or enter communication processes.

Culture of datafication

Already in 1988, Shoshana Zuboff explored that the cultural shift instigated by ICT is not only to "automate", but are a variety what she called to "informate":

> *On the one hand, the technology can be applied to automating operations according to a logic that hardly differs from that of the nineteenth century machine system – replace the human body with a technology that enables the same processes to be performed with more continuity and control. On the other, the same technology simultaneously generates information about the underlying productive and administrative processes through which an organization accomplishes its work. [...] In this way information technology supersedes the traditional logic of automation.*
>
> Zuboff, 1988, p. 9f.

She described the basis of the digitalisation we are familiar with. Software and algorithmic processes use their capacity to gain insight and to generate value not only by automating processes but also from the processes themselves. "Datafication combines two processes: the transformation of human life into data through processes of quantification, and the generation of different kinds of value from data" (Mejias & Couldry, 2019).

Today the generation of different value from data is often not the by-effect but the main intention or main mechanism underlying these services. It was again Zuboff (2018) who criticized a specific and, meanwhile,

increasingly dominant techno-capitalist model of datafication which she calls "*surveillance capitalism*", aiming to use datafication and "informating" for the extraction of personal data in order to develop models for behaviour prediction and control. She especially criticizes the large globally dominant platforms, offering services and apps that veil their intention to gain personal data for a (secondary?) monetisation.

- How has datafication taken place in your country and on your devices?
- Which data are you willing to share; which not?
- Are you limiting yourself in everyday life in order not to share your personal information?

However, there are also less privacy invasive models of datafication. If you use an image database for your photo collection or a music database for your audio collection, metadata in the picture or sound file helps you to organise the content. This data is not necessarily to be shared with others unless you use an online platform for organising the pictures and your music. The question, rather, is whether users own their metadata and whether they have control over it.

- Which examples of less privacy invasive platforms and softwares do you know?

Datafication can also have legitimate goals. For example, personal data might create a *socially legitimate added value*. Plagiarism software might detect semantic similarities between different texts. ICT might translate texts into other languages. The body temperature data of smart thermometers might give insight into pandemic progress. Traffic metadata might help cities to steer traffic. In this sense, it would be too short-sighted to condemn informatization. But the latter two examples show also, that datafication of personal data like mobility and health might easily affect the human rights of the data-giving persons like privacy, freedom of movement, and autonomy.

- What would be a legitimate value for collecting personal data of citizens?
- Should it be voluntary or mandatory? And for what purposes?

Big Data, algorithms, and artificial intelligence are concepts which aim to combine automation and information. The way these technologies are applied documents a specific data culture.

- Explore further how communication changes in chapters 4 and 7

A social perspective on digitalisation

30 minutes individually, 45 minutes in groups

standard (see introduction), mindmap app (e.g., freeMind)

5-25

datafication, privacy, data economy, public and private data, data protection

Goals

- Exploring the digital dimensions close to our bodies and everyday life
- Gain awareness about our digital environment and aspects of control or loss of control

Steps

1. Assign participants to individual reflection or partner interviews.
2. Investigate the digital networks your everyday life is connected to, consciously and unconsciously: explore the technical networks beyond your social media, smart home, work/office, mobility, interaction with public and private sector (authorities, companies, etc.), your use and habits, and possible consequences of data gained/offered.
3. Draw a mind map – my digital environment.
   Digital mindmaps: http://freemind.sourceforge.net/
   More about mindmaps: https://competendo.net/en/Mindmap
4. Identify who possibly forms and collects your data, and what kind of data are created and collected.

Reflection (plenary or small group)

- → What did you discover?
- → What operating system do your devices use?
- → Are these connected to the Internet?
- → What company owns them?
- → Do your instruments communicate independently from you?
- → What data do you intentionally provide via an internet-connected digital device?
- → Can you influence the data provided?
- → What is the potential use and benefit of the data provided?
- → Is there a potential harm?

→ **Read more:** have a read of Jill Walker Rettberg's article on Situated Data Analysis: https://t1p.de/rfab

An environmental perspective on digitalisation

45 minutes 5-25

standard (see introduction), handout of the scenarios

growth, environment, sustainability

Digital transformation is often presumed to have a positive impact towards a more sustainable, smarter and greener society based on an environmentally friendly economy. On the other hand, issues such as production conditions, exploitation of raw materials, consumption of energy and waste production pose additional challenges and questions. From an environmental perspective, learning digital transformation asks for a critical reflection about production, consumption and waste perspectives.

Goal

Develop awareness for the opportunities and challenges different paths of economic growth provide for digital transformation using the example of mobile phones

Steps

1. Present the three scenarios (linear growth, reactive approach, proactive path).
2. Ask participants to read the three scenarios in their group and let them discuss. What aspects might be the reasons for choosing one of the three paths. Which path would you follow?

Reflection

- Discuss consequences of the different scenarios and where difficulties may arise?
- What would be your choice, and what consequences would that have concretely?
- What can you do as an individual user/customer?
- What difficulties might arise?
- What can you do as a group?
- Where is external regulation needed?

- **Read more:** Parajuly, K.; Kuehr, R.; Awasthi, A. K.; Fitzpatrick, C.; Lepawsky, J.; Smith E.; Widmer, R.; Zeng, X. (2019). Future E-waste Scenarios, https://t1p.de/ceme

Since the introduction of smartphones, the mobile phone industry has seen incredible growth and technological evolution. Today there are more mobile phones than people living on earth, and most of the metals in the periodic table can be found in a single smartphone. During the last decade, a wide range of phone features and prices have become available. Further increase in demand for mobile phones is inevitable, but a sustainable mobile phone has yet to be designed.

Scenario 1: Linear growth

The business-as-usual approach will only result in phones with shorter lifespans that are neither suitable for lifetime extension (e.g., through repair and reuse) nor efficient material recovery. In the race of selling more, better, and cheaper mobile phones, environmental and social issues linked to sourcing of metals and product manufacturing are ignored by the producers, who are not even taking their minimum legislative responsibility seriously. Hence, producers are unable to take their phones back at the end of life, but consumers are also not demanding large-scale recovery, mainly due to lacking awareness.

Scenario 2: Reactive approach

Stricter regulations force producers to take more responsibility in providing software upgrades and designing hardware to support easy repair for a few years after purchase. Components with higher and faster failure chances (e.g., batteries and screens) are available as spare parts; however, repair costs remain high. EoL collection is still a logistical challenge and material recycling is not financially viable, though technologically possible, for all elements used in a smartphone. A large number of EoL phones are stocked in users' drawers, as there are no promising incentives to increase collection rates.

Scenario 3: Proactive path

Modular phones are becoming popular, giving consumers the best choice for the features they need. New operating systems are also available for previous models across different makes and models, giving old phones a new life. In addition, purchasing smartphone services, instead of simply the product itself, is popular. Users pay for the data and phone services, and are offered hardware upgrades at no extra fee. Producers retain ownership, which makes take-back and eventual EoL management smoother. Users are incentivized to return the old phones they no longer use, which ensures that most phones enter the proper EoL management system. EoL management operation, including recycling and reuse of phones, as well their components, are also eased due to better design considerations.

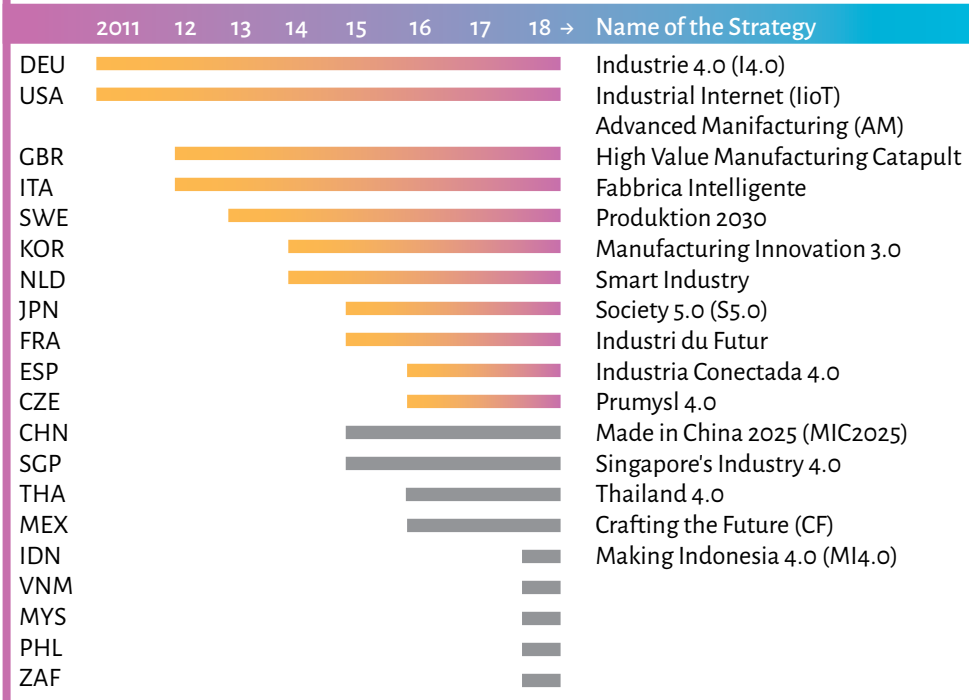
Source: Parajuly et al. (2019)

An economic perspective on digitalisation

45 minutes | standard (see introduction) | 5-25

growth, environment, sustainability

"Internet of Things", "industry 4.0", and "digital market" are key terms that represent the high expectations of digitalisation. In Europe, the terminology has become a sort of mantra of economic policies and strategies, ensuring and securing the basis for economic leadership. Speringer and Schnelzer (2019), in their study on Industry 4.0 strategies, demonstrate that the story of global competitiveness in new industry models is questionable and must be reflected on, in order to not perpetuate market dominant narratives of wealthy countries.



Copyright and source: Speringer&Schnelzer (2019): Selected countries in the Global North/ South that have or are going to launch I4.0 related initiatives by year of policy launch and stage of implementation

Goal

To explore and understand from an economic perspective the aspect of competitiveness as a dominant priority of political strategies in regards to the digital economy within the EU.

How these have impacted the dominance of economic power on a global scale is explored below.

Steps

1. Explore the concept of the four industrial revolutions, maybe by including sources from your national context.

First Industrial Revolution: (steam-powered) machine production

Second Industrial Revolution: technological revolution through transport and communication networks and increasing electrification

Third Industrial Revolution: Digital revolution by the introduction of computing

Fourth Industrial Revolution: Coined by the World Economic Forum chair Klaus Schwab: "a fusion of technologies that blurs the lines between the physical, digital, and biological spheres" by broadly networked and platformed computing and application of AI.

2. Many countries have set up initiatives to foster the adoption of Industry 4.0 technologies in Europe but also other parts of the world, like South Korea and South Africa.
3. Think with your group about development chances and the goals of such strategies.
4. Since the idea of a participatory and democratic governance of digitalisation seeks to ensure global fairness and shared benefit, compare this assessment with the ROAM-X principles. You may use additional maps that investigate factors of full enjoyment of digitalisation on a global scale.

Reflection

- → What if the opportunities provided benefit only certain societies?
- → What if starting positions are unequally distributed?
- → How are goals and aims of global education for democratic citizenship relevant here?
- → Does digital transformation offer tools to counteract the replication of global injustices?

- → **Read more:** Klaus Schwab: The Fourth Industrial Revolution: what it means, how to respond https://t1p.de/hxwm. Explore how the sphere of work is related to these aspects in Chapter 3.3 (Resource: In real life).

2.3 Narratives about digitalisation

In more and more aspects of our everyday post-digital cultural practices, digitalisation is a topic where the distinctions between nature and culture are becoming increasingly fluid. A central question to answer would be to what extent digitalisation has become "*nature*", which we no longer question precisely because it is regarded as nature. Because no one discusses why leaves are green, what does digitalisation that has become *natural* mean?

Digital Technology has become part of intuitive daily routines, such that the barrier for conscious decisions is watered down: technically, *Ubiquitous Computing* is a prerequisite of many, often small, and very differently connected computing devices, deeply embedded in our daily routines, interacting intuitively with us and with each other. Similarly, the Internet of Everything is composed of manifold computed devices for different purposes, of different sizes and with different abilities: These interact with other devices (Internet of Things), and with the surrounding space through our facility-installed technology (Smart Home) and social environments.

Alternative narratives: the posthumanist proposals

"Technology" and "the digital" affect how we perceive ourselves as human beings and our future challenges. Is technological and digital transformation already more advanced? Is it already structuring and determining our lived realities? Depending on the view one takes on the state of technological progress and digitalisation, there may be quite different perceptions as to what the transformation means for our societies.

- A *post-digital perspective* acknowledges that digitalisation already co-determines our lived realities in various fields, often going far beyond the social media or communication dimension. Aside from the dimension of data use, extraction and exploitation, there are already dimensions of automated decision-making and robotisation of certain sectors which are not an issue of the future.
- A *posthumanist perspective* understands the human being as one component in a close connection with nature and cultural/technological realities. Posthumanism changes the paradigm of understanding the human being by questioning the hierarchy that sees humans at the centre and nature and culture as generated and governed by humans themselves. Human beings, like animals

and nature, are immersed in processes of transformation generated by natural and technological/cultural evolution (Rozzoni 2021). Posthumanist perspectives question the centrality and power of the human being and the division between nature and culture. Posthumanist philosophies question humanity's relationship to the natural system and to technological and digital transformations, which are not understood as separate worlds. In this sense, posthumanism rethinks our understanding of the human being in relation to the digital and takes a different perspective on the challenges we will face with the so-called digital transformation (Crispino & Braidotti n. d.). Feminist theories were and continue to be major contributors to the development of posthumanist perspectives.

Read more:

- → Braidotti, R. The Posthuman. Polity, 2013.
- → Crispino, A. M.; Braidotti, R. (n. d.) Il complesso teatro del corpo. Conversazione tra Anna Maria Crispino e Rosi Braidotti. Multiverso https://t1p.de/yl347
- → Ferrando, F. Philosophical posthumanism. Bloomsbury Publishing, 2019.
- → Haraway, D. 'A Manifesto for Cyborgs: Science, Technology, and Socialist Feminism in the 1980s'. The Haraway Reader, Psychology Press, 2004, pp. 7–46.
- → Haraway, D. Staying with the Trouble: Making Kin in the Chthulucene. Duke University Press, 2016.

What are things? For example, a computer or a microprocessor are very complex entities. But in the end they are a bunch of materials that allow electricity to flow. They modify and domesticate electricity, right? So if you take into account that most of our transactions are carried out through electronic devices, it is for me the imperative question to answer: what is this and how does it work? How does it affect us? How does it basically take agency from us? How can we gain agency over these processes and how can we gain environmental impact on these processes?

Interview with Joana Moll, 04.11.2020

Joana Moll is a digital artist, researcher and activist. In her work she unveils hidden sides of digital life, often dealing with question of data exploration, of power consumption, of energy and waste production:

→ http://www.janavirgin.com

The Internet of Waste

Explore the material basis of the ubiquitous networks and hardware around us.

The omnipresent RFID labels, which are small chips, often only intended for single use as electronic labels for goods, are a core technical feature to make the Internet of Things work. However, they and all other chips included in many consumption articles depend on raw materials and raw earths. The more smart interactions are enabled, the more raw materials are used, the more waste is produced.

Unfortunately, the more we get used to the Internet of Things and the more affordable and consumable it becomes, the less we reflect on the material basis of digital smartness.

→ **Read more:** Internet Waste (2021), A thought paper for International E-Waste Day 2020. International Telecommunication Union: The paper focuses on Waste Electrical and Electronic Equipment (WEEE) derived from wireless infrastructure for mobile Internet connectivity, connected devices and data storage with examples from mobile networks, IoT and data centres. https://t1p.de/bkik

Machine-vision: a research and a database

What narratives are developing our imagery about digitalisation? www.machine-vision.no provides a database that collects examples of narratives, games and digital art that represent or simulate machine vision.

In the database, you can find artefacts, movies, games, novels, and artistic interventions that shape our idea of what machine vision looks like. The project delivers exhaustive material, knowledge and practice that can be explored by educators and interested people for further use.

- The database can be used as a library to look for movies, artwork, games and novels that describe and promote imagery or define characteristics of machine learning or AI.
- Part of the works can be included as examples in seminar settings or can be integrated into developing learning concepts.

Machine-vision is also part of the project: "Machine Vision in Everyday Life: Playful Interactions with Visual Technologies in Digital Art, Games, Narratives and Social Media". The research project wants to develop a theory of how everyday machine vision affects the way ordinary people understand themselves and their world through analyses of digital games and narratives that use machine vision as theme or interface. It is an ethnographic study of people who use consumer-grade machine vision apps in social media and other personal communication.

→ **Read more:** Rettberg, Jill Walker, Linda Kronman, Ragnhild Solberg, Marianne Gunderson, Stein-Magne Bjørklund, Linn Heidi Stokkedal, Kurdin Jacob. 2021. *Machine Vision in Art, Games and Narratives*. Research database. http://machine-vision.no.

Human creativity: is AI intelligent or not?

New Scientist has raised an important philosophical point with regard to simulation works such as The Next Rembrandt and its kin: 'if it is so easy to break down the style of some of the world's most original composers into computer code, that means some of the best human artists are more machine-like than we would like to think' (2017). A similar line of thinking has been offered by philosopher of technology Vilém Flusser, who argues that humans in the industrial society exist in a close-knit relationship with their apparatuses, which are more than old-style tools such as hammers, scythes or paintbrushes that operate on matter. instead, contemporary apparatuses consist of machines, the software they run on as well as their

wider infrastructures, with their multi-level operations enacting symbolic as much as material transformations.

Joanna Zylinska, 2020, AI Art- Machine Vision and warped Dreams p.52, https://t1p.de/oc974

→ **Explore more:** jump to Chapter 4 on "Artificial intelligence and algorithms"

Art or not? The next Rembrandt

60 minutes 3-30

standard (see introduction), access to the movie https://youtu.be/IuygOYZ1Ngo

AI, creativity, art, machine learning, anthropocentrism

→ www.nextrembrandt.com

"The next Rembrandt" is a Rembrandt style painting produced by AI that was trained to paint like Rembrandt and had the task to develop a *new* Rembrandt painting, iterating what motive Rembrandt would have most expectedly painted. The example of this painting prompts a discussion of the concept of human creativity and intelligence.

Goals

- Explore the impact of AI on creative practice and art
- Deepen understanding of the concept of creative competence

Steps

1. Watch a small movie on YouTube about the development of the next Rembrandt https://youtu.be/IuygOYZ1Ngo (5 minutes)
2. Research articles or other resources which discuss the project and the topic of art and AI. Resources such as https://thisartworkdoesnotexist.com/ or https://thispersondoesnotexist.com may help ignite further thinking. (30 minutes)
3. Discussion (depending on group size, either in a plenary setting or smaller groups):

→ What are the main points discussed regarding The Next Rembrandt?
→ What underlying ideas about creativity, arts mastery, artistic oeuvre and intelligence are discussed?
→ Who is the author of the painting?
→ Did you find related projects?

- What aspects of creative competence does The Next Rembrandt cover and which not?

  (20 minutes)

Reflection

- While the standard argument of an arts-oriented audience usually points out the characteristic missing white nose of the painting which would make it *indeed* a Rembrandt, there are various cultural sociological voices that stress the scholarly process of production (studying, iterating, developing own mastery) as such, which prove that the painting is in fact AI-produced.
- In a similar way, the emotional reaction of the arts community to this painting, also points to the ability of AI to evoke an emotional response.
- What else, in your opinion, are valid key arguments or insights found in your research?
- What other roles might AI play in the arts sector?

  (20-30 minutes)

Variation

Exploring creativity: Introduce a traditional definition of creativity after the initial discussion. For instance:

Creativity is an ability that helps us *process* the wealth of information that our minds collect and *forge connections* between different pieces of information in order to *find a solution* to a problem in a *new way*, or to come to a *new understanding* of the problem itself. It is necessary to co-create and adopt to social change (Competendo, 2018, p.10ff.).

Discuss to what extent *The Next Rembrandt* was a creative process. What elements were included and excluded in its process? As a concluding thought, we should question what the human domain in creative processes supported by AI is and should be.

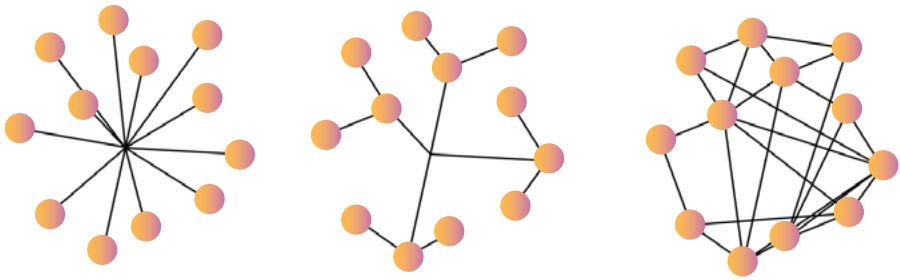
2.4 All is networked

In this section, we will take a look at basic conditions determining cultures of networks/networked cultures through multiple, global dimensions, relating to governance principles, infrastructures, instruments and services provided. They form an environment where our everyday cultural practices take place. These spheres can be characterised as being interdependent and mutually influencing.

From an educational perspective, one can refer to the challenge of hybrid dilemma orientation (as it is called in the German Youth Report 2020). This describes being critical towards governing principles of digital services, instruments and platforms used, but also having to accept them as the digital practices of people to build on learning processes. It is simply not the case that as users we have already a profound literacy of the digital and are as confident about open source, open data governance, interoperability and data protection issues as for example knowing the difference between cats and dogs or between a Pizza Napoli and a Pizza Margherita.

The different shapes of the Internet

Centralised – decentralised – federated – circular – linear – tree – bus: there are several models of how networks can be organised. The organizational architecture of a network constructs the underlying governance model they adhere to and predict the conditions for interaction, (democratic) governance, participation and access. Each way to organise a network has advantages and disadvantages. Each logic is inherently valid.



Centralised Decentralised Federated

Centralised systems *technically* do not need client devices with strong technical features in order to function (unless the central server lacks strength).

Decentralised systems rely on decentralised maintenance and may have more requirements regarding client devices they might be applied better for specific user needs such as privacy or add-ons.

Federated systems minimise the connecting infrastructure on a common (and often open) standard.

Openness in the sense of using one code is an integral aspect of the Internet as a non-central network, appreciating the ideas of shared

standards, interoperability, free access and sharing. Platformisation and different governance models of the Internet today seem to contradict this assumption, characterised by proprietary models, oligopolies, data-drivenness and exertion of technology, economic and political power by a small number of strong companies or nation states setting strict rules.

Interoperability

Interoperability is the ability of a system to exchange with another system and use data provided by the other system on the basis of a shared standard and in absence of central control.

However, strong, centralised actors rely on many small, independent and free-floating participants to develop appropriate and innovative solutions. All rely on common standards.

The decision about the technical path in which a network is organised is a highly political one, with political implications, as is the decision of a person to make use of certain models. Both have implications for the social model they are envisioning.

Email is a system with a federated character: Anybody is able to set up an email server and take part in email communication. Similarly, in mobile communication, SMS is a standard which is applied and works worldwide.

- Is one dependent on a provider?
- Which system is based on a freely accessible source code and which on a company secret?
- Is this the same for the software used by users (e.g., a messenger app) and the server software or not?
- What is the network structure and is the user independent?
- Is there the possibility of end-to-end encryption?

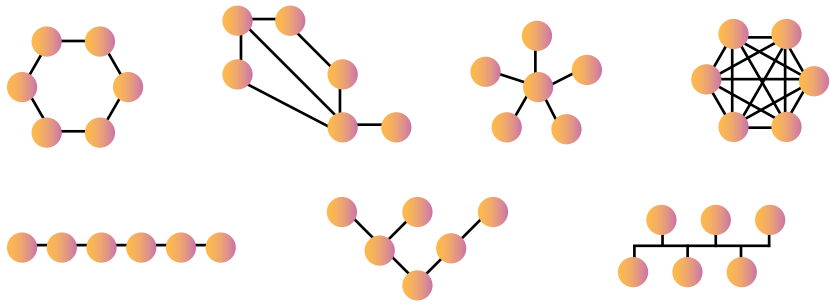
Get a quick orientation on the different operational models current messenger services use at:

- https://www.freie-messenger.de/dateien/system/Overview.PDF

Different models of networks

60 minutes | standard (see introduction)

5-25 | networks, power, democracy



The Internet provides a diverse ecosystem where various models coexist. This task highlights how different models influence interactions and shape the specific character of networks. Furthermore, it raises the question of how structure relates to democratic principles.

Goals

- Understand how networks' structures shape social interactions
- Understand how democratic principles are reflected in structural concepts

Steps

1. Introduce the different models of network shapes (see illustration).
2. Discuss how the networks in which the learners are involved are organised? Try to identify different examples from real life.
3. Guiding questions could be: "How are digital tools I use connected? What type of organisation do they follow?"
4. Discuss how the purpose and function determines structural decisions. Possible guiding questions: "What are different network's styles useful for? What aim do they serve? Who has power? Who sets the rules?"
5. Explore, with an example, the technical, social and political pros and cons of a service or tool.

Reflection

- → How do different models relate to your ideas of democracy and participation?
- → What aims could legitimate the use of hierarchical models? (For instance, security, safety, etc.)

Digital Education, non-centralised and open

What are the pros and cons of centralised, de-centralised and federated solutions? What instruments, tools and apps we use in education and in our everyday life says a lot about us. Democratic civic education in particular is called upon to make conscious choices based on critical thinking not only in its content but also in its tools.

From this perspective there is a valuable argument that Open Software, Open Educational Resources and applications that do not inappropriately and inconsistently commercialize user data or force users to relinquish control seem preferable to others. This may complicate educational processes, but it may also make them fairer or more creative, and therefore, more in line with democratic governance principles and human rights standards. This relates to certain dimensions:

- ☐ human rights/democracy
- ☐ open source
- ☐ not-for-profit
- ☐ ensuring high privacy level
- ☐ no monetization of user data
- ☐ accessibility
- ☐ diversity/inclusion
- ☐ level of users' control

Tip

A first step for education may be to present technical alternatives to services and instruments used.

A seminar group does not have to communicate necessarily on WhatsApp. It could be the educators' role to suggest an alternative for use during the workshop and evaluate the group's experience with it.

Networks under certain circumstances?

There are several economic, political, social circumstances and interests that provide conditions for regulating networks or setting up specific structures. They interrelate and partially conflict with different aspects of Human Rights principles and challenge the idea of openness as a key cultural element of the Internet.

While the Internet, based on the universal code provides means for a free and unlimited interaction and exchange of information between people (and machines?), there are questions concerning the certain freedoms (of choice, association, speech, etc.) that arise primarily with regard to two perspectives:

- the economic dimension targeting the monetization of data through "platforms" and
- the political dimension of systematic surveillance, and formation of people living partially or fully beyond fenced networks. (Here the example is often internet censorship and social scoring in China).

In taking a deeper look at the technical aspects and relation to human rights and fundamental freedoms, there arise a variety of questions:

- Who defines standards for setting social and political norms, geofences or blocking content?
- What are harmful and what are beneficial applications of it?
- Check your devices - what data is being collected, and to what companies does it belong?
- What other technical applications for tracking and surveillance are you aware of ?

Activities suggested:

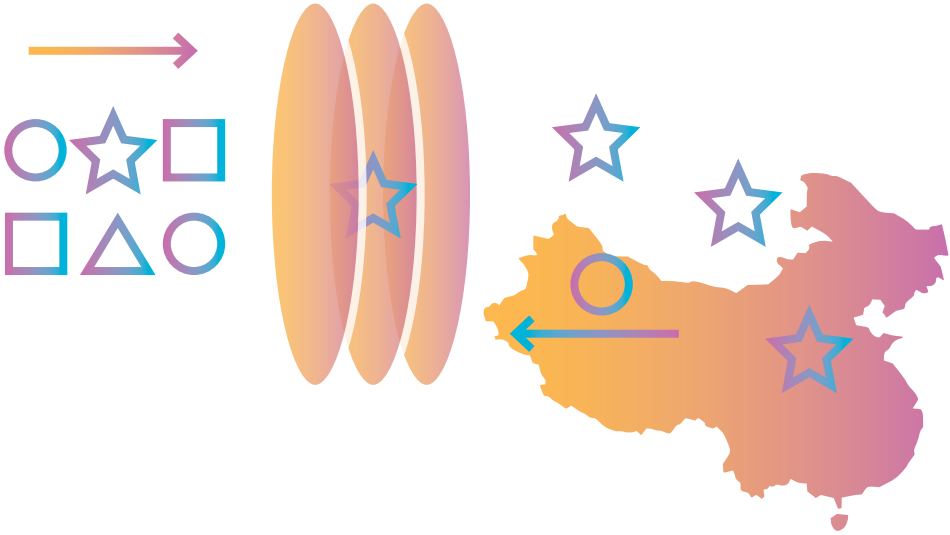
- Irritating facial recognition (4.2)
- Surveilling surveillance (5.2)

Examples for restricting networks

Geoblocking restricts access to Internet content based upon the user's geographic location. In a geo-blocking scheme, the user's location is determined using internet geolocation techniques, such as checking the user's IP address against a blacklist or whitelist, accounts, and measuring the end-to-end delay of a network connection to estimate the physical location of the user.

YouTube users in Europe will be familiar with the information that certain content due to copyright laws cannot be streamed in certain regions/ countries.

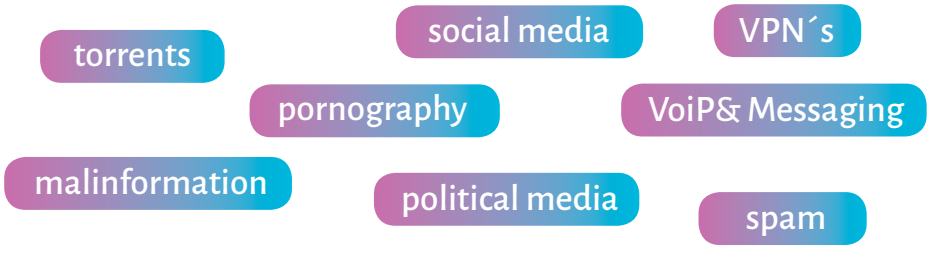
One example is the "Great Firewall of China", which is a package of technical measures, instruments and activities set in place to control internet access within China and between China and the outside world.



Censorship relates to a variety of instruments restricting or blocking access and content and limiting communication. Several resources provide a differentiated view on censoring:

- Internet Censorship 2021: A global Map of Internet Restrictions (2021, Paul Bischoff): https://t1p.de/p28m7
- Internet Freedom Status (2021, Freedom House) https://freedomhouse.org/explore-the-map

There are a variety of categories related to content and to technical provisions that might be investigated when evaluating censorship in the digital environment:

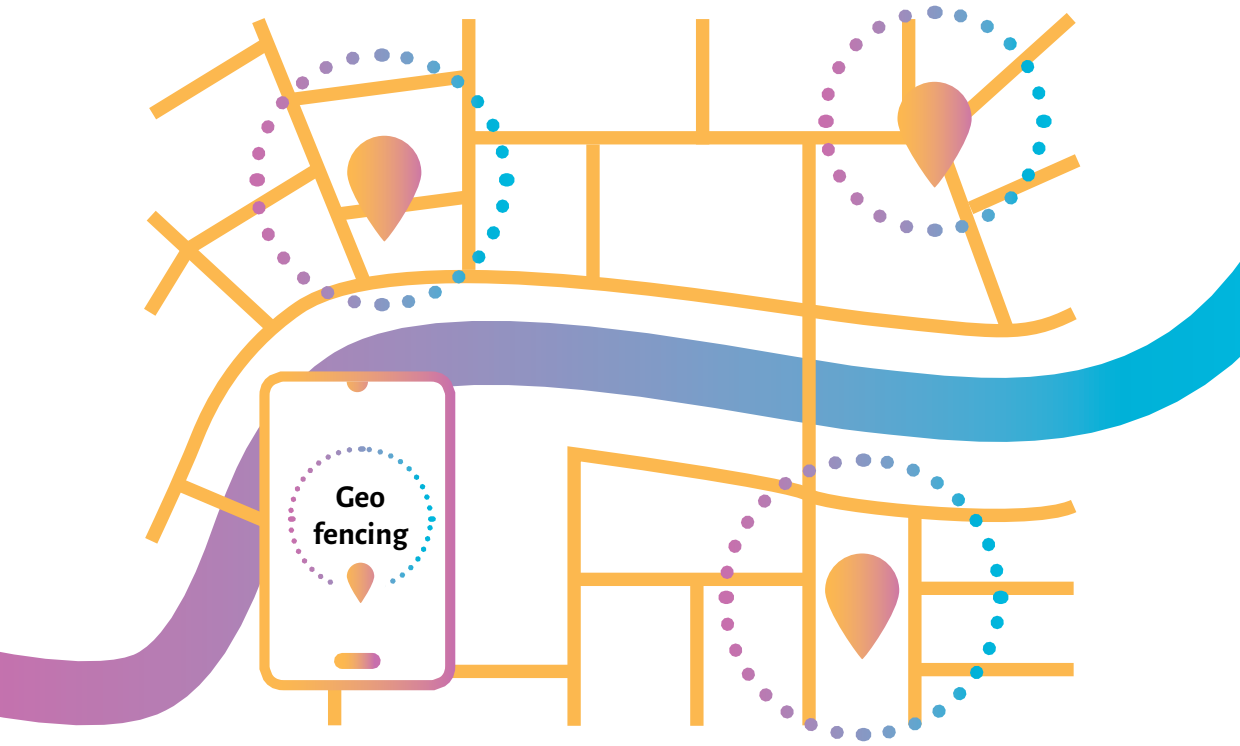


Other measures are of quite a robust nature, e.g., hindering concrete persons or institutions from sharing, providing information or even from accessing information, which violates the right for information, freedom of speech and opinion, etc.

Freedom of the Net report

Freedom on the Net is Freedom House's annual survey and analysis of internet freedom around the world. It features a ranked, country-by-country assessment of online freedom, a global overview of the latest developments, as well as in depth country reports.
https://freedomhouse.org/report/freedom-net

Geofencing uses technologies like GPS, or even IP address ranges to build their virtual fence. These fences can be used to track the physical location of a device in the particular region or the fence area. The location of the person using the device is taken as geocoding data and can be used further for advertising purposes, or for controlling certain areas. People using smartphone maps will be familiar with recommended locations, for example. There are applications which track the location of people in open prison systems and of kids moving, or of border area control.



Tracking refers to the constant recording of personal data over a certain time period and drawing information out of it. Tracking provides insights into the tracked population's habits and thinking, and might even be used to guide human behaviour (e.g., for advertisement, instigating activity on a social platform, or channelling social behaviour).

Limiting interoperability is a way of restricting services and devices from connecting with each other and across systems – instead trying to lock users into proprietary systems (see definition of interoperability on page 53).

Shutdown refers to the most radical intervention on the Internet of cutting off access to the free Internet or to specific social networks.

Tips for working with these topics

Explore with your group what kind of geo-blocking, censorship, geo-fencing and tracking they are aware of:

- Do you have experiences where your access and participation in the free Internet is or was regulated? Where concretely (e.g., as media consumer, platform user, active citizen)?
- What purpose do these strategies serve? What could be the reasons for enacting these measures? Are the measures preventing or limiting citizens' rights?
- What may be positive and negative uses of controlling or limiting networks? What applications in everyday life are you aware of ?
- In thinking about these strategies, what purpose do they serve in regard to human rights and democracy? Which rights are especially affected?
- Relevance of interoperability and access: There are not only political and geographic reasons to regulate these. A lot of services provided work on the basis of insular solutions, for example the Apple digital environment or Google's Android platforms. What might be the reason? Explore also the alternative ideas represented by the FOSS movement (Free Open Source Software), CC (Creative Commons) and their vision of interoperability and accessibility.
- We are aware that, worldwide, in certain situations governments decide for internet network shutdowns: What purpose do they serve and what might prompt such a shutdown as a way of managing a problem?

2.5 Sharing – a cultural shift?

From its conception, internet culture has been characterised by new means of collaboration and, consequently, a different view of content and intellectual property. Net politics, to a large extent, retraces debates about intellectual property regulations. There is a vivid debate about copyright and whether patent law fulfils its role of both protecting authors' rights and enabling innovation. Friends of the free Internet have also developed mechanisms to ensure free and open content under conditions of competition and capitalism and to promote its further development. This has defined and strengthened *open standards*, but also safeguarded these values through *licensing models*.

Sharing and receiving has cultural meaning. This is perhaps best depicted by the Creative Commons License, one license model which enables people to use, publish and republish content (parts) by others. The CC Licenses are becoming increasingly popular in public, science, civil society, education and also economic circles, because they can come together under their roof publishers despite very different intentions. Some are doing it from idealist or philanthropist considerations, others as a dissemination strategy – for most, it is a mixture of both. On one hand, sharing intellectual products contributes to a free and open knowledge society, but on the other hand, Creative Commons are a self-service-shop with knowledge that would otherwise have a marketable price. When the price is not expressed by monetary value – what then?

Creative Commons

Commoning is a term coined by the Commons movement, describing a social practice of empowering people to create, share and manage resources collectively, saving them from appropriation through a few and from scarcity through commercialisation. Digitalisation offers many opportunities for digital commoners, since it enables sharing on a new scale.

Creative Commons are to the knowledge society, what free and decentralised software is to the Internet. In order to remain open to the community, a lot of authors and material providers rely on your *fairness*. What should be good practice among every citizen is especially relevant for Open Source. Keep the intellectual Commons working!

1. Respecting sources and identifying them

Authors often depend on being visible as contributors. Help them so that they might continue their engagement as commoners.

2. Adopting, not stealing

Don't take other content over in a thoughtless way. Otherwise, you might not thoroughly explore the original work and its quality.

3. Giving back

Give something back to the community and to authors by publishing, using and sharing other good materials or foregrounding good authors.

4. Appreciating quality

Appreciate what others give you for free. The value of OER is not measured by money or authorities. Try to find the specific quality of each work.

5. Respect rights

Original ideas and models can be used, but these need to be cited with appropriate information about the sources. Copyrighted material cannot be mutualized without permission.

The Internet's Own Boy (USA, 105')

The story of Aaron Swartz (1986-2013), activist and pioneer of 'creative commons' concept and movement. The biographical documentary film highlights Swartz's strong civil engagement for access to knowledge and information. He followed his convictions and ideals to the point of paying for them with his life. Disobeying a law he considered unjust, he downloaded 4.8 million scientific articles from the academic database JSTOR, sharing them publicly, and got arrested. After a legal battle, he committed suicide on 11 January 2013.

→ https://www.youtube.com/watch?v=9vz06QO3UkQ
Released on the Internet with a Creative Commons BY-NC-SA 4.0 license

Co-creation and Open Source

Open Source is software which makes its code base transparent, allowing anyone to check what is programmed and use the software. Their users are encouraged to change and co-create the software within the limitations and opportunities described in the open license models.

An impressive model for organising open source is *Github*, a platform where developers publish, co-create and maintain software (https://github.com/). Open source development is a process with non-central character. Many different co-creators with very different interests need to be involved. Many of them work in their free time, discuss, negotiate and involve their ideas. One of the most famous projects is the Linux operating system, among many others.

Open Source: Software with source code that anyone can inspect, modify, and enhance. (OpenSource.com)

Open Access: Provides online access to scientific information that is free of charge to the user and that is re-usable. It includes peer-reviewed scientific publications and scientific research data (EC-OA, n. d.; EUC-RTD, 2017)

Open Data: Free and accessible sets of (public) data, often provided through a database or a website.

Open Educational Resources: Learning, teaching and research materials in any format or medium that reside in the public domain or are under copyright that have been released under an open license that permits no-cost access, reuse, re-purpose, adaptation and redistribution by others (UNESCO, 2019).

What might civic education take from software development?

Co-creation, participation, sharing – these seem to relate directly to education for democratic citizenship.

Organise: Education might be interested in the way collaborators organise themselves regarding open software and how they are able to connect diverging interests under a shared vision.

The idea(l) behind: Educators might justify the reasons they make use of freely accessible material and software.

Using, sharing and co-creating: Using and disseminating free and open software brings open and free technology and its developers further.

- When did you last download free material or software?
- When did you last upload free material or software?
- What is the difference between priced and non-priced products?
- How can you give back? Do you?

Maker culture

> *Maker culture is perceived as DIY culture on the surface. What sets maker culture apart from the traditional culture of crafts is that the artistic and creative elements are often complemented by digital components. The global economy and the latest technologies are utilised in learning and networking as well as in production and distribution. Interest in maker culture has grown as technology has become more affordable and accessible. Equipment that is now within the reach of hobbyists can be used to carry out projects that were previously restricted to the realm of professionals.*
>
> H. Karppinen (Kiviniemi, 2019)

Making is an approach which is not only interesting for STEAM education or youth work, but has a huge potential for learning in all generations. Many publicly accessible *maker spaces* or *Fab Labs* have opened recently in Europe - some commercially, but many that are also maintained by non-profit associations and public authorities. Some public libraries have also broadened their activities in this direction.

Examples

- Hacking: giving things new purpose – from furniture to computers
- 3D printing: printing objects based on ready-to-use templates or creating new designs
- CRC: laser cutting
- Coding and hardware
- Robotics, AI

Read more

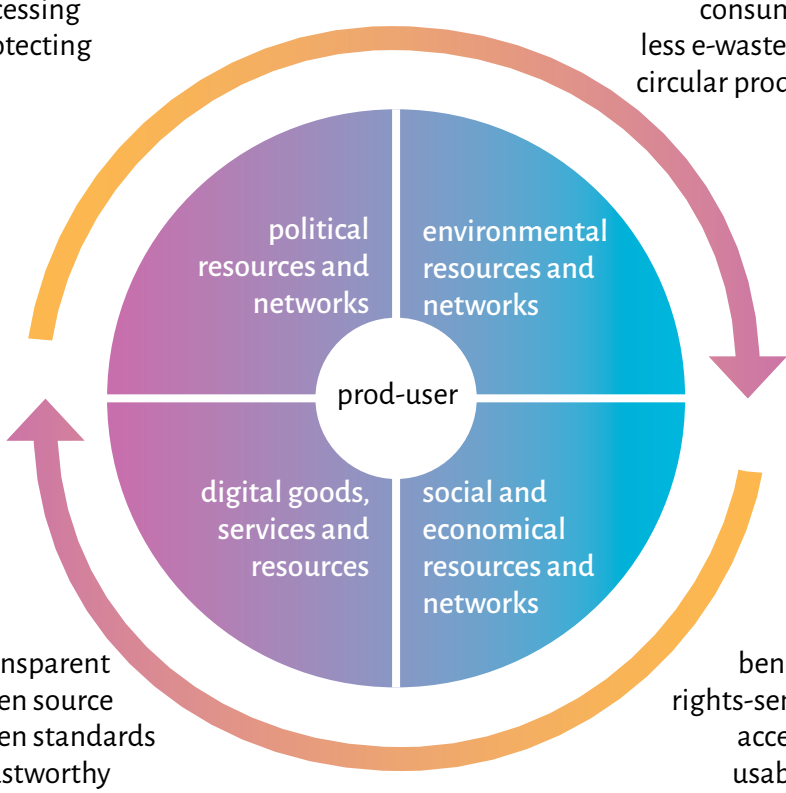
- Maker activities in Youth Work, Kiviniemi, J. (ed., 2019), verke Helsinki, Creative Commons Attribution 4.0 International License. https://t1p.de/2p1v
- Makerspaces for Education and Training – Exploring future implications for Europe, Vuorikari, R., Ferrari, A., Punie, Y. EUR 29819 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-76-09032-8, https://doi.org/10.2760/946996, JRC117481
- Handbook Educational Robotics, eMedia Project: Media Literacy and Digital Citizenship for All. All Digital, 2019 https://t1p.de/enwm

2.6 Summary: Network(ed) cultures

Digital transformation adds multiple additional layers to the dimensions of the individual, be it the social, the political, the economic or the environmental spheres of life. These layers are not always tangible. Artificial intelligence to a certain extent may add to these spheres a technically generated framework which will proactively shape and interfere with and within the above. As such, the network(ed) cultures we exist in provide multiple frames for newly investigating, encountering, questioning and exploring our Fundamental Human Rights as persons, as societies, as global citizens. And they are closely related with questions of sustainable development.

co-governing
participating
regulating
accessing
protecting

production chains and energy:
low energy and raw material
demand in production and
consumption,
less e-waste, reuse,
circular production



transparent
open source
open standards
trustworthy
creative commons
shared

beneficial,
rights-sensitive,
accessible,
usable and
transferable
for all people

Prod-user

Describes the fact that producer and user often merge in the digital realm, or that the boundary between them cannot be clearly drawn. Since this has implications for the necessary skills of the learners, and because it affects their rights and obligations, education should be aware of the intertwined active-passive role. For instance, it would make less sense to facilitate only appropriate "user behaviour" or to reduce citizens only on their role as consumers of technology.

Digital sustainability

What characterises digital sustainability? The German association LuKI e.V. (Linux users in the field of churches) suggests in their initiative on digital sustainability (www.digitale-nachhaltigkeit.net) the characteristics from all fields of sustainability:

- Digital goods must be financially, technically and organisationally usable and changeable for all people.
- Passing on and preserving knowledge requires a design of digital goods that is open to the future and remains accessible.
- Open formats, open standards and free licences are necessary in order to pass on knowledge and preserve it for future generations.
- Accessibility to digital goods should be independent of financial wealth.
- Knowledge about digital goods must be distributed across many actors and not held by just one person or organisation.
- Knowledge about digital goods must be regenerable and reproducible.
- The transfer, reuse and modification of digital goods must be technically and legally possible and encouraged.
- Digital goods (especially software) must be designed in such a way that they do not create dependencies on their producers, as well as originate transparently (source code) and are trustworthy.
- A sensible structuring, modularisation, documentation, findability and the most precise possible filtering of digital goods must be guaranteed.
- It is necessary to create individual and social framework conditions, as well as corresponding legal regulations, so that sustainable digital goods are promoted and preferred on a broad front.

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Chapter 3
DIGITAL GLOBAL DIMENSION

The chapter raises awareness about the interdependencies of the Internet, to include social aspects (like the digital divide), environmental impacts, and the *platformisation* of the Internet changing how people collaborate, exchange and communicate.

3.1 Digital global interdependencies

We are in many ways part of a European, international and global digital infrastructure and platform ecosystem, influenced by the following factors:

- Material dimension: our ability to participate depends on services, cables, antennae and networks. Raw materials and supply chains for producing devices also have global implications.
- Accessibility and affordability of technology and services and content shape the digital divide within societies and between regions
- Access to information and education is not equal, nor are learning and research capacities
- Environment: Energy hunger, raw materials dependency and exploitation, the environmental footprint of hardware production and consumption
- Economics: Platformisation, AI and Big Data drive economic inequalities
- Surveillance: Global surveillance and commodification of data

A European digital "third way"

We, in Europe, expressed our regional aspirations in regard to a European digital single market and the creation of a European internet ecosystem as an alternative to others. It includes a strong data economy, FAIR principles and is focused on the individual rights of citizens, to include digital sustainability.

The competing Anglo-Saxon model strengthens large-scale platforms with less awareness to the social implications of digitalisation, especially in the domain of personal data and algorithmic governance (what its critic, Shoshana Zuboff, describes as "surveillance capitalism").

Another approach to digitalisation, which might strikingly be named as the authoritarian Chinese path, is characterized by a state-guided collaboration with the data economy, meant to control citizens and channel human behaviour via digital means. This political expectation of surveillance relies on the creation of personal data from various fields of social life, the capacity to extract insights about the population, to bind citizens to specific platforms and exercise political control.

From a global perspective, the question that becomes apparent is which impact on the rest of the world do European digital strategies have, in terms of world views, rights and social, political and cultural opportunities of global citizens, as well as global sustainability?

Read more:

- Shaping Europe's Digital Future. Luxembourg: Publications Office of the European Union, 2020 https://doi.org/10.2759/091014
- Next Generation Internet (NGI) https://ngi.eu

Digital divide

15 hours | standard (see introduction)
5-30 | digital divide, inequality, exclusion, discrimination

Digital divides exist in all societies: for example, the gender imbalance in regard to access to technology. The Internet Affordability Report (Alliance for Affordable Internet, 2020) and Internet accessibility reports (International Telecommunication Union, 2021, OECD, 2021) highlight such imbalances and inequalities on a global scale. The digital divide can be understood as an intersectional inequality, often the result of multiple inequalities and discriminations. For example, women have significantly less access to the newest technology and therefore have less opportunities to work on the required competences. This leads, for example, to less access to new technology in the workplace, hurdles in STEM education, and bias in recruiting processes. Considering the global inequality between the global North and the global South exclusion is also worth highlighting.

This task aims to support learners in their reflection on what kind of digital divides exist in their society and concrete social environments and how they interfere.

Goals

- Sensitize to existing divides in the learners' contexts
- Assess elements of different divides
- Explore strategies for overcoming them

Centre	– ϟ –	Periphery
Poor	– ϟ –	Rich
Educated	– ϟ –	Less-educated
Area with capable Internet	– ϟ –	Area with inefficient Internet
Male	– ϟ –	Female
Young	– ϟ –	Old
Minority	– ϟ –	Majority
Easy use	– ϟ –	Hurdles to usability (e.g. people with disabilities)

Steps

1. Introduction. Collect (flipchart, digital board or Etherpad): Which digital divides do you know of?

2. Present some examples and ask the group to add.

   Accessibility, availability of broadband Internet or hardware; education and competences; restrictions of hardware and services; discrimination (i.e., gender, age, social and cultural belonging, physical characteristics); being located geographically distant from popular centers; censorship, etc.

3. Discuss in smaller groups which of these aspects are especially relevant for the learners, with a focus on the most relevant ones.

→ Which divides are most serious in your society?
→ What is their impact on the society or on you?
→ Where are there intersections?

Reflection

→ How could we lower the divide(s)?
→ What are reasons for some to leave it as it is?
→ Which groups work on lowering them?
→ What can I/we do?

→ Further reading about the digital divide: https://competendo.net/en/Digital_Divide

The global network

The global network is unequally shaped. The map of the International Telecommunication Union (ITU) gives oversight over the global differences in mobile network coverage, terrestrial Internet, submarine cables, and important knots.

Those who own infrastructure also co-define the rules for its usage. A new tendency is that global platforms also extend their impact on physical infrastructure. According to BroadBandNow, Google owns or co-owns 8.5% of global submarine cables, followed by Facebook, Amazon and Microsoft (BroadBandNow, 2021). In regard to data centres, Microsoft, Amazon and Google account for over half of 2021's 600 biggest such centres, according to Synergy Research (Synergy Research Group, 2021).

Read more:

→ https://www.itu.int/itu-d/tnd-map-public/
→ https://submarine-cable-map-2021.telegeography.com/

3.2 Environmental footprint of the Internet

It is expected that the IT sector will consume 13% of the global electricity for data centres by 2030 (Greenpeace, 2017). Video streaming is responsible for 80% of internet traffic (The Shift Project, 2019, p.33). We expect that the Internet will, in the future, use even more energy, despite progress in energy reduction.

Seemingly immaterial spaces like platforms have a very material basis. Hardware and mobile networks require raw materials, electricity, cables, and satellites with an ecological footprint.

Strategies to reduce the environmental footprint of the Internet may include:

- longer use, re-use of hardware
- recycling
- greener electricity
- environment-friendly and fair production of raw materials
- pricing the environmental costs of digitalisation
- promoting resource-efficient digital practices resulting in less internet traffic

Environmental Impact

Learn more about the environmental impact of the Internet:

- Greenpeace Report: Clicking Clean www.clickclean.org/
- The Shift: Project: Lean ICT: Towards digital sobriety https://theshiftproject.org/en/lean-ict-2/
- EU Commission: Report: Critical Raw Material Resilience: https://t1p.de/bp8zs
- EU Commission: Circular economy action plan: For a cleaner and more competitive Europe https://ec.europa.eu/environment/circular-economy/

Check your internet's ecological footprint

The Danish movement Ecotree has developed a CO_2 calculator which takes into account internet usage in private households. This may give an idea of what individuals can optimize, although the carbon footprint of the Internet is different in European countries (due to their specific energy mix) and does not include indirect CO_2 caused by internet infrastructure.

→ https://ecotree.green/en/calculate-digital-co2

The Global E-waste Monitor 2020

Quantities, flows and the circular economy potential (2020). United Nations University, International Telecommunication Union:

The most comprehensive overview of the global e-waste challenge, explains how it fits into international efforts to reach the Sustainable Development Goals, and discusses how to create a sustainable society and circular economy. The report provides a national and regional analysis and makes predictions until 2030. It also encourages decision-makers to increase activities to measure and monitor e-waste using an internationally recognised methodological framework.

→ https://t1p.de/7coj

Authors: Forti V., Baldé C.P., Kuehr R., Bel G. The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential. United Nations University (UNU)/United Nations Institute for Training and Research (UNITAR) – co-hosted SCYCLE Programme, International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/ Geneva/Rotterdam.

Low-Tech Magazine: Technology scepticism for technological innovation

The considerations above express scepticism that an environmentally neutral or even a positive contribution of digitalisation is possible. More electric infrastructure can be accompanied by more energy-efficiency or it can lead simply to more consumption. Are new technologies really more energy efficient? It is also questionable whether green energy can replace energy production from fossil fuels. A critical and curious look into alternatives might provide helpful hints.

Low-Tech Magazine talks about the potential of past and often forgotten knowledge and technologies. Interesting possibilities arise when you combine old technology with new knowledge and new materials, or when you apply old concepts and traditional knowledge to modern technology. The editor of lowtechmagazine Kris De Dekker, was also involved in various arts-based projects igniting thought for an alternative vision for using technology, such as the Human Power Plant, generating energy for a local event by pedal power.

- → https://www.lowtechmagazine.com/
- → https://www.humanpowerplant.be/

Size matters

In 2016, Ronan Cremin found out that the average webpage then required users to download about 2.3MB worth of data, approximately the same amount of data required by the first installation of the 3D game Doom (Finley, 2016). While publishing on the Internet has become much easier through blogs, content management systems and coding through new platforms, we might also reflect on this critically. More pictures, responsive design, and animations have served as new user experience milestones, but some point in another direction. Flat-File CMS offer a lighter weight as a feature. Also, text processing and emailing have a huge potential for downsizing: images might be down-calculated, emails and documents might be sent in small sizes. Mediafiles might be downloaded one time instead of being streamed continuously.

But why would we need to take care of size when the Internet's infrastructure and accessibility in Europe does not require it? Efficiency by itself helps to optimize content and comprehensibility. Another aspect is accessibility, which might be more relevant from a global perspective. In many societies, citizens have limited access to the Internet. They experience lacking net neutrality or suffer from high costs for free internet and adequate hardware. Those accessing the Internet through privacy tools like the TOR network or a VPN connection enjoy more streamlined emails or websites.

3.3 Trend toward platformisation

The term platform describes a way to organise, which is very common to most participants of the Internet today.

> *Digital infrastructures that facilitate and shape personalised interactions among end users and complementors, organised through the systematic collection, algorithmic processing, monetisation, and circulation of data.*
>
> Poell et al., 2019, p. 3

”Platform” describes semantically a cut-out of a complex digital system – the cut-out that users see from this technical infrastructure. However, think about a train station: What would you learn about mobility by only looking at it from the platform? On the platform you might see a train arriving and you would either step in or not. Usually you rely on those arranging that trains arrive and depart to the destination you were choosing. You might also learn about travelling in a wagon.

In order to understand more holistically how platforms in a train station work, we could float a little bit higher towards the ceiling of the hall. Then we would perceive rail tracks, other platforms and different trains. We would see the passengers following each other, wonder about witnessing a choreography without a choreographer giving explicit commands. We would also see some people in uniforms, keeping the system running. They represent the system engineers’ perspective. We would see where the tracks lead, who was allowed to enter and who not, which might stand for a social perspective.

Using the technical definition of platforms above, we surmise that digital platforms are characterised by these principles:

Different personalised interactions:

- **Social media**
  Facebook, Twitter, LinkedIn and Instagram are social media platforms, aiming to connect people and facilitate exchange.
- **Matching and exchanging goods**
  accommodation (AirBnB), a car ride (Uber), work (Amazon Mechanical Turk) or a product (Amazon Marketplace or eBay).
- **Share content** (Flickr), develop content together (like maps via OpenStreetMap or 3D models on Thingiverse).

- **Collaboration** (learning platforms, the different collaborative Google services or project management software).
- **Finance** (crowdfunding platforms)
- **Organizing social and public services**, for instance in public administration or in the health system.

There are many more examples that could be added to the list of different platforms, and it would still be incomplete.

Collection

Extracting personal data from user interaction and processing it digitally.

- Performance data
- Identity data
- Preferences, values, political opinions
- Income, address, ...

Monetisation

Turning data into (added) value

- Offering tailor-made advertisement
- Selling the data to others (like political parties, companies, advertisement companies)
- Developing other business models based on the merging of data on different platforms
- Payments by users (for example a fee or percentage of each financial transaction)

Other added value

- Provision of a better service (by applying the service according to the information received through user data)
- State surveillance (gaining insight in movement, opinion, behaviour of citizen(s))
- Scientific insight
- Optimising public infrastructure (i.e., through anonymised traffic data derived by navigation platforms, information about the increase of illnesses in a region derived by smart watch data)

Circulation of data

- Data is not depletable
- Data can be reused, merged, reinterpreted

What five platforms know the most about you?

45 min. | standard (see introduction)

5-25 | platforms, datafication, digital self

Platforms are digital infrastructures with the following features: personalised interactions, datafication, monetisation, other added value, circulation of data. Look at all platforms where you are registered or which you are using (not only social media or shopping).

Goals

- Understand the concept behind platforms
- Explore the variety of platforms. Reflecting on your own and other users' behaviour

Steps

1. Ask yourself: Which platforms do you use? Which ones know the most about you? What information do they have?
2. Look at your mobile device or smartphone, fitness tracker or other digitised devices – and complete your collection.
3. Exchange: What kind of platforms know most about you: Describe the overall "species" and the concrete name.

Reflection

- → Which platforms are popular among your group?
- → Which ones used by others did you not yet know?
- → What do they know about you – and what kind of knowledge would you like to limit?
- → What aspects of these mentioned platforms would need more attention from a democracy and digital rights perspective?

Platformisation

Fields of platform work		
	Cloudworking (independent from location	Gigworking (dependent on location)
Microtasks and jobs	Clickworking (product descriptions, transcriptions)	Microjobbing (pictures of posters in supermarkets)
Macro and project work	High qualified cloudwork (programming, translation, texting, design)	Qualified gigwork (craft work, domestic services)

Source: Greef&Schroeder, 2017, p.19

Crowdwork

Job offerings to an un-defined group of interested persons through a platform.

Cloudwork

Mediation of jobs that might be fulfilled independently from the location, often a digital product.

When platforms which are used by many people are connected and speak to each other, we might call this the platformisation of the Internet. Since most platforms are driven by a monetary purpose, we could say that the platform ecosystem is shaped by a platform economy.

Platform is a roof term describing digital infrastructures with different purposes and the ways they work. In order to understand each better, we might distinguish them regarding the quality of interaction they facilitate and also to what extent they are bound to location.

In the employment sector, several platforms have challenged traditional working relations. AirBnB and Booking.com are disrupting the accommodation sector. Social media platforms are challenging old media:

"Over four in ten Europeans now say they use online social networks every day" (EUC-EB, 2018, p. 17). In the educational field, platforms gain importance, for instance in education to analyse and credential learning processes and outcomes.

Platform power

In a platform economy, platforms are not innocent intermediaries just there to facilitate services. Similar to a seminar room: the facilitators have many opportunities to create the atmosphere, control the processes or to influence the outcome of the process. Platform power is the possibility of the platform owners to set the rules for the interaction unilaterally and to influence the behaviour during the interaction. Examples of platform work include:

How platforms exert power	
Surveillance	Working process, media consumption, activity, relations
Collection and analysis of data	GPS/location, app activity, feedback, shopping history, visited articles, reactions, personal network and other unique personal data
Automated decision-making	Offering on a worker's to-do-list, rating, articles/posts presented to the user or proposed to other members
Automated messaging and nudging	Real time performance feedback, style of language, gamification
Architecture and design of the platform	What offers appear and how, transparency, monetizing collected personal data unilaterally (reselling it or using it for individualised advertisement), tying users

(Ivanova et al. 2018, p. 7 f.)

Platforms, tracking, privacy

Datafication relies on tracking. There are reasons for this, which are often described in *legalese* as legitimate purposes. However, users are often not aware the purposes and what kind of personal data exactly is shared. These websites introduce tracking practices and how to protect yourself if necessary.

→ Competendo: Privacy Protection → Introductions into Privacy and Tracking: https://competendo.net/en/Privacy_Protection

Different approaches to data

Since the biggest platforms also belong to the most valuable companies globally, they shape our perceptions of how platforms act. In reality, the platform ecosystem is more diverse (in Chapter 2, we describe different ways to organise). The Internet is developing thanks to the diversity and competition of different actors. Proprietary data-economic models represented by the huge global platforms stand beside other ones, following the idea of open and free software and standards. We need to understand how local platforms exist, how small platforms come up with innovation and also how alternative economic models for platforms work.

Education especially has gained from open information, free services and also from the engagement of volunteers and entrepreneurs for this "other" internet. Open Data and knowledge is becoming increasingly important for the digital knowledge society. OpenStreetmap, Wikipedia or public open data offer a huge potential for education. Access to information or content is a condition for civil engagement and for access to education. Open access models in the research field give researchers, but also other citizens, access to updated knowledge – and help to share their own expertise across the boundaries of a discipline or context. Open Educational Resources are not only legalising the Internet's copy culture, they also give learners and educators access to materials and the freedom to choose.

Shouldn't we support those developers and their products more?

Platform tree

In order to understand the platform system better, maybe we should try to explain it with different models? For instance, the researcher José van Dijck proposed a tree as a metaphor (van Dijck, 2020). Below, we explore whether this can help us better understand the topic.

> *Move away from imaging platforms as distinct entities, cumulated in 'stacks,' toward envisioning platformization as an evolving dynamic process, propelled by human and nonhuman actors.*
>
> José van Dijck

Tree crown: industrial and societal sectors and end users: they represent the diversity of smaller services, in different sectors and differently managed. You might imagine birds' nests here, which would stand for smaller platforms on the basis of larger systems.

Relatively equal branches and a dense crown

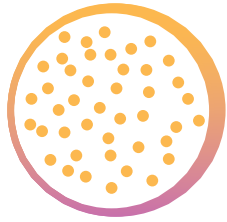
Some strong branches

No branches

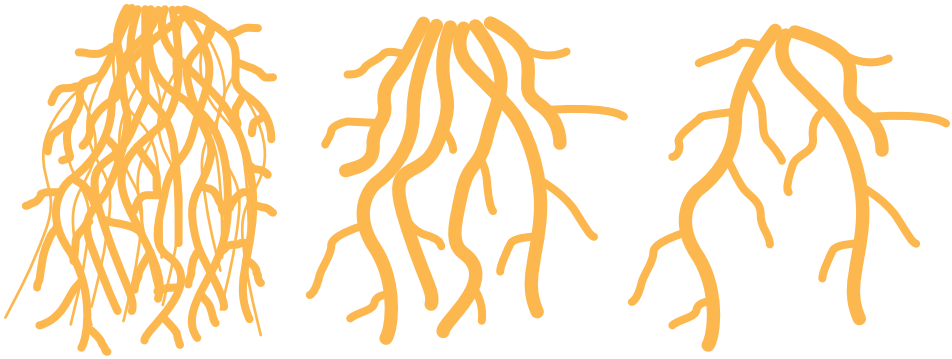
Stem/stalk: Intermediary platforms – the core of platform power: It connects people and social sectors (above) to the digital infrastructure and network (at the bottom). It gives access, predefines (partial) rules and exerts control about the data transferred to the crown.

Horizontal medullary rays, vertical pores.

Few "transport strands" vs. many and varied.



Roots: Internet architecture below ground: cables, satellites, data centres, microchips, Wi-Fi access points, underwater cables, etc.



Many overlapping/ linking roots

Some stronger roots

Few strong roots

Different foresters, different tastes. One platform vision is inspired by the idea of diversity and federation. This corresponds with very different kind of data centres, hardware cables, and devices also in diverse ownership and control. Many diverse connections would also lead into a thick and short trunk with many small "data strands" and the crown would maybe look a little bit chaotic, hosting different nests and other plants. They are dependent on openness and interoperability.

Large scale integrated platforms with huge market share and capitalisation aim to build more closed ecosystems with perfect compatibility of services and tools *inside* their platform. With the source of their power in the trunk, the financially and technically strong big platforms would gain control upward, toward the crown, and downward, toward proprietary devices for access or toward their proprietary part of the underlying infrastructure of the Internet. They could offer everybody comfortable standardised houses with no compatibility problems between the different parts of the tree. But with other trees?

Although interests and powers are unequally shared, both concepts rely on each other: centralised platforms always require openness. They gain from small and innovative competitors and become inspired by the outside environment of their systems. The big players invest both, in proprietary ecosystems but also engage in open source, or they buy innovative small products occasionally and try to integrate them. Platformisation is no battle of open versus closed, rather it may better be described as a dynamic system fuelled by both forces.

In real life: Crowd work made visible

Immersive reality show installation of the artist Liz Magic Laser. It follows the lives of five gig-workers from around the world who rely on work they find through online platforms such as PeoplePerHour, Upwork and Fiverr.

→ https://www.lizmagiclaser.com/

Build a better mousetrap

Molleindustria's "Build a Better Mousetrap" is an example of a way to facilitate learning about platforms and monetisation. Such games can be used for self-directed learning but can also be integrated in group learning processes. You can find inspiration here:

→ https://www.molleindustria.org/to-build-a-better-mousetrap/

Canvas City – how to teach datafication?

Canvas City is an augmented reality game. In Canvas City, artificial intelligence has become the new reality. By now, the powerful AI Cortex has come to dominate public life in your city. The inhabitants of Canvas City work unsuspectingly in the factories, plug together processors and supply the Cortex with more and more computing power – and increasing and astonishing influence. But you and many others have had enough: Now is the time to act. Will you be able to put Cortex in its place?

→ https://www.gocanvas.city/en

Baukraft: City creation with Minecraft

In 2016, young people were asked to develop new visions for unoccupied areas in the block neighborhood Gropiusstadt in Berlin. This approach can easily be applied to other urban contexts or by using other game platforms.

→ https://www.interactivemedia-foundation.com/de/projekte/baukraft/

Smart Sims

90 min 15-30

standard (see introduction), adequate space for intensive group work

datafication, activism, participation

Participants create, in a small simulation, a smart city solution. The solution will be developed and assessed by including the perspective of different important stakeholders and under different prepositions.

Goals

- Learn about the impact of digitalisation of public infrastructure
- Become familiar with different approaches and attitudes toward datafication and AI application in public contexts

Steps

We propose two different videos representing two different smart city approaches. One could represent a technology optimistic technology driven perspective, for instance "What is a smart city?" by CNBC Explains:

→ https://youtu.be/bANfnYDTzxE

The other could introduce the other approach emphasising citizen inclusion and open data, such as the ideas expressed by Francesca Bria:

→ https://youtu.be/2SaQDWmbN1Q

1. Choose your group (5-10 minutes)

Roll the dice in order to choose your team:

1: citizens and civil society organisations from the field which will become digitalised;
2: administration;
3: ethical minority;
4: big internet platform;
5: authoritarian government;
6: free choice

2. What should become smart? (5 minutes)

The facilitators decide in advance or the participants vote on which topic they want to work on. Proposals: mobility, health, environment issues, citizen services, education

3. Set-up (10 minutes)

Get into groups. Discuss and collect:

- What kind of data could and should be collected?
- What concrete advantages are provided by digitalisation on this topic?
- What kind of hardware would you need?

4. Data (15 minutes)

- How could the data be processed; how will data be transformed into information; and what will be done with this information (design your algorithm)?

5. Participation and control (10 minutes)

- Where are needs for monitoring?
- Who should participate?
- How can the system be monitored?

6. Create a concept (30 minutes)

Assemble a concept and a presentation following this scheme:

- What will be done.
- Why is it necessary to invest in this solution?
- What does it require?
- How do you make use of data?
- Who is involved in monitoring and control of the systems?
- What will indicate that it is working successfully?

7. Presentation (5 minutes each)

The approaches of the different groups will be presented.

Reflection

- What can we learn from the different inputs regarding the development of a rights-sensitive and human-centred solution?
- What would be the social impact? What are the challenges?
- Consider the different domains, for example, efficiency, democracy, prosperity, life quality, and autonomy.
- Consider who will gain the most: concrete individuals and social groups.

Transfer

- How does this task relate to smart city concepts that you have heard about?

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Chapter 4
ARTIFICIAL INTELLIGENCE AND ALGORITHMS

Artificial Intelligence (AI) and algorithms are dominant concepts of digitalisation. Many learners feel overwhelmed by the technical concepts and also by their concerns regarding these new technologies. This chapter aims to introduce some approaches, tools and methods for a curiosity-driven access to learning about AI and how it is applied today. The part on facial recognition technology introduces a heavily discussed aspect of AI, the unique identification of individuals. The next part explores how norms, normality and reality are affected by ubiquitous AI systems, especially those making use of personal data. In this context, we also include a section on bias and discrimination.

4.1 How AI works (with humans)

While robots have long shaped our image of digitalisation as automation in industry, AI and algorithms have recently come to the fore as information technologies. They combine automation with the control of processes via the collection and analysis of data.

Today, we discuss their application in many digital services and platforms, in decision-making or in managing infrastructures. As a result, we are now vividly discussing how this technology affects our everyday lives and social roles; how they help us improve our skills and complete tasks, but also to what extent they enable us to participate in society or strengthen or impair our rights. These are questions that vitally affect the lives of people in various dimensions.

EDC/HRE has the role to support learners in finding their position toward AI in their concrete digital life (for instance, as employees or users of smart services), in their social environment (for instance, in their city) and also on the system level (data strategies of their country, AI in systemic sectors like police enforcement, jurisdiction, health and social welfare). The

network culture chapter elaborated already that each society has uniquely formulated how it uses technology. In this sense, before judging AI, learners need to develop a basic understanding of what AI, deep learning, algorithms and Big Data are and how they work. As such, we suggest some easy and playful entry points to the topic.

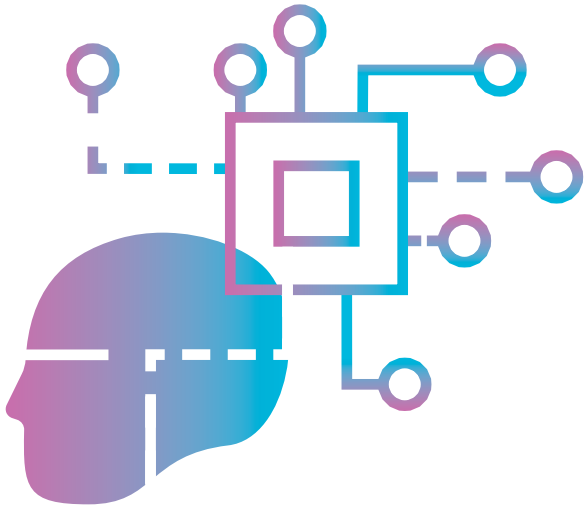
When algorithms influence or make decisions, or systems replace human decisions and human agency, it is evident that these technologies need to be embedded in a system of human and democratic governance and control. A challenge that is currently discussed relates to the question of autonomous and unbiased decision - to what extent do these systems replace human labour and intelligence. In the context of debates about social media, the concern arises, that opaque and uncontrollable algorithms might have a negative impact on the information sphere and the democratic public at large. As such, EDC/HRE-related learning is especially focused on the social impact.

What reasons favour the use and deployment of Artificial Intelligence? Economical, demographic, or rights-related ones? What possible benefits or conflicts might arise? What kind of alternatives within these technologies exist and how do these relate to democracy?

Elements of AI

Free online course in the European languages, developed by the Finnish EU presidency

➔ https://www.elementsofai.com/



AI is here

The task introduces the concept of AI and asks learners to collect initial thoughts about AI systems in their everyday life.

Goal

Understand what AI-based technologies are, and some of their basic characteristics

Demystifying AI

We've seen examples of Artificial Intelligence (AI) in popular movies such as *The Terminator* and *Blade Runner*. And you've probably seen news about things like self-driving cars and Google's *AlphaGo*. You might be wondering, how can something like a virtual chatbot that answers your questions while you're shopping online be compared to an autonomous vehicle? AI spans a huge range of topics and technologies and can have many different applications.

Some approaches to AI aim to get a computer to do tasks in the same way that a human would. Other approaches focus more on getting a computer to do the same tasks as a human but in a different manner. Lastly, an AI algorithm might be designed to accomplish a task that is difficult or impossible for a human to complete, such as translating a foreign language in real time.

AI-based technologies can learn, solve problems, process data (big and small amounts), and take actions to achieve a specific goal. Because these technologies mimic the functions that the human mind performs, they have been conceptualized as "Artificial Intelligence".

A brief history of Artificial Intelligence

During the first stages of Artificial Intelligence research in the second half of the 20th century, scientists emphasized techniques based on human-provided rules. These rules were usually in the form of conditional statements, or statements that include words like "if" and "then". A data scientist using a conditional statement might, for example, create the following rule: "if the stock price is above $1,000, then sell it". These

techniques are referred to as search, "rule-based" or "expert-knowledge systems".

In recent years, there has been a focus on Big Data and machine learning. Machine learning allows computers to make predictions and do things they weren't explicitly programmed to do. An important difference between this technique and earlier rule-based systems is that machine learning algorithms detect patterns and develop rules on their own. Machine learning is just one of several subfields of artificial intelligence.

Advances in both computer software and hardware, such as cheaper sensors, decreased costs of cloud storage, and faster broadband connection, have played a role in bringing Big Data to the forefront of computer science. With major increases in computational power and ability, companies and researchers using AI-based technologies can collect, store, and analyse massive amounts of data.

Our everyday lives are increasingly surrounded by AI-driven technologies. In a paragraph or two (written or typed), explore these questions:

- Which AI-based technology do you think you use most frequently in your daily life?
- What are the "intelligent" characteristics of this technology?
- What problems can this AI system solve?
- What are the autonomous actions it can take?

Source: Digital Citizenship Resource Platform
- https://dcrp.berkman.harvard.edu/

Background to AI

- Think, Machine! (by Manuela Lenzen) in Digital Toolbox Competendo
  https://t1p.de/wjg0
- Visual Introduction in Machine Learning (by Stephanie Yee and Tony Chu) in 13 languages.
  https://www.r2d3.us/

Algorithms for beginners

20 – 60 minutes 10-30

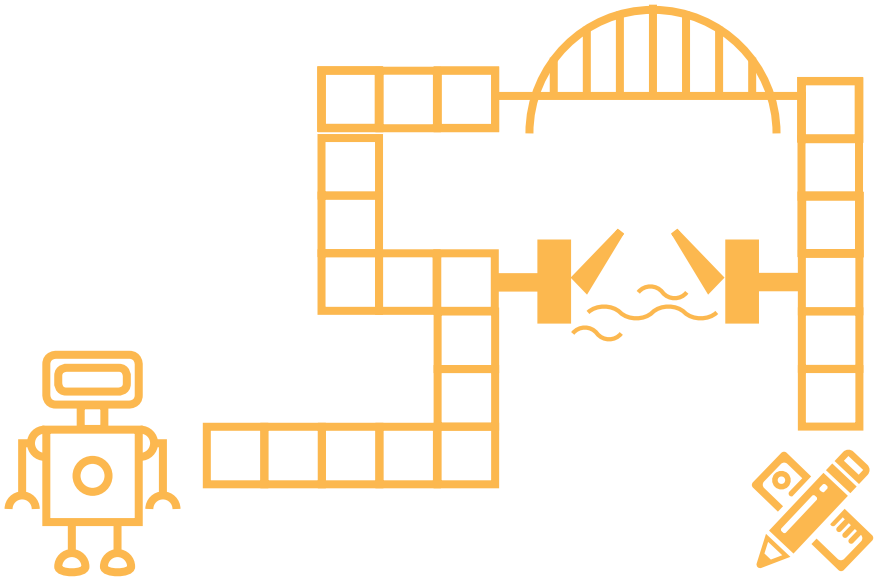
standard (see introduction), computer, projector and projection screen

algorithm, machine learning

The game introduces the idea of algorithms and how to translate action into a program. Participants guide themselves through a parcours of algorithmic instructions created by medialepfade.

Goals

- Understanding the concept of algorithms
- Gain the ability to translate behaviour into machine readable code



→ Find here the complete method description: https://competendo.net/en/Algorithms_for_beginners

A week with Wanda

6 days, 15-20min/day 3-30

smartphone or computer

tracing, interaction with AI, basic human rights dimensions questioned by AI

→ https://weekwithwanda.com

"A week with Wanda" is a web-based, open-source game by Joe Hall featuring a virtual assistant called Wanda. The app follows mobile and social media communication of the participants and aims to raise awareness of some of the risks and possibilities of AI. During one week, participants individually conduct a process, where "Wanda", a virtual assistant, supports them in their personal aims, such as optimising relations, earning money, etc.

Wanda is a playful, interactive example to experience how AI works in social media/communication. It can be used in any longer lasting educational setting, and enables various debriefings of experiences. After finishing the week, the participant gets an info mail from the programmer giving feedback on further leading questions. The feedback provides information about the different scenarios the participants individually went through.

Wanda is Open Source and can be adapted for further contexts.

Goal

Explore AI concept and functionality through playful learning

Steps

A week with Wanda can be integrated into longer lasting educational processes that deal with the topic of AI, datafication, and social media. It can be conducted as an individually assigned task.

During the process the facilitator has the opportunity to engage the participants in individual and small group reflections. The activity can be conducted in digital learning processes as well as in analogue learning settings as an accompanying task.

However, a one week course would be ideal in order to integrate the game meaningfully into reflection sessions, since it is built on an AI-participant interaction, which develops individually over a period of six days.

Reflection

- Individual: Any new insights on your online behaviour? What was your emotional reaction to interactions with Wanda?
- Social: Did you get useful recommendations? Do you know real examples similar to what Wanda described?
- Societal: Do you value the proposals offered by Wanda? How would you assess them through the lens of EDC/HRE?

Online Tic Tac Toe – How do machines learn?

15-20 minutes fast play, if in a longer lasting digital workshop, the task can be conducted over several days

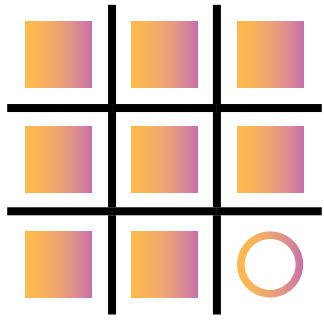
smartphone or computer

individually or in small teams

playful learning about AI, tracing, interaction with AI

- Menace was created by Matthew Scroggs. https://www.mscroggs.co.uk/menace/

Learners play online tic-tac-toe – the "Menace-Machine Educable Noughts And Crosses Engine" - and experience how a machine becomes "intelligent" through their interactions.



Goal

Understand how AI applies learning from interaction with humans

Steps

1. Individual play for 15 minutes (20 minutes in an online setting)
2. After playing 20-30 fast rounds, the players share their results.

Reflection

- When did the human players realise how the AI first explores different strategies and subsequently adopts a successful strategy?
- What was your strategy?
- Is Menace intelligent? What is a simple AI process?
- How does it learn from you? What makes it more intelligent?

- ➔ Would AI be able to replace (your) human action?
- ➔ How much do AI models in general rely on human real life experiences?
- ➔ Where are the necessary large amounts of data derived? Communication platforms, Facebook, Twitter, social media, picture databases, fitness apps, transport apps, other digitally mediated interactions?

Variation

By choosing different modes, e.g., the "professional mode", or "AI against AI", one can see how the machine learning process adapts to different opponents.

If all are in an online setting, the game can be accompanied by conversations, in in-presence meetings participants can play in pairs with a strict focus on the game.

Experience

The game provides a relatively easy to understand experience on AI learning. It might be a good basis for a discussion on the dependence of AI to harvest data from human reality, for example, from communications, facial recognition databases, tracking, etc.

Board game "Mensch Maschine"

The board game Mensch Maschine aims at better understanding how deep learning AI works. Based on traditional "pawn chess", up to five players can experience how the machine's learning progress increases round by round – and thus understand how human thinking differs from the way the machine works. The board game in a German language version can be downloaded at:

- ➔ https://www.wissenschaftsjahr.de/2019/jugendaktion/

Algorithms and strong and weak AI

The tasks above also raise the question of what machine intelligence actually is. First of all, the tic-tac-toe programme is steered by an algorithm. Algorithms are a set of instructions for computers, letting them conduct various tasks, as opposed to processing limited calculations. The algorithms respond to the input and might even apply themselves. Better hardware and more complex programming allows them to model complex situations and even behaviour.

Artificial intelligence requires these kind of complex, learning algorithms. However, one can distinguish between strong and weak AI. *Strong AI* works like a learning system, increasingly applying its routine, gaining insight through various data from different contexts and responding to its changing environment – the ideal of strong AI is *deep learning* in the way of the human brain: find information, connect these, come up with insights and new solutions (independently).

Most AI systems also use *machine learning*. However, since they do not *learn deeply* they are recognized as *weak*. They heavily rely on the algorithms humans program, improving themselves in a pre-determined way. Even if the tic-tac-toe game were to be played 1,000 times, this would not lead the underlying algorithm to invent a new game. At this point, it learns only to improve its strategy inside the rules of the game. They appear to be intelligent.

Big Data is a method of gaining insight on the basis of quantitative data by building statistical correlations and relations. It requires a variety of data types and a massive amount of data (=big) for modelling social reality (with intelligent algorithms) through statistical approximation (Mayer-Schöneberger, 2015).

Experimenting with IBM Watson natural language understanding:

1.5 hours

standard (see introduction), text resources, digital board, projector, IBM Watson web access

individually or in small groups

playful learning, AI, bias, discrimination

→ https://www.ibm.com/demos/live/natural-language-understanding/self-service/home

Learners' first experience with IBM's Watson is using the module "Watson Natural Language Understanding". They explore what AI extracts from (their) human communication and what its perception of it may be.

Goals

- Become familiar with Big Data and, in particular, machine-based language understanding
- Understand the principles and modes of operation of real AI systems
- Better understand how AI perceives and accordingly classifies information

Steps

1. Introduction: Watson is a free, accessible AI about natural language understanding. Applying Watson might offer an entry point for practice and experimentation with AI.
2. Material**:** choose (English) texts or webpages for analysis. These might be extracts from press, or from communications in social media or articles. Participants might use their own published texts.
   Let Watson conduct a text analysis. Watson provides analysis by surfacing meta-data from your text content, including keywords, concepts, categories, sentiment, and emotion.

Reflection

Think together about what the AI attributes to certain aspects of the text.

→ Emotions: Watson distinguishes sadness, joy, fear, disgust, and anger. Why is something marked as sad and something else as joy? What might be reasons for the AI-selected decisions?

→ Play with wording, and see if alternative words influence the AI categorisation?

→ What do you think - how intelligent is Watson? What makes IBM's machine intelligent? (Diverse, large amounts of data from different

human contexts, computing capacity, learning algorithms, etc.)
- → How do you assess the result?
- → Think of (other) scenarios where Watson might be useful? Where would it eventually cause harm? Justify your thoughts.
- → What consequences could an AI assessment of this text have in practice (social scoring, social cooling, data extraction, etc.)?
- → What might be the consequence for democracy if AI supposes a negative conception of the term and related words?

Variation

To help make this concept more concrete, let us look at the case of Cambridge Analytica. The company used the psychological four oceans model for screening contributions of social media users. These were assigned to a category and third parties had the opportunity to filter out these users according to the categories. This allowed targeted influence of electors during the US 2016 elections. However, the example shows also the limitations of AI, as long as it relies on easy computable psychologic models, in this case the "Big 5 personality traits" (also known as OCEAN). A discussion about the capacity of AI could also include the capacity of its *auxiliary models*.

Moreover, when very sensitive personal data like emotions and psychological predispositions can be identified and shared on the basis of an algorithm, one could lead the discussion also toward *governance and control of AI*. Beyond emotions and psychological characteristics, other sensitive data might be generated and shared. Is that acceptable? What, if the machine is wrong? What needs to be done in order to improve, control and monitor AI?

This may lead also to a discussion about social media as raw material for automated language understanding. Since AI for learning largely depends on massive availability of texts and data, social media is a rich and accessible training field for automated language understanding. What kind of *impact do AI decisions have on topical fields on real social discourses*? What if topics that deal with governance, democracy and justice are perceived as difficult, associated with negative emotions or treated as less important? What kind of content is given high priority through social media algorithms and psychological models? How does this impact users and their communication in democratic and also authoritarian societies?

- → Learn more about Language Processing: Adam Geitgy: Natural language understanding is fun. Medium: https://t1p.de/ytfw

AI for good in Italy

Funded by the Italian Ministry of Culture, IAQOS is a project aiming to achieve urban regeneration through AI, data and art. The developers, Salvatore Iaconesi and Oriana Persico, introduced an AI infrastructure that was freely accessible and usable by every inhabitant of a highly multicultural neighborhood in Rome (Torpignattara), as it was pre-trained to speak and interpret 54 languages. The core of the project was to describe AI as a new actor in the community rather than as a service. In fact, the knowledge graph was always in plain sight and negotiable. A pedagogical experience was developed in primary school: the pupils described parts of their neighbourhood on the map, and the AI used a Recurrent Neural Network model to discover recurrent patterns in the descriptions so as to produce a narrative about the experience of the territory as seen from the children. The experience has been replicated in Ancona and Bolzano.

IAQOS, community-based artificial intelligence

→ https://iaqos.online/site/

AI is not a technical thing. It's an existential thing. Technology is immersed in culture, and culture is immersed in technology.

Iaconesi-Persico

Getting the future right – Artificial intelligence and fundamental rights

This report published by the European Union Fundamental Rights Agency in 2020, presents concrete examples of how companies and public administrations in the EU are using, or trying to use, AI. It focuses on four core areas – social benefits, predictive policing, health services and targeted advertising.

→ https://doi.org/10.2811/774118

Globalpolicy.AI

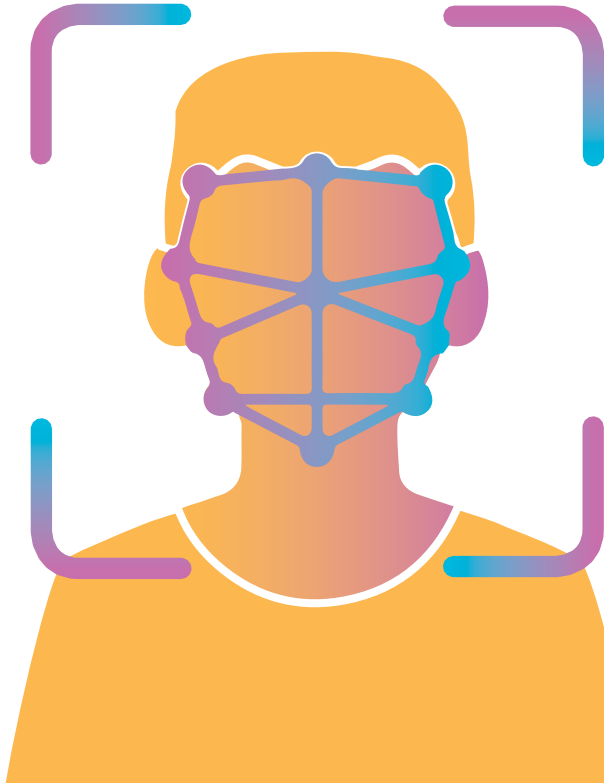
The portal is a joint effort from the Council of Europe, the European Commission, the European Union Agency for Fundamental Rights, the Inter-American Development Bank, the Organisation for Economic Co-operation and Development (OECD), the United Nations (UN), the United Nations Educational, Scientific and Cultural Organization (UNESCO), and the World Bank Group.

It aims to become a one-stop shop for data, research findings and good practices in AI policy.

➔ https://globalpolicy.ai/en/

4.2 Facial recognition technology

Raising awareness about opportunities of surveillance and repression, about issues that conflict with the basic fundamental freedom of speech, association and assembly is a core topic of human rights education. In a democratic society identification/being visible and anonymity/privacy are both constituent elements of social participation. Especially biometric technology tackles these dimensions. Many security measures, anti-terror measures, predictive policing, space monitoring and access technologies build on a compendium of datafied services. Facial recognition or other



biometrics might serve to increase safety and support security, for instance in the sense that no unauthorized person has access to a space or sensitive data, thanks to biometric recognition in banking apps or smartphones. On the other hand, such services open a window to surveillance and abuse. With abusive biometric technology in public spaces, civil and peaceful protests in more and more states are undermined, or groups are excluded from access by machines, for instance at entry gates to public spaces. The technology is also a thread for privacy on a larger scale. The startup Clear-View AI provoked a huge scandal because they connected three billion pictures of people from many publicly available databases with a biometric algorithm and offered their customers to identify a person on a picture taken in passing. Their customers were mainly public authorities with different democratic reputations but the database was also used for private stalking.

The EU sees in Biometric Technology a particular risk and has declared the need for specific awareness to its limitation and control. The European Data Protection Board and the European Data Protection Supervisor even call for a "ban on use of AI for automated recognition of human features in publicly accessible spaces" (European Data Protection Board, 2021).

Biometry is technology using, according to the GDPR, "personal data resulting from specific processing relating to the physical, physiological or behavioural characteristics of a natural person, which allow or confirm unique identification of that natural person" (Article 4 (14) EU GDPR).

- When you read this broad definition, reflect on what kind of biometric technology you use (voluntarily)?
- Where have you been exposed to biometric technology, for instance in public spaces?
- What kind of biometric data of yours is available on the Internet or in databases?
- What is your experience with biometric technology?

Facial recognition technologies: a primer

The primer is written for a non-technical audience to increase understanding of the terminology, applications, and difficulties of evaluating the complex set of facial recognition technologies.

- Buolamwini, J; Ordóñez, V; Morgenstern, J.; Learned-Miller, E. (2020). Algorithmic Justice League, MacArthur Foundation. https://t1p.de/phsp

Irritate biometric systems

Certain forms of activism, which seek to make biometric tracking more difficult, are emerging (see also Chapters 2.4 and 5.2). Try out some of these strategies:

- ☐ Dress to Unimpress: Wear dark and pattern-free clothing
- ☐ Wear sunglasses that block infrared light
- ☐ Don't use a car (license plate detection)
- ☐ Try to hide your body temperature
- ☐ Remove metadata like location tags from your photos, blur faces on pictures
- ☐ Paint patterns on your face in order to distort the facial recognition algorithm
- ☐ Partially obscure the ocular region – the position and darkness of eyes is a key facial feature
- ☐ Wear clothing, for example, t-shirts with patterns that look like faces or a mask with another face
- ☐ Remain inconspicuous – for camouflage to function, it must not be perceived as a mask or disguise
- ☐ Avoid enhancers (e.g., lipstick, eye gloss, or mascara)

Read more:

- → Wired: How to Thwart Facial Recognition and Other Surveillance https://t1p.de/1ope
- → Dizzmagazine: How to Hide from Machines: https://t1p.de/moyd
- → Computer Vision Dazzle Camouflage: https://cvdazzle.com/

Drag vs AI

A hands-on workshop on facial recognition that explores identity, gender presentation, face surveillance, artificial intelligence, and algorithmic harms. On the website of the Algorithm Justice League, you might also request material if you'd like to conduct such a workshop in your context.

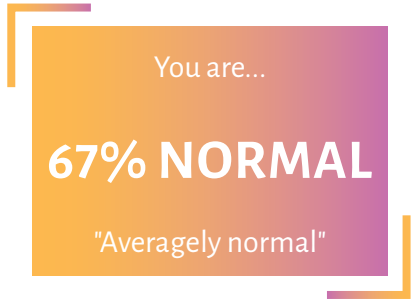
- → https://www.ajl.org/drag-vs-ai

4.3 AI, norms and reality

Categorisation of people, automated identification of what is relevant and important, clustering people on the basis of their data – these are all an ambiguous feature of AI-driven platforms. On the one hand, our data and the algorithms behind the platforms create an intuitive user experience and help us to build networks, to access more easily what might be interesting for us or to optimise our routines. On the other hand, the algorithms present us a picture of our digital life, which is influenced by the platforms and their (automated) decisions. Like any other cultural practice, computer mediated collaboration and communication sets norms and rules for human interaction. The following practice illustrates how AI judges a face using picture detection. Similar 'norming' applications of AI are related to the picture algorithms in social media. They might identify harmful and violent content and keep it away from us. They might filter out pictures that we probably want to see, or they might feature pictures that we should be presented for other reasons. A dystopic example is the Chinese social scoring system, which not only strongly manipulates the appearance of social reality in digital spaces, but also enforces a conformist behaviour via digital means.

The more AI and the platforms that own the code make choices that affect what their users perceive as 'normal', the more users need tools to reflect on how normal the algorithms suggested to them really are.

How normal am I?



On the website from Tijmen Schep, "How Normal am I?", experience how artificial intelligence draws conclusions by just judging your face. AI will assess your beauty, age, life expectancy, body mass index and even emotional state. During this task, you will learn about the underlying technology and how it comes to its conclusions. The tool was developed in the frame of the Sherpa project.

→ https://www.hownormalami.eu/

How normal am I?

60-90 minutes

internet-connected device with camera

individually or in small groups

AI, digital self

→ https://www.hownormalami.eu/

Participants learn with the website "How normal am I" how a machine judges them. Based on this digital group gallery, they explore how algorithms use data to categorise individuals.

Goals

- Explore algorithmic decision-making with the help of personal data
- Explore rights-related implications, bias and norm setting

Steps

1. Introduction: Explain the concept of "How normal am I".
2. Let the participants access the website individually. Ask them to store the results, by making screenshots or copying the information.
3. Sociometry: Ask participants to sort themselves on a line based on their *normality score*. One end of the line represents the lowest score, the other the highest.

   You might explain that the popular sociometry method has some similarities with what machines do. It creates additional information through the agglomeration of many data. In this case, you can see how *normal* you are as a group, and how normality is distributed among participants.
4. Smaller group discussion about the method and the results:

→ What do you conclude from this assessment?
→ What was surprising for you?
→ If you want to, compare your results.
→ Any questions arising from this experience? Anything you would like to share?

5. Topical and technical aspects - continue in the same groups.

→ Remember how the system came to its interpretations.
→ What technology was new to you?
→ What would you like to learn more about?

6. Prepare a poster with

   a) your most urgent questions regarding the way people are measured and profiled (up to three)
   b) two numbers: your average age as predicted by the AI (count all predicted ages together and divide them by your number) and your actual average age
   c) optionally: notice the technologies you would like to find out more about

   You may notice that the predicted age does not match reality. One solution to correct this machine-made mistake would be to simply collect more data. In theory, the average data of your predicted ages together should be nearly the same as the average of your real ages. If not, this could be a hint that the algorithm is not working properly.

7. Plenary: At the beginning of the reflection portion, each group shares their most urgent three questions on the poster.

Reflection

- What conclusions do you as a user draw from this experiment in regard to this kind of digital technology?
- What issues arise from a Human Rights and Democracy perspective?
- How would you like to move forward with the topic?

Experience

This practice might be used as an entry to the topic of biometric identification and biometric analysis.
It might also facilitate a debate about how algorithms and their application influence social norms.

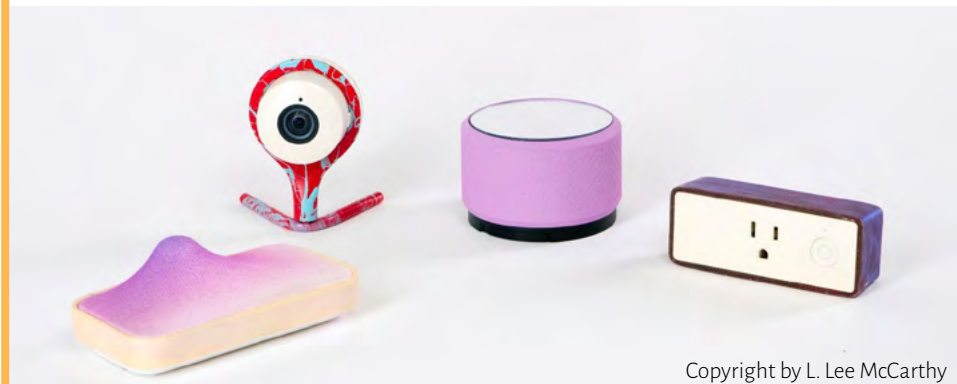
Variation

During the session, an individual face profile will be presented. Ask participants to save it. It might be used as an alternative gallery of participants. You might print these out and compare what machines see and what humans see.

Profiling systems may incentivise us to be as average as possible.

Tijmen Schep, 2020

Lauren – Exploring algorithmic living



Copyright by L. Lee McCarthy
(still from LAUREN Testimonials, directed by D. Leonard), printed with kind permission.

"I attempt to become a human version of Amazon Alexa, a smart home intelligence for people in their own homes. The performance lasts up to a week. It begins with an installation of a series of custom designed networked smart devices (including cameras, microphones, switches, door locks, faucets, and other electronic devices). I then remotely watch over the person 24/7 and control all aspects of their home. I aim to be better than an AI because I can understand them as a person and anticipate their needs"
(Lauren Lee McCarthy).

Laureen becomes your smart home robot: www.get-lauren.com

The project, "Exploring Algorithmic Living", illustrates that personal digital assistants influence how we value and accept assistance by machines. How do personal digital assistants influence our relationship to systems? Do we expect them to be cheap ubiquitous service slaves? Would our attitude and expectation toward assistance change, if we were to need to communicate with real human beings? Lee McCarthy would probably have a lot to say about this on the basis of her experience as a human personal assistant. Her ongoing presence in private spaces makes the surveillance aspect of smart technology especially visible. "Together, we have a conversation. Do we feel any limits when it comes to letting AI into our data, our decision making, and our most private spaces" (McCarthy, 2018)?

Lauren Lee McCarthy examines social relationships in the midst of surveillance, automation, and algorithmic living. She is Co-Director of the Processing Foundation, a non-profit whose mission is to promote software literacy within the visual arts and visual literacy within technology-related fields and to make these fields accessible to diverse communities.

→ https://lauren-mccarthy.com/

Fake through AI

Although AI is intended to create models of reality, it might also be used for the opposite – creating images which are only seemingly real. In the context of information disorder – disinformation or misinformation – such application has a huge negative impact on the infosphere: Using an existing set of pictures of real people, machines can artificially create real new pictures. In consequence, this opens new opportunities for fraud: Are humans still able to recognise whether they are interacting with another human or a machine?

Deep fakes are computer-generated images superimposed on existing pictures and videos, named after the pseudonymous online account that popularized the technique. They use deep neural networks to examine the facial movements of one person. Then, they synthesize images of another person's face making analogous movements. Doing so effectively creates a video of the target person appearing to do or say the things the source person did. The more images used to train a deep-fake algorithm, the more realistic the digital impersonation will be. Researchers found in 2018 a way to reliably tell real videos from deep-fake videos: eye blinking, usually missing in deep fake videos because few images are available online showing one's eyes closed (Li, Chang & Lyu, 2018). However, they also warn that their solution is not permanent as the algorithm keeps evolving.

In particular, we find the following tools and illustrations useful for embedding in learning about AI, about the digital representation of reality, and about information disorder:

- **FaceApp:** This photo editing tool for Android and iPhone can be used to alter one's appearance, including their age and gender (Ewe, 2021).
- **This person does not exist:** The one-off website, www.thispersondoesnotexist.com, features photos created with the newest AI technology (generative adversarial networks). Every time the site is refreshed, a real-looking artificial face appears. Former Uber software engineer Phillip Wang created the page to raise awareness about the potential damage this technology can cause, as it can be employed to create deep fakes to spread misinformation.
- **Human vs. AI test:** Kazimierz Rajnerowicz created a test to see whether internet users are able to pick up on clues and recognize photos, artwork, music, and texts created by Artificial Intelligence. Check it out here: https://t1p.de/9mjp

- **Deep Reckonings:** A series of explicitly-marked deep fake videos that imagine the most morally courageous versions of the most controversial public figures. Created by Stephanie Lepp: https://www.deepreckonings.com/

Many fake pictures and videos are produced with the help of *generative adversarial networks* (GAN). Two neural networks are combined in order to generate a more realistic result. While we present here the negative application of this technology, we must also mention that it is very useful in scientific contexts. Namely it has been used in astronomy to model the distribution of dark matter or in medicine to detect glaucoma.

Real vs. generated photos

How can we spot differences between real photos and AI? Here is a checklist from Casimir Rajnerowicz, author of the Human vs AI test.

- ☐ Photos that are heavily photoshopped were usually taken by humans. The AI algorithms are mostly trained with repositories of *unedited photos*
- ☐ AI struggles with replicating *unique or unusual elements*. A specific makeup pattern, earrings, clothes (or lack thereof), hair highlights, or accessories are a dead giveaway
- ☐ AI-generates usually very *symmetrical faces* and both eyes are at the same level
- ☐ Real professional photos are *sharper and have more details* while amateur photos are noisier—most AI-generated photos are neither
- ☐ If a photo is *cropped* and doesn't show shoulders, hands, or the whole hairdo, it could be AI-generated. The AI does well at generating very specific elements with predictable structures (such as faces) but once there is a body (and countless unpredictable positions the cat body can take) the AI has no clue what's going on
- ☐ Skin imperfections and eye reflections don't make images authentic
- ☐ Sometimes AI-generated *hair and teeth are botched* (but it doesn't have to be the case)

4.4 AI and bias

The strength and weakness of AI relies on data and processing power, but also on the quality of the algorithms employed. These are human constructions, designed under specific premises and for specific purposes. A challenge in the application of such technology in social contexts is to understand how implicit decisions behind the construction of the algorithms influence the results. This is an urgent challenge because AI is increasingly spread while the transparency of the algorithms is often lacking.

Massachusetts Institute of Technology (MIT) computer scientist Joy Buolamwini started digging into racial and gender-based bias embedded in technology after realising that the facial recognition software in her office could not detect her until she donned a white mask. Simply put, the software was primarily trained with white men pictures so it was unable to recognize Buolamwini's features because it didn't know they existed. Such a lack of information has serious implications. In fact, when this technology is employed by law enforcement agencies in public spaces to identify wanted criminals, it can lead to the arrest of innocent people mistaken as suspects.

In 2016 Buolamwini founded the Algorithmic Justice League which released two landmark studies:

- Gender Shades, in 2018, uncovered that facial analysis software released by IBM, Microsoft and Amazon was less accurate when analyzing dark-skinned and feminine faces, compared to light-skinned and masculine faces (Buolamwini & Gebru, 2018).
- Voicing Erasure, in 2020, addressed racial bias in speech recognition algorithms (Koennecke et al., 2020)

➔ https://www.ajl.org/

Buolamwini is also known as the "poet of code". In 2018 she delivered a powerful spoken word piece: "AI, Ain't I a woman?" highlighting the ways in which artificial intelligence can misinterpret the images of iconic black women: Oprah Winfrey, Serena Williams, Michelle Obama, Sojourner Truth, Ida B. Wells, and Shirley Chisholm.

Other examples might be found in systems of learning analytics. The project Learning Analytics und Diskriminierung (LADi) examines bias on the basis of real systems. Their insights lead us to conclude that discrimination and lacking fairness of systems require constant bias-

sensitive human monitoring and alignment (Riazy & Simbeck, 2019) which often exceeds the capabilities of the users, for instance in recruiting or learning contexts. A team from the project also found that a risk of unfair treatment appears when educators' choices are too influenced by recommendations of a system – and they tend to trust a system although not having enough information about how it works (Mai, Köchling, Wehner, 2021).

Explore further:

- Gender Shades
  http://gendershades.org/
- Tedtalk J. Buolamwini: How I'm fighting bias in algorithms.
  https://t1p.de/woid
- J. Buolamwini: AI, Ain't I A Woman?
  https://youtu.be/QxuyfWoVV98
- Voicing Erasure
  https://www.ajl.org/voicing-erasure
- Selfies for inclusion is an art project by Zahraa Karim aiming to help developers test and create more inclusive training sets
  https://graduateshowcase.arts.ac.uk/projects/5368/selfies-for-inclusion-zahraa-karim/cover
- Learning Analytics und Diskriminierung (LADi)
  https://t1p.de/uszd

Guess who? AI-version

60-120 min

3 printed sets of cards; 1 poster

2-20

discriminatory bias; identity; facial recognition systems

Guess Who is a popular game where opponents attempt to guess which character out of 24 possibilities their opponent has picked. This adaptation can be used in educational settings to reflect on how liable to error facial recognition systems can be.

Any face recognition system uses biometrics to map facial features from a photograph or video, comparing the information with a database of known faces to find a match. Let's pretend that the participants are detecting machines: how rich in information are their "internal databases"? Celebrity pictures can be used in order to play with real facial features.

Goal

Understand AI biases by playing with human ones

Steps

1. The participants split into two teams and play the game, following the provided instructions: i) each team picks a "mystery person" that the other team has to guess; ii) each team is allowed to ask one question per turn, answering either with "yes" or "no"; iii) if one guesses the mystery person wrong, they lose. At least three game rounds must be played. Here you find a set of celebrity cards ready to test: https://competendo.net/en/Guess_who_-_AI_version
2. When the game ends, the educator prompts a reflection session:

- ➔ What is the process behind your attempts to guess the mystery person?
- ➔ How many questions did you need to guess?
- ➔ What was easy and what wasn't so?
- ➔ How did you feel while playing the game?
- ➔ The questions that participants used to guess can be discussed specifically.

3. Transfer to facial recognition: the educator explains how facial recognition systems work. This can be supported by the Algorithmic Justice League (AJL) materials (see above), for instance, the "Gender

Shades" video explainer: https://youtu.be/TWWsW1w-BVo. Thoughts about AI accuracy, inclusiveness and fairness can be collected on a poster.

Reflection

- How does the game relate to face recognition technology?
- Did you experience bias and stereotyping during the game?
- How can we fight stereotypes and simplification?

Experience

- If you create your own set of cards, make sure that the characters have some small peculiarities, but also that they share enough common attributes. If only one character wears a hat, for example, it would be too easy to detect!
- The educator can forbid certain questions such as, "Is it a woman/Is it a man?".
- Skin types are likely to stir a debate which is part of the game; the educator can prevent stigmatization, for example prompting the participants to find other words than "White" and "Black" and emphasize instead other descriptors.
- Creating the set of cards can be part of the educational activity. The educator can prompt the participants to look for "very difficult people to guess" and their choices can be discussed consequently.
- Pictures can be picked and downloaded from Humanæ's photographic work by artist Angélica Dass. The project aims to "to document humanity's true colors rather than the untrue labels "white", "red", "black" and "yellow" associated with race [...] The background for each portrait is tinted with a colour tone identical to a sample of 11 x 11 pixels taken from the nose of the subject and matched with the industrial pallet Pantone®, which, in its neutrality, calls into question the contradictions and stereotypes related to the race issue" (taken from https://angelicadass.com/photography/humanae/). It is a work in progress with over 4,000 photos collected so far.
- To bring out both the cognitive and the discriminatory mechanisms, it could be useful to devise at least one game round with cards all representing celebrities of the same ethnicity.

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Chapter 5
ACTIVISM AND PARTICIPATION

In a global digital world, many experience the public sphere predominantly online. The spaces for dialogue, participation and political struggle take place increasingly in the digital realm, making it one of the main platforms where social change is driven.

One example of social media influence on decision-making in the European context is Brexit. In addition, in many European countries, we find examples of online campaigns for citizens' causes. For politicians, the number of followers on social media has become a necessity and players new to influencing social discourse, such as celebrities, have entered the scene. Tools for social transformation, community mobilising and active political participation are increasingly digital, with *digital activism* in the forefront of many fields of political activism. We will explore several *online spaces and tools for participation and learning*. This chapter provides information about how models of participation can be applied to the digital sphere. It gives inspiration for digital activism and how active citizens can share their stories, knowledge and causes.

5.1 Online and offline spaces for participation

Governments worldwide are realising the advantages of increased online participation, with a myriad of platforms at different levels of governance popping up. There is a "significant growth in participatory platforms in […] the world, however with more rhetorical than practical effects: the majority of the initiatives are promoted by top-down style governmental electronic portals, with little or no influence in the real decision-making process. […] Power – and not technology – is the key obstacle for effective online citizen participation, whose barriers are nurtured by a traditional political elite with little interest in building a transparent, inclusive and collaborative democracy" (Santini & Carvalho, 2019).

Digital platforms for citizen participation in decision-making are increasingly used by public institutions to promote dialogue and exchange, especially at the local level. Although there has been a progressive increase in the use of these tools by citizens, it cannot be said that this has had a decisive impact on the way public decisions are made. On the contrary, as is often the case even in the mechanisms put into practice by public institutions, consultation processes become a way of caring more about appearances than content (see the scale of offline and online participation). The majority of the participation process could be classified as "pre-participative" or "bottom-up". It means that public institutions and/or the government are leading the mechanism. "Participation represents little more than opportunistic rhetoric on the part of political representatives. Several online governmental initiatives communicate a promise of promoting civic participation, but are, in practical terms, complex, closed platforms, controlled and monitored by their managers and with very little or no feedback about the result of the participation, characterizing a kind of "participation washing" (Santini and Carvalho, 2019, p. 177):

Online political participation assessment model

Pre-participation	↓ Government Citizen	platforms with information and/or services
Top-down participation	↓↑ Government Citizen	governmental platforms that ask for public opinion
Bottom-up participation	↑ Government Citizen	non-governmental public pressure platforms
Deliberative top-down participation	↓↑ Government Citizen ↔ Citizen	governmental platforms that ask for public opinion with discussion among citizens
Deliberative bottom-up participation	↑ Government Citizen ↔ Citizen	non-governmental public pressure platforms with discussion among citizens
Collaborative participation	↔ Government Citizen	mixed platforms with discussion and joint decision between citizens and government

For activists and educators promoting digital participation, a critical view into the mechanisms of online participation and the tools used seems to be helpful, because these processes carry several risks. In the worst case, these risks include hidden informal hierarchies and power structures; authoritarian management manner; manipulative participation; and the rise of a new kind of populism (Santini and Carvalho, 2019); Risks that partly concern the management of power by public institutions and therefore are not only related to the digital sphere but also require specific attention as the digital sphere changes their characteristics.

The sharing of information and the transfer of a part of power are two crucial elements in identifying participatory processes in which decisions are taken jointly between public institutions and citizens. Citizens, indeed, must be put in a position to express their opinion by having as much information as possible in order to make informed contributions to decision-making. The total or partial lack of transparency of public data is a risk and problem that must be countered in order to promote truly inclusive and effective participatory processes (Jiang and Xu, 2009).

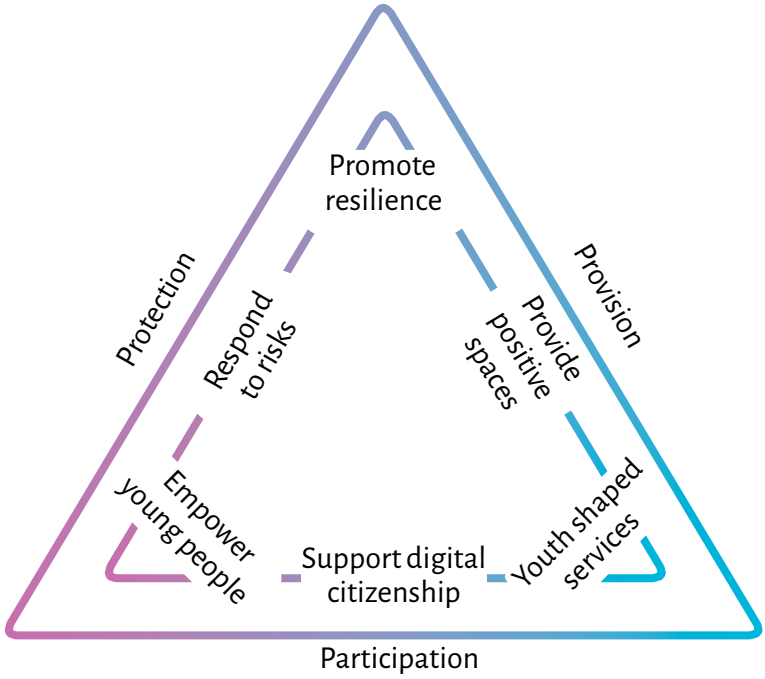
A step backwards on the part of the institutions is needed via power-sharing in decision-making , e.g., by creating control and audit agencies to ensure transparency and accountability of political acts. On the other hand, citizens need to step up to demand transparency in public decision-making, the assumption of responsibility for monitoring the work of decision makers and initiating bottom-up participatory processes.

Discuss the following questions in regard to the discourse and practices in your country or area. Try to imagine effective participative processes that may develop.

- What offerings and tools for e-participation exist?
- Does e-governance imply a real change in power dynamics? Does technology allow for a more democratic and participatory governance? What are the barriers in place for effective democratic participation?
- How can civil society organise itself in a digital way to foster active participation and to bring effective social change? And what are the relationships between online and offline activism and social movements?

Six principles of online participation

The six principles of online participation begin with the UN Convention on the Rights of the Child (UNCRC), which provides an internationally agreed upon foundation for policy and practice with respect to young people. There are three main categories: provision rights; protection rights; and participation rights. The resulting triangle collapses with any side removed – each set of rights is essential to support the full realization of others. No set of rights supercede the others in the triangle.



Source: Davies, Dowty & Bhullar (2011, p.8)

Dave Meslin: Antidote to Apathy

This TED Talk sets the starting point for anyone who wants to promote civic participation. Why aren't people more involved in their local communities? Is it simply apathy? Dave Maslin would say quite the contrary, and he identifies seven barriers that prevent people from taking part, even when they want to:

→ https://t1p.de/2ihqc

Ladder of online participation

Creators

- Publish a blog
- Publish your own web page
- Upload a video you have created
- Upload audio/music you have created
- Write an article or stories and post them
- Initiate public discussions or peaceful protests
- Start online campaigns

Conversationalist

- Update status on a social networking site
- Post updates on Twitter, Facebook, etc.

Critics

- Post ratings/reviews of a product or service
- Comment on someone else's blog
- Contribute to an online forum
- Contribute to/edit articles on a wiki
- Participate in a survey about initiatives, products, etc.
- Comment on local/national legislation
- Criticise public discussions
- Observe and report on the work of public authorities

Collectors

- Use RSS feeds
- Vote for a website online
- Add "tags" to web pages or a photo

Joiners

- Maintain your profile on a social networking site
- Visit social networking sites

Spectators

- Read blogs
- Listen to podcasts
- Watch videos from other users
- Read online forums
- Read customers' ratings/reviews
- Read tweets

Based on the 2010 model by Bernoff, J. and Li, C. (2010), 'Social technographics revisited – mapping online participation'. In Participation Models: Citizens, Youth, Online, available at: www.nonformality.org/wp-content/uploads/2012/11/Participation_Models_20121118.pdf

Online participation

45 minutes | any group size

A videoconference setting with rooms, e.g. Wonder.me

online participation

Adapted from Council of Europe (2020) Bookmarks (p. 83)

→ https://rm.coe.int/bookmarksen2020-web2/16809e5789

Goals

- Identify one's participation level and roles online
- Comprehend the concepts and different levels of participation and activism
- Explore tools for mobilising for participation online and the interrelations with analogue communities

Steps

Present the activity in an online plenary session

→ Present the ladder of online participation on page 117 (share the screen)

→ Present the spaces of discussion (rooms) you created on the platform (Spectators, Joiners, Collectors, Critics, Conversationalists, Creators and Chill out)

1. First Round:
   The facilitator broadcasts the following questions/instructions:

→ How do I participate online?

→ With the categorization used on the ladder of online participation, move yourself into the different rooms. Stop when you find your position

→ Invite the participants to look around and see how people are grouped

→ Encourage the participants to share their own experiences

→ Instigate reflection: are participants comfortable with that position?

2. Second Round:

→ Move to the place where you would like to be

→ When participants place themselves where they would like to be, ask them what hinders them from being there and let the group discuss actions they would like to take in order to reach another level of participation

→ For those in the chill out room, ask them to share with the whole group tools and methods for mobilising people

Reflection

→ Do you feel that you can freely participate online?
→ How was it to identify your role online? What did you discover about your online behaviour?
→ How was it to think of things you could do more online?
→ What do you think about these examples of online participation? What is their link to "offline" participation? Can people participate online as they do offline?

Wonder.me

Wonder.me is a commercial digital tool for collective calls that resembles a physical space where participants can walk around and interact in groups. It is a very useful tool for online sessions and it is very intuitive to use:

➔ https://www.wonder.me/

Participation models, citizens, youth, online

This is an overview of theoretical models of citizen, youth and online participation. It is very exhaustive, comprising models from 1969 to 2012. Many set different levels of participation and others explore the necessary conditions that need to be in place for effective participation:

➔ https://www.nonformality.org/wp-content/uploads/2012/11/Participation_Models_20121118.pdf

How participatory is youth participation?

RMSOS Framework (participation model)

RMSOS stands for Right, Means, Space, Opportunity and Support. It is a framework developed by the Council of Europe. The RMSOS framework is a means of assessing the extent to which each of the five main factors influencing youth participation is present within a project, initiative, organisation or in community life.

☐ **Right**

Young people have the human right to participate. Even if not stated explicitly, it is a fundamental right. So, it is not up to authorities and institutions to grant this right. It implies that young people should be active in promoting their rights, meaning that they are involved in decision-making rather than solely consulted.

☐ **Means**

In order for young people to be involved, their basic needs have to be met. Otherwise, participation will not be possible nor a priority. These include sufficient social security, education, housing, health care, transportation, know-how and access to technology.

☐ **Space**

Physical space is essential for young people to meet and organise their own activities. Although there are available spaces in schools and other formal contexts, when it comes to non-organised settings, there aren't many facilities available. More than physical spaces, we talk about the space within the institutional framework of policy making.

☐ **Opportunity**

In order to be able to participate actively, young people need to be provided with the opportunity to do so. This means, for example, that young people must have easy access to information on how to get involved, what the opportunities available are and where they are. This means that conditions need to be in place to ensure that young people have the opportunity to participate in terms of having sufficient time and supportive structures.

☐ **Support**

Without the necessary support, young people's involvement might not be as efficient as it could be. They should have various forms of support. These include, for example, financial, moral and institutional support at a number of different levels – personal, organisational or at local community level.

Source: Council of Europe (2015) Have your say! https://rm.coe.int/16807023e0

Participatory processes, jumping into the online world

José Carlos Mota is an Assistant Professor at the Department of Social, Political and Territorial Sciences of the University of Aveiro, Portugal. In 2004, he joined the department as a lecturer and researcher and in 2014 completed his PhD on participation in spatial planning. He is the Director of the Urban and Regional Planning MSc and from 2014-18 coordinated the Bicycle and Soft Mobility Technological Platform. Has been involved in several research projects focused on collaborative planning and cycling.

What are the main challenges of participatory planning processes?

These worlds – Politics, Academy and Citizenship – how can they work together? This is the main challenge. How can we work as mediators? How can we mediate different languages and discourses? How can we create trust and achieve satisfactory results? After all, when trust is created, we can see that people want to participate, eliminating the myth that, in general, people are not interested. So, this is the challenge to bring different fields of knowledge together and bring forth bold proposals and have the courage to experiment.

What digital tools do you use and what are the steps for an online participatory planning process?

1. We use Zoom for participants to take part.

2. There are three initial moments.

- *Welcome by the Mayor, so that people feel the top decision maker is present and invested in the process;*
- *A video contextualising and reporting relevant information about the territory, almost like a bird's eye view;*
- *A slide presentation explaining the methodology.*

3. Parallel rooms, using Miro and the Lotus Blossom Technique (see box). Allowing people to see what is being written, an approximation to the more physical writing of post-its and maps. The small groups allow for each participant to speak and fosters active listening.

Each room has three people from our team – a moderator, a rapporteur to register what is being said, and a member of staff from the municipality in case any questions arise. We ask participants to enroll for the session so that we know how many people we must mobilise for each breakout room. (We had sessions with 30 people from our team).

At the end of the session, roughly 1.5 hours, a spokesperson is selected among the group to report to the big group the main conclusions. This is important to empower participants as representatives of their peers.

- *The following day, we send a provocative text about the meeting, an initial devolution of what happened. It is not a report, but my interpretation of what happened. This is very important in this process—the construction of a narrative. When we build a participatory process, we create a common narrative. So, we need to identify what comes from each meeting, what was said, to have a common thread.*
- *A few weeks later we send a newsletter with a more structured and detailed report.*

Other advice for the success of a participatory process?

- *To count on and enhance the mobilising capacity local authorities have, with their proximity to the local reality. We always map the local stakeholder—NGOs, schools, enterprises. And then we call them, to make an invitation. Most times, an e-mail is not seen, people don't know what it is, so calling creates a link.*
- *Create a network. The challenge is how to maintain a functioning network. Sometimes, the creation of a Facebook or WhatsApp group, etc., allows continuous communication between meetings.*
- *We are too attached to digital communication and, for some groups, it doesn't work. I think we will need to go back to the wall newspaper in neighbourhoods, hung in public spaces, where people, especially the elderly, go.*

Steps for a successful participatory process

Step 1

To have decision makers, especially in public administration as allies, with a political will and commitment. (One challenge is convincing decision-makers to take these steps.)

Step 2

Expectations. One shouldn't start by sharing what the methodology will be. One important thing is deciding together with the specific community how to conduct the work. What are their worries, their sensibilities? There are factions that don't talk to each other. There are places with more tensions than others. So, this step is to gather what are their expectations, why do they want a participatory process and to determine some rules. Especially in urbanism, the people that show up are very focused on their own private interests. So, the first rule is – this process is aimed at the common interest.

Step 3

The start of the participatory process itself should consist of discussion rounds. It is important to maintain a "horizontal" dialogue, where no one dominates the floor, and especially in small groups, everyone has a chance to talk. When given the chance to speak up, it is clear people are eager to do so. We use a trick, since usually in these processes people start by complaining. Therefore, we ask people to talk about collective memories: affective memories, when talking about their place, traveling through time, spaces, activities, this helps to look at reality with a certain distance, making it richer, rather than focusing solely on problems.

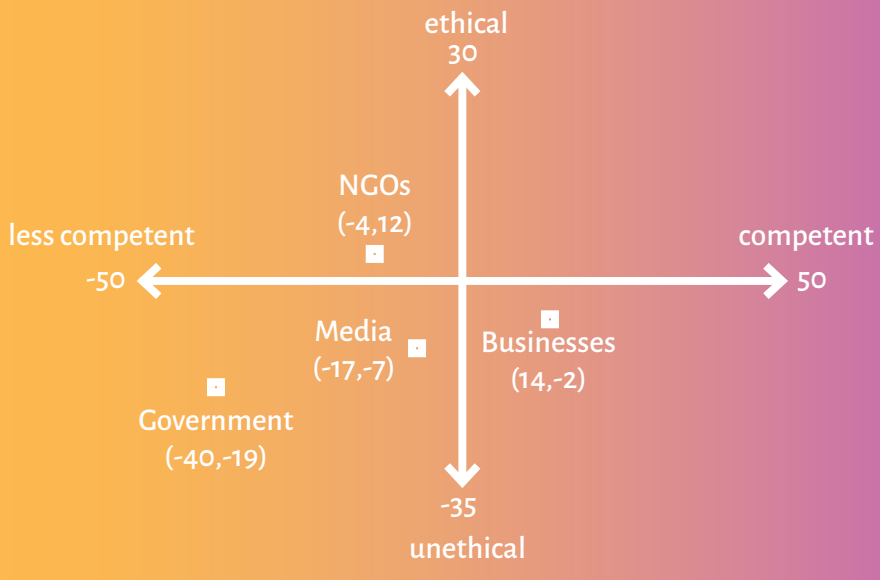
Step 4

Ask participants to make recommendations for the future. This helps people feel their contribution is relevant, that they are heard and valued. And we must ensure that at the end, they enjoy the process.

Trust

A crucial condition for the acceptance of digital infrastructure, platforms and services, and for believing in participatory processes, is citizens' trust in their usefulness and good intentions. Although the public seems to trust manufacturers, big services and the authority of politicians and scientific experts, there are also grounds that speak to stronger involvement of citizenry in their control, for example through non-governmental organisations or in participatory processes. From an individual perspective, deeper trust might be shaped by a healthy balance of confidence and also reasons for falsifying distrust. The findings of the Edelman Trust Barometer can be transferred also to the topic of digitalisation (DIGIT-AL 2020).

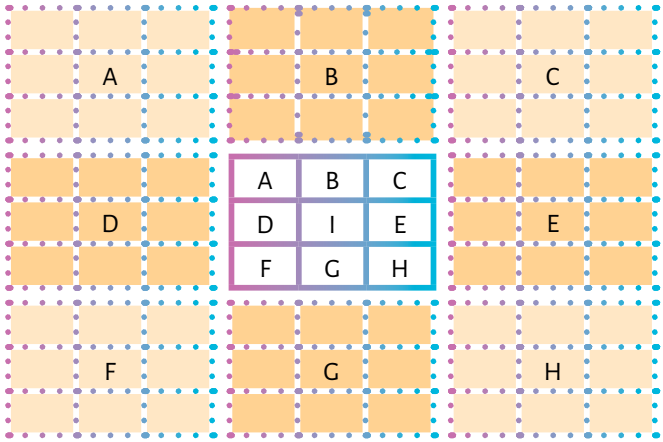
No institution seen as both competent and ethical.



- ➔ Whom do we trust to govern a social issue (i. e., digitalisation) and why?
- ➔ How do we assess the role of the state, economy and civil society?
- ➔ What competence would citizens and civil society have to develop?

Edelman Trust Barometer 2020: p. 20

Lotus Blossom Technique



The Lotus Blossom Technique is a structured brainstorming exercise used to expand on a central idea or problem. Teams place the *original problem statement in the centre box* in a 3x3 matrix, then add related themes or elements of the problem in the eight boxes surrounding it. After filling out this central box, *eight new grids are created* with an idea from the first grid in the centre. The process repeats, with the team adding eight ideas for each of the eight initial aspects from the first grid.

This method can be applied to the digital learning environment with a digital whiteboard.

→ Source: https://lucidmeetings.com/glossary/lotus-blossom-technique

Online platforms for participation

Several civil society organisations have developed platforms where citizens might collaborate and promote their own causes: Decidim from Spain, Citizen OS from Estonia, Citizenlab from Belgium, etc. See more on Competendo:

→ https://competendo.net/en/Apps_and_Tools

Open Government Partnership (OGP)

The Open Government Partnership is an organisation of reformers inside and outside government dedicated to changing the way governments serve their citizens. It is a broad partnership that includes members at the national and local level and thousands of civil society organizations. Through the partnership, these powerful forces work together to co-create two-year action plans with concrete steps – commitments – across a broad range of issues. OGP focuses on diverse areas such as gender, corruption, civic space, education and justice. It also focuses on digital governance.

➔ https://www.opengovpartnership.org/policy-area/digital-governance/

OPG has proposed actions for transparent and accountable digital governance in respect to digital inclusion, digital transformation for open government and open data. Within these fields, OPG has mapped a great diversity of initiatives worldwide that are worth exploring.

Participedia

A global crowdsourcing platform for researchers, activists, practitioners, and anyone interested in public participation and democratic innovations. This platform gathers methods, cases, tools and other resources:

➔ https://participedia.net/

5.2 Activism and empowering learning processes

Activism has been an extraordinary tool for social transformation. Many liberation and civil rights-focused social movements have brought effective change. With the rise of the internet, activism online has become almost as important as activism in the streets, often complementing each other. Here, we present a few resources available online for activists working online and offline to navigate political institutions – in particular at the EU level – and to be able to protect themselves. Activists, indeed, are increasingly a target of violent acts from states and corporations that feel threatened by them. Also, we present some resources that can be used as tools for empowerment and learning, in different contexts, namely in formal and non-formal educational settings.

Navigating EU political institutions

An activist's guide to the EU

Fern NGO developed this video resource to introduce people to the functioning of EU institutions and to give hints as to how to have an influence on decision-makers.

→ https://youtu.be/P8m_oYqFHho

Activist Guide to the Brussels Maze

The purpose of this booklet is to provide activists with an insight into where EU legislative and non-legislative proposals come from, and what can be achieved at each stage of the legislative process.

→ https://edri.org/our-work/activist-guide-to-the-brussels-maze-3-0/

Digital security tools & tactics

Digital Protection Resources

Front Line Defender, an NGO dedicated to the protection and accompaniment of Human Rights Defenders, has collected resources related to activists' digital security in order to share digital security practices and tools:

→ https://t1p.de/foli

Some of the resources included in the list were created by the NGO itself, others by other civil society organisations. One example of these resources is Security in a Box.

→ https://securityinabox.org/en/

Level Up

Among the resources reported on the Front Line Defenders website, the LevelUp project is particularly interesting. It proposes an educational reflection on digital security via a digital security-focused curriculum whose first fundamental step is the assessment of the risk that each activist may run according to his/her own characteristics and habits in using the digital sphere. It emphasises the importance of thinking critically about digital security: there are no tools that are good for everyone, but digital security strategies must be

tailored to the person and the contexts in which he/she operates.

→ https://www.level-up.cc/curriculum/assessing-risks-and-solutions/

Assessment of different digital protection guides

Created in February 2021 by Gus Andrews for Front Line Defenders to supplement the Security in a Box guide.

→ https://t1p.de/2tmr

Digital violence: how the NSO group enables state terror

This project created an interactive 3D platform to visualise the hacking attacks that took place against activists, journalists and human rights defenders by the NSO Group's Pegasus malware. This is a compelling example of the dangers that activists face. “Supported by Amnesty International and the Citizen Lab, our analysis reveals relations and patterns between separate incidents in the physical and digital sphere, demonstrating how infections are entangled with real world violence, and extend within the professional and personal networks of civil society actors worldwide”.

→ https://digitalviolence.org/

Competendo: Privacy Protection

We also collated some resources and instruction regarding digital privacy and data protection including the cited sources in this handbook.

→ https://competendo.net/en/Privacy_Protection

Surveying surveillance

1.5-3 hours 5-25

standard (see introduction) and city map. If digitally conducted: Openstreetmap, smartphone with camera

surveillance, control

Goal

Investigate and develop an active approach in response to different forms of control and surveillance interfering in private, social, political and human rights spheres

Steps

1. Small groups (max five participants for each) go for a walk in public and look for the devices that could allow third parties to locate someone's position and trace them (public, transport companies, cars, your mobile devices, wearables, etc.).
2. Use your smartphone and take a picture of the group from the possible position of the cameras you detect.
3. Paint a map and print the pictures of the traces you potentially left, or place the pictures digitally, e.g. on www.openstreetmap.org

Reflection

Think and discuss in the group, what the purpose of surveillance might be and what institution is behind it (public, private, etc.). Discuss how to develop tactical individual or public action to raise awareness about surveillance. Try out some smart tactics to act and raise awareness.

- ➔ What forms of control and surveillance are you aware of in your everyday life?
- ➔ What would be tactics to counter being traced?
- ➔ What might the benefits of being traced be?
- ➔ How might we challenge automated surveillance?

Digital learning and empowerment

Pirate Care

Pirate Care is an online tool for supporting and activating collective processes of learning from current forms of activism at the intersection of "care" and "piracy". It is a research process primarily based in the transnational European space, which in new and interesting ways is trying to intervene in one of the most important challenges of our time, that is, the "crisis of care" in all its multiple and interconnected dimensions:

→ https://syllabus.pirate.care/

"A Par e Passo" (side by side) – digital recognition of learning

The application "A Par e Passo" (side by side) aims to encourage learning through a process of "gamification". It is a mobile app that supports educational design in formal and non-formal contexts and promotes the development of citizenship competences of young people and children. This methodology promotes the belief that everyone contributes to civic and political development. Starting from a specific and real need, the app aims to track the process of tackling the problem through the different phases of a project: exploration, development, conclusion and self-evaluation. All phases can be done individually or in teams.

To support the system, a back-office tool is made available to educators that will allow them to create and manage educational projects, add/activate stages and respective badges, evaluate performance and assign badges and points.

How to implement it in your school, organization or community?

This methodology was created by Rede Inducar – Portugal in partnership with Arrifana School and Municipality of Santa Maria da Feira. To access, please contact parepasso@inducar.pt. For now, it is only available in Portuguese.

→ PlayStore: https://t1p.de/9eps
→ WebApp: https://inducar.bizview.pt/login
→ Back-office: https://admin.inducar.bizview.pt

In order to encourage learning through a process of gamification, "A par e Passo" suggests following these steps:

Step 1 – Identify what you would like to learn/change.
Any project should be a collaborative response to a specific and real problem that challenges the learner.

Step 2 – Identify partners and allies to help implement the project.
Following the formulation of initial questions, the project design should then focus on exploring those places, contexts and social actors from whom one can learn more and, if necessary, with whom one can make a difference around the project theme.

Step 3 – Defining the project.
This entails define the sequence of learning activities to be undertaken and identifying actors to be involved and the resources needed to carry them out, their timing and also the distribution of responsibilities and associated tasks. That's the moment that you can start creating the project in the "A par e Passo" back-office to be available on the APP. In the app you can follow the necessary steps to complete the project.

Step 4 – Show (what) we have learned.
The advantage of project-based learning/exploration is not only that of "learning by doing", but also that of being able to show – to others and to oneself – (what) one has learned.

The elaboration and presentation of products, whether partial or final, can be supported by the use of the mobile application, since it allows the association of concrete tasks at each stage of the project and guarantees the possibility of submitting products in various media, such as text, images, audios, videos and hyperlinks. It is then up to the educators to provide feedback and assess the products submitted by the learners, including by assigning points and badges associated with skills, thus contributing to their motivation and to the deepening and progression of their learning.

Step 5 – Evaluate the process.
Based on digital learning badges, we create a competence framework that we can use in schools or community centres, divided into four big areas: critical and creative thinking, autonomy, interpersonal relationships and civic participation. Each badge has five criteria that the learner must achieve to earn the badge. When you earn a badge, it is coloured to identify that it has been earned. If you earn the same badge multiple times, it will add colours around the badge, as seen in the blue badge with a yellow line around it.

5.3 Narratives for social change: Storytelling and media campaigning

> *The universe is made of stories, not of atoms.*
> Muriel Rukeyser, "The Speed of Darkness"

Over the years, studies have shown that when people watch a film, their brain does not feel like a spectator, it feels more like a participant in the action. Stories hook and hold human attention powerfully because, at an emotional level, whatever is happening in a story is happening to us as well.

Storytelling builds community! We do non-profit or activist work because of the change we are working for, but also because it helps us build community. Statistics and lists of facts may communicate information, but stories communicate meaning and emotion, which are what motivate people to act. People don't relate to questions but to other people. And when we understand each other, we can identify our shared vision for a better world and work to make it a reality. Stories have the ability to help people understand the political nature of their own experience.

If one person tells a story about their own involvement with the criminal justice system, the public may only see them as an individual who has had a bad break. But as other people share their stories on this topic, patterns emerge – they say that African Americans are disproportionately targeted relative to their numbers in the population – and the social nature of their experience emerges. And by discovering the social nature of the problems, groups can then formulate actions to address those problems.

Stereotypes and Storytelling

The Danger of the Single Story

TED talk by Chimamanda Ngozi Adichie

In this TED talk from Chimamanda Adichie, a Nigerian writer, she discusses what she likes to call "the danger of the single story". She tells the story of her experience of reading and writing from an early age, influenced by the British and American-authored books she read where white and blue-eyed characters ate apples and played in the snow. Although these habits and characteristics were far removed from

her reality, where there was no snow and they had mangoes instead of apples, she ended up writing stories with these similar patterns. From her perspective, it shows how vulnerable we are in the face of a story.

Chimamanda Adichie hints that in order to have a single story about people, one merely has to recreate a repetitive narrative about them. It is impossible to talk about the construction of the single story without mentioning the issue of power. How narratives are told, who tells them, when and how many stories are told really depends on power. That is, "*power is the ability not just to tell the story of another person, but to make it the definitive story of that person*", says Chimamanda.

Over the years, stories have been used to expropriate and make something evil, but they can also be used to empower and humanise. They have the power to destroy the dignity of a people, but they can also restore that lost dignity. That is why Chimamanda says every story matters. Focused on resolving the issues, the writer proposes engagement with both sides of the story, what she cites as "a balance of stories", and the desire for discovery by all the stories of that place or that human being.

Chimamanda's TED talk has become an internationally recognised reference in the field of education to discuss the construction of stereotypes and prejudices in different contexts. Every story is important because it contributes to the emergence of differences between contexts and people, but it is important not to create a single narrative of those in a position of privilege that does not open up alternative visions and narratives. The talk can be used in order to discuss social representations, stereotypes, prejudices, hatred, intercultural differences and inequalities.

→ https://youtu.be/D9Ihs241zeg

Stereotypes and "Single Stories"

Facing History and Ourselves is a global organisation that aims to challenge teachers and their students to stand up to bigotry and hate.

→ https://www.facinghistory.org/

In the *Stereotypes and "Single Stories"* workshop included in the course *Teaching Holocaust and Human Behavior*, they discuss the concept of the single story. The guiding question is: in what ways do "single stories" impact our own identities, how we view others, and the choices we make?

→ https://t1p.de/7ey5n

NGOs storytelling: the importance of communication

The identity of NGOs and the effectiveness of their actions depends to a large extent on their ability to communicate in public space the issues they stand for and to be visible to those who can support them in achieving the desired change. "NGOs Storytelling" is a publication developed through the Erasmus+ Youth Mobility project "NGOs Communication Camp - 2nd Edition". It is a useful guide to support organisational learning processes and strengthen the effectiveness of civil society organisations' actions.

→ http://toolbox.salto-youth.net/1593

Campaigning

No Hate Speech movement

The Movement Against Hate Speech – Youth for Human Rights online was a campaign of the Council of Europe's Youth Sector, which ran until the end of 2017, by and with young people, online and offline. The movement continued through various national campaigns, online activists and partners to reach 45 countries.

Its main objective is to combat hate speech and discrimination in its online expression. Hate speech encompasses "all forms of expression that propagate, incite, promote or justify racial hatred, xenophobia, homophobia, antisemitism and other forms of hate-based intolerance". The campaign is rooted in the view that the Internet is a public service, a space for sharing where human rights should also apply to everyone and where human dignity should be ensured first and foremost. With pedagogical resources aimed at raising awareness of and education for Human Rights, the campaign promoted freedom of expression and the full participation of young people in society, both online and offline. Young people were agents, protagonists and activists for the benefit of all.

→ https://www.coe.int/en/web/no-hate-campaign

How to build hashtag campaigns for social change?

Virality is a tricky concept, but with a little strategizing, you can maximize the reach of a hashtag campaign through a combination of influencers, templates, data/stats, and traditional media. Before you start something new, ask yourself the important questions:

- What is unique about what you want to do?
- Can you support another organization doing something similar?

After that, let's make magic happen and change the world! Social movements activate the possibility of everyone to be a changemaker – where all citizens feel their power to make a positive difference in the world.

What you will read are some tips inspired by the #CanYouHearUsNow campaign, which went viral in the first week of August 2016, following a prolonged battle of words between U.S. Presidential candidate Donald Trump, and Khizr and Ghazala Khan (the Muslim-American parents of deceased U.S. Army Captain, Humayun Khan) following the Khans' speech at the Democratic National Convention.

☐ **Have a list of members & influencers**

Contact people who can relate to your struggle/cause. Understand what the level of commitment is. Make individual contacts.

☐ **Pre-campaign prep**

Come up with the right hashtag. If you take too long to decide, the news cycle might pass you by. Conversely, not taking enough time to deliberate options can create a campaign that backfires. Think through potential hashtags to see how the opposition may appropriate the message. The choice of words in the hashtag may be instrumental to its success.

☐ **Set up the campaign**

Start with a fresh hashtag and set a concerted timeframe. Create sample messages including graphics. Send out an email to your listservs and networks 12-24 hours in advance giving a 1-2 sentence background on what the campaign is responding to and what it's

trying to achieve, followed by instructions on timeframe and hashtag for the campaign. Create a media contact list of reporters who cover the issue areas you're trying to target with your campaign as well.

☐ **During the campaign**

One hour into the campaign, send an update email to your coalition with top posts allowing for reposting including any statistics you have about the reach of the campaign. Create additional dynamic content (graphics or memes) on the spot. In the last half hour of the campaign, send out a pitch email to reporters, using the reporter list you created before, to alert them of the conversation happening online. Offer access to spokespeople involved in the campaign for interviews. Once you get your first bite from a major news outlet, follow up with other media outlets to pinball the coverage and persuade them to cover as well.

☐ **Post-campaign**

At the end of a successful campaign, send a recap email to your coalition members to celebrate! Doing this not only serves as a much-deserved victory lap, it also helps folks feel invested and see the real data behind the impact of the campaign, which can make them more likely to participate in future campaigns.

Source: https://rethinkmedia.org ; https://t1p.de/8czno

5.4 Producing knowledge collectively as a tool for civic engagement and empowerment

Twenty years have passed since the birth of Wikipedia. Despite controversy over the overwhelmingly male, white and western editors that perpetuate a western centric perspective, Wikipedia has fundamentally changed the way we access knowledge and the way we produce it collectively. Today, the production of knowledge is increasingly democratized, but as in all spheres of public life, not even an encyclopaedia is a neutral matter. We are all invited to take part, whether as editors in Wiki websites or in citizen science projects where citizens collaborate in gathering relevant information and data in many different scientific fields. Furthermore, collaborative mapping that sometimes intersects with citizen science projects, is a fundamental tool to harness the collective knowledge and a clear means for people to take part in problem-solving processes. Information is indeed power, and it is a fundamental right to have access to information. Many have stood up in the face of opacity and outright concealment of crucial information

and attacks on those fighting for truth, human rights, the protection of the earth and against tyranny by using their hacking skills to gain access to and share information with the public, as well as to overcome the increasing number of online attacks.

Wiki and Wikipedia

A wiki is a website in which users modify collaboratively the content and structure directly in the web browser.

Wikipedia is not the sole wiki website in fact Wikipedia is a compound of wikis, each belonging to a specific language.

Explore further, how Wikipedia works and how it can be used in an educational setting.

→ The impact of Digitalisation on Media and Journalism
https://t1p.de/fpex

Wikiesfera

Wikiesfera is an official user group of Wikimedia, born in 2015, with the main aim to identify and correct the gaps that exist in the representation of knowledge in the Wikimedia universe (Wikipedia, Wikidata, WikiCommons, etc.). It is critical to increase the number of users from minorities and underrepresented groups that are less likely to have access to Wikis. They strive to work towards an encyclopaedia that is diverse and neutral.

→ http://wikiesfera.org/

Visualize data for a social purpose: mapping

Many digital collaborative projects use mapping as a method. Do you have a smartphone app which shows you the flowers and trees or the birds in your surroundings? Maybe it gets its data from its users? Over time, it builds a semantic map of ecological ecosystems and thanks to other users, the detection of the plant you were looking for is going to be more exact. Such an example from citizen science, the approach of collaboration between researchers and citizens, is only one possible way to visualize data for a social purpose. Even platforms like Google rely on millions of individual user inputs related to their maps (for example, everybody might propose entries for a restaurant or an institution).The Open Source counterpart to Google is OpenStreetMap

(https://www.openstreetmap.org), where every user may contribute to the improvement of the data and use it in turn for their purposes.

Many civil society organisations or activists use mapping for visualising causes or complex topics. A few examples of collaborative mapping and how it might be used for your case and purpose:

- The project https://wheelmap.org/ informs people reliant on wheelchairs about accessible and inaccessible sites.
- The history of squatting and current squats are visualised by Berlin located activists on https://berlin-besetzt.de/
- Publicly accessible fruit trees can be found and added to this map: https://mundraub.org/
- Who owns Berlin provides an overview of property investment https://wem-gehoert.berlin/karte/
- Mapping memories Cambodia tells the history of the Khmer regime: https://mappingmemoriescam.wixsite.com/home
- Obiezione Respinta is a collaborative map that tracks public hospitals, counselling centres, pharmacies and family doctors' practices for the delivery of contraception drugs and abortion services in Italy. https://t1p.de/r3ji
- The project BRaVE (Building Resilience against Violent Extremism and Polarisation) has set up a data toolkit with polarisation indicators which might be used in civil society and citizenship education http://brave-h2020.eu/toolkit

→ The interesting *Not an atlas* project can be inspiring with very different types of "counter maps", maps created at the grassroots level: https://notanatlas.org/

Maybe you could start in your training also with a mapping exercise? Certainly, it needs not be as ambitious as the aforementioned projects which benefit from a huge community. You might already start with favourite places of learners, spaces that are relevant for your learning goal or your organisation. uMap can help use OpenStreetMap for such a purpose:

→ https://umap.openstreetmap.de/en/

Open Data Handbook

This book explains the basic concepts of "open data", especially in relation to government. It covers how open data creates value and can have a positive impact in many different areas. In addition to exploring the background, the handbook also provides concrete information on how to produce open data:

→ http://opendatahandbook.org/

5.5 Citizen science

Datafication and digital collaboration is changing the way knowledge and insight are generated. Furthermore, it shifts the role of learners to a role of a "producer", that is to say a person actively receiving and creating content. Many museums and research organisations, in particular in natural science and around environmental issues, are trying to involve citizens through digital technology by organising their projects with a participatory approach called *citizen science*.

Citizen science aims to build new relations between research and the society for which the research is conducted. In particular, citizens have the opportunity to get in touch with current research, to bring in their issues and also to step into the shoes of citizen-researchers. Also, for activists and NGOs, such research practice cooperation is becoming more and more interesting. Especially digital tools and approaches have opened new opportunities for harvesting data (like environmental data), for making scientific data open and accessible, or connecting databases and single projects. Using the power of the public, observations, monitoring and local knowledge can be collected on a large scale, in a way that would not be feasible or affordable using professional scientists alone.

Citizen science

Active involvement of citizens in scientific endeavours that generate new knowledge and understanding. Citizens may act as contributors, collaborators, or as project leaders and have a meaningful role in the project.

➔ ECSA (European Citizen Science Association): Ten Principles of Citizen Science http://doi.org/10.17605/OSF.IO/XPR2N

Skype a Scientist

Skype a Scientist has a database with thousands of scientists, allowing students to connect and directly engage in conversation with scientists. A very literal way to bring together scientists and society and create spaces of dialogue:

➔ https://www.skypeascientist.com/

What is Citizen Science?

The Austrian Centre for Citizen Science produced this short video with an easy and accessible explanation of what citizen science is. This can be shared with participants allowing them to grasp rather quickly the basic idea behind citizen science. What is Citizen Science?

➔ https://youtu.be/vKNwfF9H9-M

Bürger schaffen Wissen (citizens create knowledge)

Bürger schaffen Wissen (citizens create knowledge) is the central platform for citizen science in Germany. The platform has presented, connected and supported Citizen Science projects since November 2013. Its main purpose is to give an overview of citizen science projects to illustrate the concept of citizen science, to further develop the landscape of citizen science and in so doing increase its visibility within the German public and discourse:

➔ https://www.buergerschaffenwissen.de/en

How to plan a citizen science project

The publication "Citizen Science for all – A guide for citizen science practitioners" is the result of intense collaboration between a wide range of stakeholders in the citizen science community within the Citizens Create Knowledge (BürGEr schaffen WISSen, GEWISS) project. It offers helpful insights on how to plan a citizen science project from start to finish.

Before beginning

Define the research question based on a hypothesis or a social problem.
Define the benefit of using citizen science.

- ☐ Is there a clear research question?
- ☐ What is the advantage of using a citizen science approach?

First Steps

Establish the project team.
Develop concrete development goals.

- ☐ Are the necessary skills and interests represented?

Planning Phase

Determine the research design.
Determine the methods.

- ☐ Who should participate?
- ☐ How long should the project take?
- ☐ What resources are required?
- ☐ How can participants be motivated? What are the benefits for participants?
- ☐ Do participants need training and if so, how?
- ☐ How will the project be evaluated?
- ☐ What infrastructures are required?
- ☐ Where and how will data be (permanently) stored?
- ☐ What licences will be used for data/photos/reports?

Data collection

Collect, visualize and analyse the data
Give feedbacks to participants

- ☐ Who is responsible for communicating with participants?

Communication and discussion

Publish and present the results

- ☐ How will the results be published and what is the target audience?
- ☐ How can participants' role be made visible?

Evaluation

Evaluate the quality, process and benefits for all

- ☐ What criteria must be fulfilled so that the project can be considered a success?

Iterative adaption of plan

Source: Bürger schaffen Wissen. Citizen science for all. A guide for citizen science practitioners.
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Chapter 6
COMMUNICATION

New "instant" communication habits, ever growing sources of information, social media, and digital empowerment have changed the way people learn, communicate and relate to each other. Negative side effects include addiction to digital devices and exposure to information disorder and overload. Promoting reflection on the different sources of disinformation, tools of communications and their contents lead to better assessment of the opportunities and the risks (control and oppression) related to such an overabundant landscape and empower learners to make better choices in their communication habits.

6.1 Finding my digital voice: new ways to communicate

While mobile phones' share of total internet time is increasing, most people around the world still use a variety of different devices to go online. Half of the time spent on mobile phones is used for social and communication applications (We are social, 2020). According to the Reuters Digital News report (2020), WhatsApp saw the biggest growth in 2020. Notably, a quarter of their sample used WhatsApp to find, discuss, or share news about COVID-19 in April 2020. During the pandemic, WhatsApp released a guide on how to use the service in a responsible way. On the same page, a list of good practices shows that WhatsApp groups have been used to deliver remote digital learning in many cases, even in a refugee camp in Syria (Ashawi, 2020). Recent academic studies confirm that WhatsApp has been globally adopted as a learning medium during the pandemic, but instant messaging applications were tested in educational settings before as well. Other messenger apps with similar functions (Telegram, privacy-friendly Signal, Threema, etc.) have the same potential.

Integrating instant messaging in education

Many studies reflect on the use of technology in education, drawing on the concept that "learning is a social act dependent upon interaction among people and their tools and technologies" (Doering et al., 2008). Jacobs (2006) argues that Instant Messaging (IM), in particular, should be viewed as a writing technology that builds skills needed at school and at work, such as "collecting, assembling, and distributing information". Therefore, instant messaging technologies could be treated more consciously as digital tools in educational settings (built on Cetinkaya, 2017).

Pros	Cons
→ Potential to provide cooperation → Increase social interaction and sense of belonging (Doering et al., 2008; Sweeny, 2010) → Interest and motivation (Plana et al., 2013) → Support learning anytime and anywhere → Provide peer support, feedback, and allow for sharing of information in education (Cifuentes & Lents, 2010; Smit, 2012) → Potential to increase "unconscious" learning (Smit, 2012; Cetinkaya, 2017) → Eliminate social barriers (Doering et al., 2008)	→ Concerns about privacy and security → Unnecessary messages (Cetinkaya, 2017) → Distraction → Exceeding the limits of personal relations → Use of slang language → Educators' sense of overload → Negative effects arising from excessive use → Digital divide

Source: Author's elaboration on Cetinkaya (2017)
https://www.researchgate.net/publication/321381328_The_Impact_of_Whatsapp_Use_on_Success_in_Education_Process

A common mistake is to consider IM as a synchronous tool when it isn't: users do not share the same time and space, although a persuasive interface is likely to call the user to immediate action. IM and emails are then asynchronous tools, of little use for organizational/operational purposes, but useful for carrying on a debate as they are archivable and searchable, thus more open to critical evaluations across time (Trocchi, 2020). In fact, studies have found that usually IM does not work when used as a discussion group, although it works properly when used as an informative tool, providing explanatory texts with images (Cetinkaya, 2017). It's not clear whether IM improved student-teacher interaction, as being on a peer level is sometimes uncomfortable for teachers/educators. When teaching with technology, educators should indeed adopt a stance as *co-learners* (Doering, Lewis, Veletsianos, Nichols-Besel, 2008) accepting IM conventions as informal exchanges, using emoticons and acronyms, etc.

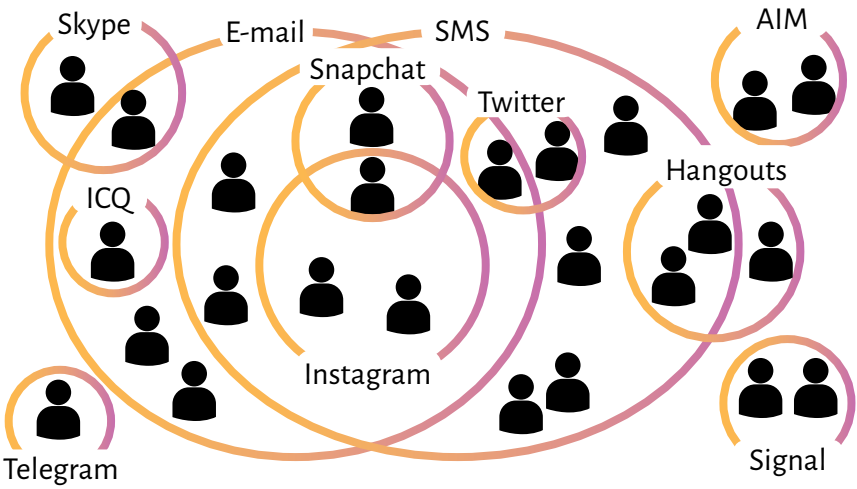
Most applications have a form of "lock-in" in place preventing users from quitting them even if they are unhappy with their (usually unread) terms of service. However, interoperability is still the norm in electronic communication like email and telephone; in fact, people can call one mobile operator from another or send emails from one provider to another.

Interoperability in communication

60 min 2-20

2-20 posters (depending on the participants) and markers

interoperability; digital communication; digital rights



After: https://xkcd.com/1810/

Goals

- Gain awareness about the lock-in communication environments involving the individual learner
- Learn about the concept of interoperability and its relevance for the Internet

Steps

1. Participants are asked to visualise their chat systems: what software do they use with their family, their friends, their work colleagues?
2. A brief discussion about the results: how many bubbles have come up? Why?
3. The educator introduces the concept of interoperability: what if there were no such barriers between chat systems? Would you like to maintain these barriers or not? The educator can employ telephones and emails as practical examples of interoperable tools.

Reflection

- → Why are some systems interoperable and others are not?
- → What is good about having most applications sealed off from each other?
- → Is interoperability a digital right?

Alternative messengers

NGI – Next Generation Internet Initiative of the European Union published a list with alternatives to the established messenger services. Learn more about them and try to use them!

→ https://t1p.de/510v

One of the alternative communication protocols are XMPP and Matrix. They want to apply the standard of communication interoperability to instant messaging. Therefore, they are not a chat application, but open-source protocols working on a decentralised model. Several apps (clients for end users) make use of these protocols.

To encrypt or not to encrypt?

In a world where restrictive measures against civil society organisations and their people are increasing, being able to encrypt and decrypt communication, or to offer safe communication and information channels, becomes a topic for EDC/HRE organisations also in Europe.

Essentially, one can distinguish between two approaches: end to end encryption ensures that communication throughout the whole process is only accessible for the sender and the recipient. Examples of this kind of encryption include PGP for e-mails or Signal and Whatsapp. Alternatively, transport encryption ensures that data is not visible for intermediaries. However, messages stored on the servers are not necessarily encrypted, thus exposing data to the risk of being accessed by unauthorized parties. In order to use transport encryption, one should use websites with *https://* which means that the content is safely transmitted through the Internet.

Virtual private network (VPN) is a technology that helps you to surf and save emails in critical environments and countries with a strong surveillance policy. This technology builds an encrypted connection to a server in a trusted environment. Therefore, you access the Internet through this trusted server, not directly through your hotel WiFi. VPN clients are included in Linux and MacOS. A VPN server needs to be set up, often you need to buy a license from one provider.

Similar encryption instruments for email or messenger-based communication might help Human Rights activists remain off the radar, and resist exposure to further repression. About encryption:

➔ https://competendo.net/en/Email_Encryption

VPN and encryption as new must have for civic educators?

1.5 hours | standard (see introduction)

5-25; Depending on the number of participants, the task can be carried out in a plenary session or discussed in subgroups first. It can be a simulation or based on real information.

encryption, VPN, network and partnership security

Goal

Reflect on and discuss the kind of data exchanges expose us to repression

Steps

1. Prepare:
→ Make a list of interactions you have with the partner organisations you cooperate with and map them on a flipchart
2. Explore:
→ Identify risky points that allow for tracing/identifying and harming your partner
→ Check the Internet: what programs/instruments/services are available
→ Check whether your organization's ICT use/policies are in potential conflict, with the aim of ensuring the safety and integrity of your partners
3. Strategise
→ Think about ways to interact and keep a safe communication channel
→ Develop an action plan

Reflection

The right to educate and actively ask for transparency, democratic participation, governance and control cannot be taken for granted, worldwide nor in all European states. The interaction and cooperation between civil society organisations may thus put partners unintentionally at risk, not only in regard to their work and fields of civil activity, but also physically. Civil society in any field of international cooperation and partnerships needs to develop a high sensitivity to communication, transaction of data, traces of finances, or for intervention of third parties.

→ **Read more** on the Holistic Security manual: "*Holistic Security is a strategy manual to help human rights defenders maintain their well-being in action. The holistic approach integrates self-care, well-being, digital security, and information security into traditional security management practices*". https://holistic-security.tacticaltech.org/

6.2 Sources of disinformation

Social media is the main source of news for 55% of the sample surveyed in the Reuter's Digital News report, even though only 22% of them find them reliable. Again, Facebook is the most popular source of news, followed by YouTube and WhatsApp. Younger groups (the so-called Generation Z, aged 18-24) tend to access news via social media. Recent studies (see IPSOS, 2019) show that people tend to increasingly rely on personal contacts as a source of information due to the perceived prevalence of fake news on traditional media. Following the election of Donald Trump as president of the United States and the unexpected outcome of the Brexit referendum in 2016, most effort has been invested in researching how disinformation spreads through social media platforms and, consequently, in finding tools to fight it. A popular approach has been to develop educational games that let the users become fake news producers in order to make them aware of the process, that is of the tactics and methods used.

In general, one entry point for education on the topic is to learn to understand the different shapes of *information disorder*. The concept was first proposed by Claire Wardle and Hossein Derakhshan in a 2017 report for the Council of Europe and includes disinformation, misinformation and malinformation. In each of these macro-categories we can find different subcategories. Here are the most important. Some of the following definitions are also from another work by Claire Wardle (2017). Alice Marvick and Rebecca Lewis (2017) discuss malinformation in more detail.

→ Reuters Institute for the Study of Journalism, 2020 https://www.digitalnewsreport.org/survey/2020/overview-key-findings-2020/

Information Disorder

The imbalance of information in a media environment, caused by Mis, Dis and Malinformation.

Aspects of information disorder

Misinformation

False information shared without meaning harm.

- ☐ Is there a false connection of message and content, for example through headlines, visuals or captions not supporting the content?
- ☐ Is there misleading content to frame an issue or individual?

Disinformation

False information shared to cause harm.

- ☐ Is content shared with false contextual information?
- ☐ Is the content impersonating genuine sources?
- ☐ Is genuine content (information or imagery) manipulated to deceive?
- ☐ Is content fabricated? (100% false, designated to deceive and do harm)

Malinformation

Genuine information shared to cause harm.

- ☐ Is the source a leak? E.g., publication of private emails
- ☐ Is it about public harassment like doxing, revenge porn, social shaming, intimidation, etc.?
- ☐ Is it hate speech, in violation of personal boundaries, or directed toward racial and sexual minorities and women?

For a deeper look into the categories: Wardle, C. und Derakhshan, H. (2017). Information disorder: Toward an interdisciplinary framework for research and policy making, Council of Europe.

→ https://rm.coe.int/information-disorder-report-november-2017/1680764666

Bad News

"Bad news" is an online game developed in 2017 by DROG, a Dutch organisation working against the spread of disinformation, in collaboration with researchers at Cambridge University in the United Kingdom. Players are shown a short text or image and can react to them in a variety of ways. Choosing an option that is in line with what a "real" producer of disinformation would choose gets them more followers and credibility. The game breaks down into six badges: impersonation, emotion, polarization, conspiracy, discredit, and trolling. It is easy to play, not time consuming and freely available in multiple languages including Czech, Dutch, English, German, Greek, Esperanto, Polish, Romanian, Serbian, Slovenian, Swedish.

→ https://www.getbadnews.com/

Lisa Poot from DROG, in a written interview, reports that "we (in collaboration with several partners) have developed a special workshop named Under Pressure which uses a game in the classroom: www.getunderpressure.com. On this website we also have some more articles about the effectiveness in education. These are some of the scientific papers on the effectiveness of our games".

Explore further:

- → Fake news game confers psychological resistance against online misinformation by Roozenbeek, J. & van der Linden, S. https://t1p.de/ehudg
- → Good News about Bad News: Gamified Inoculation Boosts Confidence and Cognitive Immunity Against Fake News by Basol, M.; Roozenbeek, J. & van der Linden, S. https://t1p.de/77t9
- → Breaking Harmony Square: A game that "inoculates" against political misinformation by Roozenbeek, J. & van der Linden, S. https://t1p.de/lpgl
- → Inoculating Against Fake News About COVID-19 by van der Linden, S.; Roozenbeek, J. & Compton, J. https://t1p.de/m5c4

Fake it to make it

"Fake it to make it" was designed by Amanda Warner. It is a more structured game, putting players in charge of a website devoted to creating and spreading fictional and/or sensationalised online news articles through social media. The game's focus on keywords, followers and SEO tags is grounded in online publishing. It is publicly available in English and in German.

➔ http://www.fakeittomakeitgame.com/

Amanda Warner reports that: "educators using Fake It To Make It periodically email me about their experiences. Since I don't require any sort of registration to access the game, I don't have data about what percent of the total play sessions (over 300,000 so far!) have been within schools... Most of the educators who have contacted me teach at the college level. I've also had reports of use in high school (about 14 years and older) and even occasionally middle school (about 12 years and older). Most often, educators will have students play individually or in pairs and then come together to discuss their in-game experience and how it relates to real world situations. Many educators have commented that the game sparks really good classroom conversations".

False information through instant messaging

What if false information spreads via instant messaging applications such as WhatsApp instead? While Facebook and Twitter are semi-public or public platforms, instant messaging applications are end-to-end encrypted mobile-based social networks protecting the confidentiality of messages while also preventing their traceability, so apparently little can be done to limit the spread of fake news there. WhatsApp has added some minor tweaks over time, such as limiting the forwarding option to five chats at a time, labelling forwarded messages as "forwarded" or mentioning to users that a particular message has been forwarded multiple times. User metadata are not encrypted; thus, the platform has used them to determine when an account is engaging in spam-like forwarding behaviour. For instance, WhatsApp can surmise that an account is possibly engaging in prohibited mass-messaging if it never sends individual messages or if the "typing indicator" (the bubble containing an ellipsis that appears when one's interlocutor is typing) has never appeared.

Reflection

- Have you ever received pieces of news that turned out to be false via instant messaging apps?
- Were you able to spot them?
- What sources do you trust most (friends/family/traditional media/other)? Why?

We want to illustrate this with two examples. In *India*, Whatsapp has over 200 million active users and, according to Facebook (Whatsapp's owner), "people forward more messages, photos, and videos than any other country in the world" (Hern, 2020 in Medeiros & Singh, 2020). In 2018, several mob lynchings were catalysed by rumours on the platform about the presence of child kidnappers in various Indian villages. Researchers Medeiros & Singh (2020) analysed how the national government and civil society reacted, finding that a technocentric response, based on delegating content moderation to intermediaries such as WhatsApp, is not enough. As they point out: "increasing literacy would mitigate the perception that [...] stringent liability rules are required for online intermediaries". However, they underline that media literacy is not a one-size-fits-all solution. According to the authors, policymakers should favour locally tailored information literacy campaigns as well as the mobilization of trusted community voices via the "Whatsapp broadcast" function that enables message transmission to user lists. For example, journalist Shivendra Gaur (Sharma, 2017) launched in 2016 a WhatsApp news broadcast service called Rocket Post Live that has reached over 11,000 subscribers.

Journalists can help fight the spread of fake news and rebuild trust in the media. In Colombia, the online political outlet La Silla Vacía launched in 2016 a service called WhatsApp Detector to which any reader can send a chain message circulating via WhatsApp to be fact-checked. The message must meet three criteria: i) it must be an issue of public interest, not related to the lives of private citizens; ii) it must be related to topics covered by the outlet such as government and power; iii) it must be checkable, not just a prediction or a conspiracy theory. Once the fact-check is complete and public, the newsroom asks the reader who sent the request to forward the result back to the contacts who propagate the chain message. La Silla Vacía reports that around 90% of the chain messages they treat are false. The outlet applies the same methodology to check political declarations or news circulating on Facebook:

- https://lasillavacia.com/content/metodologia-62965

Stop reading the news

60 min | standard (see introduction)
2-20 | information overload, news avoidance

Adaptation from Rolf Dobelli (2020) Stop reading the news

Goals

- Raise awareness about information disorder
- Question media habits

Steps

1. Participants are asked to note down on a post-it, individually, at least two pieces of news they read and retained from the previous week.
2. The facilitator introduces the difference between news and information: according to philosopher Rolf Dobelli, author of the essay "Stop reading the news", breaking news is hard to recall because it does not bring practical or theoretical knowledge, only feelings – usually negative. News is therefore different from information, which can instead be found in books, documentaries and other sources.
3. Participants split into subgroups, discuss the difference between news and information and cluster their pieces of news into two categories. Participants assess if the majority of the contents belongs to news or information.
4. Participants share their findings in plenary with one another.

Reflection

- How do we consume news? Do you think you usually read more news or information?
- In your opinion, what's the difference between news and information?
- What do you find interesting about the news? And about the information?
- Can you use the knowledge gained by reading the news and information? Give examples.
- To enrich your understanding of "reality", would you like to increase your consumption of news or information?
- What kind of information makes us feel good?

Check It Out

The “Check It Out” database is a collection of useful tools and initiatives to learn about online disinformation from different countries in Europe, collected in the frame of the project “Fake news for dummies”:

→ https://www.openyoureyes.info/en/database

Advanced search techniques

By using certain parameters in search engines, you may be able to better find what you are searching for. Try using these commands:

"exact phrase"
Searches an exact phrase

site:example.org filetype:pdf
Looks on the whole webspace of www.example.org after files ending with .pdf . One could also search for other file types.

example phrase site:example.org filetype:pdf
Searches "example" or "phrase" in a PDF on www.example.org

"example phrase" site:example.org filetype:pdf
Searches exactly "example phrase" in a PDF on www.example.org

“example phrase” and “other” filetype:pdf
exactly "example phrase" in combination with "other" in a PDF on www.example.org

accident -car
Searches for all "accident" but not in connection with "car"

Social Media

Social media platforms have limited built-in opportunities for searching. Twitter is provides advanced search features:

https://twitter.com/search-advanced?lang=en

But be aware

Not everything you can do is necessarily legal or ethically correct if you do it.

Source: https://kit.exposingtheinvisible.org/en/how/google-dorking.html

→ **Further reading:** Learn more about searching and investigation techniques at https://kit.exposingtheinvisible.org/

News prompts feelings, usually bad news (fear, anger, sadness).

Information brings practical or theoretical knowledge.

Search Engines

Searching makes you visible for search engines and for the accessed websites.

They receive information about their users. If you don't regularly delete your cookies or search history in your browser or disable it permanently, you see your search terms from the past. Search engines also store additional information like IP address and often also connect location data. Personalised search stores more and may also process information from your search sessions with other personal information (for example, the links you clicked).

If you'd like to search anonymously, you would need to take additional measures.

- TOR browser could cover your tracks. Also a trustworthy VPN connection is an option. Both aim to hide your real IP address from the search engine and from the web servers you are going to access. TOR browser is a free tool and available for different platforms. Trustworthy VPN is usually not.
- Meta search engines request information from other search engines, but do not share information about their users.
- Other services are complete alternatives since they maintain their own search index. A privacy-sensitive example is https://duckduckgo.com/

→ Don't use the smartphone for sensitive searches
→ Change your standard search engine in your browser settings
→ Apply all privacy settings in your browser

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Chapter 7
DIGITAL SELF

People create their online identities by sharing their data on different platforms and social media. Focusing on the personal approach of learners to data and how algorithms shape the perception of society and the identity of each one promotes understanding and reflection on how the different processes affect the shaping of our identity both in online and offline domains. The chapter provides information and tools for a better use of platforms and social media and creation of respective identities.

7.1 Who's making my online identity?

Who am I on the Web?

20 minutes | smartphone or computer

5-15 | identity, digital footprint

Goals

- Introduce activities which promote reflection about online and offline identities
- Increase awareness about what the "digital footprint" is and how to check it

Steps

1. Participants are asked to put their "NAME" and "SURNAME" on one or more search engines.
2. Participants prepare a one-sentence or, if you want to make it more challenging, "one breath" presentation based on the first five results of the query.
3. In plenary, the participants share their presentations: one sentence/ one breath speech.

Reflection

- How happy are you with what others can find about you?
- If nothing relevant comes out of the search, is this a good or a bad sign? Why?
- What are the differences between the presentation one would have shared and the one prompted by the "search engine"?
- How many identities do you have?
- If using more than one search engine: what are the differences in the search results? What influences this output in your opinion?

Digital footprint

All the content about a person created from online activities and posts, likes and shares, including posts about you from others!

Source: UNESCO MIL CLICKS

7.2 The datafication of the self: sensors and smart meters

Sensors are elements measuring physical conditions or changes in our environment. How many sensors does your smartphone have? If you want, check and explore with an app like: Physics Toolbox Sensor Suite or Phyphox. Phyphox was developed in the RWTH Aachen University and Physics Toolbox by Viyeyra Software. Beyond analytics, both projects also offer interesting tips for experiments. They show the broad range of application possibilities opened by sensor data.

- https://phyphox.org/
- https://www.vieyrasoftware.net/

Sensor data makes many of the smart apps installed on our phones possible, but might also be used to learn about the user and invade privacy (Kröger, 2019).

- Beyond smartphones, what devices in your household use sensors? Heating, electricity, etc?

And in your *city*: what sensors are used in your city? Common elements include:

- video monitoring
- weather data

- air pollution
- tree health
- license plate recognition/traffic
- biometric identification

Sensors build a bridge between technology and its social environment. They sense us and translate the data by computing it into valuable information. But for whom and for what purpose? Not all purposes are sinister and often the people receiving and processing our data act in line with our intentions. However, most often, we don't know about purposes and ways in which the data is used and shared.

The European General Data Protection Regulation (GDPR) forces services and platforms to inform users "in a concise, transparent, intelligible and easily accessible form, using clear and plain language" (Art. 12). Start asking questions.

Tracking us: Quantified self

> The quantified self describes individuals who actively measure themselves with devices and apps to generate knowledge based on analytics to help optimize lifestyle and fitness, wellness, and health behaviors (Meidert et. al., 2018).

Comparing ourselves and measuring our performance is a well-known phenomenon pre-dating the digital age. But today it is becoming more ubiquitously embedded in our everyday lives. We have gotten used to smartphone and smartwatch trackers and analyse ourselves from a new third perspective, based on data. While before the Internet, people relied on their subjective feelings and perceptions, now the data suggests we are influenced by a more objective perspective – or as critics argue, a more objectifying one.

Some people enjoy this kind of tracking. Many others object to it because they don't like the idea that the human body is a measurable resource or they fear QS addiction and a distorted self-perception.

A research team from Switzerland identified these typical users of quantified self technology.

→ Which one(s) from the opposite page describes your tracking or body measurement habits?

Anna, the sporty user

Age: 19, single, no children, student; Hobbies: running (marathon), winter sports, singing; Motive: optimize running. She wants to train optimally and prepare for her training goal. Otherwise she does not track at all.

Tamy, the tech-savvy user

Age: 38, computer scientist, married, no children; Hobbies: gaming, geocaching; Motive: Is curious about technology, what it offers and how it can be used. He enjoys tracking. He expects to improve the achievement of his goals.

Tamara, the diabetic user

Age: 24, single, no children, student; Hobbies: yoga, travelling, theatre group; Motive: chronic illness, she tracks because she has to.

Gustavo, the critical non-user

Age: 40, historian, divorced, one child; Hobbies: reading, music; Motive: deliberately does not track, because he does not want his data to be accessible to others. Does not want to know too much about himself, but rather live according to his feelings.

Claudia, the frequent tracker

Age: 35, married, one child, media worker; Hobbies: inline skating, cooking; Motive: lose weight. Measures many parameters systematically and derives knowledge from them. She wants to be aware of things based on numbers.

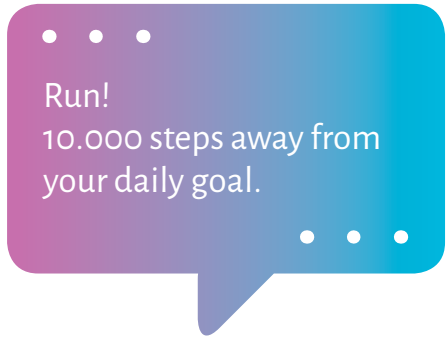
Conrad, the step-counter

Age 68, widowed, two adult children, retired, former sales manager; Hobbies: walking, yachting, yodel choir; Motive: tracks steps to move more and stay fit in the long run. Uses a pedometer to reach his daily step goal.

Since only a minority belongs to the “frequent trackers”, most people seem to have a balanced attitude toward quantified self: curiosity, body awareness, self-discipline. The study also shows that less healthy people are more sceptical about QS.

What is your opinion/response?

+	-	?
This approach is interesting, joyful, helpful because…	This approach is dangerous, creepy, questionable because…	Aspects that you would need to learn more include…



Fitness and Health Tracking

45 min | standard (see introduction)
5-25 | self-tracking habits, datafication

Goals

- Learn about an individual approach to the quantified self
- Understand the personal and social impact of widespread QS technologies

Steps

1. Introduce the personas presented by Meidert et al, on page 161. Ask participants to position themselves. Where do they place their use of trackers on a continuum of frequent trackers to non-trackers?
2. Exchange in smaller groups:

→ What type of quantified self are you?
→ Where and how do you measure yourself/are you tracked?
→ What is the positive, negative or ambivalent outcome?
→ Where do you see challenges, dangers, potentials?

Reflection: social impact

From a user perspective: impact on health, body image, social relations. How does it change your (self) perception, physique, relations to others?

From a platform perspective: unique personal data. How is it stored, shared, processed? What do you know about the quality of the analytical models? Were you able to "cheat" the system?

From a societal perspective: who has an interest in access to such health data of citizens? What would be a legitimate interest? Should widespread tracking data be used for systems like health insurance? Do we define and judge (un)healthy behaviour differently? What advantages or disadvantages do those face who do not participate?

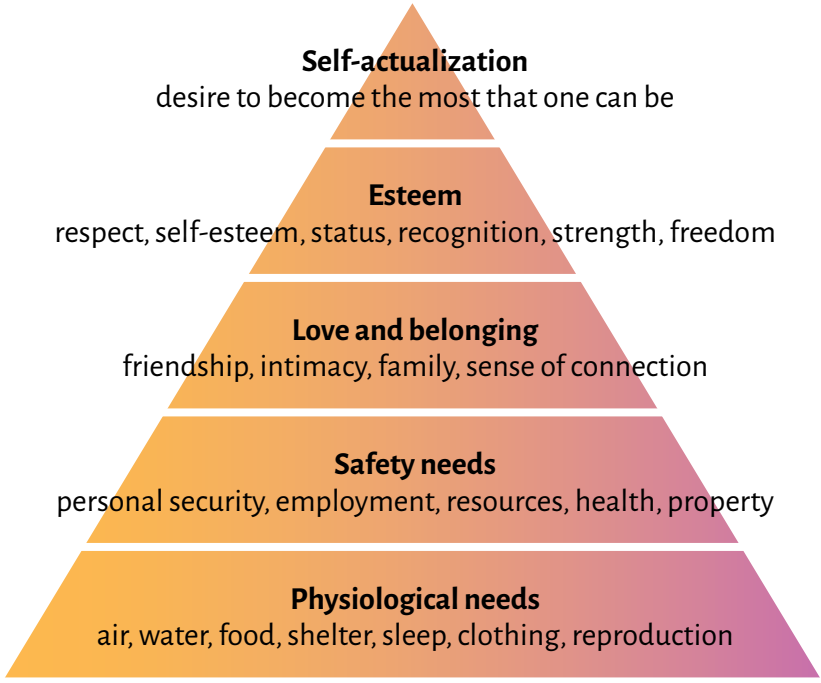
Variation: with the eyes of a criminal investigator

Include a look into the participants' personal data. Many platforms offer analysis going back many years. Log in and look with the eye of a criminal investigator at your profile. Can you identify anything that may be interpreted as suspicious? Something extraordinary? Would it be acceptable for you if somebody else had access to this data?

7.3. Social media: a human need?

Almost 4 billion people, half of the world population, use social media worldwide with the average internet user spending more than two hours per day on them (We are Social, 2020). Facebook is still the world's most used social platform, followed by YouTube and WhatsApp (We are Social, 2020, slide 95).

Social media can be considered a public space where people socialise. They do not meet basic human needs such as being nourished, but they do trigger psychological self-fulfilment according to the hierarchy described by Abraham Maslow in 1943.



"Liking" is associated with social interaction and "being liked" with a social reward within a social validation feedback loop (*see Testimony*) while trying to feel part of a group. Unlike with food, humans are never satiated with social approval. The randomness of the rewards work as a positive reinforcement, like when playing with slot machines: the more one scrolls, the more one supposes one will get. Behaviourist B.F. Skinner described it as operant conditioning, a learning process whereby behaviours are reinforced through rewards and punishments. The Fear Of Missing Out (FOMO) especially among "friends", adds a sense of urgency and anxiety associated with staying connected. Most social media creators studied

psychology (in example Munn, 2020 or Nguyen, 2021-05-06), indicating they have the knowledge to exploit these mechanisms in order to maximise the time people spend on their applications. Awareness is key to avoiding addiction, if not conditioning.

The race for attention

In 2017, social media, notably Facebook, came under scrutiny in the USA in regard to their involvement in a Russian operation to influence the 2016 presidential election. Several former executives then "came out" criticizing the company.

Sean Parker, founding president of Facebook in 2004, explained that when Facebook was being developed, the objective was: "*How do we consume as much of your time and conscious attention as possible?*"

→ See the interview (1'11") by E. Pandey (2017) here: https://t1p.de/w93rwl

Tristan Harris, former Google design ethicist, delivered a TED talk in April 2017 where he talked about how major technology platforms use persuasive techniques to get people's attention.

He suggests three "radical changes":

1. Acknowledge that humans are persuadable
2. Create new models and accountability systems for social media applications
3. A design renaissance by replacing controversial timelines with empowering ones

After quitting Google in 2016, Harris founded the Center for Humane Technology (formerly Time Well Spent) which aims to concretely re-design the digital infrastructure. To raise awareness, the Center produced the podcast "Your Undivided Attention" and took part in the Netflix documentary, "The Social Dilemma".

→ TED Talk by Tristan Harris in 2017: How a handful of tech companies control billions of minds every day https://t1p.de/5kpm
→ Podcast: Your undivided attention https://www.humanetech.com/podcast
→ TED Talk by Tristan Harris in 2014: How better tech could protect us from distraction https://t1p.de/73inj

Reality Lost. Markets of Attention, Misinformation and Manipulation, 2019

The book is an analysis by philosophers Vincent F. Hendricks and Mads Vestergaard on the nuts and bolts of the information market, the attention economy and media ecosystem which may pave the way to post-factual democracy. Here, misleading narratives become the basis for political opinion formation, debate, and legislation. To curb this development and the threat it poses to democratic deliberation, political self-determination and freedom, it is necessary that we first grasp the mechanisms and structural conditions that cause it.

→ Vincent F. Hendricks, V. F; Vestergaard, M. (2019). Reality Lost. Markets of Attention, Misinformation and Manipulation. Springer Open, Cham, Switzerland. https://doi.org/10.1007/978-3-030-00813-0

How to clear your desktop interface

Social media applications' interfaces aren't neutral. Notifications are designed to be considered by the user as an alert. They are red - a colour associated both with danger and desire – so as to call to immediate action.

- ☐ Plug-ins News Feed Eradicator: https://addons.mozilla.org/it/firefox/addon/news-feed-eradicator/
- ☐ YouTube Distraction Free: https://addons.mozilla.org/it/firefox/addon/df-youtube/
- ☐ Facebook container: https://addons.mozilla.org/it/firefox/addon/facebook-container/
- ☐ F.B. Purity – Clean Up and Customize Facebook: https://www.fbpurity.com/
- ☐ StayFocusd: http://www.stayfocusd.com/
- ☐ Freedpm: https://freedom.to/why
- ☐ Chatterblocker: https://chatterblocker.com/
- ☐ Ghostery: https://www.ghostery.com/
- ☐ EFF Privacy Badger: https://privacybadger.org/
- ☐ Decentraleyes: https://addons.mozilla.org/en-US/firefox/addon/decentraleyes/
- ☐ uBlock origin: https://addons.mozilla.org/en-US/firefox/addon/ublock-origin/
- ☐ HTTPS Everywhere: https://www.eff.org/https-everywhere
- ☐ Zoom escaper: https://zoomescaper.com/

You and the algorithm

60-90 min 2-20

standard (see introduction), possibly *not* smartphones (or only during alternative step 1), projector

distraction, addiction, social media

Goals

- Alert to how perceptions are influenced by social media
- Actively transform their devices and change the rules to avoid this

Steps

1. Participants are surveyed in order to identify the most popular social media platforms among them. Then, they are split into groups by their favourite one (for example, "Facebook group", "Instagram group", "Twitter group"), tasked to write down on a poster what kind of information they share and receive on social media (for example, "daily news", "personal stories", "social events", "jokes or fun stories", "cute pictures", "challenges", etc.).
2. They should rate the quality of the time spent there and decide whether the information gathering is efficient.
   - ➔ Are you happy with the content you found opening the application or not?
   - ➔ Are they representative of your interests (or of yourself)? Why?
   - ➔ What content do you expect or do you want to see most on your timeline? If you were able to choose, what would your timeline be like?
3. Finally, participants are asked to list the adjectives they would use to describe how they feel when they use their favourite app (for example, "happy", "lonely", "bored", "gossipy", etc.)
4. Each group presents their poster and replies to possible questions by other groups. Leading questions should be: are your timelines much different from each other?; if you were able to choose, what would you like most to find on your timelines?
5. Tristan Harris' TED talk, "How a handful of tech companies control billions of minds every day", should be screened and participants asked to discuss how the video made them feel and how they relate it to the previous exercise. Participants can now be tasked to write down on a common poster what "an empowering timeline" would look like. https://t1p.de/5kpm

Experience

If any of the participants have stopped or never used social media, they may be grouped together to explain that choice. Do they ever feel like they are "missing out" on something?

Variation

Participants are surveyed in order to identify the most popular social media platforms among them. Once completed, they are asked to individually check the first 10 posts and/or stories on their timeline, noting down the type of content ("news", "personal stories", "memes", "cute pictures", "events", etc.) and how many ads they see. Afterwards, they convene (leaving their smartphones behind) to discuss and document the results, focusing on differences and similarities. The following steps run as in the previous version.

Reflection

- In your experience, are you aware of the time spent on social media?
- Are you a passive user or do you consciously decide what you want on these social media applications?
- How do you relate with other people on social media? Do you think it affects the shape of your timeline?
- Do you think you can transform your experience on the Internet? How?

Investigating the Instagram Algorithm

Investigating the Instagram Algorithm was created by Nicolas-Kayser Bril (data journalist at Algorithm Watch, coordinated AW-EDJNet's joint investigation on Instagram's algorithm). In this video, he explains why the subject matters and how it could be approached, despite the lack of transparency of the algorithm. Data suggests that Instagram has a bias in favour of pictures of scantily clothed men or women – this has an impact both on creators' business and on users' views:

- https://youtu.be/GsZpCHwR9sI

Algorithm Watch was a partner of OBCT within the European Data Journalism Network. This video is part of a series of interviews on data journalism from a European perspective, which are produced by OBCT as part of EDJNet.

- https://www.europeandatajournalism.eu/

Stagram-Toi!

30 – 60 min max 20 participants

a selection of pictures to mock with relating accessories

social comparison, social media, body acceptance

Source: Fréquence Écoles https://www.frequence-ecoles.org/stagram-toi-jeu-educatif-comprendre-mecanismes-instagram

Goal

Challenge beauty stereotypes and standards by fuelling social media with multiple shades of reality

Steps

1. Introduction: while responding to our need for socialising, social media amplifies our tendency to make comparisons between oneself and others (social comparison theory). Being surrounded by perfect bodies or selfies on social media platforms can have, therefore, a negative impact on our self-esteem. However, the Web can also be a place for glorifying diversity. For example, Celeste Barber leads the "body acceptance" movement by parodying influencers' perfect pictures on her Instagram account.
2. Participants are asked to join the parody, helped by educators who should provide a selection of celebrity pictures (one is made available by Fréquence Écoles on their webpage) and of accessories to recreate them wherever the activity is taking place.
3. Choose a picture to parody.
4. Take a picture of yourself parodying the original one.
5. Use filters to edit the picture.
6. (Optional) Upload it on Instagram using the hashtag #Stagramtoi.

Reflection (Adapted from Fréquence Écoles)

- Which function do pictures serve for celebrities using social media?
- What do they say about reality?
- How would you assess the beauty of a "perfect" photo?

Dopamine – Or why you're addicted to apps

By Léo Favier and Arnaud Viémont 2019/2020, 8×7', Production Les Bons Clients, Web-series for Arte Creative Available in English and in French, subtitled in German, Italian, Polish and Spanish. A web-series of eight chapters explaining in a ludicrous way how most popular applications exploit bio-psychological tricks to get users hooked. Content, rhythm, images, language and humour make it a suitable educational tool.

→ https://www.arte.tv/en/videos/RC-017841/dopamine/

Your data mirror

Learn about the mechanisms of data collection and the impact this practice can have on society. The website of Interactive Media Foundation offers also a practical experience - demonstrating how companies and Instagram are analysing their personal profile.

→ https://yourdatamirror.com/?lang=en

Does your life rely on social media?

1-2 hours 2-20

standard (see introduction), projector

digital identity, social media, social comparison, popularity

Author: Caroline Guédan

From: Réseau Canopé, adapted to adult learners https://t1p.de/w9btr

Goal

Address the concepts of digital identity, self-storytelling and popularity drawing on the dopamine [see above] chapters about Instagram, Snapchat and Facebook

Steps

1. Participants watch and comment on the dopamine videos about Instagram, Snapchat and Facebook
2. Individually, the participants will define their digital identity based on:
   - nickname
   - number of friends (mentioning at least 5 names or nicknames)
   - 5 adjectives to describe oneself
   - 5 most used (or favorite) emojis
   - 5 photos (or posts) recently liked
   - 5 photos (or posts) recently posted
3. The trainer will then assign each digital autobiography to another student who will have the task of formatting this autobiography as faithfully as possible on a poster. The profiles will then be displayed and the participants will choose whether to subscribe or not to a profile (by using paper or posting comments on them). The trainer will pay particular attention to letting the participants explain their choices and define with them what determines popularity.

Reflection

- → Do you think you own your digital identity?
- → What are the others' perceptions of your digital self?
- → Have you ever reflected on what representation of yourself is on your social networks?
- → When you post on social networks, do you think about who will see your content? Does this affect you somehow?
- → Do you think it is important to reflect on these aspects? Why?

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Competendo – The Digital Toolbox

The toolbox offers and shares experience, methods and inspiration for active citizenship-related learning and empowerment in communities, schools, or non-formal learning spaces, in organizations, or initiatives.

→ https://competendo.net

Our notions of digital competence must respond to the deep roots of digital transformation in our current society. We need a pedagogy of 'the digital' that does not focus solely on teaching technical skills, in order for citizens to be prepared for the societal debates about digitalisation, to be able to actively participate in them, and to develop their own informed attitudes toward the possibilities opened up by the digital transformation.

In particular, opportunities for learning democracy and strengthening social participation are needed to empower active citizens, to raise awareness among broader groups in the population, and to ensure that the digital transformation in Europe is people-centred and shaped along democratic rights and values and upholds human rights prinicples.

With this handbook for educators, we present training methodologies and examples of relevant practice and encourage digitalisation as a central topic in lifelong learning.

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