



/ Digital Transformation Visions / Data Analytics / 1. / Vision: Live environment to explore data visually

Creating an immersive big data visual exploration environment

- How can research data be automatically processed to support exploratory data visualization?
- How can we map research questions to suitable data visualizations?

/ Digital Transformation Visions / Data Analytics / 2. / Vision: generate human-underst...

Improving explanatory aspects of machine learning in medicine

- How to effectively combine human and machine intelligence that synergistically support each other.
- How to improve the explanatory aspects of machine learning in medicine such to improve the adoption and support of these technologies for clinical use.

/ Digital Transformation Visions / Data Analytics / 3. / Vision: expose how ideas propagate in online media

Understanding online diffusion of ideas

- Description of information diffusion
- Identification of factors that explain different paths of diffusion
- Show how political attitudes impact this information diffusion

/ Digital Transformation Visions / Data Analytics / 4. / Vision: exploit location infor...

Influencing consumer behavior in a digital business world

Data Analytics: Analysing social media and social network data to support personalized (real-time) marketing

Generate knowledge to extract visited locations and taken paths of users

How to extract and predict social network / media data of users, their locations and travel paths?

How to generate recommendations for consumers?

How to protect privacy of users?

How to combine data coming from different sources (i.e., social networks, data interfaces, etc.)?

/ Digital Transformation Visions / Digital Knowledge / 5. / Improving understanding of cul...

Improving understanding of cultural heritage through digital technologies

How do digital media affect reflection and research in humanities?

Wie verändern digitale Medien die (geistes)wissenschaftliche Forschung (Zugang zu Quellen, Arbeitstechniken, Reflexion)?

Mit welchen Nutzerprofilen arbeiten die Ersteller von digitalen Simulationen?

Welche Dynamik besteht in der Interaktion zwischen Produzenten und Nutzern digitaler Erzeugnisse?

Entwicklung von Methoden und Werkzeugen zur Vermittlung und Produktion von Wissen in den digitalen Medien.

/ Digital Transformation Visions / Digital Knowledge / 6. / Vision: ensure life-long employability in a digital world.

Describing change of career patterns in a digital world

Digitalization affects career choices because some occupations might disappear in the near future while previously unknown new occupations will emerge.

Existing research did not specifically focus on how lifelong employability is affected by digitalization of work in a more comprehensive way.

new ways of career development taking the opportunities and challenges of digitalization in the workplace into account need to be investigated.

/ Digital Transformation Visions / Digital Knowledge / 7. / Vision: enable cost-effective ...

Paperless learning

Gap: From overall visions (e.g. optimal Human-Computer Interaction) to practical excellent, innovative and feasible realisations

Benefits and new possibilities with paperless education and assessment

Which human factors must be taken into account and what is the impact

/ Digital Transformation Visions / Digital Knowledge / 8. / Maximizing digital knowledge to reach the Sustainable Development Goals

Maximizing digital knowledge to reach the Sustainable Development Goals

Focus on the societal consequences of digitalization and processes of human-computer interactions

The social distribution of (the access to) digital knowledge from a within-country, cross-country and North-South perspective is under-researched

What is the relevance of disparities and social inequality in the access to digital information?

Which forms and processes of digital knowledge transfer promote the empowerment of civil society and how can they be implemented?

/ Digital Transformation V... / Digital Knowledge / 8. / Maximizing digital knowl... / Reference to UN Sustaina...

<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

/ Digital Transformation Visions / Openness & Privacy / 9. / Vision: sensible copyright laws for digital goods

Understanding digitalization of cultural goods

How should copyright law deal with the ongoing dematerialization of copyright works

How should copyright law be changed to accommodate new cultural practices in the digital world, such as mashups or remixes?

To what extent should copyright law be reformed to promote open access to protected works, in particular in the context of publicly funded research

"A goal of the project is to assist law-makers in devising sensible and modern copyright policies"

/ Digital Transformation Visions / Openness & Privacy / 10. / Vision: digital artifacts cont...

Creating and using digital artifacts

The longtime persistence and use of generated digital artefacts is endangered for several reasons.

Even worse, the term digital sustainability has not yet been fully elaborated.

Sustainability = "capacity to endure"

Improving governments through digital technologies

There is a lot of conceptual research on government-citizen collaboration. However, empirical research is still missing at large.

Open research questions are how to efficiently (e.g., low energy consumption) collect sensor data, how fuse data and how to extract useful information for users from it (possibly using machine learning), how to maintain privacy for users.

How can government-citizen collaboration be optimized using new technologies? Which technological solutions are useful in the realms of government?

Understanding the impact of digitalization in justice

There has been no research on data mining in published court decisions so far.

The proposed research project will likely be the first.

The main research questions are:

Where is the dividing line between Open Justice and Privacy?

What precautions should be taken to realize a sustainable cooperation between machines and human beings in the judiciary?

Is it necessary to have specific regulations?

The research depicted above will enable publications, summing up the results of the research, analysing where the balance between the contradictory positions can be found and proposing rules or guidelines and/or technical solutions for the future handling of open court files. If a need for new legislation or for a modification of the legislation is found, proposals (draft laws) will be made accordingly. There might furthermore be proposals of parts of a future (universal) charter of digital human rights.