DSI Roadmap 2024-25

The DSI Roadmap contains formal explanations of the structure and thematic orientation of the DSI. It summarizes the medium- and long-term goals as well as the future vision of the UZH Digital Society Initiative. This document, which is generally updated every two years, is based on the versions of 2017, 2019 and 2021.

Version November 2023 (after feedback from the Network, Managing Office & Board of Directors): This version will be submitted to the General Assembly 2023 for approval. This document is the English translation of the official German version of the DSI Roadmap.

Content

1 Introduction

1.1 Background

Digitalization challenges existing paradigms, enables new forms of research and teaching, and requires new skills in a rapidly changing social reality. The UZH Digital Society Initiative (DSI) aims to help shape the digital transformation of society and science. This is intended to position the UZH nationally and internationally as a center of excellence for issues related to digitalization.

The DSI developed as a bottom-up initiative and was conceived by a working group of professors from all seven UZH faculties starting in 2015. Following the creation of the concept, the DSI was launched in an official ceremony in September 2016 in the presence of the Director of Education of the Canton of Zurich Dr. Silvia Steiner and the President of the Swiss Confederation Johann Schneider-Ammann.

In the first year (2016), the DSI focused on working out the formal aspects, and in the second year (2017) on setting up the associated structures. In this phase, the DSI's rules of procedure, structure and thematic focus were defined in a bottom-up process, and the various committees were set up. At the same

time, the DSI network had grown to a size of more than 180 researchers at UZH (as of October 2017). Finally, on May 17, 2017, the DSI was officially founded by the University Executive Board (UL).

In the following three years (2018 to 2020), the activities of the DSI increasingly focused on reflection and research on issues related to the digitalization of society. The focus was on interdisciplinary and interfaculty structures and projects. These had the goal of generating new synergies within the UZH. During this time, the project of the [Digitalization Initiative of the Zurich Higher Education Institutions](#) (DIZH) was also initiated and implemented in particular. DIZH was officially launched in 2020 and the DSI contributes significantly to the UZH activities within DIZH.

As of 2021, the activities of the DSI were consolidated, which was also reflected in an updated agreement on objectives with the university management as of May 2021. Activities were consolidated in the central areas of research (alignment of funding activities with the communities), education (implementation of the Studium Digitale and the PhD Excellence Program; start of the conception of the «DSI Minor Digital Skills»), communication (new concept) and strategy (various ongoing projects). The DSI also coordinates most of the UZH activities of the DIZH research cluster (including the DSI Post-Doc Call and the DSI Infrastructure/Lab Call). The current roadmap presented here, outlines the new activities planned for the period 2024-2025, based on the now consolidated foundation.

Formally, the DSI was affiliated with the Prorectorate Professorships and Scientific Information since August 1, 2018, and thus exists as a faculty-independent and cross-faculty unit; as of January 2022, the DSI is affiliated with the Prorectorate Research. As of November 2022, two additional members have been added to the DSI [Directorate](#) and all seven UZH faculties are now represented. The organizational form of the DSI as a superfaculty unit allows for the flexible advancement of innovative projects.

All seven UZH faculties and the UL are represented in the DSI steering committee. Currently, more than 1100 researchers from the UZH and other institutions participate in the DSI, of which more than 250 are UZH professors (as of October 2023).

1.2 Motto

The motto of the DSI is in one sentence: *We shape the digital future - The UZH Digital Society Initiative.*

1.3 Main objectives

The starting point for the DSI is the rapid pace of digitalization, which is subjecting society, the economy and science to fundamental change. Digitalization challenges existing patterns of thought and action, enables new forms of research and teaching, and requires new competencies in a rapidly changing social reality. The concern of the DSI is to accompany these processes in a critically reflective manner and to recognize the associated risks and opportunities. The DSI shapes the digital transformation of society and science. With interdisciplinary activities in research, education and public relations, the DSI is the competence center of the UZH on the digital transformation.

To achieve this, the DSI works in the following three areas:

- **Research:** The Challenge Areas and Cross Cutting Topics defined in the DSI Roadmap outline the key research topics of the DSI. Specific research topics are addressed in currently (2023) twelve [DSI Communities](#). Furthermore, the DSI sees itself as a think tank that addresses and discusses developments in the digital transformation that are relevant for society and science. On the one hand, this means that the DSI contributes to the social discussion with position papers and media contributions. Since 2021, the DSI has been working on a current and socially

particularly relevant digitalization topic every year as part of the «DSI Strategy Lab» and publishing a position paper on it (2021: Regulation of AI; 2022: AI in medicine; 2023: AI in education, research and innovation). On the other hand, the DSI identifies strategic needs of UZH researchers in connection with the digital transformation and develops solutions up to the prototype stage. Examples of such strategic projects are the «Data Privacy & Ethics Self-Assessment Tool» (DESAT) and the survey of UZH researchers' needs around the Data Life Cycle. The latter led to the conception of the «Z-Pool-Tool», a tool to build up and manage participants for (online) research. DESAT has been integrated into the new UZH standard process for third-party funding management as of April 2023, and the Z-Pool-Tool should also be operational by the end of 2023. Finally, the DSI contributes to the design of research topics by being involved in selection processes for DSI professorships and postdocs, DSI infrastructures/labs and PhD Excellence Program students.

- **Teaching:** Since 2021, the DSI offers the Studium Digitale for Bachelor students and the PhD Excellence Program for PhD students. The Studium Digitale is an online course and has been incorporated into the teaching program of the School for Transdisciplinary Studies at UZH. It teaches basic digital skills from an interdisciplinary perspective and is attended by well over 1000 students annually (entire course or modules integrated into comparable lectures). The DSI Excellence Program for PhD students is a complementary curriculum to doctoral studies at the UZH and prepares students of all disciplines for a world where interdisciplinary collaboration is a top priority in addressing digitalization topics. So far (as of the end of 2023), 60 doctoral students have been accepted into the program; 20 of them with scholarships. In summer 2022, the first cohort could complete the complementary program. Since fall 2021, the curriculum for the «DSI Minor Digital Skills» is being developed. This study program is to comprise 30 ECTS at Master's level and the modules are to be open to all UZH students. More than 80 students can participate per implementation. Starting in HS23, central modules will be piloted; starting in HS24, it will be possible to book the complete Minor Program.

- **Public relations:** The DSI supports the reflective dialogue on all issues of digital transformation in society. Through communication activities, the DSI ensures that various stakeholders, in particular from research, society, politics and business, perceive the *DSI as the competence center of the University of Zurich (UZH) on digital transformation.* Instruments for this include the MasterClasses (in collaboration with ParlDigi and the Mercator Switzerland Foundation) for cantonal parliaments and the DSI media workshops. Details on the communicative orientation (incl. events), the goals and the approach are mapped in the DSI's communication concept and annual plan.

In addition to these activities, the DSI strengthens collaboration with other UZH units in the context of digital transformation. To be mentioned in particular are:

- **UZH Innovation Hub:** The DSI and the UZH Innovation Hub contribute in mutual support and joint projects to ensure that innovative research and teaching in the DSI vessels find their way more quickly into the economy and society. The division of tasks ensures that all activities to promote innovations are located at the UZH Innovation Hub, including corresponding communication measures concerning the target groups companies/startups. If the focus is on the social or scientific aspect, the responsibility lies with the DSI. Accordingly, politics, administration, NGOs, etc. are the primary communicative target groups of the DSI; however, the business

community is also addressed if social/scientific topics are in the foreground. The DSI also supports in particular the creation of the Cluster for Digital Innovation, which is being developed under the leadership of the UZH Innovation Hub.

- **Digital teaching / School for Transdisciplinary Studies (STS):** In the area of digital teaching, the [School for Transdisciplinary Studies](#) (STS) and the DSI work together. The DSI supports the activities of the UZH in the area of digital teaching, especially within the framework of the [Digital Skills for You](#) 2021 - 2024 (DISK4U) project of the current [swissuniversities](#) P8 program. The STS fills the function of the study secretariat for the Digital Studies at Bachelor level and for the DSI Minor Digital Skills at Master level.

2 Establishment of the Digital Society Initiative

2.1 Topic areas

The «thematic space» in which the DSI is active is characterized by two dimensions. The *DSI Challenge Areas* are clusters of research topics in different areas of societal challenges that arise from digitalization. There are a limited number of Challenge Areas to prioritize research. Currently these are: Communication, Democracy, Health, Mobility, Work. The challenge areas are broad, allowing research into a wide range of questions. Challenge Areas can change if research priorities - represented by the activities of the communities - change in the long term. Appropriate decisions are made at the DSI General Assembly. The *DSI Cross Cutting Topics* lie across the Challenge Areas. These concern methodological issues as well as topics that are relevant for all Challenge Areas. In order to interact with the other structural elements, Cross Cutting Topics must provide some benefit to other researchers (e.g., technical expertise, access to data). The number of Cross Cutting Topics is flexible and intended to address the methodological needs of DSI researchers.

Within this topic area, *[DSI Communities](#)* are organized. These are organized groups of DSI researchers who relate to the DSI Challenge Areas or DSI Cross Cutting Topics. They organize themselves and are given access to DSI space and funds for initiating or implementing research projects, inviting fellows, or organizing events. These funds are allocated annually by the Board of Directors based on proposals from the communities. There is no entitlement to funding. Currently (October 2023) there are 12 communities: Communication, Cybersecurity, Democracy, Education, Ethics, Gaming, Health, Libraries, Metaverse, Mobility, Sustainability and Work.

2.2 Structures

DSI topics are dealt with in the following structures within the DSI; the organizational structures of the DSI are described in the DSI Rules of Procedure:

- *[DSI professorships](#)* in disciplines relevant to the DSI are fed into the UZH development and financial plan and guarantee independent reflection and research capacity. The DSI supports the faculties in positioning new professorships that are aligned with the general goals of the DSI. These can be assistant professorships without tenure track (APNTT), assistant professorships with tenure track (APTT), full professorships, and DIZH bridge professorships; in addition, a total of five tenure-track positions are co-funded by the DSI. As of 2023, all topics for professorships have now been defined; the appointment processes are underway. A total of 31 professorships will be created through these processes. In addition, professorships created in the UZH faculties with a

connection to digitalization are listed as «associated DSI professorships»; currently (2023), there are four.

- *Independent interdisciplinary DSI research groups (typically in the form of DSI Bridge Postdocs)* will be assigned to individual DSI Challenge Areas and/or Cross Cutting Topics. The research groups will be realized mainly through the post-doc program (funded by DIZH). This is to give young scientists the opportunity to lead a research group. As of the end of 2023, seven such research groups have been created under the DSI Postdoc Program; three more are to follow in 2024. In addition to the program for DSI Bridge Postdocs, other researchers can also have their third-party funds managed by the DSI, subject to the approval of the DSI Board of Directors; currently (2023), for example, the new DIZH structure *Cyber Resilience Network For The Canton Of Zurich* (CYREN^{ZH}) is based at the DSI.

- *DSI Infrastructures/Labs* consist of several researchers of the DSI network who were able to successfully acquire funding within the framework of the DSI Infrastructure/Lab Call. Currently (as of the end of 2023), there are 15 such infrastructures/labs.

- *DSI partnerships* are formal agreements between the DSI and other UZH or external organizations. Currently, there are ten such partnerships with the Citizen Science Center, the Data Innovation Alliance, the Center for Information Technology, Society, and Law (ITSL), the Center for Legal Data Science, the Healthy Longevity Center, the Operation Room X (OR-X) of Balgrist University Hospital, the School for Transdisciplinary Studies, the UZH Blockchain Center, the UZH Innovation Hub, and the UZH Science Lab.

- *DSI Fellows* are UZH scientists or invited external fellows who are associated with specific DSI Communities for a limited period of time and work on a DSI-supported project of the respective Community.

2.3 Development of the thematic focus

2.3.1 Previous DSI Roadmaps

The thematic orientation of the DSI has been regularly (every two years) discussed and supplemented with the members of the DSI network within the framework of the roadmap process. To date, there are three such documents that document this process (details on the thematic areas and the process can be found in the earlier roadmaps):

- *DSI Roadmap 2017:* Definition of Challenge Areas and Cross-Cutting Topics.

- *DSI Roadmap 2019:* The then approximately 330 network members were invited to submit their ideas for research topics to be addressed within the DSI. In this process, 41 topic areas were identified.

- *DSI Roadmap 2021:* The approximately 500 researchers in the DSI network were invited to participate in updating the list of topics. Among other things, this has led to the formation of the *Cybersecurity* and *Libraries* communities. 21 additional topic areas were identified.

2.3.2 DSI Roadmap 2024/25

In view of the greatly increased list of topics, a new procedure was chosen for the 2023 process: All topics existing so far were submitted in a survey to all DSI network members for assessment of the relevance of the topics for the future development of the DSI (respondents could select on which topics they wanted to give feedback; the areas were structured according to the Roadmap 2021. Feedback

could indicate whether the listed topic should have first, second or third priority). In addition, members could also suggest new topics. This survey took place in April 2023.

Based on the results of the survey and a later inclusion of the communities, the topics were regrouped, cleaned up and topics with very low priority were deleted. The current list of topics can be found in the appendix; it is of course not exclusive and leaves room for further topics.

Finally, it was decided that the roadmap should now be titled not with the year of its adoption, but with the period it is to cover (i.e. «Roadmap 2024/25» instead of «Roadmap 2023»).

2.4 Financing of the funding priorities

Up to and including 2020, DSI funds for the promotion of projects and outreach activities were available to all DSI network members. Since 2021, only DSI Communities have access to these funds. DSI Communities apply annually for financial support through a program. The DSI office supports the functioning of the communities with appropriate resources. The DSI has defined criteria that must be met to be eligible for funding for DSI strategic projects. The criteria are located on the DSI website. The Board of Directors decides annually on the allocation of funds, subject to the total funds available at any given time.

In addition to the DSI funds, the calls published by DIZH (Innovation Program, DIZH Infrastructure/Lab Call, DIZH Post-Doc Call) will primarily provide funding for the DSI funding priorities in the coming years. These funds will be awarded in a competitive process.

2.5 Services of the DSI office

The DSI office supports the goals of the DSI with the following activities:

- *Support for the communities:* The office supports the DSI Communities and the DSI Partnerships in the preparation of successful funding applications on digitalization topics, in the management of research projects and in the communication of events.

- *Research coordination:* The DSI office facilitates and supports the collaboration of researchers of the DSI network with various activities (speed dating events, coordination of research groups, organization of internal colloquia, etc.).

- *Instructional Coordination, Curriculum Development, and Faculty Development:* within this framework, DSI instructional programs are developed and maintained.

- *Communication & Events:* The DSI office implements the outreach activities of the DSI according to a separate communication concept; this will be revised in 2023. The DSI's communication channels are adapted as needed; for example, the DSI website was relaunched in 2020. In 2020, the appearance of the DSI was also further developed with regard to the image brand. The new image concept of the DSI includes the redesign of documents, presentation templates as well as the DSI website.

- *Stakeholder interface:* The DSI office mediates between science and journalists, companies, politics, NGOs and public administration bodies. It organizes contacts, is present in various committees with stakeholder representatives and also takes on specific assignments from stakeholders (e.g. AlgorithmWatch), provided that these fit into the general activity profile of the DSI. A new instrument in this context is the «Parldigi MasterClass», which has been offered and implemented in collaboration with Parldigi for the Swiss Parliament in 2021 and will be continued in an extended framework in 2023/24**.**

-   *Implementation of support projects:* The DSI designs and accompanies targeted projects that are intended to support the activities of UZH researchers. Examples are the [Data Protection & Ethics Self-Assessment Tool](#) (DESAT) and the [Z-Pool-Tool](#) for the development and management of volunteers for (online) research (see above).

Appendix A

The following is a list of topics identified according to the process described in section 2.3.2. This list outlines the spectrum of topics that are of interest within the DSI and are dealt with in various forms; however, it is not to be understood as exhaustive or exclusive. The topic clusters are based on the names of the communities, but do not represent them completely. The topics are arranged alphabetically; the corresponding numbering does not represent any prioritization.

Communication
Com-1: Accessibility in a digital society
Com-2: Communication in the Metaverse
Com-3: Digital media use across generations
Com-4: Digital transformation of religious communication
Com-5: Disinformation and hate speech in digital public spaces
Com-6 Future of journalism
Com-7 Human-computer interaction modes (audio, visual etc.)
Com-8 Impact of online (mass) media on society
Com-9 Role of expertise in ubiquitous access to (AI shaped) knowledge
Com-10: Algorithmic and social influences in digital environments

Cybersecurity
Cyb-1: Cybersecurity and human behavior
Cyb-2: Digital trust
Cyb-3: Handling difficult decisions in cybersecurity operations
Cyb-4: Post-quantum cybersecurity
Cyb-5: Security and privacy
Cyb-6: AI and cybersecurity
Cyb-7: Attack prevention and mitigation (DDoS, Ransomware)
Cyb-8: Security in networks and blockchain

Democracy
Dem-1: Civic-Tech: tools for and governance of digital participation
Dem-2: Digital communication in the policy cycle
Dem-3: Digital sovereignty
Dem-4: Digitalization monitor: skills/knowledge, opinions and tools
Dem-5: Impact of digitalization on public opinion formation
Dem-6: Role of algorithms in political processes

Digital Humanities
Hum-1: Digital religions
Hum-2: Digital visual studies
Hum-3: Digitalization of cultural heritage
Hum-4: Digitally assisted text interpretation

Education
Edu-1: Conceptualization and measuring digital skills
Edu-2: Digital education and (in)equality
Edu-3: Lifelong learning/development of digital skills/literacy
Edu-4: Serious games

Ethics
Eth-1: Big data and surveillance
Eth-2: Fairness and AI/algorithms
Eth-3: Manipulation in the digital realm
Eth-4: Role of ethics guidelines
Eth-5: Trust in and control of algorithmic/autonomous systems
Eth-6: Value-sensitive innovation

Health
Hea-1: Decision-making in the digitalized healthcare system
Hea-2: Digital health interventions
Hea-3: Digitalization of the healthcare system
Hea-4: Digitally enabled health stakeholder collaboration
Hea-5: Health state measurement and prediction
Hea-6: Mobile health apps and sensors - design and use
Hea-7: Prevention through digital tools

Information (Libraries)
Inf-1: Access to information (discovery)
Inf-2: Information usage
Inf-3: Long-term archiving of information

Law
Law-1: Data governance
Law-2: Data protection and research
Law-3: Legal tech
Law-4: Regulation of AI
Law-5: Regulation of blockchain

Mobility
Mob-1: Digitalization impact on mobility
Mob-2: Human mobility in Smart Cities
Mob-3: Autonomous, automated, connected mobility technologies
Mob-4: Sustainable mobility
Mob-5: Enhancing health through mobility

Mob-6: Inclusive and shared mobility
Mob-7: Secure, private mobility

Science, Methods and Data
Sci-1: Citizen science
Sci-2: Collective intelligence
Sci-3: Cyber-physical systems
Sci-4: Data integration
Sci-5: Data-driven modeling of complex systems
Sci-6: Design thinking and other participative methods
Sci-7: Open Data/Text/Media

Sustainability
Sus-1: Sustainable digitalization
Sus-2: Sustainable digital economy
Sus-3: Digitalization and biodiversity
Sus-4: Digital sufficiency

Work
Wor-1: Corporate social responsibility in the digital age
Wor-2: Crowdworking and platform economics
Wor-3: Data-intensive organizations
Wor-4: Digital leadership
Wor-5: Impact of AI on the future of work
Wor-6: Management & work enhancement with AI & data
Wor-7: People analytics