QUALIFICATION PROGRAMME

DIGITALISATION RESEARCH

– **a joint programme by bidt, CAIS, and Weizenbaum Institute for doctoral and postdoctoral researchers**

bidt Bavarian Research Institute for Digital Transformation
AN INSTITUTE OF THE BAVARIAN ACADEMY OF SCIENCES AND HUMANITIES

CAIS RESEARCH FOR THE DIGITAL AGE

weizenbaum institut

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1. Introduction

1.1 Why a qualification programme?

Digitalisation research is a dynamic field of research at the intersection of various disciplines – ranging from the social sciences to psychology and education as well as law and computer science, to name but a few. It explores the impact of digital transformation on society, its chances and challenges, both from a historical perspective and with an eye on current developments.

The main focus of digitalisation research – in addition to many others – is on the following research questions: How do new digital technologies change the way people interact, for example, through social media? What are the effects of these technologies on the self-conception and organisational structure of political systems? What kind of digital society do we want to live in? How must its framework conditions be designed regarding, say, data protection and data security needs, the ethical consequences of technology use, or the media and data literacy skills of the people who navigate it? What should be considered before new technologies are developed?

By way of example, these topics give us some indication of the way digitalisation research does more than simply collect, analyse, and interpret data. If its results are published publicly – and, ideally, in a way that is universally understood – its systematics can influence social change processes by helping them be better understood. Its design-driven approach is therefore one of its most important features, be it in political consulting, education, or any other realm of society that gives way to and harnesses (large) data troves. Designing a modern digital administration is an important concern as much as the question of whether and in what way artificial intelligence will have a lasting effect on artistic processes.

The three German institutes for digitalisation research – the *Bavarian Research Institute for Digital Transformation* (bidt), the *Center for Advanced Internet Studies* (CAIS), and the *Weizenbaum Institute for the Networked Society* – are providing their doctoral and postdoctoral researchers with a joint, interdisciplinary qualification programme to help build and consolidate digitalisation research competencies and to foster connections between the institutes. It aims to impart the broadest possible knowledge of the research field and it pools the expertise and competencies of the experts based at the participating institutions to this end.

The qualification programme is a voluntary training programme. Those interested can visit events on key topics of digitalisation research and its research methods across four modules in order to become able to expertly speak on digitalisation issues and to acquire the tools necessary to conduct their own research and for communicating it to the public.

After participating in the qualification programme and completing one or several modules, researchers will have acquired well-founded basic knowledge that qualifies them for occupations relating to digitalisation, both within and outside of science and research.

1.2 The modules

Module 1 “Basic Knowledge Digitalisation Research” imparts basic knowledge and gives an overview of the research field. Standard texts of digitalisation research from various disciplines will be discussed in textually close reading seminars. Workshops will look at practice-oriented case studies from key topic areas, such as artificial intelligence or issues of sustainability in digitalisation.

Module 2 “Data Literacy and Digital Methods” features workshops for acquiring competencies in the informed handling of data, so as to be able to work and make decisions in a way that is data-driven and not limited to any one scientific discipline. The focus here is on certain facets of data literacy, such as data management and the FAIR principles, data analysis and visualisation, or ethical aspects of data use and data provision.

Module 3 “Science Communication and Co-Creation” teaches fundamental competencies in communicating in different public spheres, in a way that is appropriate both in terms of form and the target group, and in co-creative knowledge production. Researchers are to be made aware of the challenges of science communication and strengthened in dealing with them.

Module 4 “Agile Research” wants researchers to get to know different approaches to agile research, and to reflect on their underlying philosophies. In doing so, the specific challenges of interdisciplinary or otherwise diverse teams are highlighted to help meet them productively. The focus is on approaches in iterative, short-cycle, and participatory research.

1.3 The certificates

The three institutes give out a joint certificate for all four modules, which guarantees the quality of the attended events. The certificate features in-depth information on the competencies that were acquired by successfully completing the course. It is designed in a way that allows it to be used as certification in an academic as well as a non-academic context. The certificates of the qualification programme can only be acquired by researchers affiliated with the three institutes. However, the individual events are generally open to other participants.

The performance requirements for every module are explained in the module descriptions. To be sure, the events of the four modules can also be attended without the intention of obtaining certification. A certificate of attendance is issued for attending every event, which also features information on the content of the event.

Module certificates document that the participants have completed a series of events that are coordinated in terms of content and didactics. The basic and advanced segments of each module build on each other and facilitate systematic and structured learning. Options for individual choice facilitate building a competence profile tailored to one's own interests and needs. These two components, personalisation and clear structuring, are what creates the added value of acquiring this certification compared to additively attending individual events from different modules.

A longer period of three to six semesters is recommended for acquiring the certificate. Every module involves visiting four to five events in different formats (introductory events, reading seminars, workshops, etc.). At least two events are offered in each module each year, with the three participating institutes coordinating the organisation of the events with each other. The events featured in the qualification programme as well as the modules are continuously evaluated and developed further.

1.4 Event programme

Find the current events offered through the qualification programme on the websites of the participating institutes:

bidt: https://www.bidt.digital/foerderprogramm/graduate-center-fuer-promovierende/
CAIS: https://www.cais-research.de/institut/nachwuchsfoerderung/qpd/
WI: https://www.weizenbaum-institut.de/veranstaltungen/

1.5 Questions?

If you have any questions about the qualification programme, please do not hesitate to contact the programme coordinators:

bidt: Dr. Maria Staudte (maria.staudte@bidt.digital)
CAIS: Dr. Nina Hahne (nina.hahne@cais-research.de)
WI: Ramona Picenoni (ramona.picenoni@weizenbaum-institut.de)

2. Module descriptions

2.1. Module 1: Basic Knowledge Digitalisation Research

Digitalisation research is a young and interdisciplinary research field. It features a range of topics, including the history of digital transformation as well as the current impact of digitalisation on society, business, and politics. The *Basic Knowledge Digitalisation Research* module imparts basic knowledge and gives an overview of the research field. It will enable doctoral students to talk on fundamental topics and research questions related to digitisation and its study in a way that is informed, reflective, and critical, also beyond the boundaries of their dissertation projects.

The content of the modules is developed with the participating disciplines at the three institutes in mind. In terms of their content and degree of reflexivity, the approaches to the individual topics sensibly complement each other. Both the dynamism of the research field and the question of the relevance to society of research questions are considered.

The module features two different event formats: reading seminars and workshops. The reading seminars deal with relevant standard texts from a certain subject area (e.g., artificial intelligence). The experts lead the discussions in the course, which will be close to the text. The workshops deal with a concrete question or use case from the research field. You can approach topics in a discipline-specific or an interdisciplinary way (e.g., “Legal Issues in Digitalisation Research using the GDPR” or “Norms in Digitalisation Research from a Legal, Philosophical or Communication Studies Perspective”). The participants may have to write a short essay or perform another practical task during the workshop.

The requirement for acquiring the module certificate is participation in three reading seminars and two workshops. It is possible to receive credit for external courses. To do so, please refer to the contact person responsible at your institute.

I. Reading seminars

- Structure and Systematics of Digitalisation Research
- History of Digitalisation and its Study
- AI and Reasoning
- Programming Languages and Computer Development
- Digital Democracy

II. Workshops

- Introduction to AI
- Ethical Aspects of Digitalisation
- Economic Dimension of Digitalisation
- Organisational Structures on the Internet
- Science and Research Policy on Digitalisation

2.2. Module 2: Data Literacy and Digital Methods

Research data are now more diverse than ever. They are not only digitally collected, stored, and processed, but also frequently refer to digital phenomena (e.g., trace data from online platforms or other digital technologies). Because of this, the conscious and safe handling of research data is increasingly relevant.

This module therefore aims at teaching competencies on the informed handling of data to be able to work and make decisions in a way that is data-driven and independent of any one scientific discipline. [1] This is to facilitate and support research work and to ensure the safe handling of research data. The focus is on the following skills as facets of data literacy: data procurement, data management, reprocessing and re-use of data, analysis and visualisation, as well as ethical aspects of data use and data provision.[2]

Moreover, competencies for using data in the personal, social, and political sphere are addressed, including the responsible handling of social media data; data protection and ethics; sustainability and access to data in terms of open access and open data. This creates awareness among doctoral researchers for aspects of data use, inclusion, and fairness, and trains them in dealing with those aspects.

The basic segment of this module imparts basic knowledge on handling research data (research data management, data protection, and copyright), while the advanced segment features introductions to methodology, certain techniques and processes (see below).

[1] See the definition of "Data Literacy" of the German Informatics Society (2018): Data Literacy und Data Science Education: Digitale Kompetenzen in der Hochschulausbildung (Policy Paper). https://bit.ly/3rXke1jx
[2] Carlson, J. & Johnston, L. (2015). Data Information Literacy. Librarians, Data and the Education of a New Generation of Researchers (pdf).

In order to obtain the certificate for the entire module, it is required to complete both courses from the basic segment and two additional courses/workshops from the advanced segment. It is possible to receive credit for external courses. To do so, please refer to the contact person responsible at your institute.

I. Basic segment

- Research Data Management, FAIR, Open Data
- Data Protection & Copyright

II. Advanced segment

- Extract and Analyse Social Media Data
- Introduction to R and Markdown
- Data Visualisation
- Network Analysis
- Qualitative Methods and Expert Interviews
- Open Science
- Research Data Management

2.3. Module 3: Science Communication and Co-Creation

Research in the digital age is characterised by increasing demands on the communications repertoire of scientists. In addition to the core area of interacting with researcher's respective specialist audiences through publications and conference presentations, an interdisciplinary exchange that goes beyond their native scientific disciplines is becoming increasingly relevant in their day-to-day research practice, especially entering into a dialogue using media (e.g., Twitter) as well as with media representatives (e.g., journalists) or public interest groups.

The module "Science Communication and Co-Creation" is offered to help meet these requirements. Its aim is to teach basic competencies in communicating with different audiences, to get to know co-creative approaches to knowledge production, to gain an awareness of the challenges of science communication (e.g., the use of evidence-based forms of argumentation in normatively charged debates in the public sphere), and, more generally, to develop a critical and reflexive approach to analogue and digital communication media.

The basic segment of this module imparts the elementary know-how of science communication in different public spheres, in a way that is appropriate both in terms of form and the target group, and co-creative knowledge production. Since digitalisation research should always include examining the social and societal consequences of digitalisation, means of participation and sharing, i.e., co-creation, are essential components of these applied research approaches. The advanced segment features courses on specific sub-aspects of the module topic (e.g., digital storytelling, science communication practice, etc.).

To obtain a certificate for the entire module, it is required to complete both courses from the basic segment and two additional courses/workshops from the advanced segment. It is possible to receive credit for external courses. To do so, please refer to the contact person responsible at your institute.

If required, targeted individual advising for building a personal profile can be sought as part of the module.

I. Basic segment

- Which Communication Formats Match My Research? Practice, Theory, and History of Individual and Institutional Science Communication
- Co-Creative and Participatory Approaches to Knowledge Production

II. Advanced segment

- Science Communication Practice in Digital Media
- Science for Policy and Agenda Setting
- Student Labs: Prime Example or an Isolated Case of Knowledge Co-Creation?
- Gamified Approaches to (Interdisciplinary) Collaboration in Knowledge Production
- Participatory Design/Research

2.4 Module 4: Agile research

Working in an agile way is understood as working in iterative, short development cycles that involve continuously reflecting upon and adjusting the current status of a project and the next work steps. Moreover, an agile way of working is typically characterised by tying in stakeholders regularly and at an early stage as well as a high degree of autonomy of the contributors.

Agile approaches are particularly widespread in software development but can also be transferred to areas of research and used there. It can therefore be sensible, particularly in interdisciplinary cooperation – as is typical in digitalisation research – to adopt an iterative way of working, so as to quickly identify any misunderstanding between project partners coming from different disciplines and to clear them up during an ongoing process, instead of dealing with them only when they become visible after a project is completed.

These enhanced opportunities for exchange, collaboration, and feedback help to swiftly establish a shared (or: overarching) understanding, which is then transferred into an adaptive work process in which planning steps are taken together. Furthermore, it facilitates a design-driven, positive culture of dealing with failure. Moreover, the involvement of possible stakeholders (in the form of target groups like policymakers or civil society) plays an important role in digitalisation research, meaning that agile approaches can be used for optimising ways of exchanging knowledge and experiences.

In addition to the topics in Module 3, Module 4 can serve to become acquainted with various approaches to agile research and reflect upon their underlying methods. The aim is to gain an understanding of the specific challenges of interdisciplinary or otherwise diverse teams, and to meet them productively.

The two basic courses of this module, “Intro: Agile Research 101” and “How To: Interdisciplinary Working”, are related in terms of their content as interdisciplinarity is an important factor of agile working. To take into account the abilities and needs of the participants from the onset, some basic questions are initially discussed: Where do I stand in my own subject? How do I use methods from other disciplines? Which topics from other disciplines am I interested in? Doing this can help select suitable methods of agile research and to put together a method kit tailored to each individual research project.

A more individual focus can be placed in the advanced segment. Besides the classic topics and methods of agile research such as “Agile Project Management”, “Design Thinking” or “Scrums”, the political and social framework conditions of scientific work will be discussed.

Courses such as “Equality and Gender” or “Positive Culture of Accepting Failure" can illustrate the impact that different designs of social spaces have on work processes and results through everyday epistemic practices and discipline-specific research cultures.

The module aims to enable the participants to engage in collaborative teamwork, individual self-organisation, and a reflective use of agile research methods in scientific and non-scientific work contexts. You can learn to bring disciplinary requirements and the opportunities of agile research into a productive balance.

To obtain the certificate for the entire module, it is required to complete both courses from the basic segment and two additional courses/workshops from the advanced segment. It is possible to receive credit for external courses. To do so, please refer to the contact person responsible at your institute.

I. Basic segment

- Intro: Agile Research 101
- How to: Interdisciplinary Work

II. Advanced segment

- Agile Project Management
- Design Thinking
- Scrum
- Designing Kanban Board
- Power Relations
- Equality and Gender
- Positive Culture of Accepting Failure and Feedback
- Learning Organisations

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Publishing details

Publisher

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