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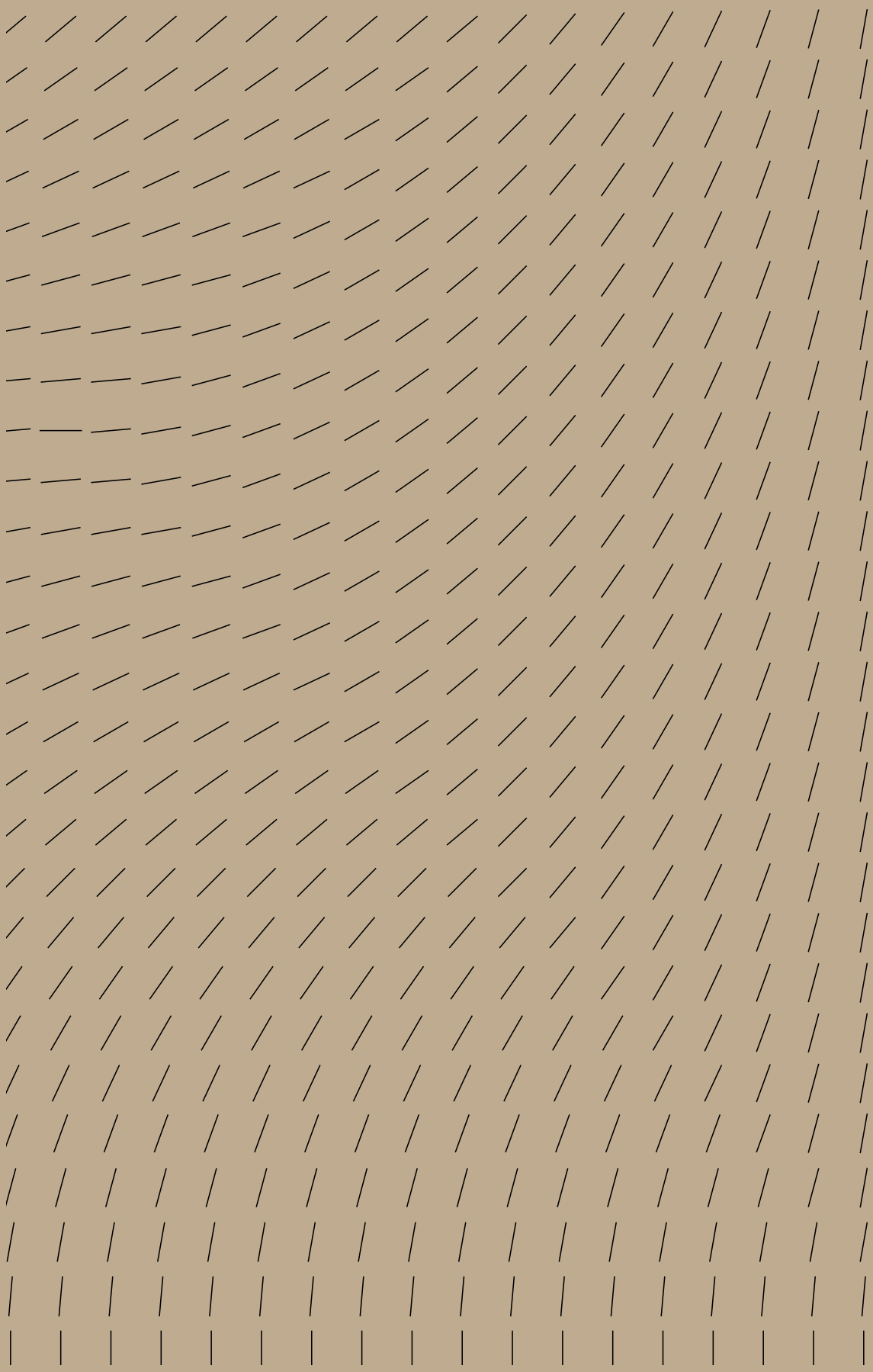

Annual Report

2019/2020

Weizenbaum Institute for the Networked Society –
The German Internet Institute

About the Weizenbaum Institute

The Weizenbaum Institute for the Networked Society – The German Internet Institute is a joint project funded by the Federal Ministry of Education and Research (BMBF). The consortium consists of the four Berliner universities – Freie Universität Berlin (FU Berlin), Humboldt-Universität zu Berlin (HU Berlin), Technische Universität Berlin (TU Berlin), Berlin University of the Arts (UdK Berlin) – and the University of Potsdam (Uni Potsdam) as well as the Fraunhofer Institute for Open Communication Systems (Fraunhofer FOKUS) and the Berlin Social Science Center (WZB) as previous coordinator.

The Weizenbaum Institute conducts interdisciplinary and basic research on the changes in society caused by digitalisation and develops options for shaping politics, business and civil society. The aim is to better understand the dynamics, mechanisms and implications of digitalisation. To this end, the Weizenbaum Institute investigates the ethical, legal, economic and political aspects of the digital transformation. This creates an empirical basis for responsibly shaping digitalisation. In order to develop options for politics, business and society, the Weizenbaum Institute links interdisciplinary problem-oriented basic research with explorations of concrete solutions and a dialogue with society.

This report covers the period from 15 September 2019 to 14 September 2020.

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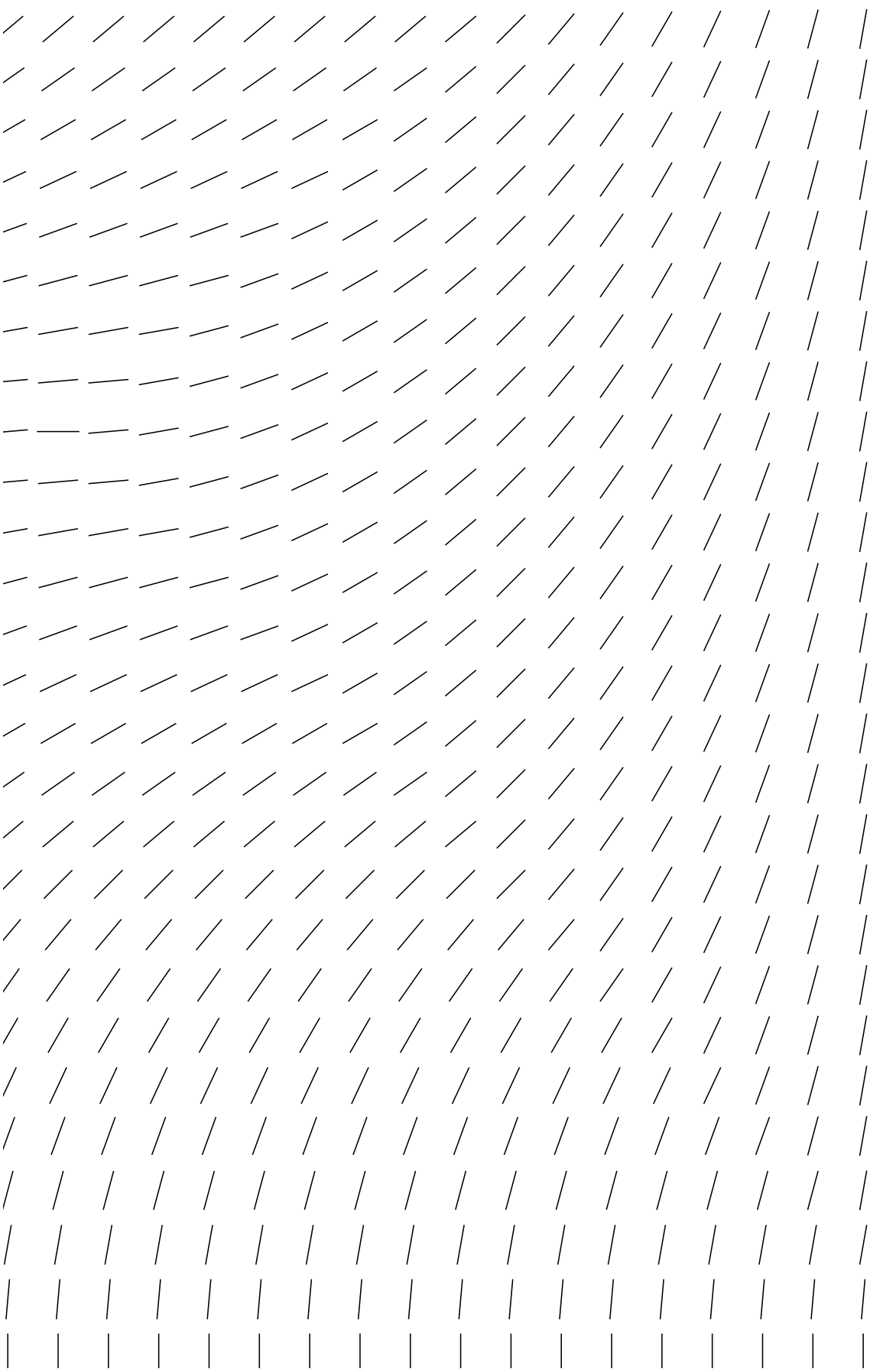


Annual Report

2019 / 2020

Weizenbaum Institute for the Networked Society –
The German Internet Institute

Editorial

An extraordinary year lies behind us. The coronavirus pandemic has had a major impact on all our lives – both private and professional. Digitalisation has received a significant boost during the crisis. The development of Zoom Video Communications' share price offers a particularly striking picture of what has happened. From mid-March to July 2020, the share price climbed rapidly from 95 to 220 USD. During the lockdown period, the video conferencing format was triumphant in schools, universities and in professional life – regardless of any data protection problems. Home office and home schooling via learning platforms and team software have become the norm. Online sales are at a level that is usually only seen in the pre-Christmas period. Health authorities are asking citizens to donate their data via the Corona-Warn app in order to better trace infection chains.

These are all developments that affect our institute's research area, the networked society, in a very concrete way. Not only did we succeed relatively quickly in switching our own institute's operations into the new mode, but we were also able to use the expertise available in our institute on the social aspects of digital technologies to make an external impact. It is no exaggeration to say that coronavirus has become something of an unexpected cross-sectional topic at the institute. We are not only interested in the immediate consequences of the wave of digitalisation precipitated by the crisis, but also the long-term ones.

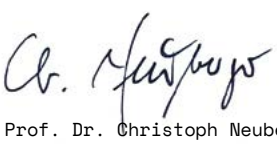
Already in April we started a podcast series entitled Weizenbaum im Homeoffice: Corona and Digitalisation (Weizenbaum in Home Office: Corona and Digitalisation), in which we dealt with various aspects concerning the shift of professional and private life to the digital realm. In addition, many of our researchers contributed their expertise to the public debate on the effects of the virus by publishing scientific papers, giving interviews or participating in events. Our research group leaders Gergana Vladova and André Renz dealt with the challenging situation in the education sector during the coronavirus lockdown in several research projects that were undertaken at short notice and in smaller and larger publications. Our PhD candidate Rainer Rehak was part of the team of authors of the data protection impact assessment for the Corona-Warn app, a risk analysis to assess the possible consequences of data processing operations, which was published by the Forum InformatikerInnen für Frieden und gesellschaftliche Verantwortung. Research group leader Ulrike Klinger explained why so many bogus reports and speculations about the coronavirus are circulating on the internet and how we can protect ourselves against them in discussions with various media organisations. And: our Research Group 2 “Critical Maker Culture organised a digital roundtable with the African maker scene to explore what reactions to the coronavirus crisis are evident there.

The past year was not only marked by current events, but also by the joint development of a strategy for the sustainable continuation of the work of our still-young institute. We are pleased to say that we were able to take an important step towards institutional independence at the end of 2019 with the founding of the Weizenbaum-Institut e. V. association. In September 2020, the association took over the central administration and legal representation of the institute. It is responsible for the administrative office and coordinates the scientific consortium while also being responsible for public relations, knowledge transfer in politics, business and civil society, the internationalisation of the institute and the promotion of up-and-coming researchers.

Another highlight, of which we are particularly proud, was the successful evaluation of our institute by a commission of high-level experts. This is an important milestone in the history of our institute, which also secures funding for the next two years. The commission’s report is an outstanding testimony to our development and research achievements and also contains many valuable recommendations for the further development of our institute. These recommendations, as well as developments whose topicality we cannot yet foresee, will guide our research work for the networked society over the next two years.

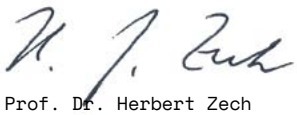
We hope you enjoy reading it!

The Board of Directors of the Weizenbaum-Institut e.V.



Prof. Dr. Christoph Neuberger
Managing director
(FU Berlin)

Prof. Dr. Sascha Friesike
Deputy managing director
(UdK Berlin)



Prof. Dr. Herbert Zech
Deputy managing director
(HU Berlin)

Dr. Karin-Irene Eiermann
Administrative managing director
(WZB)

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I. Foreword

Following the successful evaluation and the positive decision on continued funding, we have just started the second phase of the establishment of the Weizenbaum Institute. On the following pages, you will find detailed information about the work and recognition in the previous “Weizenbaum year”, which always starts on 15 September due to our founding date in 2017. But we cannot and do not want to rest on our laurels. Rather, we are looking ahead. We distinguish between two time horizons:

In years 4 and 5 of the institute, which lie just ahead of us, many of the research groups’ current projects will be completed. Most of the sixty or so doctoral candidates at the institute will also be set to complete their dissertations. This means that we will continue to reap ample rewards from our research in the coming years. To this end, we will further intensify the transfer of our results and our engagement in public dialogue. In the process, we will rely on a variety of formats to reach our target groups in the best possible way.

With the Weizenbaum Forum, we have just created a central series of events with the aim of opening up further to concerns and views from politics, business and civil society – and we want to attract a broad audience, which we will regularly invite to exchange views on our research questions. At present, the forum is still online due to the coronavirus pandemic – but hopefully it will soon take place at the Weizenbaum Institute itself. In Hardenbergstraße 32 we have been given our own event area on the ground floor, which is set to become a lively and open place for discussion and encounters.

Here we feel indebted to Joseph Weizenbaum, who, as a computer pioneer and intellectual, repeatedly contributed important ideas to the public debate on the social consequences of the digital. Our institute’s new journal, for which a publishing group has already been formed, also bears his name. The “Weizenbaum Journal of Digital Society” will publish the results of interdisciplinary research on digitalisation and also give space to programmatic reflections on the overall phenomenon of digitalisation.

But we are also looking a lot further ahead: after the five-year start-up phase, the Weizenbaum Institute is to be established from 2022 onwards and gradually led into independence. A first step in this direction was the founding of the Weizenbaum-Institut e. V., which will act as the network coordinator and head office from September 2020. Since this summer, we have been engaged in agreeing on the institute’s future course in a participatory process. The Board of Directors initiated it with proposals and is acting as moderator in this strategic development process. We want to learn from the experience gained so far, from the perspectives of all disciplines and status groups represented at the Weizenbaum Institute. In this regard, the recommendations of the Evaluation Commission constitute important signposts. We are supported in these important considerations by our Advisory Board, which is made up of well-known individuals from science and practice, and our Board of Trustees, on which the Federal Ministry for Education and Research and the State of Berlin as funding bodies and the seven consortium partners have a seat and vote.

We all agree that, on the road to becoming an independent and permanent institute, the question of substance comes first. What does the Weizenbaum Institute stand for? What is its unique profile that distinguishes it from other institutions? Excellent, interdisciplinary research is what we all understand it to be. Our guiding values are self-determination and sustainability. We seek dialogue with society in order to raise awareness of research issues and to be able to deliver scientifically sound findings to societal stakeholders.

In our research, it will be important to strike the right balance between continuity and innovation, between continuing and strengthening successful research and continuous renewal and openness. How do we discover and develop innovative ideas? How do we find and retain brilliant minds? What research formats and funding measures can we use to establish the Weizenbaum Institute as a place for top-level research? The further development of working areas in the Board of Directors has also concerned itself with substantive issues: internationalisation, promotion of young researchers, quality and research data management, diversity and inclusion, communication and transfer.

So we have major tasks ahead of us, which all of us "Weizenbaumers" want to tackle with great enthusiasm and commitment. Unfortunately, in recent months, this community has primarily existed in virtual form. Analogue life has clearly been neglected: direct encounters, casual conversations at the coffee machine, in the corridor or at the pub. Incidentally, Joseph Weizenbaum's favourite pub was within walking distance of the present Weizenbaum Institute. In less than ten minutes, you can be at "Diener Tattersall", a traditional Berlin artists' pub near Savignyplatz. On the walls of the pub hang photos of famous individuals who have come and gone here. Weizenbaum's portrait can be seen when you enter, immediately on the left-hand side at eye level.

The Board of Directors of the Weizenbaum Institute

II.
Annual report 2019/ 2020

In September 2019, no one at the Weizenbaum Institute had any idea of how much the coming research year would be characterised by restrictions on social contacts and a move into the digital world. The third year of our existence began very successfully with the evaluation of what we have achieved so far. We could not and would not rest on these laurels. On the contrary: with the lockdown in March 2020, we at the Weizenbaum Institute, who gain sustenance from lively, direct exchange with science, civil society, business and politics, also had to move all our encounters to the digital realm. From one day to the next, our expertise on digital transformation processes was in high demand everywhere. In this annual review, we report on institutional developments in this memorable year, on the evaluation of the institute and on how we organised and carried out research and knowledge transfer in the first months of the coronavirus pandemic.

2.1 Institutional developments

SUCCESSFUL EVALUATION

Barely two years after its foundation in September 2017, our institute was assessed by a high-ranking Evaluation Commission for the first time. From summer 2019 to spring 2020, we answered questions in interviews, provided data, prepared a report on ourselves and welcomed the commission to our premises. This resulted in the production of a comprehensive report that not only looks at the institute’s development and research achievements but also at its visibility among the scientific community and the general public and that, in addition to much praise, also contains many valuable recommendations for the future.

The report, issued in March 2020, gives our institute an excellent overall rating and recommends that the Federal Ministry for Education and Research (BMBF) fund it for a further two years. Among other things, the jury praised the fact that the research culture at the Weizenbaum Institute is characterised by “motivated staff at all levels, good cooperation within and between teams and active cooperation with the outside world.” The commission also rated the research results as “very good” in general, noting a “focus on basic, interdisciplinary research questions”. Furthermore, the commission rated the “high degree of interdisciplinarity in practice” expressly positively; the same applies to the commitment and competence of the up-and-coming researchers. According to the report, both the doctoral candidates and the postdocs exhibited high motivation and strong team spirit.

The evaluation report confirms that we are on the right track, but also contains important information and suggestions for the institute's further development. The challenge now is to address the commission's recommendations for further improvement. In addition to developing unique characteristics and sharpening our research profile, this also includes developing a strategy for how our research topics can keep pace with the development of the digital society in the future. We will also further develop the dialogue with politics, business and civil society. The institute’s independence will also be further promoted in the coming years.

Members of the Evaluation Commission exchange views with the heads of the research groups

Weizenbaum Director Herbert Zech begins the Evaluation Commission's site visit

Weizenbaum scientists Otto Hans-Martin Lutz (left) and Richard Huber present the transfer project "Privacy Sonification", which makes web tracking audible

FOUNDING OF THE WEIZENBAUM-INSTITUT E. V.

At the end of 2019, we took an important step towards institutional independence. In December, the Weizenbaum-Institut e.V. was founded as an independent legal entity that is set to be developed so that it becomes the institute's institutional framework in the future. At the beginning of the fourth funding year on 15 September 2020, responsibility for the central administration and coordination of the research consortium project was transferred to the Weizenbaum-Institut e.V.

In return it receives its own direct grant from the German federal government and the State of Berlin. The associationruns the institute's office and has a number of other tasks, including public relations, knowledge transfer, internationalisation and the promotion of young researchers. The association's Board of Directors is made up of Managing Director Prof. Dr. Christoph Neuberger (FU Berlin), his two deputies on the managing board, Prof. Dr. Herbert Zech (HU Berlin) and Prof. Dr. Sascha Friesike (UdK), and the Administrative Office Manager Dr. Karin-Irene Eiermann (previously WZB) as the administrative board member.

NEW RESEARCH GROUP

Since March 2020, the Weizenbaum Institute has had one more research group – bringing the total number of research groups to 21. Under the leadership of Principal Investigator (PI) Sascha Friesike and Research Group Leader Maximilian Heimstädt, Research Group 21, "Reorganising Knowledge Practices", asks what effects digitalisation has on knowledge production and how a science that is consistently oriented towards digital principles could be organised. From an organisational science perspective, the team will thus also provide important ideas for the further development of research at the Weizenbaum Institute itself.

CHANGES IN THE BOARD OF DIRECTORS

There were two changes in the institute's seven-member Board of Directors, which includes representatives of all of the consortium partners, during the reporting period. In November 2019, we bid farewell to Prof. Dr.-Ing. Ina Schieferdecker (TU Berlin). She was one of the three founding directors and her services were instrumental in advancing the institute's development. She was succeeded by Prof. Dr. Bettina Berendt (TU Berlin) on the Board of Directors. Prof. Dr. Barbara Pfetsch (FU Berlin) was deputy managing director and in this function played a major role in shaping the institute's conceptual development. Prof. Dr. Christoph Neuberger (FU Berlin) replaced her on the Board of Directors in October 2019 and has also held the position of managing director since February 2020. The Board of Directors is made up of the five W3 professors from the participating universities – in addition to Christoph Neuberger and Bettina Berendt, these are the deputy managing directors Prof. Dr. Herbert Zech (HU Berlin) and Prof. Dr. Sascha Friesike (UdK Berlin) and Prof. Dr. Hanna Krasnova (University of Potsdam) – and the representatives of the WZB and Fraunhofer FOKUS, Prof. Dr. Martin Krzywdzinski and Prof. Dr. Manfred Hauswirth. Most of the directors are also PIs at the Weizenbaum Institute and thus responsible for the scientific work of research groups.

Prof. Dr. Christoph Neuberger

Prof. Dr. Bettina Berendt

PROF. DR. CHRISTOPH NEUBERGER, MANAGING DIRECTOR

Christoph Neuberger has been teaching journalism and communication science at the FU Berlin since October 2019. His work focuses on the digital transformation of media, public and journalism. He obtained his master's and doctoral degrees at the Katholische Universität Eichstätt, where he also completed his habilitation, and then held a professorship in journalism at the University of Leipzig and taught as a professor of communication science at the University of Münster from 2002 to 2011 and at Ludwig-Maximilians-Universität München from 2011 to 2019. He is a full member of the Bavarian Academy of Sciences (BAdW) and the German National Academy of Science and Engineering (acatech).

PROF. DR. BETTINA BERENDT, DIRECTOR

Bettina Berendt has been professor for internet and society at the TU Berlin and director of the Weizenbaum Institute since November 2019. At the Katholieke Universiteit Leuven, Belgium, where she previously taught, she holds a guest professorship in the "Declarative Languages and Artificial Intelligence" research group. Her research focuses on data science and critical data science, in particular with regard to privacy, discrimination and fairness. Another concern of her work is artificial intelligence and ethics, with a focus on textual and web-related data. From 2003 to 2007, she was assistant professor at the Institute for Information Systems at the HU Berlin.

2.2. The Weizenbaum Institute in the coronavirus crisis

As is the case at all Berlin universities and research institutions, operations at the Weizenbaum Institute were restricted to essential staff only due to the coronavirus pandemic from 20 March 2020. From one day to the next, only those employees who were necessary to maintain operations at a minimal level were allowed to be on site. Other employees worked from home, and the building remained closed for external visitors.

We found it particularly difficult to cancel events that had been planned and in some cases already largely prepared. The first event to be affected was “Practicing Sovereignty: Means of Digital Involvement – Symposium | Exhibition | Workshops”, which had been prepared by Research Group 8 “Inequality and Digital Sovereignty” in cooperation with academics, activists and artists and should have taken place from 12 to 18 March 2020. With a heavy heart, we postponed the Weizenbaum Conference, which had been planned and prepared by several research groups for 1 to 3 June 2020, by one year to June 2021. Other events, such as the Fellow Talks, at which our guest researchers give insights into their ongoing research, took place after a delay in video conference form.

From then on, video conferences became the central communication tool for exchange within the institute but also with researchers from all over the world. And they made us inventive: on 29 May 2020, Research Group 2, “Critical Maker Culture”, organised a digital roundtable with the African maker scene to explore how people were reacting to the coronavirus crisis there. Our experience is that digital roundtables are an excellent opportunity for low-threshold conferences in times of social distancing across borders and continents. We also had to redesign internal training formats, such as the annual research retreat for our doctoral candidates, against the background of the coronavirus pandemic. This resulted in a hybrid event entitled “Participatory new formats of knowledge transfer”, which took place from 17 to 21 August 2020. It consisted of digital and analogue elements, such as online lectures, excursions to Berlin knowledge sites and virtual project work. The aim was to provide doctoral candidates with the tools to implement ideas and concepts for transferring research findings into society within a week.

Open IT infrastructure at the Weizenbaum Institute

The Weizenbaum Institute is committed to the principles of open science and therefore relies on the approaches of open access, open data and open source and develops them further. The IT Working Group (AK-IT), which was established shortly after the founding of the institute, advises and supports the IT department in the design, introduction and commissioning of services for inter-institute collaboration and communication using exclusively open source, free and self-hosted software.

As a central communication platform for the Weizenbaum Institute, AK-IT launched the Weizenbaum Chat – an instance of the Mattermost software hosted by the institute. The chat is used daily by the majority of the institute's members to communicate with each other as well as with our research fellows around the world. The platform is also used outside of a research discussion context for cross-institute activities. For example, our participation in the Scientists for Future protests was largely organised in the chat.

Inspired by the increase in working from home and the capacity and data protection concerns regarding private providers that simultaneously prevailed, AK-IT set up a Weizenbaum video conference system based on the free software Jitsi in 2020. The service is enjoying increasing popularity and is used for work meetings, lectures and workshops but also for virtual coffee breaks.

With a digital working environment based on free and open software, we prove every day that it is possible to do it without supporting dubious business models, without becoming perpetually dependent on powerful private actors, without accepting serious data protection and data security risks.

During “Issue Week”, Weizenbaum researchers visited several Berlin knowledge centres, such as the Deutsche Technikmuseum (German museum of technology).

During the coronavirus lockdown, Weizenbaum Institute members kept researching. For many of our researchers, the pandemic itself has become a research topic. In projects and publications, they investigated the effects of the coronavirus pandemic on the networked society from various research perspectives. In the *WZB-Mitteilungen*, for example, Research Group 12, “Democracy and Digitisation”, analysed the #WirVsVirus hackathon, within which the civic tech scene developed solutions to social problems in the context of the coronavirus crisis at the invitation of the federal government. In a guest article in *DIE ZEIT*, Principal Investigator Gesche Joost, together with Weizenbaum Fellow Thomas Ramge, analysed how the coronavirus pandemic continues to fuel social division. In a blog post, Research Group Leader Volker Stocker and Doctoral Candidate Aaron Kolleck examined how car-sharing providers are reacting to the crisis. In interviews with the mainstream media, Research Group Leader Ulrike Klinger explained why so many false reports about the coronavirus are circulating on the internet, where they come from and why they can be so dangerous. In an article in *Der Tagesspiegel*, directors Sascha Friesike and Christoph Neuberger provided a differentiated view of the digitalisation spurt triggered by the coronavirus pandemic. In addition, numerous other researchers from the institute were involved as authors or were available to the media as experts. [1]

With the spread of the coronavirus, many private and professional activities shifted to the home and thus also to the internet. Thus, the virus has forced us to experiment and learn how to make use of the possibilities of the digital in a short time span. Already in April, researchers at the institute started a podcast series entitled “Weizenbaum im Homeoffice: Corona und Digitalisierung” (Weizenbaum in Home Office: Corona and Digitalisation), which addresses the far-reaching shift of public and private life into the digital realm. By the end of the summer semester, a total of eight episodes of almost one hour in length had been produced. The topics of the individual episodes are: the impact of the coronavirus on global value chains; mismatches and conspiracy theories around the coronavirus; the increased demand for a digital infrastructure; the data protection risks of a coronavirus app; the digitalisation of teaching; the role of social media in the coronavirus crisis; the increasing importance of preprint servers for scientific publishing; and participation formats of the civic tech scene. In each episode, the guests include one or two researchers from the institute and a discussion partner from the field. Weizenbaum Director Sascha Friesike hosts the podcast.

[1] An overview with contributions from the Weizenbaum Institute on the impact of the coronavirus pandemic on the networked society is available at https://www.weizenbaum-institut.de/news/auf-einen-blick-corona-forschung-am-weizenbaum-institut/

Schools and universities in times of crisis

The coronavirus lockdown was particularly challenging for the education sector, which had to switch to digital distance learning from one day to the next. Two researchers, Gergana Vladova and André Renz, addressed this challenging situation in timely research projects and in several publications. Already at the beginning of the crisis in Germany, they interviewed research and cooperation partners from Hong Kong, Wuhan, Beijing and Berlin in order to gather experience on how to successfully shift in-person teaching to the digital realm. Initial talks with schools in Germany made it clear how differently they were prepared for fully digitalised teaching: the spectrum ranged from those who had absolutely no idea to those who were immediately ready for action. Together with their colleague Alexander Heuts, Vladova and Renz developed a self-assessment framework for schools that enables them to assess the degree of their own digitalisation and to identify measures to improve digital support for students.

In another survey, Vladova and Renz surveyed the attitudes of university teachers. The survey was concerned with teachers' opportunities and actual willingness to carry out teaching completely online in a short time. In order to record the experiences and attitudes of students during the virtual summer semester, Vladova is conducting a long-term study at German universities. In a further project, Renz and his team are investigating how providers of learning software and digital solutions for teaching (so-called ed-tech companies) are using the current crisis to position their offerings on the market.

Research group leaders Gergana Valdova and André Renz are investigating the effects of the coronavirus pandemic on education

BMBF Head of Department Matthias Graf von Kielmansegg opens the 2nd Parliamentary Evening of the Weizenbaum Institute

Panel discussion with Doris Hellroth, a school principal, SPD Bundestag Member Saskia Esken, Principal Investigator Niels Pinkwart and Sales Director Stephan Delkus, moderated by Tobias Hülswitt

2.3. Knowledge transfer

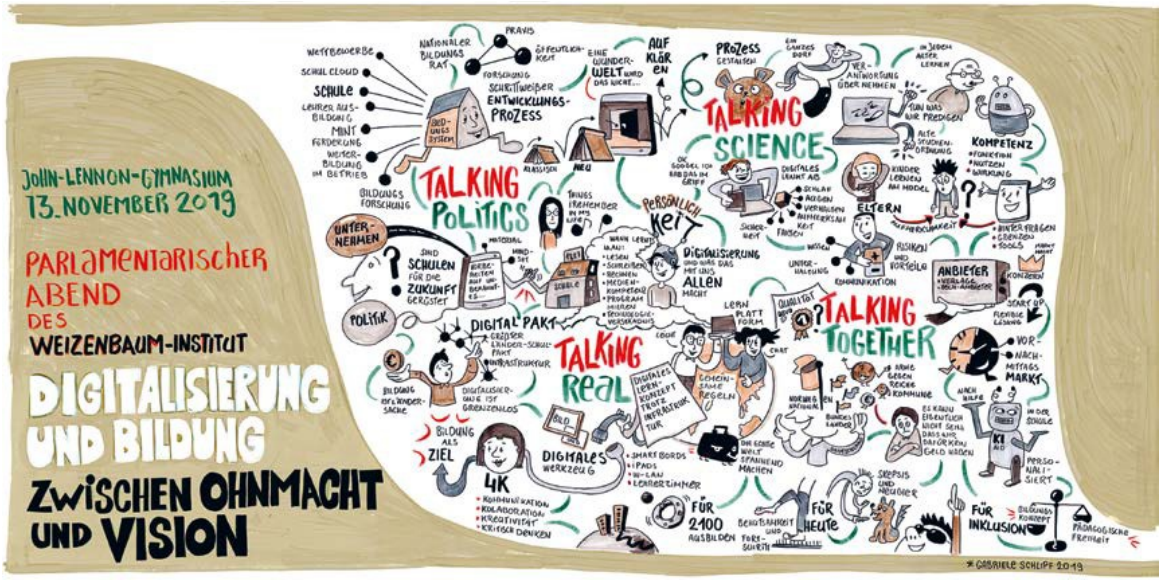
We maintain a dialogue with science, business and civil society in various cooperation and exchange formats. We also receive enquiries from the world of politics through formal and informal channels and are asked for our assessments. Many events, round tables, meetings and conferences already planned and in preparation fell victim to the coronavirus lockdown. In the following pages, we report on the transfer activities that nevertheless took place during the reporting period in the fields of politics, business, civil society and science.

POLITICS

The coronavirus pandemic has impressively demonstrated to us how scientific knowledge processes and political decisions interact. The Weizenbaum Institute fulfils this task and combines excellent basic research with evidence-based policy advice. As scientific guides to digital transformations, we therefore constantly seek exchange with political and administrative decision-makers. In addition, many of our researchers bring their findings and expertise to bear on political committees and initiatives.

The expert conference “Der Weg zur datengetriebenen Revolution in der Bildungsforschung” (The Road to the Data-Driven Revolution in Educational Research), organised by the FDP party in the German Bundestag on 16 October 2019, focused on the wealth of data that digital textbooks, smart learning programmes and other digital educational offerings produce. Romy Hilbig, head of Research Group 5, “Data-Driven Business Model Innovation", discussed with other invited education researchers and data protection officers how learning data can be used in concrete terms, what trends there are in Germany and abroad, who should have access to learning data under what conditions and how the students’ data can be protected against misuse.

The Second Parliamentary Evening of the Weizenbaum Institute took place under the title “Digitalisierung in der Bildung – zwischen Ohnmacht und Vision” (Digitalisation in Education – between Powerlessness and Vision) on 13 November 2019 in the John-Lennon-Gymnasium school in Berlin. Around forty representatives from the worlds of politics, science and civil society discussed the question of how education, further training and lifelong learning can be future-proofed in a networked society. In his opening speech, Matthias Graf von Kielmansegg, the head of department at the Federal Ministry for Education and Research, emphasised that education is the basis for meeting the challenges of digitalisation and taking advantage of its opportunities. In autumn 2019, nobody could have guessed that this relationship would be reversed only a few months later and that digitalisation would be the basis for the continued existence of teaching in educational institutions. The John-Lennon-Gymnasium was comparatively well prepared for the coronavirus shutdown, because the school administration and learning had already gone digital. Principal Dr. Doris Hellmuth presented the school’s digitalisation process. Research Group Leader Gergana Vladova, Doctoral Candidate Cora Bergert and Research Group Leader André Renz took a scientific look at the processes of digitalisation in education. The evening was rounded off by a panel discussion in which, in addition to Ms. Hellroth, the SPD Bundestag Member Saskia Esken, Principal Investigator Niels Pinkwart and Stephan Delkus, sales manager of the learning platform “itslearning” also took part.



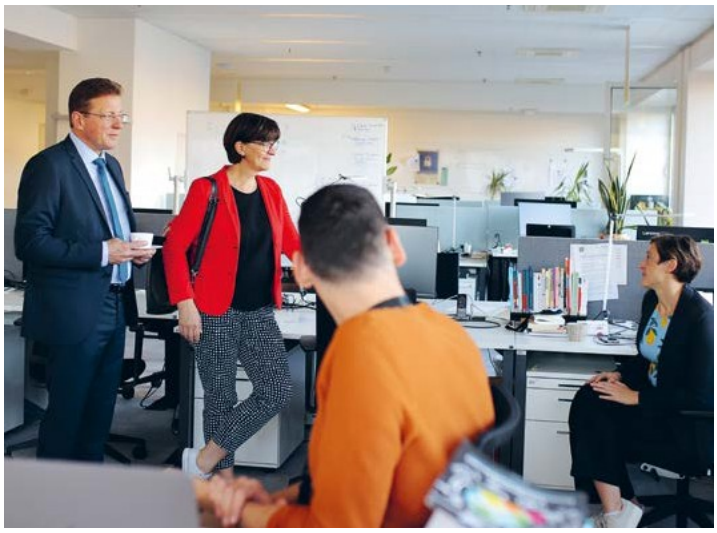
Visual documentation of the parliamentary evening

Weizenbaum Director Sascha Friesike opens the WBGU research conference “Zukunft gestalten: Digital und nachhaltig!”

WBGU research conference: Moderator Teresa Sickert (left) in discussion with Daniela Jacob (Climate Service Center), Ina Schieferdecker (BMBF), Stefan Ullrich (Weizenbaum Institute) and Johannes Müller (Netzwerk CorrelAid)

Together with the German Advisory Council on Global Change (WBGU), the Weizenbaum Institute hosted a research conference titled “Zukunft gestalten: Digital und nachhaltig!” on 16 December 2019 at the Federal Ministry of Education and Research (BMBF). The aim was to identify new approaches for a future-oriented research policy that links digitalisation with sustainability more strongly than before. In a total of three sessions, high-ranking researchers and politicians discussed the ethical challenges of shaping the digital age in a sustainable way, including the question of how digital technologies, in particular artificial intelligence (AI) and big data, can be used in sustainability research and specifically for sustainable development, and the opportunities and challenges for German research and innovation policy. The conference also tested the prototype of the Knowledge Hypercube[2], a knowledge and workshop tool developed by several research groups at the Weizenbaum Institute.

[2] See: Cross-Section Format, Digitalisation and Sustainability p. 137



Visit of Saskia Esken (SPD) and Stefan Sauer (CDU), both members of the Bundestag, to the Weizenbaum Institute

In 2020, the Weizenbaum Institute participated in three public consultations: on the federal government's data strategy[3], on the European data strategy[4] and on the expanded EU Digital Education Action Plan[5]. In order to influence a European data area, we call for responsible data handling that is oriented towards the common good. To achieve these objectives, it is essential to empower individuals with regard to their data. This includes both measures to facilitate more individual control over data by establishing the right legal framework and the right technological tools and investment in skills and data literacy. In order to design a European digital education space, we call for a reduction of inequalities and a strengthening of a self-determined digital education. We summarised the relevant responses and positions from the consultation processes in a statement.

In the period under review, Research Group 17, "Trust in Distributed Environments", held continuous talks with selected members of the Bundestag on blockchain technology. In addition, the group was invited to attend several discussion and consultation events with thematic relevance to blockchain, such as the expert discussion "Meet & Greet: Blockchain – Seize the Opportunity" hosted by the CDU/CSU parliamentary party in the German Bundestag and a discussion round on the regulation of crypto currencies organised by the German Institute for International and Security Affairs (SWP).

Our researchers also participated in the drafting of the white paper "Künstliche Intelligenz in der Hochschullehre" (Artificial Intelligence in University Teaching), which was initiated by the AI Campus platform of the Stifterverband der Deutschen Wissenschaft. As one of the editors, Principal Investigator Niels Pinkwart provides an overview of artificial intelligence and learning analytics. In one chapter, Research Group Leader André Renz and Doctoral Candidate Bennet Etsiwah examine the advantages and disadvantages of data culture and AI competence at universities. The white paper was published in August 2020.

On 18 October 2019, Weizenbaum Director Martin Krzywdzinski and Administrative Office Manager Karin-Irene Eiermann received the advisory board members Stefan Sauer, MdB (CDU), and Saskia Esken, MdB (SPD). After a general introduction to the institute's focus and objectives, there was a tour, during which several research groups had the opportunity to present their research and doctoral projects. Ms. Esken resigned from her position on the advisory board at the end of 2019, after she took over the federal chair of the SPD. She was succeeded by Elvan Korkmaz-Emre, MdB (SPD).

On 3 February 2020, MEP Alexandra Geese (Green Party/EFA) visited the Weizenbaum Institute. There was an exchange with Weizenbaum Director Christoph Neuberger and Principal Investigator Martin Emmer on the subject of "Hate and Bullying on the Internet" and the question of how to take effective action against them.

[3] See: https://www.weizenbaum-institut.de/news/konsultationsprozess-datenstrategie/

[4] See: https://www.weizenbaum-institut.de/news/weizenbaum-institut-veroeffentlicht-positionspapier-zur-europaeischen-datenstrategie/

[5] See: https://www.weizenbaum-institut.de/news/weizenbaum-institut-veroeffentlicht-positionspapier-zum-erweiterten-aktionsplan-digitale-bildung/

Many of our researchers are involved in political committees and continue to shape digitalisation:

- **Hanna Krasnova** is a member of the German federal government's high-tech forum.
- **Florian Butollo** is a member of the Enquete Commission of the German Bundestag, titled "Artificial Intelligence – Societal Responsibility and Economic, Social and Environmental Potential".
- **Stefan Ullrich** is a member of the German federal government's council of experts for the Third Equality Report.
- **Martin Emmer, Jeanette Hofmann** and **Gesche Joost** are members of the expert commission for the Third Engagement Report "Future of Civil Society: Young Commitment in the Digital Age" for the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth.
- **Emilija Gagrčin** is a member of the Advisory Council on Youth, which advises the Council of Europe.

BUSINESS

The expansion and consolidation of cooperation with partners from industry is an important strategic goal for the Weizenbaum Institute. Companies, associations and trade unions regard the institute as a competent partner for transferring research results into business. Our scientists contribute their expertise to research-oriented problems in the field of digitalisation in a variety of cooperation and event formats.

In cooperation with the two medium-sized companies EQUEO and TechniData, Research Group 5, "Digital-Driven Business Model Innovations" has developed a procedure for implementing personalised learning solutions in continuing education programmes for companies. In a first step, the research group organised a virtual workshop to introduce personalised digital learning methods and make participants aware of data protection issues. In a second step, individual interviews were conducted with TechniData employees, so that specific learning scenarios could be identified and learning data could be collected and analysed. The results of this cooperation will used to develop adaptive learning technologies.

In the reporting period, Research Group 17 "Trust in Distributed Environments" developed an analytical method for determining security guarantees in blockchain systems. One of these systems is the Stellar network, an open source protocol for value exchange. The tool developed by the group casts light on issues such as the degree of centralisation in the Stellar network and reveals which groups of nodes (in combination, when used with malicious intent) can compromise the security and availability of the system or exercise censorship. The research group is in close exchange with the developer of stellarbeat.io, a monitoring website for the Stellar network that is used extensively by practitioners. Plans are underway to integrate the analytical tool and thus also the analytical methodology into this platform. The developers of the Stellar network will be advised by members of the research group during implementation.

Research Group 1, "Working in Highly Automated Digital-Hybrid Processes", maintains a close exchange with the business world in its projects. This includes, on the one hand, regular presentations and discussions of the research findings with the companies in question in industry and logistics and, on the other hand, cooperation with trade unions, especially with the "Zunkunft der Arbeit" (Future of Work) section of the trade union IG Metall. Within these collaborations, the researchers again presented their work in 2020, for example, at the "Automobilindustrie in der Krise" (Automotive Industry in Crisis) works council meeting, at the opening of the House of Labour at the IG Metall headquarters in Frankfurt am Main and at the "Digitalisierung und Qualifizierung" (Digitalisation and Training) conference of the Hans-Böckler Foundation of the Conference of German Trade Unions. In future, a regular joint series of events is planned with IG Metall's Future of Work section.

Research Group Leader Pablo Porten-Cheé was a guest at the Mining, Chemical and Energy Industrial Union (IGBCE) in Hannover. The IGBCE is currently developing an agenda that reflects the challenges and opportunities of digitalisation. Porten-Cheé contributed to this process and organised several workshops with IGBCE leaders. The aim of these workshops was to sensitise the participants to the factors of political participation. Based on Porten-Cheé's research on new norms of citizenship (e.g. intervention norms), the workshops also addressed newer ideals of citizenship. These findings were used to consider how trade unions can activate new citizenship norms and thus make themselves attractive to broad target groups.

Evening event in the Futurium: Moderator Tobias Hülswitt in conversation with Principal Investigator Gesche Joost, Weizenbaum Director Herbert Zech and Doctoral Candidate Rainer Rehak

CIVIL SOCIETY

In their projects, the researchers at the Weizenbaum Institute address issues of particular relevance to civil society in connection with the digital transformation. To promote the exchange of knowledge, they therefore frequently seek dialogue with citizens and experts from civil society and non-governmental organisations. The knowledge gained was transferred in various event formats and initiatives.

On 10 October 2019, researchers from the Weizenbaum Institute were invited to the Futurium – the Berlin meeting place for discussing future concepts – to share their critical view of the invisible assumptions and hidden evaluations in AI with the audience. The title of the evening event "Künstliche Intelligenz*innen – Die Vorurteile der lernenden Maschine" (Artificial Intelligences – The Prejudices of the Learning Machine) attracted so many interested people that there were not enough seats and folding chairs were needed from the beginning. Doctoral Candidate Rainer Rehak introduced the evening, explained how AI works and made it clear how easily existing social inequalities in AI algorithms can be perpetuated via the training data. Isabella Hermann, scientific coordinator at the Berlin-Brandenburg Academy of Sciences and Humanities, gave a talk on machine learning and worldviews using the example of an algorithmic racism scandal at Google. Michelle Christensen and Florian Conradi, both research group leaders, illustrated the connection between design, gender and computer science in a powerful image and entered into a dialogue with a machine in a self-experiment. Research Group Leader Diana Serbanescu gave a talk on feminism and computer science, which culminated in the presentation of the physicality of an AI algorithm by two dancers from the REPLICA Institute. During the event, the audience could answer questions in real time via their smartphones, such as "What percentage of all AI specialists in the world are female" or "Which research fields have more female than male AI specialists?". At the end of the evening, Weizenbaum Director Herbert Zech, Principal Investigator Gesche Joost and Doctoral Candidate Rainer Rehak held lively discussions with the audience.

Weizenbaum Movie Night: Together with the Gesellschaft für Infomatik e. V. the Weizenbaum Institute presented the film “Plug & Pray” in the Babylon cinema in Berlin.

Together with the Gesellschaft für Informatik e.V., the Weizenbaum Institute presented the film “Plug & Pray”, which deals with the possibilities and consequences of computer technology and artificial intelligence, on 16 October 2019 in the Babylon cinema in Berlin. In the documentary, leading scientists and scholars from the USA, Japan, Italy and Germany present their visions for the future, which are then commented on from a humanistic point of view by our namesake, the computer pioneer Joseph Weizenbaum. The audience was not only taken on a fascinating journey to academic institutions around the world but was also invited to take part in an interactive quiz before the film screening. In addition, Rainer Rehak and Stefan Ullrich from the Weizenbaum Institute and Isabella Hermann from the Berlin-Brandenburg Academy of Sciences and Humanities provided input for this evening, which covered the territory from science fiction pop culture to science.

Bianca Herlo, Andreas Unteidig, Elizabeth Calderón Lüning, Philipp von Becker and Ben Siegler from Research Group 8, “Inequality and Digital Sovereignty”, took part in the Digital City Berlin alliance, which aims to develop a digitalisation strategy for the city of Berlin in a broad dialogue with the public. The alliance was formed after it became known that the Berlin Senate Administration had commissioned a consulting firm to develop the digital strategy, which raised concerns that the focus would be primarily on economic development. “Berlin needs an inclusive digitalisation policy that puts people, nature and the common good at the heart of its concerns”, says the alliance’s first statement. “The process of developing this strategy must be transparent and allow for the active participation of civil society.”

The Berlin Science Week was held for the fourth time from 1 to 10 November 2019. This international festival of science focused on pressing social issues such as AI, climate change and health. Once again, our institute participated with lectures, a theatre production and a stand to make science accessible to a broad audience: in the Weizenbaum Lecture “Law in an Age of Automated Decision-Making”, Senior Research Fellow Dan L. Burk (University of California, Irvine, USA) presented various fields of application of automated decisions in public administration and various applications for determining legal status at the Berlin Science Week and discussed their effects.

In cooperation with Theaterdiscounter, an independent theatre company in Berlin, the Weizenbaum Institute presented an interactive play at the Museum für Naturkunde (Natural History Museum), which was followed by a discussion. The theme of the play “Cultural Revolution” was the changing world of work in Industry 4.0. Following this theatrical pop-up, Research Group Leader Florian Butollo discussed the radical changes in and precarisation of work as well as the potential of robotics to support people together with Nina Galla, an expert from the Enquete Commission on Artificial Intelligence and Werner Rammert, professor of sociology and technology research.

In parallel, Doctoral Candidate Otto Hans-Martin Lutz from Research Group 19, “Digitalisation and Networked Security”, presented his project “Privacy Sonification” at the Berlin Science Week Campus in the Natural History Museum in Berlin. His research focuses on developing a method to acoustically experience the invisible tracking of users on websites.

Together with Theaterdiscounter, the Weizenbaum Institute presents an interactive play at the Natural Museum Museum on the changing world of work

Weizenbaum Director Manfred Hauswirth (left) and Doctoral Candidate Otto Hans-Martin Lutz present the project “Privacy Sonification” at the Berlin Science Week Campus

Research Group 14, “News, Campaigns and the Rationality of Public Discourse”, and Research Group 15, “Digitalisation and the Transnational Public Sphere”, were co-organisers of the annual conference of the digital communication section of the German Communication Association. From 6 to 8 November 2019, under the title “Automating Comunication in the Networked Society: Contexts, Consequences, Critique”, the conference dealt with a little-explored field of digital communication. Do algorithms have a life cycle? How do social bots change political communication? Can algorithms be creative? 29 presentations from 13 countries were selected from over 80 submissions. The conference itself was attended by 132 people. The keynote lecture for this event by Shoshana Zuboff (Harvard University, USA) on surveillance capitalism was part of the Berlin Science Week and attracted about 1,000 listeners to Urania Berlin. She explained how human experience has become a marketable resource. She said it was now possible to trade in predictions about human behaviour and generate a “surveillance dividend” – with incalculable collateral damage to society and democracy.

Economist Shoshana Zuboff giving a lecture on surveillance capitalism at the Berlin Science Week

The Internet Governance Forum (IGF) is an initiative of the United Nations and met for the 14th time from 25 to 29 November 2019 in the Estrel Congress Center in Berlin. At this conference, stakeholders from states, international organisations, private industry, science and civil society will exchange views on internet policy issues. The Weizenbaum Institute was represented and had a stand in the exhibition area. Conference participants had the chance to find out about the institute's manifold activities – from specific research projects to the fellowship programme to cooperation and networking opportunities. A special highlight was the "Meet the Scientist" interactive format: three research groups from the Weizenbaum Institute answered visitors' questions on selected digital topics over two days.

In cooperation with "Wissenschaft im Dialog" (Science in dialogue), the WZB hosted a fictitious court hearing on self-driving cars on 16 December 2019 on its premises. This innovative event format was intended to clarify questions such as: how far along the road to autonomous driving have scientific and technical developments actually progressed? What are the remaining obstacles to the introduction of this technology? By which ethical criteria will we let the algorithms decide in dangerous situations? Doctoral Candidate Rainer Rehak participated in the fictitious court case as an expert witness.

On 20 September 2019, the Weizenbaum Institute responded to Fridays for Future's call for global action against climate change. Researchers from the institute participated in the global climate strike and the demonstration at the Brandenburg Gate in Berlin. As a sign of protest, we took our website offline for 24 hours. For us, sustainability and climate justice are an indispensable part of a networked society and are permanently anchored in our research agenda.

above left: The Weizenbaum Institute at the Internet Governance Forum in Berlin | **above right:** Weizenbaum researchers join the global climate strike and the Fridays for Future demonstration at the Brandenburg Gate in Berlin | **below left:** In a fictional court case about self-driving cars, Doctoral Candidate Rainer Rehak takes on the role of an expert witness

Research group leaders Michelle Christensen (left) and Florian Conradi (right) present their work at the international symposium "Trans/Feminist Hacking – Spaces, Communities, Practices"

SCIENCE

On the one hand, the Weizenbaum Institute's research results are disseminated in classical formats such as journals, edited volumes or conference papers. On the other hand, we have been making intensive use of digital options – intensified by the pandemic since March 2020. How the external activities were transferred to the network has already been explained at the beginning of this contribution.

A newly founded in-house publication series, the Weizenbaum Series, offers our scientists the opportunity to publish their research results promptly and in an open access outlet. In addition, we organise – partly in cooperation with other research institutions – both internal and external events and invite exchange and discussion on current issues in digitalisation research. At the level of the research groups, there are also numerous collaborations with other scientific institutions from all over the world.

In cooperation with TU Berlin, we organised the lecture series "Self-determination in the networked society" during the winter semester 2019/20, in which several scientists from our institute participated. The talks focused on the following questions: How are the goals of individual and societal self-determination being challenged by digitalisation, how can theybe realised in an increasingly digitally networked world and what framework conditions and resourcesare necessary for their realisation? Ina Schieferdecker, Herbert Zech, Hans-Christian Gräfe, Andrea Hamm, Stefan Ullrich, Jacob Kröger and Diana Serbanescu participated in the lecture series and presented their ongoing research on various aspects of digitalisation.

In cooperation with the Einstein Center Digital Future, Research Group 2, “Critical Maker Culture” organised the international symposium “Trans/Feminist Hacking – Spaces, Communities, Practices” from 12 to 13 December 2019. The aim of the event was to exchange and discuss thoughts, experiences and positions on trans/feminist hacker spaces. The symposium also provided a framework for discussing with participants how insights from trans/feminist hacking communities can be incorporated into art and design, open source developments and science.

On 20 and 21 February 2020, the interdisciplinary symposium “Tipping Points. Zum Verhältnis von Freiheit und Restriktion im Urheberrecht” (Tipping Points: On the Relationship between Freedom and Restriction in Copyright Law) of Research Group 16, “Shifts in Norm Setting”, and the expert committee on copyright of the Gesellschaft für Musikwirtschafts- und Musikkulturforschung e. V. (Society for Music Industry and Music Culture Research) could still take place as planned. Digital communication channels blur the line between users and creators. Copyright and related rights used to affect only a few actors in a limited number of sectors. Today, forms of everyday expression are also relevant under copyright law. “Tipping points” are turning points at which the law is faced with new challenges and processes of standardisation and reform become necessary. One such process provisionally ended with the adoption of the European Copyright Directive in March 2019, one of the most controversial projects in the history of intellectual property rights. The aim of the conferencewas to identify further tipping points and to discuss their current and future relevance and their mutual connections. We gave new impetus to the interdisciplinary debate on copyright with this conference, which met with great interest and was quickly booked out.

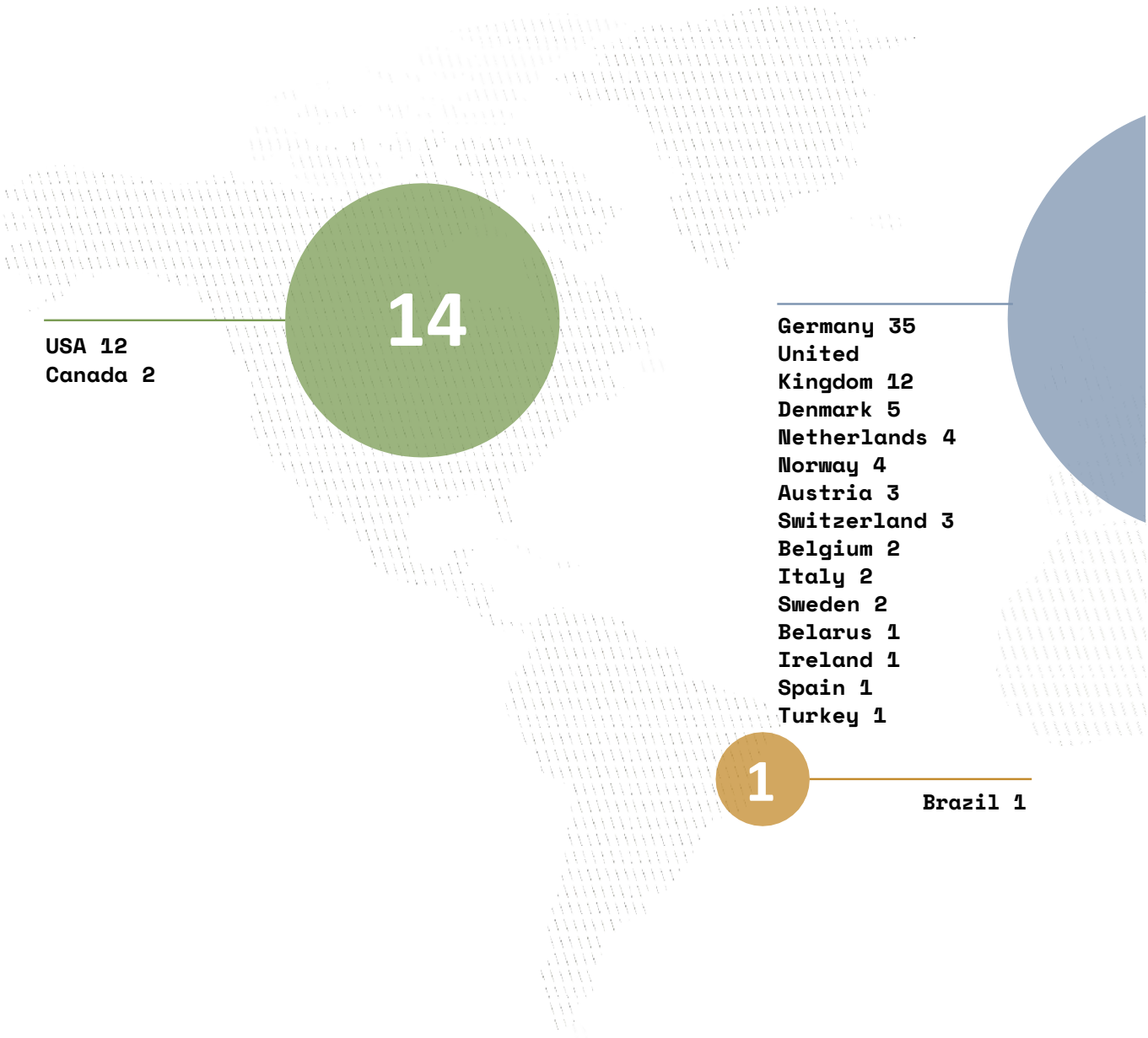
Research Group 17, “Trust in Distributed Environments”, together with Research Fellow Jan Groos (University of Duisburg-Essen), organised an open discussion on 26 February 2020 entitled “Dime and Punishment – Cryptoeconomics as an Art of Government”. Dr. Jaya Klara Brekke (University of Durham, UK), Dr. Benjamin Seibel (Technology Foundation Berlin) and Martin Köppelmann (Gnosis) discussed the use of cryptoeconomics – a form of cooperation based on blockchain technology and the setting of economic incentives – with Jan Groos. The event was very popular and attracted an interested expert audience to the Weizenbaum Institute.

Principal Investigator Axel Metzger and Henning Grosse Ruse-Khan (University of Cambridge) have initiated a cooperation project entitled “Intellectual Property Ordering Beyond Borders”. A first workshop with international participation already took place in summer 2019 at the Weizenbaum Institute. A second workshop, which was held on 29 May 2020 in digital form instead of in Cambridge, explored in greater depth the previously addressed and often little researched interfaces between intellectual property rights and other normative orders, such as trade agreements, treaties and border regimes. Legal insights were supplemented by perspectives from economics, political science and social science. A book on the project is currently being published.

Since November 2019, we have had our own publication series, the Weizenbaum Series. Researchers at the institute can publish current (interim) results here in a timely manner and make them available to various target groups. The series is open to different publication formats such as monographs, technical reports, preprints, working papers and others. The Weizenbaum Series is available in the Social Science Open Access Repository (SSOAR) and on the Weizenbaum Institute’s website. By the end of the reporting period, eleven publications had been published in the series, and many more will follow.

Tipping Points Conference: in their lecture, Weizenbaum researchers Simon Schrör and Sophie Beaucamp address the situation of low-budget musicians in tense field between the interest in monetisation and third-party use

Since 2017, more than 100 research fellows from 25 countries have been at the Weizenbaum Institute.

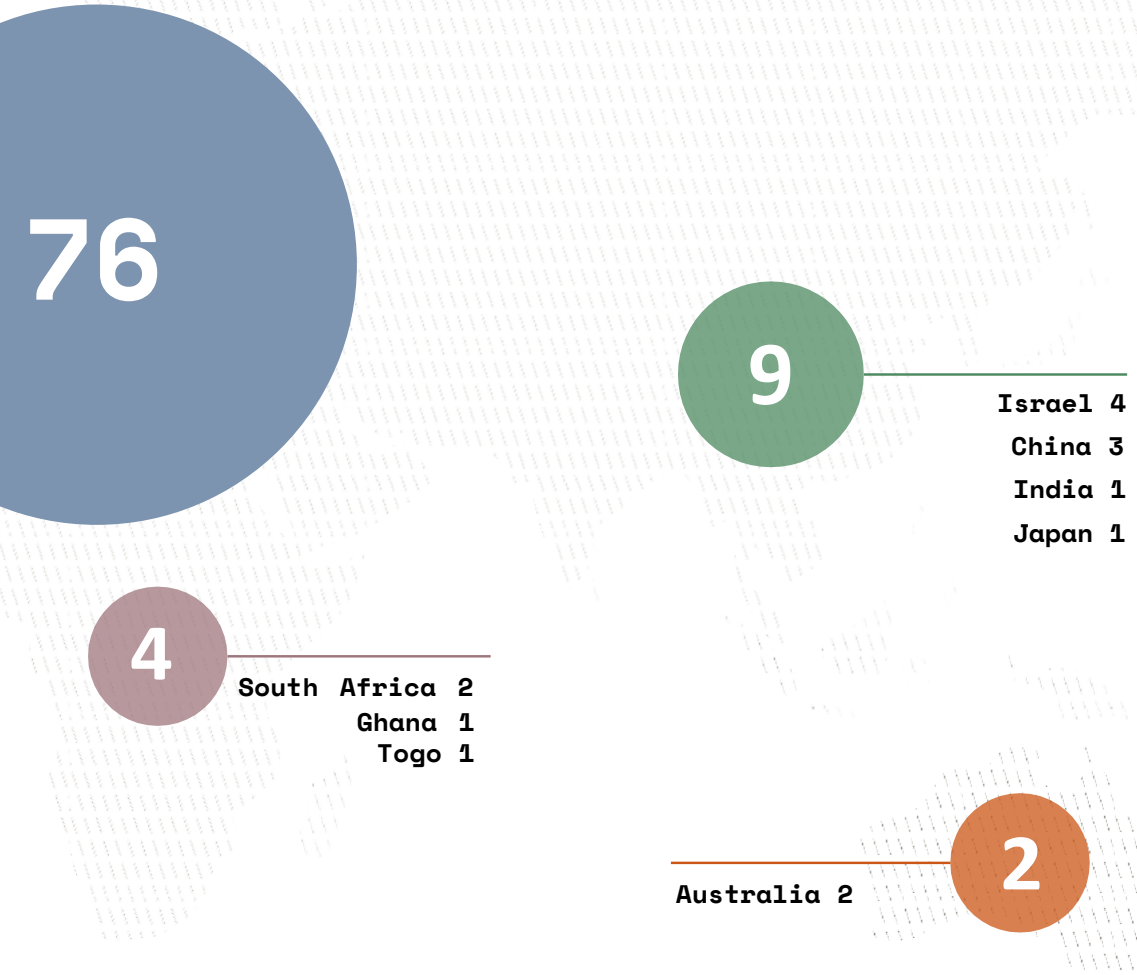


2.4 Internationalisation

Science thrives on cross-border exchange. With this in mind, the Weizenbaum Institute supports its scientists in networking with cooperation partners abroad. In this way, we not only promote the excellence of research collaborations, but also increase the international visibility of the institute.

To achieve these goals, several measures have been implemented since the institute was founded. Within the framework of the fellowship programme, for example, numerous established and emerging researchers from abroad were invited to spend research periods at the Weizenbaum Institute. The latest findings were presented in Fellow Talks, and joint research projects were initiated.

Equally central are the institutional co-operations, which were initiated either by research groups as part of the development of their research priorities or strategically at the level of the directors. These measures are complemented by the Researcher-in-Residence Programme, which enables young researchers to conduct research abroad in order to gain experience at other institutions. In addition, the success of the research groups is also measured by their international visibility, for example, through participation in international conferences and cooperations with scientists from abroad.



The Weizenbaum Institute was visited by various international delegations (for example, from Israel, Cambodia and several African countries) from the worlds of science, media, business and politics. Last but not least, we would like to become more involved in the Network of Centers (NoC), which we joined in 2019. The NoC is a worldwide association of interdisciplinary research institutions dealing with the internet.

This review of a selection of the Weizenbaum Institute's activities in the past year demonstrates the dynamic with which research on the networked society is being driven forward at the institute – a pace that is not being slowed down by the coronavirus: we are producing excellent and fundamental research, oriented towards the common good and socially relevant issues, in constant exchange with colleagues abroad and with the various groups in politics, business and civil society. The next part of this report, the Dossier, provides a deeper insight into the work of the research groups.

III. Dossier

3.1 The ironies of automation

Martin Krzywdzinski, Norbert Gronau, Gergana Vladova and Philip Wotschack

From top left to bottom right: Norbert Gronau, Martin Krzywdzinski, Gergana Vladova and Philip Wotschak

Digital assistance systems are intended to instruct people to operate production facilities in industrial production, even without prior knowledge. In an interdisciplinary project, Research Group 1, “Working in Highly Automated, Digital-Hybrid Processes”, and Research Group 7, “Education and Advanced Training in the Digital Society”, are investigating how well step-by-step instruction delivered exclusively by assistance systems works – and where comprehensive training and personal guidance is needed to convey contextual knowledge.

The current phase of economic digitalisation is characterised by an increased use of autonomous technological systems in many areas. Well-known examples of this are navigation systems in cars or autopilot in aeroplanes. Almost the entire process of take-off, flight and landing is controlled by automatic systems, with pilots and air traffic controllers being responsible for monitoring, correcting errors and intervening in the event of technical failure. Yet, since the pilots can rely on the systems in their daily working lives, it is very difficult for them to mobilise the necessary problem-solving knowledge in the event of a sudden technical failure. The recent crashes of Boeing 737 aircraft in Indonesia and Ethiopia illustrate this problem: in these cases, faulty sensor messages prompted incorrect responses by the autopilot, which in turn led to incorrect responses by the human pilots.

As autonomous technology becomes more complex, its precise functioning becomes increasingly difficult for employees in the fields of operations, maintenance and troubleshooting to understand. This general problem of autonomous systems is known in research as the “ironies of automation”. The need for knowledge and understanding of complex and abstract processes increases while the possibility for direct feedback and learning decreases. In the current discussion on digitalisation, many have looked to the technology itself to provide the solution: “smart” assistance systems are expected to guide employees in solving the problem. In our research project, we want to question this purely technical approach.

Our research project looks at the knowledge and training that employees need when working with highly automated systems and considers how learning processes and work organisation can be designed to successfully impart this knowledge. In order to investigate this, sociologists, business information scientists and industrial psychologists are working together in the project on an interdisciplinary basis. Sociology usually emphasises the importance of investigating work processes in their specific operational context and uses case studies to look at instances of automation, successful, failing or failed. However, in concrete terms, the research project follows the approach of simulating industrial processes in the laboratory under production-like conditions, which is a procedure from business informatics.

For this purpose, we use the Industry 4.0 Center (FAZI) at the Chair of Business Informatics Processes and Systems at the University of Potsdam, with which the Weizenbaum Institute maintains a partnership. FAZI offers a flexible environment that allows researchers to simulate both “rigid” forms of automation controlled by human labour and highly autonomous (“smart”) forms of automation in which machines interact with each other.

The Industry 4.0 Center (FAZI) is a laboratory for production-oriented tasks at the University of Potsdam

To date, far-reaching insights into how the contexts central to social science research (such as team structures, work organisation, task design and interaction processes) can be operationalised in experimental research designs have not been gathered – either in the sociology of work or in business informatics. This means that new ways of experimental design, operationalisation and measurement must be tested.

Our project is designed in two stages. In the first step, we have jointly developed an experiment that deals with the use of digital assistance systems in simple tasks (machine operation). The experiment assumes a highly automated work process in which human workers are responsible for operating the machines (setting parameters, starting work programs) and equipping and monitoring the machines. In this process, they are guided by assistance systems that, similar to a navigation system in a car, tell the workers exactly what they have to do. In the first experiment, one group worked alone under the guidance of the assistance system, while the other group received an additional introduction to the entire work process. The aim was to test how important it is to have a good knowledge of the entire work process, for example, when there are uncertainties and ambiguities in the execution of the work. The working methods and productivity of the test persons in the two scenarios were also examined.

Initial findings from this experiment show that the test persons, who, in addition to being guided by the assistance system, also received a personal introduction to the entire work process, initially made more mistakes when performing the work but achieved a lower number of errors in the final phase. If applied to real employees, this indicates that holistic process knowledge, even in simple machine work, definitely has an added value for companies. This would be a clear argument for investing in skills and training and a clear indication of the limitations of assistance systems.

In this experiment, employees from both groups perceive the assistance systems as helpful – i.e. the group that received an introduction to the overall process and the group that did not receive such an introduction.

At the same time, however, many employees in both groups want human support and assistance. This also points to the limits of digital assistance systems and the need to ensure functioning team communication in work processes.

The results provide initial indications that digital assistance systems alone are not enough to overcome the “ironies of automation”. For the next steps, we plan to broaden out the question to include social context factors and to investigate the connection between the autonomy of technology and the design of work organisation. In the sociology of work, case studies have shown that problem solving in complex automated systems requires a collective problem-solving process in which the knowledge of various actors is mobilised to identify the causes of the disruption and to find appropriate responses. Accordingly, we expect attempts to deal with highly automated production processes to not only require process knowledge but also a form of work organisation that offers employees opportunities and support for engaging in discussion and self-organised communication about problems and problem-solving methods.

3.2 More open data is needed to assess the situation of schools in the pandemic

Stefanie Hecht

Stefanie Hecht is an industrial engineer and is doing her doctorate in Research Group 5, “Data-Driven Business Model Innovations”, at the Weizenbaum Institute

Research Group 5, “Data-Driven Business Model Innovations”, investigates in an exploratory study how education-related open data can be used in an innovative way by apps and data visualisations. In addition to service offers for students and parents, it is also about objectively assessing students’ situations in times of COVID-19. According to the author of the study, there is still too little publicly accessible data for this.

The relevance of data has become especially apparent to us these days: case numbers, new infections or reproduction rates are the data used for making evidence-based policy decisions. The publication of government-collected data of this kind first came to prominence in the Obama administration's Open Government Initiative, which sought to achieve an "unprecedented level of openness in government". On the day of the inauguration of the next holder of that office, the 45th president, the Open Government Initiative and the Twitter account @OpenGov was taken off the White House website.

Nevertheless, it is worth continuing to fight for a transparent, participatory and collaborative government in the spirit of open government. Particularly in the wake of the COVID-19 pandemic, the people who cannot rely on a lobby have become especially evident: children and adolescents who are doing home schooling. This is also reflected in the amount of openly accessible educational data concerning institutions such as schools and universities. The European Data Portal currently holds almost ten thousand education-related data sets. However, with over one million data sets available on the portal, this represents only one percent of the total.

For instance, hardly any data sets, especially in Germany, indicate how digitally well-equipped schools are. Do the schools adopt a bring-your-own-device approach or do they also provide devices for students who do not have their own private ones? How many licences are there for e-learning management systems? And most importantly: given the heterogeneous range of available systems, often due to federalism, which systems are actually used?

A project of Research Group 5, "Data-Driven Business Model Innovations", investigates what examples of open education data exist and how publicly accessible education data are used for service offerings and analyses. Supported by desk research on education-related data sets in European open data portals and interviews with data providers in ministries and authorities, the group explores this subject area.

The first interviews with employees of the ministries of education in the federal states indicate a reluctance to publish educational data. There is great fear among the institutions that socio-demographic data and educational data could be combined with one another and thus allow conclusions to be drawn about residential areas or individual population groups, which always carries the risk of discrimination.

But we are frequently also surprised by grassroots projects such as JedeSchule.de. This information and research platform, operated by the Open Knowledge Foundation, aims to facilitate access to school information. JedeSchule.de uses open education data, in particular from the state statistical offices and the Federal Statistical Office. According to JedeSchule.de, the project will collect and process wide-ranging cross-state school data for the first time.

Open data should ideally be available free of charge. Reuse is thus hardly ever or rarely documented. However, the European Data Portal provides a library of use cases for reusing open data. Use cases from the “Justice, Law & Public Security” and “Regions & Cities” categories rank highest in terms of number of participants.

Only one percent of the listed cases fall into the category “Education, Culture & Sport”. However, this category does not only include educational data that say something about the status quo of schools and universities. 65 percent of the data are cultural data and primarily relevant for tourism. This includes high-resolution image data of works of art from famous European museums, such as the Rijksmuseum in Amsterdam, the Pergamon Museum in Berlin or the Uffizi Gallery in Florence.

Less than 14 percent of the application cases in the “Education, Culture & Sport” category have data concerning formal education. For example, the Irish “School Information Map” provides a free interactive platform to help parents choose a school for their children. The School Information Map collects data from schools throughout Ireland, including their location, contact information and the special services available at the school. Even more detailed is Amsterdam’s *Hoe kies ik een school?*, meaning “How do I choose a school?” Here, parents can find information on the school development concept or denomination. Services such as scholenkeuze.nl provide parents’ opinions on all primary and secondary schools in the Netherlands on various aspects such as equipment, communication and safety.

The British mobile app Coursematch offers an exciting service for all prospective students. Via tags, users describe their own lives, hobbies and interests. Based on these tags, the system suggests suitable courses of study. The service makes choosing a university easier by asking the users how big the university should be and how much travel time it should take to get to the university from home. Here, too, ratings by current students are visible.

There are, therefore, some exemplary projects regarding the reuse of open educational data. Making these services visible is a step towards improving the open data situation and giving a lobby to those who do not have it. This is now more important than ever. To stem the spread of COVID-19, governments in many countries have temporarily closed educational institutions. Existing inequalities within the education system and in other aspects of life have thus been exacerbated in many regions. A use case added to the European data portal at the end of July 2020 gives us an idea of the possible effects: it is a data visualisation of school closures updated weekly by UNESCO.

3.3 African Makers Against COVID-19

Research Group Lead Michelle Christensen and Weizenbaum Fellow Gameli Adzaho were part of organising a digital roundtable together with the African maker scene

Together with participants of a digital roundtable, Research Group 2, “Critical Maker Culture”, discussed responses of the open science movement and the do-it-yourself culture in the fight against the coronavirus pandemic on the African continent. A discussion with Research Group Lead Michelle Christensen and Research Fellow Gameli Adzaho about this digital exchange of experiences in cooperation with Africa Open Science & Hardware and the Einstein Center Digital Future.

When did your research group come up with the idea to organise the "African Makers Against COVID-19" digital roundtable and what were the main insights you wanted to gain with it?

Michelle Christensen: Quickly after the crisis broke out, we saw a multitude of responses to COVID-19 happening in open technology and maker culture globally, including in Berlin. We had Gameli Adzaho with us, who is part of Africa Open Science & Hardware, a platform for enabling sustainable development on the African continent through grassroots research and innovation, and he also observed this immense DIY response taking place in African maker communities. Since one of our research focuses is on maker culture in the global south, we were interested in bringing together representatives from different communities and labs to discuss the responses to the crisis, the challenges that makers are facing and the opportunities that they observe. Representatives from GIZ Togo and Ghana joined in too, because they were also very much interested in projects on personal protective equipment that they saw emerging from the maker communities.

Mr. Adzaho, you are engaged in Labs in Ghana and also in transnational networks of maker spaces. How can West African maker spaces be described?

Gameli Adzaho: Traditionally, making is very much a response to day-to-day challenges. For example, informal repair services are widely used. Also, the interest in technology to build up businesses is very high, especially among young people. Increasingly, people are using technology not only in a business-oriented way, but to solve day-to-day problems like access to energy or environmental issues.

To address these challenges effectively, it becomes more important not just to practise as individuals, but collectively, and this is the idea of all kinds of groups, networks and labs. We have a great variety of collectives: from innovation spaces for the development of prototypes, maker spaces, where people work on hardware and do-it-yourself-projects, education spaces that offer workshops and trainings, to networks like my Global Lab Network, where we are interested in applying science and technology for sustainable development.

How did you choose the participants for the roundtable event?

Michelle Christensen: The first roundtable focused mainly on responses in West Africa, which has a very vibrant maker scene. We had visited Ghana and Togo last year and met a lot of initiatives – so, together with Africa OSH, we engaged this network to help us to locate heterogeneous projects responding to the pandemic. Through this collaboration, we managed to bring together speakers from maker communities in Ghana, Togo, Senegal, Cameroon and Nigeria, as well as more than 40 participants from various other countries, on very short notice.

What lessons could be learned during the event about the responses of grassroots makers to COVID-19?

Gameli Adzaho: I think the immediate COVID-19 challenge is on three main dimensions. How can we prevent the disease from reaching many people? How will we be able to test for the virus? And how can we treat those affected?

Like everywhere else in the world, there was a lack of access to personal protection equipment, a lack of access to laboratory tests and strained medical services, with a lack of ventilators. To meet these challenges, the African makers used what was at their disposal – household tools, sewing machines, 3D printers, etc., to make face masks and shields, touchless handwashing stations, ventilators, and also mask straps to make the wearing of masks more comfortable. Others like do-it-yourself thermometers and rapid diagnostic kits are in the pipeline. The creativity and adaptability exhibited are worth noting.

What did you learn about the processes and collaborations underlying making in response to COVID-19?

Michelle Christensen: These bottom-up labs and networks often act as hubs for bringing different perspectives into conversation: communities in the neighbourhoods in which they are embedded, youth who are interested in technology and want to build an idea, the global open tech community who share code, knowledge and perspectives, as well as often entering into an exchange with academic institutions and research institutes.

But what we've furthermore seen in the context of COVID-19 is also a strong link happening to political institutions, as governments quickly observed the potential that these spaces and their projects could have in regard to acting within the crisis.

Gameli Adzaho: It is touching to see the increasing attention on the maker and open science movement in Africa. We have never seen this focus before. Health ministries are interested in collaboration and there is also a lot of media attention and appreciation in the communities. People saw that makers were creating practical and very useful things and they began to see the benefits beyond the products: for example, that these spaces offer an opportunity for young people to build their skills or even earn extra income.

What where the main challenges that the projects reported?

Gameli Adzaho: Funding is of course always a big challenge, as was accessing parts and supplies, because of interrupted supply chains. Some participants reported that they had to rely on universities or other institutions for tools and materials. Others reported problems with scaling up their production to meet the high demand. With masks and shields, it was mostly possible to scale quickly, but for more complex products like touchless handwashing stations or ventilators, the demands of communities and health facilities were much higher than the produced outcomes. The absence of official validation procedures for products was also a problem, especially for the implementation of ventilators.

Do you see possibilities to strengthen maker communities in West Africa and other low- and middle-income countries in their fight against COVID-19?

Michelle Christensen: Based on the discussions that unfolded during the round table, we could see the importance of even further strengthening the dialogue between spaces of open science and making. Sharing experiences and challenges concerning everything from production and prototyping, organisation and funding, distribution and validation, and not least about the attitude and positioning of the maker community itself is of great importance. And furthermore, these actors need to be at the table when it comes to developing further policy and funding programs in this area. There is so much capacity already out there – spaces, equipment, skills and people who want to act locally whilst embedded in a global open knowledge network – in a crisis like the coronavirus pandemic, such a bottom-up approach would really be to the benefit of all parties.

Thank you very much for the interview.

The speakers at this event included: Joshua Opoku Agyemang Otoo (IoT Network Hub, Ghana), Dr. Khadidiatou Sall (SN3D-COVID19, Senegal), Ousia Foli-Bebe (Eco-Tec Lab, Togo), Obasegun Ayodele (Vilsquare Makers' Hub, Nigeria), Nadine Mowoh (Mboalab, Cameroon) and Evans Djangbah (Kumasi Hive, Ghana).

The interview was conducted in English

3.4 Digital communication of right-wing populist parties

Michael Vaughan, Susanne Reinhardt, Vadim Voskresenskii, Matthias Hoffmann, Annett Heft and Barbara Pfetsch

Research Group 15, “Digitalisation and the Transnational Public Sphere”: (from left) Vadim Voskresenskii, Susanne Reinhardt, Annika Schütz, Annett Heft, Carolin Stock, Michael Vaughn and Matthias Hoffmann

In a large-scale research project, Research Group 15, “Digitalisation and the Transnational Public Sphere”, investigates patterns of digital communication of right-wing populist parties in six European countries. The team around Research Group Leader Annett Heft reports on the findings from the analysis of party communication in social networks and on websites in the context of the 2019 European elections.

The 2019 European Parliament (EP) elections entailed a major test for European democracy: Populist parties on the right had gained ground throughout Europe in 2014 and now election commentators speculated that their growing gains in national elections suggested that they could build on this success at European level. In the course of the election campaign, this would add another burden to the political project of European integration. Although the election results did not confirm all the fears, it was clear that the right-wing populist parties were able to consolidate their representation in the parliament and in some cases achieved spectacular successes, such as the Italian Lega.

Although a transnational public sphere across Europe has always been associated with more European democracy, 2019 showed greater cross-border collaboration among populist challengers to the system. For example, after Matteo Salvini met with populist counterparts in Poland's Law and Justice (PiS) party in January of 2019, he explicitly called for an "Italian-Polish axis" in the EP to challenge the influence of centrist parties in Germany and France.

The core of right-wing populist communication is tied to the internet. Digital technologies allow new kinds of actors to thrive in an increasingly fragmented public sphere, bypassing traditional news media gatekeepers and speaking directly to enclaves of disaffection. At the same time, digital communications offer new possibilities to form networks across national boundaries. Thus, parties and individuals that are marginalised within their own domestic politics are in the position to exchange information and build alliances with like-minded actors abroad.

Against this background, our research group asks to what extent do digital communications enhance the Europeanisation of the radical right? To answer this question, we have been conducting a major research project investigating party communications on Facebook, Twitter and websites across six European countries in the 2019 EP campaign. We included countries in which right-wing parties hold different positions. Austria's Freiheitliche Partei Österreich (FPÖ), Italy's Lega and Poland's (PiS) have been established and hold significant power or government positions. France's Rassemblement National (RN), Germany's Alternative für Deutschland (AfD), and Sweden's Sverigedemokraterna (SD) have been kept at the margins of their political systems. Using innovative computer-based methods, we searched for evidence of transnational networks between these right-wing populist parties in the election campaign. We also examined the themes of right-wing populist parties, how much they resembled each other or where their agendas differed.

Our data does not reveal the presence of a single, integrated network of the European radical right. Instead, we find that radical right parties are much more likely to establish and reinforce links within their own national-level community. For example, the AfD tweets connect primarily to members of their own party. Nevertheless, there are some situations where European linkages do occur, and two factors prove particularly significant in our data to explain when and why.

We find that transnationalisation is more likely between parties that share a parliamentary party affiliation and thus work together ideologically and organisationally.

For example, around 20 percent of the digital connections of the Polish PiS refer to the European Conservatives and Reformists group in the EP. After the 2019 elections, a number of right-wing populist parties joined together to form the new Identity and Democracy group. We can expect potentially greater transnationalisation over the current term of the European Parliament.

Second, transnationality is more pronounced among citizens and civil society actors engaging with right-wing parties, as opposed to the parties themselves. In other words, the German public engaging with the AfD using Twitter are more prone to react and connect transnationally, such as with the Italian Lega or the RN, than the politicians are.

Thus, right-wing Europeanisation is sustained by a dynamic that emerges from bottom up more than from a top-down organisation. This finding is important because it suggests that political entrepreneurs at the grassroots level will be the basis for right-wing transnationalisation in the future.

Transnationalisation here means that parties raise the same issues in the same time periods in their digital communications. Structural topic modelling allows us to not only find the main themes raised and observe how the estimated proportions of these themes changed over time.

In addition to general campaigning information, two issues unite right-wing parties on a transnational level: immigration issues and blaming the elites. The intensity of these shared issues varies according to the individual party and is influenced by individual factors, however, such as the political role in a government and their ideological stances. Part of the transnational potential for these issues is the way they can be adapted and localised to suit individual country contexts.

For instance, in the case of immigration, the German AfD focuses on crimes committed by migrants, the economy and asylum policy, while the Swedish SD focuses mostly on cultural aspects of immigration, such as Islamisation and terrorism. Such a difference can be explained by the particularly strong ideological stance of the SD, which rejects multiculturalism and puts an effort into distinguishing “culturally similar Swedes” from other ethnic groups.

All right-wing parties in our study share the disposition of blaming the elites. However, they are also adapting this issue to national contexts. Outsider parties in oppositional roles, like in Germany, Sweden and France, are more focused on criticising the established political parties and media. We interpret this as a strategic choice in the fight with political competitors. Right-wing parties in government like the Lega in Italy, PiS in Poland and the FPÖ in Austria, which arguably hold more elite power themselves, shift the blame to the European level by jumping on issues of EU scepticism.

The coronavirus pandemic, with its intertwined health and economic crises, is increasing the pressure on liberal democratic institutions and European democracy. Against this background, the role of digitalisation in threatening European democracy, and in particular the transnationalisation of right-wing actors in the political system, will continue to occupy us.

3.5 An AI test for Europe

Ferdinand Müller



Interdisciplinary project team: (from left to right) Ferdinand Müller, Martin Schüßler and Elsa Kirchner

Lawyer Ferdinand Müller (Research Group 16, “Shifts in Norm Setting) and Computer Scientist Martin Schüßler (Research Group 20, “Criticality of AI-Based Systems”) have worked in an interdisciplinary team together with Elsa Kirchner, a biologist and computer scientist from the German Research Centre for Artificial Intelligence (DFKI), to develop a proposal for assessing the risks of algorithmic decision systems.

Artificial intelligence, in the form of fully or partially automated algorithmic decision systems, is being used in more and more areas of application. Such systems are used, for example, for SCHUFA credit checks, for high-frequency trading on the stock exchange, for the pre-selection of letters of application in human resources management, for self-driving vehicles or for the evaluation of medical image data in areas such as prenatal medicine or cancer detection.

A special feature of algorithmic decision systems (ADS) is that they can process extremely large amounts of data in a relatively short time because they are decoupled from human input. Under certain circumstances, these systems rely on very complex models, which makes it difficult or even impossible to reconstruct the results afterwards.

Many states are currently considering creating new laws for ADS. At EU level, the European Commission presented the White Paper on Artificial Intelligence in mid-February 2020, incorporating previous recommendations such as the expert opinion of the High Level Expert Group on Artificial Intelligence. However, the White Paper is still far from providing a solution in the form of concrete regulation.

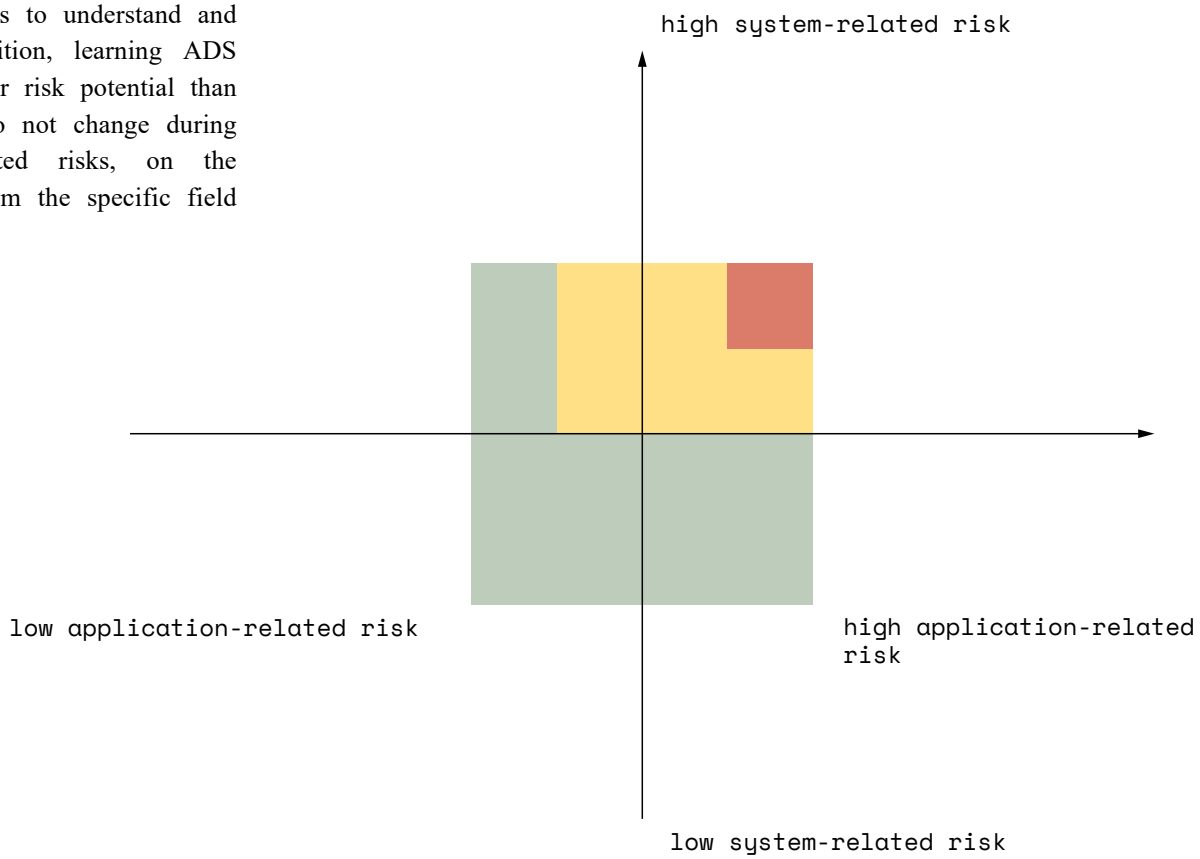
What unites all the expert opinions and strategies for regulating ADS presented so far is the pursuit of a structured criticality or risk assessment. A model that was presented by the Data Ethics Commission set up by the German federal government in its report published in 2019 has attracted a lot of attention. The model is based on a classical risk assessment. On the one hand, it considers the severity of the possible damage that a specific technology can cause, and on the other hand, the probability of the damage occurring. Taking into account the two factors of severity and probability of occurrence, the overall result is the classification of a technology on a risk ladder or pyramid. Depending on the classification, regulatory follow-up may be necessary. This follow-up could, for example, take the form of a specific authorisation procedure (for applications with a significant potential for harm) or self-regulation obligations (for applications with a lower potential for harm).

As an alternative to this classical risk assessment, we propose a modified procedure which, in our opinion, better reflects the specificities of ADS. Because ADS can be applied in a variety of areas and in many forms, this makes it difficult to classify them uniformly on a single scale. We therefore believe that a matrix is more suitable for risk assessment than a one-step pyramid. The matrix model, which we propose as an alternative, focuses on the qualitative assessment of risks. At the same time, the matrix should enable its users to identify concrete measures for action.

Instead of assessing the “severity” and “probability of occurrence”, the matrix considers, on the one hand, “system-related risks” resulting from the ADS technology in question and on the other hand “application-related risks” resulting from the specific use of the technology.

System-related risks are those caused by the algorithm, model or training data on which an ADS system is based. This can lead to systematic distortions of the result (also known as “biased AI”), which can emerge due to an incomplete or short-sighted selection of decision-relevant parameters. Another problem is the lack of transparency in some ADS systems, the results of which are difficult or impossible for humans to understand and thus correct. In addition, learning ADS systems have a higher risk potential than those systems that do not change during use. Application-related risks, on the other hand, result from the specific field of application.

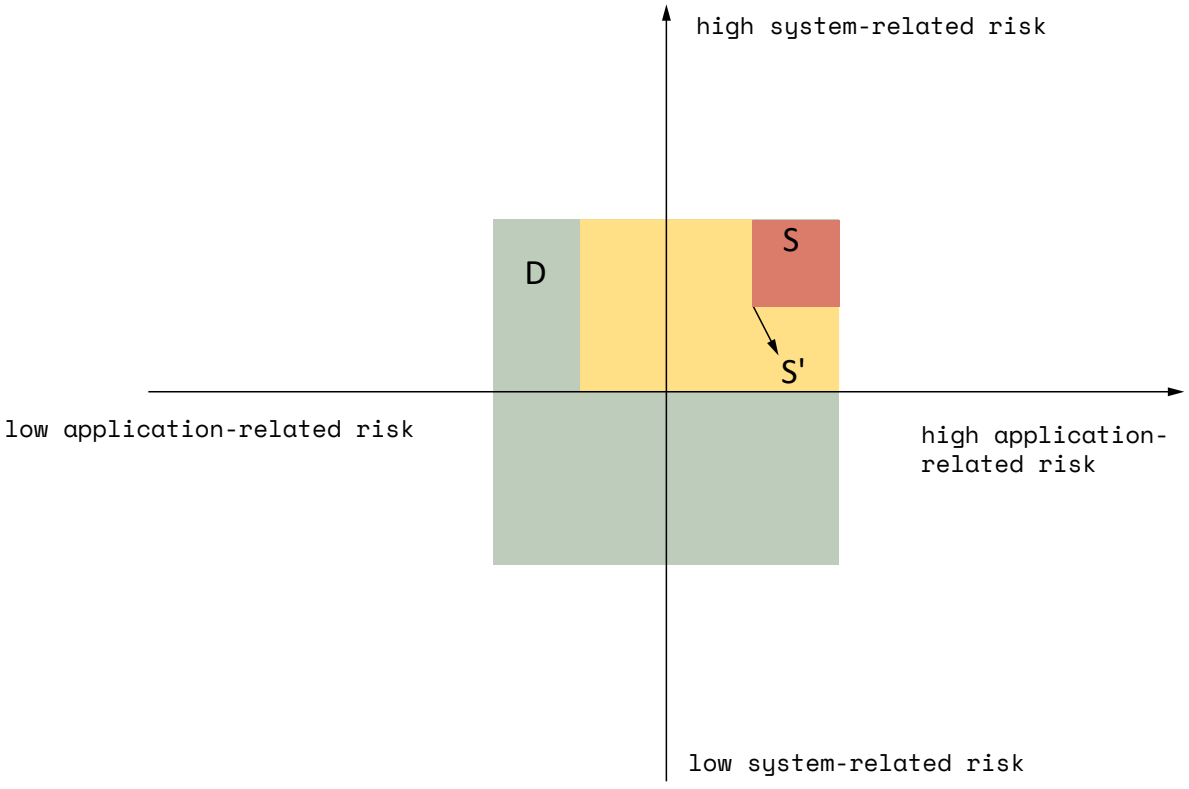
The use of ADS to predict the probability of recidivism among criminals affects other legal rights than the use of ADS in high-frequency trading on the stock exchange or in the evaluation of medical image data.



By weighing up the system- and application-related risks, interested parties can identified the dangers of using ADS. Technologies located in the green area of the matrix require comparatively little regulation; technologies in the yellow to red area require sophisticated regulation. An example would be the introduction of operator liability, combined with compulsory insurance.

Two examples illustrate how the matrix works:

Example D:
A dating app is not transparent due to the large number of parameters and decision-making levels used, i.e. its results are difficult or impossible for people to interpret. This represents a high system-related risk. At the same time, the application-related risk is relatively low. Users of a dating app do not have to fear physical or financial damage. They have voluntarily decided to use the app as part of a contractual relationship. Despite the high system-related risk, such a dating app is therefore located in the green area.



A dating app (D) and an ADS to calculate the probability of recidivism of offenders (O) in a risk assessment

Example O:
In the United States, algorithmic decision-making systems have been used for some time by judges to calculate the probability of recidivism of suspected offenders. These systems are intended to generate suggestions for decisions on issues relating to bail or release on probation. This application thus indirectly affects the personal freedom of the person concerned. Moreover, individuals cannot escape such an application because it is applied by the state. Accordingly, there is already a high application-related risk from the outset.

At the same time, studies show that there is a high systemic risk in the form of possible distortions in the results. The software COMPAS (Correctional Offender Management Profiling for Alternative Sanctions), for example, uses 137 parameters to calculate the probability of recidivism. The calculation includes static factors, such as the accused person's education, their neighbourhood or the length of the criminal record. However, researchers were able to show in 2016 that the algorithm leads to an increase in inequalities. For people of colour, the system incorrectly assumed too high a probability of reoffending. In this way, existing inequalities are reinforced by the use of ADS technology. Another group of researchers has proposed a way of mitigating this problem. This group succeeded in reducing distortion and improving comprehensibility by reducing the number of parameters used. Following this strategy could theoretically reduce the systemic risks of software such as COMPAS to such an extent that the application could be moved from the red to the yellow area (from O to O'). The example thus shows how the matrix not only facilitates the classification of a technology as green, yellow or red, but also draws attention to practical measures that could be taken to reduce the risk.

3.6 Digital and Open Science at the Weizenbaum Institute

Sonja Schimmler is head of Research Group 11, “Digitalisation and Science”, at the Weizenbaum Institute and conducts research on topics such as data science, software engineering and human-centred computing

Sonja Schimmler, head of Research Group 11, “Digitalisation and Science”, explains in an interview how she and her team support the researchers of the Weizenbaum Institute in designing their research and publication processes and how they are developing an open science infrastructure tailored to the needs of users.

Digital technologies create new ways of collaborating and communicating and thus have a significant impact on scientific work. How can digitalisation help to support research at the Weizenbaum Institute?

The Weizenbaum Institute was founded recently and many of its researchers are at the beginning of their careers. We see this context as an opportunity to think about digitalisation from the very beginning and to create a future-proof open science infrastructure. The institute is quite unique in the German research landscape. Interdisciplinary research is an actively lived reality at the institute, and a range of quite different research practices are in use. It is very exciting for us to operate in this environment.

What role do open science and open data play here?

The Weizenbaum Institute has set itself the goal of working as openly and transparently as possible and has firmly anchored this in its institutional culture. This goal naturally influences the work of the researchers at the institute. We would like to set the course to achieve this goal through our work. We are concentrating on establishing an open science concurrent research information system to realising this technically, it is important to us to sensitise researchers to the topic and train them accordingly. In this regard, for example, we held a methods workshop together with Wikimedia, where our researchers were able to get practical tips from experts. Also, together with other authors, we have produced a guide on how data from qualitative research can be opened and shared. A further guide is currently being planned, which will deal with social media data.

Your work focuses on the conception, development and evaluation of an open science infrastructure for research at the Weizenbaum Institute. How can we imagine this in concrete terms?

We are interested in technical systems that support the life cycle of research data, i.e. from collecting and creating, processing and analysing to archiving, sharing and reusing data. Specifically, we are concerned with issues like with making the origin of data traceable using blockchain technologies or measuring and potentially improving the quality of metadata using machine learning methods. Over the past two years, we have overseen the establishment of the Weizenbaum Library, a repository for publications and research data. This system will be available at the end of the year. In the next two years, we will then add further functionalities to the system and thus tailor it to the needs of the researchers at the Weizenbaum Institute to an even greater extent. Furthermore, there are plans to implement a concurrent research information system for the institute, which will improve how the institute presents itself to the public and its internal monitoring. The system will bundle information on researchers, research activities and research results.

The first component of this infrastructure is the Weizenbaum Library, are pository for publications and research data. What advantages does the system you have developed offer?

To put it simply, we are creating a web application through which the researchers of the Weizenbaum Institute can present their research results and make them available to the public for further use. All digital objects are brought together in the system. This specifically includes all publications and research data that the institute's researchers have made available under a free licence – and also multimedia content such as the Weizenbaum Podcast in the future. Other Weizenbaum publication formats, such as the Weizenbaum Conference Proceedings and the Weizenbaum Journal, which will appear several times a year and will start next year, will also be bundled in the Weizenbaum Library.

To what extent do you coordinate with other actors from the scientific community?

The Weizenbaum Institute has offered us the opportunity to implement and test an open science infrastructure specially adapted to interdisciplinary research. The experience gained can serve as a blueprint for other institutions later on. We are in active exchange with the Berlin University Alliance, the excellence network of the FU Berlin, HU Berlin, TU Berlin and Charité. We coordinate closely and mutually benefit from the expertise and knowledge gained.

For example, we are currently working on the “Open Science by Design” project. We are also actively involved in the NFDI Initiative, which aims to establish a national research data infrastructure. For example, we published a paper together with other authors that addresses cross-cutting issues in the NFDI and was signed by almost 30 consortia.

In addition to implementing the open science infrastructure, you and your group are also advising on the process scientifically. How do you go about this?

We see the Weizenbaum Institute as one of our research subjects. For example, in parallel to the establishment of the Weizenbaum Library, we were regularly publishing on a number of scientific activities. To inform the requirements analysis, we conducted and analysed qualitative interviews with researchers at the institute in order to better understand their needs. Likewise, when a suitable software solution for implementing the Weizenbaum Library was being selected, we also evaluated the various systems in detail. In addition, we regularly design, develop and evaluate tools to support the life cycle of research data. It is important to us that these systems are actually applicable and usable, so that they offer real added value for the researchers.

Thank you very much for the interview.

3.7 Can technology replace trust?

Sophie Beaucamp, Moritz Becker, Martin Florian,
Sebastian Henningsen and Ingolf Pernice

Research Group 17, “Trust in Distributed Environments”: (From left to right) Martin Florian, Ingolf Pernice, Sophie Beaucamp, Sebastian Henningsen and Moritz Becker

Decentralised systems such as bitcoin are very popular because the way they operate and the data stored in them are transparent. Do such systems therefore do away with the need for trust? Can trust be replaced in the future by error-free, blockchain-based technical systems? The utopia and reality of a society without trust is the subject of the following essay. The authors Sophie Beaucamp, Moritz Becker, Sebastian Henningsen and Ingolf Pernice are members of Research Group 17 “Trust in Distributed Environments”. Co-Author Martin Florian heads the research group.

Trust is a central foundation of our societal co-existence. We trust friends, partners or relatives, and not only in our private lives. Stock exchange transactions, political decisions, our legal system and the Internet would also be unthinkable without relying on actors and institutions. Risky situations in which one has to derive expectations regarding the (unknown) future behaviour of others particularly require trust. In the digitalised society, we are constantly confronted with such situations: for example, when selling items on online platforms or using dating apps to find a partner, we can only assess strangers on the basis of their profile and their ratings and have to trust in them to behave benevolently. According to Niklas Luhmann, trust is a "basic fact of social life", without which we could not cope with the imponderables and complexities of modern society.

In the context of digitalisation, there is a growing number of voices suggesting that the need for trust could be reduced or that trust itself could even be completely replaced by the use of technological systems. The basic idea is to replace human and institutional action - which is trust-demanding and often error-prone - with deterministic and error-free technology. In particular, the blockchain technology introduced in 2008 plays an important role in this context: According to the inventor of Bitcoin, known under his pseudonym Satoshi Nakamoto, it allows transactions between individuals "without having to trust". A journalist from the Economist even stated in 2015 that blockchain "creates trust". Others argue that blockchain technology changes the nature of trust or eliminates its necessity and makes a society without trust possible. In such a society, trust would become obsolete, since all interactions between individuals would be precisely regulated by technology, as with a cybernetic machine.

Can (blockchain) technology really do that? Should we trust it? Our research illustrates that complex technical systems are rarely perfect. For example, we uncovered a potential way of attacking participants in the Ethereum Network. Ethereum, the second most important blockchain after Bitcoin in terms of the market capitalisation of its underlying cryptocurrency, is particularly popular as a platform for "decentralised finance".

The term stands for a combination of classical financial concepts and products that we are familiar with from the banking industry with blockchain technology. For example, some products that are being developed make it possible for users to lend cryptocurrency and receive interest in return. The vulnerability we identified allowed participants to be isolated from the rest of the network and their virtual money to be stolen. The software underlying the network was "repaired", in collaboration with developers from the Ethereum Foundation and this vulnerability was largely closed. This example shows that trust in the manufacturers and operators of the technology must be maintained. At the same time, it reveals the need for human intervention to keep the technical system in functioning condition.

When technical systems are used to enforce legal standards, for example when Internet platforms automatically detect and block copyright infringements – in such cases, at the very latest, the possibility for human intervention should also remain for legal reasons. If we assume a perfectly functioning.

technical system that simply makes infringements of rights impossible, the question arises in the spirit of Joseph Weizenbaum, the man after whom our institute is named: would the use of such a system even be desirable? Should society's trust in citizens' compliance with the law (combined with an ex-post possibility of enforcement) be replaced by fully technical ex-ante enforcement?

Many blockchain proponents seem to largely agree with regards to economic transactions or at least accept technical law enforcement in order to achieve more "decentralisation" and thus disempower financial service providers and (central) banks, which they do not perceive as trustworthy. Under the guise of decentralised finance, such proponents seek to extend the subversive idea underlying Bitcoin – digital money beyond state control – to a wide range of financial services and instruments. Particularly many innovations are focused on the design of novel currencies. While almost 6,000 so-called cryptocurrencies are being traded, they can hardly be used as alternative currencies. Perhaps the biggest obstacle here is the inherent price instability. The lack of clear concepts for assessing the intrinsic value of digital tokens could destabilise trading patterns on stock exchanges. Some initial empirical investigations that we have conducted as part of our work support this thesis. In 2019, we published a paper on practical projects for price stabilisation in cryptocurrencies. It became clear that many of the projects studied are struggling with the technical and economic realities. A good third of the of the 24 analysed projects ignore insights from economic history and could become the target of speculative exchange rate attacks. Almost two thirds, like Facebook's Libra, use the simple procedure of full collateralisation using traditional, financial values. However, the financial securities remain deposited with the distributing company or traditional banks – the idea that this does "not require trust" clearly seems out of place.

More and more practitioners are also becoming aware of the limits of "trustlessness". Interviews that we have conducted with developers in the blockchain scene show that trust is seen as an important element in the implementation of blockchain-based systems. These need a social layer and are based to a large extent on trust in the community.

It is unlikely and also undesirable that technical systems will ever completely replace human trust. At the same time, however, the symbolic role of new technology is becoming clear. There will probably never be a society without trust, but as a myth it already exists. Within the blockchain community, for example, it is inspiring numerous software developers and entrepreneurs and motivating innovations and ambitious digitalisation projects that pursue progressive goals such as making work easier through automation, technically guaranteed transparency or improved interoperability of previously isolated subsystems. In other words, ventures that can lead to improvements – and that might never have come about without strong shared myths.

3.8 Design must come to the table!

Bianca Herlo is a design researcher and heads Research Group 8, “Inequality and Digital Sovereignty”, at the Weizenbaum Institute

Bianca Herlo, head of Research Group 8, “Inequality and Digital Sovereignty”, explains in an interview what social negotiation processes for the use of digital technologies might also look like in times of coronavirus – and what role design research plays in this.

Ms Herlo, similar to some of your colleagues, the coronavirus crisis broke out for you just before a major scientific meeting that you had planned ...

We had organised a symposium titled "Practicing Sovereignty. Means of Digital Involvement" on the topic of digital Sovereignty, which has become particularly relevant in the course of the digitalisation wave during the COVID-19 pandemic. The symposium should have been accompanied by an exhibition at the Berlin University of the Arts in which artists, activists and design researchers dealing with the topic of digital sovereignty were set to present their work. Among them was a work by Adam Harvey, who is now a fellow in Research Group 8. As a designer and activist, Harvey is deeply concerned with facial recognition. For his portrait photo on our institute's website, for example, he used a technology that prevents common face recognition software from reading the image and identifying him in the picture. Unfortunately, in March, we had to cancel the event one day before the opening. To this end, we are now publishing an edited volume with a documentation of the exhibition objects and essays by the invited speakers, including a contribution by human rights activist Renata Avila, who, as a lawyer, strongly advocates for bringing design "into the decision-making room". The volume "Practicing Sovereignty in Times of Crisis. Means of Digital Involvement" now addresses the current state of crisis, which has become even more relevant due to the global pandemic, to analyse new possibilities for social participation and policy-making and to present alternative technological practices.

What does design as a research approach have to do with the topic of "digital sovereignty"?

Maybe I should start by saying that I don't just understand "design" as the designing of objects. This term also includes the design of processes and systems, including the enabling and moderation of social negotiations. In my opinion, design does not provide solutions, but a framework – and it can make a significant contribution to identifying problems. It offers participatory opportunities to integrate different perspectives, interests and knowledge bases. If you like, this goes all the way into policy-making – in this case, into addressing issues of inequality, surveillance and manipulation that are linked to digital technologies. As design researchers we believe that design, as a genuinely cross-sectional discipline, should be much more strongly integrated into shaping and moderating social negotiation processes.

How does the approach of design research differ from other scientific approaches?

In many ways, for example, in the way meaning is assigned and connections are represented. An important aspect is that design research is distinguished by its methods. We not only use language-based formats such as interviews but also make use of technology and materiality. Time and again, our experience has shown: There is a very special form of knowledge that is brought to light in the process of making, one which has a different quality than a purely intellectual debate.

How can this be imagined?

One method that we often use as a building block in the process is collaborative mapping. For example, we use wooden blocks, icons and labels. All this is arranged on a paintable table mat. The participants use these tools to build a shared model. This can be a spatial ensemble in a city or something much more abstract, like a concept for a digital application or a sequence of chronological stations for delivering a medical service. In this context, we use the term “boundary objects”, which originated in the sociology of technology. Boundary objects are not only materialised ideas but knowledge-generating objects. It is therefore not only a matter of doing things together but also of reflecting on them.

Does the group carrying out a collaborative mapping agree on a common opinion at the end?

For such a process – whether it happens in a single workshop or in a practice-based research project – there is a helpful scheme: – analysis, projection, synthesis (after Wolfgang Jonas). You start with the question: What kind of situation do we have?And how does this situation present itself from the perspective of the various groups in society? Then the projection, the transfer into the future: What can we do, how can we ideally imagine it? Finally, the synthesis or consideration: what is feasible under the existing conditions? What risks are more important and which ones are less so? It is primarily about the reasons advanced for or against decisions, the differentiated visualisation of social problems, needs and interests and how decisions bear on these interests.

Back to the topic of digital sovereignty! To what extent do you think the Corona-Warn app, which has been around since the summer, would have taken a different form if it had come about through a negotiation process, as you describe it?

I don't know if the Corona-Warn app would have taken a different form; the question is very difficult to answer. I believe that the basic decision could have been made in a more differentiated way, it seems to me that, from the outset, too much emphasis was placed on a technological solution to a complex problem. In any case, coronavirus has shown us that we need other tools to be able to act collectively in crisis situations. Design approaches have the potential to provide a good basis for a more robust response to future crises. My guess is that if there had been a participatory process, a colourful bouquet of different, smaller but more targeted measures would have been adopted instead of a warning app.

And the app itself? The civil society developer community has had a relatively strong influence on the development in recent months, and the app was partly technically developed under open source rules. What would have been different here if design and design research had played a more active role in the process?

Right from the start, the Corona-Warn app had a strong symbolic charge. Hopes were pinned on it almost as if it were a vaccine, even though it was and still is completely unclear what concrete successes will actually be achieved with it, because the interim results so far look mixed. At the same time, the risks were initially underestimated. In a first version of the app, for example, a central storage of data was planned, despite objections from the data protection side. Only after a lengthy debate and after criticism, for example, from civil society actors, but not least because of the necessary programme interfaces, did policymakers switch to a decentralised solution. However, despite the time delay and given the immense pressure, the process went well and the publication of the source code was extremely important. But the question of the implementation of such an app, its practicability and integration, i.e. the concrete hurdles in practice, would certainly have been a key question in a negotiation process in which design research would have taken on a moderating role.

What I found particularly exciting was that the debate about the Corona-Warn app brought the whole issue into the public eye. Questions of data security, privacy, data sovereignty, digital rights, digital competence and individual as well as social responsibility were discussed in high intensity by different groups on the basis of this boundary object, the Corona-Warn app. Am I antisocial if I am not willing to share my data and thus contribute to the containment of the virus? This is a very practical question. I consider it extremely important to enter into a social discourse on this issue. And such a discourse does not end with the completion of the development of an app. In fact, it is the other way round: The debate on the coronavirus app has, for example, forced us to think about data protection and privacy in relation to the other apps you carry with you on your smartphone. Here, I still see a strong need to develop solutions that are not primarily technical. Rather, it should be about expanding digital literacy and making decisions that will make us more resilient to future crises and that we as a society can ultimately share.

Thank you very much for the interview.

3.9 It’s always the others who can be manipulated

Doctoral Candidate Katharina Baum and Weizenbaum Fellow Stefan Meißner examine personalised political advertising on the internet in a joint research project

In the run-up to the US presidential election, there was growing public pressure for greater political regulation of online election advertising. Many people do not like the fact that their data are being used by political actors on the internet to tailor election messages to them. But are data protection concerns really the only reason for this? Or do such concerns also conceal assumptions about the winners and losers of these attempts at targeted political influencing? Katharina Baum from Research Group 9, “Digital Technologies and Well-Being” and Research Fellow Stefan Meissner from the Norwegian School of Economics in Bergen in cooperation with Hanna Krasnova, director of the Weizenbaum Institute, investigated this question in an online survey experiment.

The onward march of digitalisation has dramatically changed the available options for election advertising. The data that users reveal about themselves in social media can be used to address potential voters much more directly in online election campaigns. “Political microtargeting” is the name of the strategy used in past elections to deliver advertising messages to target groups with special characteristics based on user data, for example, on Facebook or Google. “Such data is also collected on other websites and stored, for example, via cookies. Political actors can access this information via data markets and send highly customised messages to specific groups of voters," explains PhD student Katharina Baum from Research Group 9, “Digital Technologies and Well-Being”. “In the American election campaign”, adds Fellow Stefan Meissner of the Norwegian School of Economics, “opinions on gun rights, for example, play a major role. If I, as a political actor, know that someone is a hunter, then I can send that person a targeted election message that I will defend his right to a private gun.”

Last year, a heated debate flared up in the US media about the need for greater regulation of online electoral advertising in view of the November 2020 presidential election. The media suggested that micro-targeting could possibly manipulate election results because of individually tailored election promises. As evidence, they presented the surprising result of the last presidential election in the United States but also the results of the Brexit referendum. The use of personal data for electoral purposes is also considered a risk because it encourages the polarisation of voter groups. It is furthermore seen as an infringement of privacy.

Surveys show that Americans view targeted online political advertising very negatively: “There are many studies showing that people are concerned about their privacy, about their own data, and, for these reasons, they want political microtargeting to be more regulated. We wondered whether there might not be other reasons for this attitude than just data protection concerns,” explains Baum. Meissner added: “We wanted to make a contribution to understanding the public debate. We were interested in finding out how people think about the impact of political microtargeting in the political process and whether this also plays a role in their demand for more regulation.”

To research this question, the two doctoral students designed an online survey experiment that they conducted on a sample of over 1,500 Americans who consider themselves either Democrats or Republicans. For their study, they hypothesised that Democrat and Republican supporters both assumed that online election advertising would benefit the opposing party more than their own. This hypothesis is based on the so-called “third person effect”, which means that people generally assume that others are more easily manipulated by negative mass communication than they are themselves. This effect becomes stronger when the social distance to these “others” is greater. With the increasing polarisation of parties in the United States, the social distance between the supporters of the two parties is also growing, as many studies show.

Indeed, Baum and Meissner found confirmation for their thesis in their online survey: Supporters of both Republicans and Democrats believe that the other side benefits more from targeted online advertising, because the people who vote for the other party are more influenced by political microtargeting than they are and the voters for their own party. These beliefs also correlate, as expected, with the demand for stricter regulation. Overall, 70 percent of those surveyed were in favour of more regulation, although this view is somewhat stronger among Democrats. However, the two groups do not differ in terms of their data protection concerns. Such concerns are equally pronounced among Democrats and Republicans.

Since no causal conclusions can be drawn from a simple correlation, Baum and Meissner incorporated a small experiment into their online survey in the second part of their study: “We gave some of the respondents the true information that in the last presidential election campaign, this type of election advertising worked better for Republicans,” Baum explains, summarising the results of this experiment: “Republicans who learned that political microtargeting was effective for them wanted less regulation.” What Baum and Meissner had not expected was that this effect would be particularly noticeable among very conservative Republicans, whereas it is not observable among more moderate Republicans. “If I am an extreme Republican, I also have an extreme amount to lose if the Democrats come to power,” Meissner says, explaining this result, “and then the benefit my party can have from political microtargeting becomes more important than my privacy concerns.”

Online election advertising is still not subject to political regulation in the United States, but platforms responded to public pressure against political microtargeting in the run-up to this year’s presidential election. Twitter no longer allows paid political advertising, while Google has tightened its advertising guidelines and only allows advertisers to use age, gender and postcode categories when targeting election announcements. Facebook has so far not significantly restricted political microtargeting in its network but recently gave US users the freedom to decide whether or not to receive political advertising.

3.10 What was corona?

Florian Eyert and Rainer Rehak

Florian Eyert (left) and Rainer Rehak are doing their doctorates at the Weizenbaum Institute in Research Group 18, “Quantification and Social Regulation”

Florian Eyert and Rainer Rehak, both doctoral candidates from Research Group 18, “Quantification and Social Regulation”, take us to the mid-2040s. In a tenth-grade social studies class, the effects of the first coronavirus pandemic are on the day’s teaching agenda.

“Who here knows what corona is?” Ms. Didaskin, who is standing in front of the classroom and has asked the question, waits a few seconds for answers. Soon, some of the individual touchscreen workstations in the large room light up in blue. She unlocks one of the back desks and the answer comes promptly via Hector’s headset into the ears of his 15-year-old classmates: “Corona is the colloquial term for the respiratory disease COVID, which is caused by a virus called SARS-CoV-2”.

“Correct”, says Ms. Didaskin, who asks another question: “But what relevance does this disease have for our lives; after all we are not in biology class here?” This time she picks a table closer to the top of the room. There is no one sitting there physically, but Johanna is in class via the school’s own video connection because of her broken foot.[6] This remote presence system is based on a public digital infrastructure that was created years ago when the monopolies of the time were broken up and taken into public ownership. Johanna answers: “That was that big pandemic that kept the world on edge for a few years. That was, I believe, in the years 2036 to ‘39”.

“Very true, but did you know that this was not the first outbreak of this disease but only one caused by a mutation of the original virus? The first pandemic began almost twenty years earlier, towards the end of 2019. This is why we also talk about COVID-19 and COVID-36. The COVID-19 pandemic was long before you were born. I, however, experienced this as a teenager.” Many heads nod knowingly, but some look up from their tables with wide eyes. Ms. Didaskin continues: “We only really became aware of the first pandemic in February 2020. Before then, everyone naively thought that the virus would more or less stay in China”. Ms. Didaskin walks up and down in front of the TeachScreen while she continues speaking. “From March 2020, it was clear that it would also affect us here. But we were not really prepared.”

A table in the middle of the classroom lights up. “Yes, Rima?”, encourages Ms. Didaskin, unlocking the student. “Couldn't that have been predicted by tracing back then?”, Rima asks.

Sören’s table flashes and after Ms. Didaskin has logged in his right to speak, he replies: “One of my fathers told me that very few people used tracers back then. Some people didn’t even have a Smart Cube.”

Rima casts an appraising glance in his direction and replies: “Smart Cubes? They did not even exist at that time. People had smartphones. In terms of data protection, this was an absolute disaster; they were always connected to some kind of external data cloud.”

[6] The ways in which the coronavirus crisis is driving forward the digitalisation of teaching are outlined here: Renz, A./Vladova, G. (2020): “Die Coronakrise als Katalysator für die Digitalisierung von Bildungsprozessen”, in: Weizenbaum Insights 04.03.2020.

“At that time, there still wasn’t hot water and soap in schools and the coronavirus only came to us humans through the overexploitation of nature, but you leave that out and start talking about apps!” In his excitement, Thorben literally shouts his contribution into the large room, because otherwise his schoolmates would not be able to hear him since his microphone is off.

“Well”, says Ms. Didaskin calmly, revoking all students’ speaking rights by clicking on the mute-all button. “Without smartphones, there couldn’t have been digital contact tracing at all. The tracing that we use today always and everywhere dates back to the first coronavirus crisis.[7] Before that, it just wasn’t possible to keep track of who was in the vicinity at all times. For example, AIA, the anti-isolation app that has been mandatory for a few years now and warns us when we have too few social contacts over a longer period of time, is based on the corona contact-tracing app used back then. But AIA uses this functionality in exactly the opposite way”.

Kathrin’s table lights up. “Wasn’t it true at the time that they almost built a central architecture that would allow state authorities to see who was in contact with whom at any time?” [8]

Ms Didaskin replies: “I have always wondered ever since why that would have been a problem. In my opinion, there is no reason to mistrust the state in such matters, and that was actually seen as such at the time.”

The TeachScreen flashes orange and a voice is heard from the loudspeaker: “Disinformation Resolution Notice[9]: central architectures for storing health data were already being criticised in the 2020s because they always represent a concentration of power. Public authorities should always be given only minimal powers; references to trust are misplaced here”.

Kathrin casts a triumphant glance at her classmates and uses her microphone, which is still on, to rhetorically bring the topic to a close: “Why should data be accumulated centrally anyway, if it is not necessary for the desired technical purpose?” To cover up for her embarrassing moment, Ms. Didaskin quickly says: "Rima, to return to your original question: The outbreak could not be predicted. At that time, there was no such thing as the Institute for Data-Driven Pandemic Forecasts, which the German government has been funding since the 2030s on the advice of the WHO. What they had were a wide range of models with statistics that even contradicted each other at times and which were therefore not really binding for politicians”.

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[7] For more on how the technical infrastructures of coronavirus apps could outlive their primary purpose, see: Hofmann, J. (2020): “Was von Corona-Apps übrig bleibt. Eine Infrastruktur-Perspektive”, in: WZB-Mitteilungen, 168, p. 33–35.

[8] For an explanation of the social implications of centralised and decentralised architectures, see: Rehak, R. (2020): “Die Spur von Corona. Alle Tracing-Apps bergen Datenschutzrisiken”, in: WZB Mitteilungen 168, p. 36–38; Brack, S./Hofmann, J./Reichert, L./Scheuermann, B. (2020): “Die Corona-App Ihres Vertrauens”, in: netzpolitik.org, URL: https://netzpolitik.org/2020/die-corona-app-ihres-vertrauens/ [Accessed: (05.08.2020):

[9] On the role of disinformation and coronavirus, see: Interview with Ulrike Klinger and Johannes Nichelmann for the Weizenbaum Podcast “Weizenbaum im Homeoffice: Corona und Digitalisierung”, Episode 2: “Desinformation”, 13.04.2020. On the use of automated AI systems in the fight against disinformation, see: Ahmad, S. (2020): “COVID-19 and the Future of Content Moderation”, in: WZB-Blog “Corona und die gesellschaftlichen Folgen”, April 15 2020.

Lukas's table lights up and he is logged in: "Strange. My grandfather was working on epidemiological forecasting models in London at the time. He always says that he was once invited by the government during the crisis. "Yes", admits Ms. Didaskin, "in fact, even though the models had their limitations, they were very powerful in politics at the time. In many cases, this facilitated communication between science and politics, but it also often led to inflated expectations and one-sided perspectives." [10]

"Weren't there also collective approaches in all this modelling? Something more or less what we call convivial technology design today?" says Lukas, after he had been activated to speak. Ms. Didaskin has to think for a moment.

"To some extent. At that time there was what they called a 'hackathon'. Various members of civil society tried to develop technical solutions to contain the pandemic. There were many problems – for example, only a very specific part of the population was active there at all – but there were a lot of developments from this. [11]

Lisa's table lights up and she is allowed to speak: "That was a strange time back then. My grandmother also once told us that nurses were not really well paid. We can hardly imagine this today." Ms. Didaskin smiles. "Yes, that was how it was until the European general strike by hospital staff in 2022, which was prompted by the lack of improvement in working conditions after the pandemic. It was only after this that there was a real boost in recognition for nurses – also financially." [12]

The screens on the students' desks suddenly switch off with a soft clicking noise. As the class' weekly workload is completed, the lesson is automatically ended. "Good. Then we'll see each other next week", says Ms. Didaskin, "and please don't forget to hand in your essays." While the intelligent door begins checking the first students for various signs of illness via facial recognition and body scan when they leave the room, Ms. Didaskin adds: "To be submitted on paper by hand, of course – as always!"

[10] The role of epidemiological modelling in policy is highlighted in: Eyert, F. (2020): "Epidemie und Modellierung. Das Mathematische ist politisch", in: WZB-Mitteilungen, 168, p. 82–85.

[11] The role of hackathons in the coronavirus crisis is examined in the following: Berg, S./Clute-Simon, V./Korinek, R.-L./Rakowski, N./Thiel, T. (2020): "Krisen-Experiment. Wie der Hackathon #WirVsVirus neue Formen demokratischer Beteiligung erprobt", in: WZB-Mitteilungen, 168, p. 30–32.

[12] For reflections on possible re-evaluations of the value of work due to the coronavirus pandemic: Koepp, R. (2020): "What this pandemic reveals about the value of work", in the WZB blog "Corona und die gesellschaftlichen Folgen", April 23 .2020.

IV. Research

At the Weizenbaum Institute, 21 research groups, assigned to six different areas, conduct interdisciplinary and basic research into the interactions between digitalisation and society. The aim is to better understand the mechanisms, functionalities and effects of digitalisation and to propose ideas for the digital transformation in accordance with the principles of democracy. Based on the research findings, we identify options for actors in politics, business and civil society to shape digital change responsibly.

I Work, Innovation and Value Creation

1 Working in Highly Automated Digital Hybrid Processes

2 Critical Maker Culture

3 Work and Cooperation in the Sharing Economy

II Contract and Responsibilities on Digital Markets

4 Frameworks for Data Markets

5 Data-Driven Business Model Innovations

6 Responsibility and the Internet of Things

III Knowledge, Education and Social Inequality

7 Education and Advanced Training in the Digital Society

8 Inequality and Digital Sovereignty

9 Digital Technologies and Well-Being

10 Digital Integration

11 Digitalisation and Science

IV Democracy, Participation and the Public Sphere

12 Democracy and Digitalisation

13 Digital Citizenship

14 News, Campaigns and the Rationality of Public Discourse

15 Digitalisation & the Transnational Public Sphere

V Governance and Norm Setting

16 Shifts in Norm Settina

17 Trust in Distributed Environments

18 Quantification and Social Regulation

VI Technological Change

19 Digitalisation and Networked Security

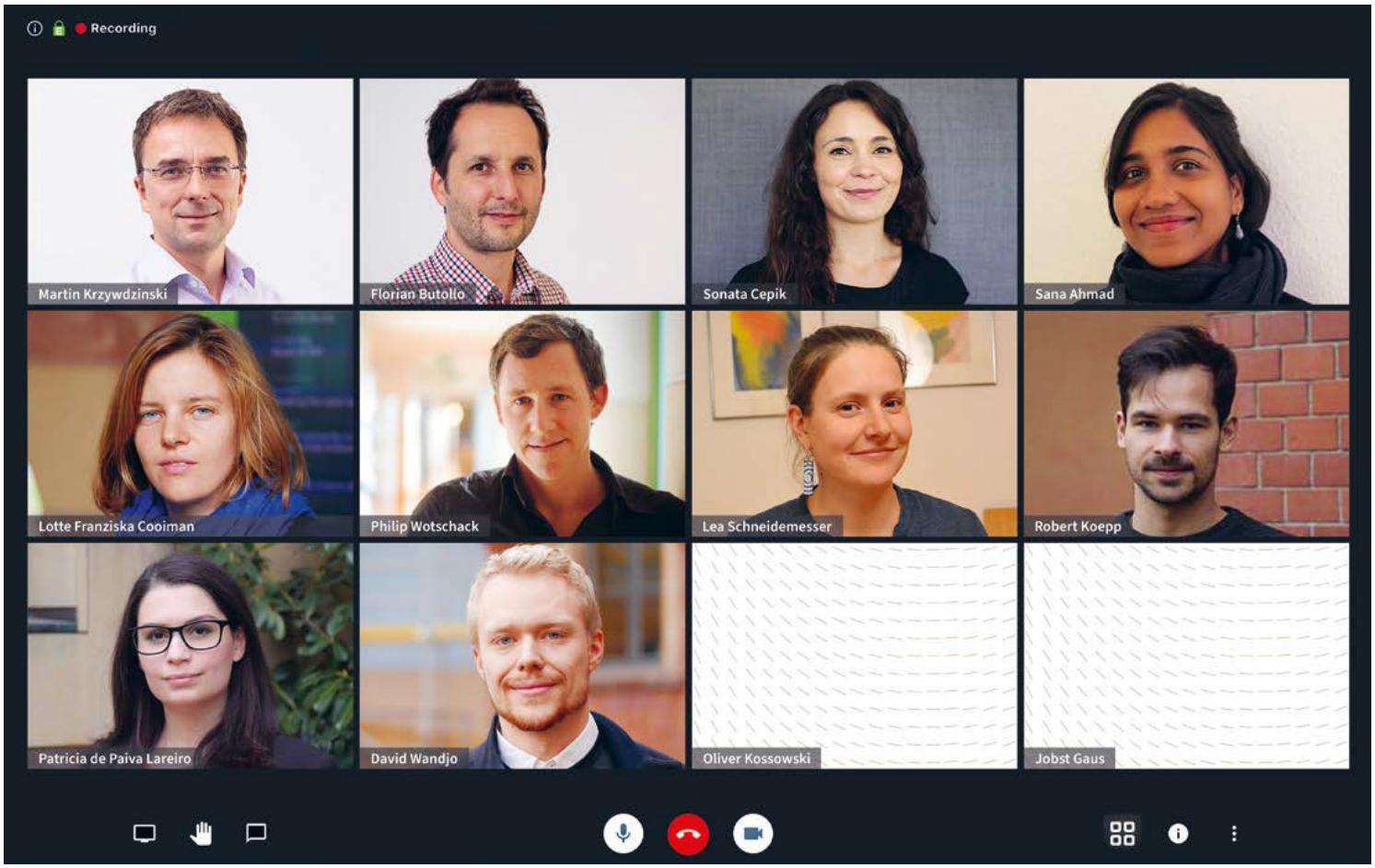
20 Criticality of AI-Based Systems

21 Reorganising Knowledge Practices

4.1 Research Area I
Work, Innovation and Value Creation

The digitalisation of economic processes is being accompanied by fundamental changes that are affecting value creation structures, work and employment relationships, and innovation processes. In this research area, our research groups focus on the future of work, approaches to participatory social innovation and the impact of the sharing economy on the economy and society.

RESEARCH GROUP 1:
WORKING IN HIGHLY AUTOMATED DIGITAL HYBRID PROCESSES



MEMBERS OF THE RESEARCH GROUP:

Sana Ahmad

Dr. Florian Butollo (research group leader)

Sonata Cepik

Lotte Franziska Cooiman

Jobst Gaus

Robert Koepp

Oliver Kossowski

Prof. Dr. Martin Krzywdzinski (PI)

Patricia de Paiva Lareiro

Lea Schneidemesser

David Wandjo

Dr. Philip Wotschack

The research group studies automation processes and their effects on employees in industry, logistics and the service sector. The research focuses on how job profiles, qualification requirements and work organisation are changing. Automation doesn't just refer to the use of mechanical robotics, but also to the application of AI and the internet of things. A central aim of the research is to identify potentials for actors to shape digitalisation processes in a way that is beneficial to the quality of work.. The research methods combine qualitative, case-study-based approaches with quantitative and experimental approaches.

Research is at a particularly advanced stage in three projects, which also illustrate the spectrum of the group. Robert Koepp deals with the role of digital control systems in the working models of the logistics industry. The project is being developed in cooperation with the State of Brandenburg's Ministry of Labour and is based on case studies of logistics hubs and logistics companies in the Greater Berlin Area. Research shows that labour shortages are an important driver of specific digitalisation paths in logistics. Companies need to deal with high staff turnover and low skill levels and have opted for low-cost models that use technology to control and minimise the need for employee involvement and problem-solving. A special feature of the logistics sector is that there are often no works councils or these bodies are too weak. As a result, there is a lack of organised initiative for an improvement of the quality of work in digitalised work processes.

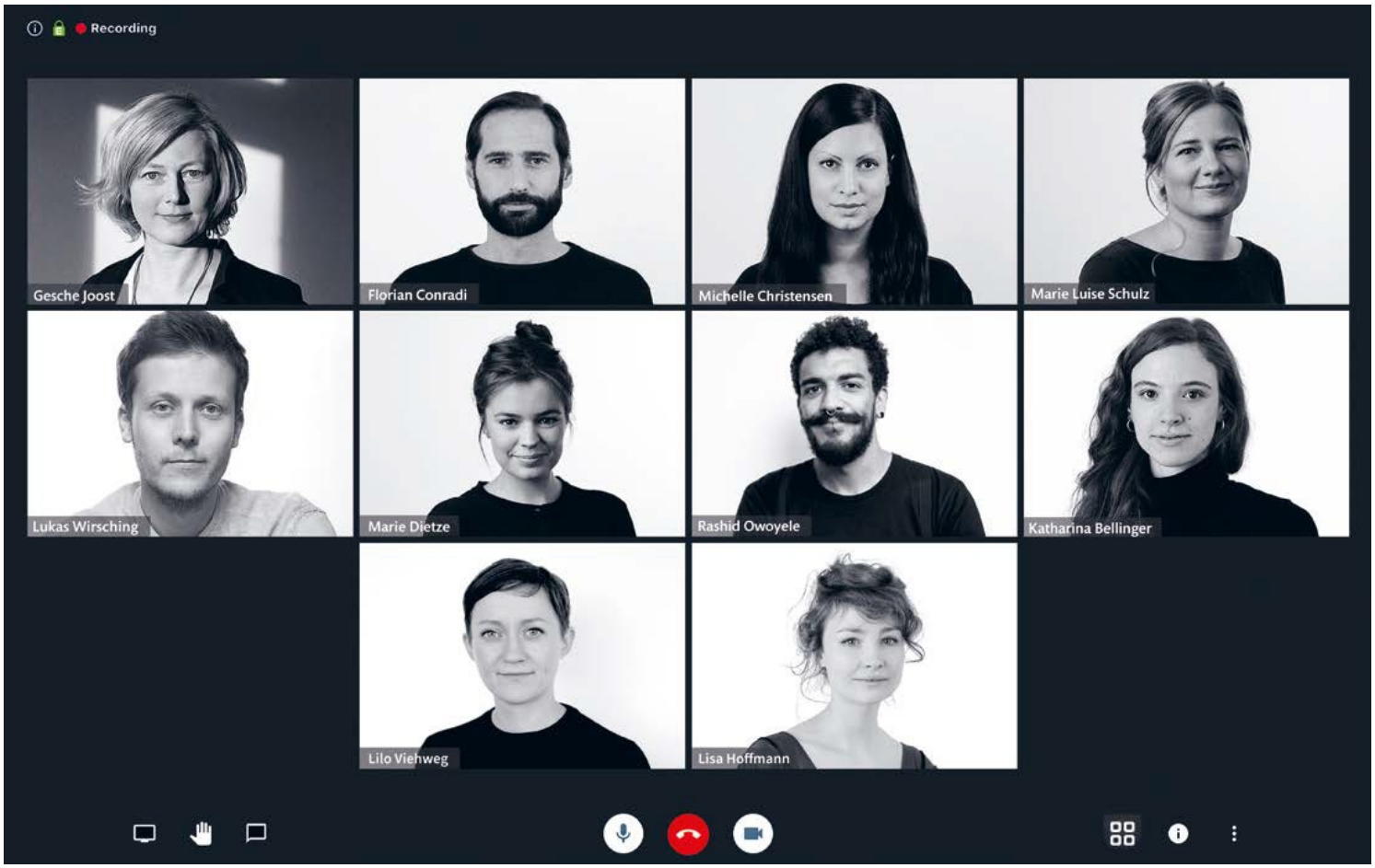
Philip Wotschack and Patricia Paiva de Lareiro also look at the relationship between automation and skill requirements but use a different methodological approach. As part of an interdisciplinary project with Research Group 7, "Education and Advanced Training in the Digital Society", they are carrying out an experiment in which a production line is simulated and the test persons have to perform a simple production process. They are supported by digital assistance systems. In the first experiment, one group works alone under the guidance of the assistance system, whereas the other group receives an additional introduction to the entire work process. Initial results show that teaching holistic production knowledge about the entire process increases the quality of the production process in the long term. This illustrates the importance of comprehensive training, even where employees have a marked division of labour.

Sana Ahmad examines the work of content moderators in India. They are employees of Indian companies who, on behalf of social media platforms such as Facebook, check and delete posts, pictures and videos if they violate rules – for example, concerning hate speech, depictions of violence etc. The work process of the content moderators is strictly standardised and controlled through the use of digital technologies. They are assigned the posts and must decide within seconds whether to approve or delete them. Although social media platforms are working on the automation of content moderation processes in order to reduce the high costs and enormous psychological stress, this automation has so far been limited. However, this also opens up certain scope for increasing the recognition for the work of content moderators. As Sana Ahmad's research shows, content moderators have to build up considerable cultural and intercultural expertise, which is often underestimated. Here, too, however, there is a lack of organised trade unions to call for an improvement in working conditions.

In addition, the research group has started new, third-party funded projects. Co-financed by the University of Roskilde (Denmark), Lotte Franziska Cooiman is working on a dissertation on the political economy of venture capital in Europe and the working environments in start-ups. As part of a project funded by the Hans-Böckler Foundation, Florian Butollo and Lea Schneidemesser are examining the role of industrial internet platforms in the transformation of traditional industrial sectors.

In addition to the cooperation with the University of Roskilde, there was further international collaboration with Prof. John Zysman (University of California, Berkeley, USA) to set up a research network on the topic of "Cross-National Evaluation of the Positive Possibilities of Intelligent Tools and Systems" and a cooperation with Prof. Mark Graham (Oxford Internet Institute, UK) on the topic of platform economics. Fellows of the research group included: Dr. Matt Vidal (Loughborough University London, UK), who did research at the Weizenbaum Institute on the role of automation in lean production systems; Robert Dorschel (University of Cambridge, UK), who worked with Franziska Cooiman on concepts of valuation for green technology; and Caroline Sinders (freelance design researcher), who did research with Sana Ahmad on the possibilities of using design research for social science analyses of technology.

RESEARCH GROUP 2:
CRITICAL MAKER CULTURE



MEMBERS OF THE RESEARCH GROUP:

Katharina Bellinger

Prof. Dr. Michelle Christensen (research group leader)

Prof. Dr. Florian Conradi (research group leader)

Marie Dietze

Lisa Hoffmann

Prof. Dr. Gesche Joost (PI)

Rashid Owoyele

Marie Luise Schulz

Lilo Viehweg

Lukas Wirsching

The research group explores the topic of critical maker culture and open labs, which have the potential to open up new pathways to strengthening social self-determination. The term maker culture describes a decentralised network of actors who engage into the development of new systems and artefacts through digital production possibilities such as open-source code and rapid prototyping. This movement provides a potential for new forms of cooperation and access to technology. With regard to the digital divide, the group examines how bottom-up initiatives help to address inequalities and create opportunities for inclusive participation. The research group focuses in particular on gender and diversity; post-colonial and post-western perspectives; and approaches centring on environmental and economic sustainability, experiments and interventions as contributions to the discourse, for instance in the form of prototypes, as well as through through participatory workshops and exhibitions.

In the thematic area of gender, the group addresses aspects of inclusion and difference with a focus on feminist hacker and maker cultures. In this context, design researcher Marie Dietze, among others, explores the potential of feminist perspectives and practices in social-technological design processes. Through various do-it-yourself and do-it-together formats, the project uses principles such as self-determination, collaboration and participation in design processes and considers them in relation to central questions of social justice, accessibility and diversity. It shows how inclusive strategies of feminist hackspaces offer safer spaces to address taboo subjects such as sexuality and reproductive health in technology development. Through peer-to-peer learning without hierarchies, the project explored practising inclusion through participatory design experiments. In collaboration with the two research fellows Dr. Stefanie Wuschitz and Marie Kochsiek, a series of workshops and events on the topic were initiated. The sociologist and software developer Marie Kochsiek is committed to an informal open transfer of knowledge on internet policy issues, privacy and self-determination and is co-founder of the hackspace Heart of Code e.V. in Berlin. Dr. Stefanie Wuschitz researches non-binary approaches to open source hardware and peer production and co-founded the hackspace Mz* Baltazar's Laboratory in Vienna in 2009.

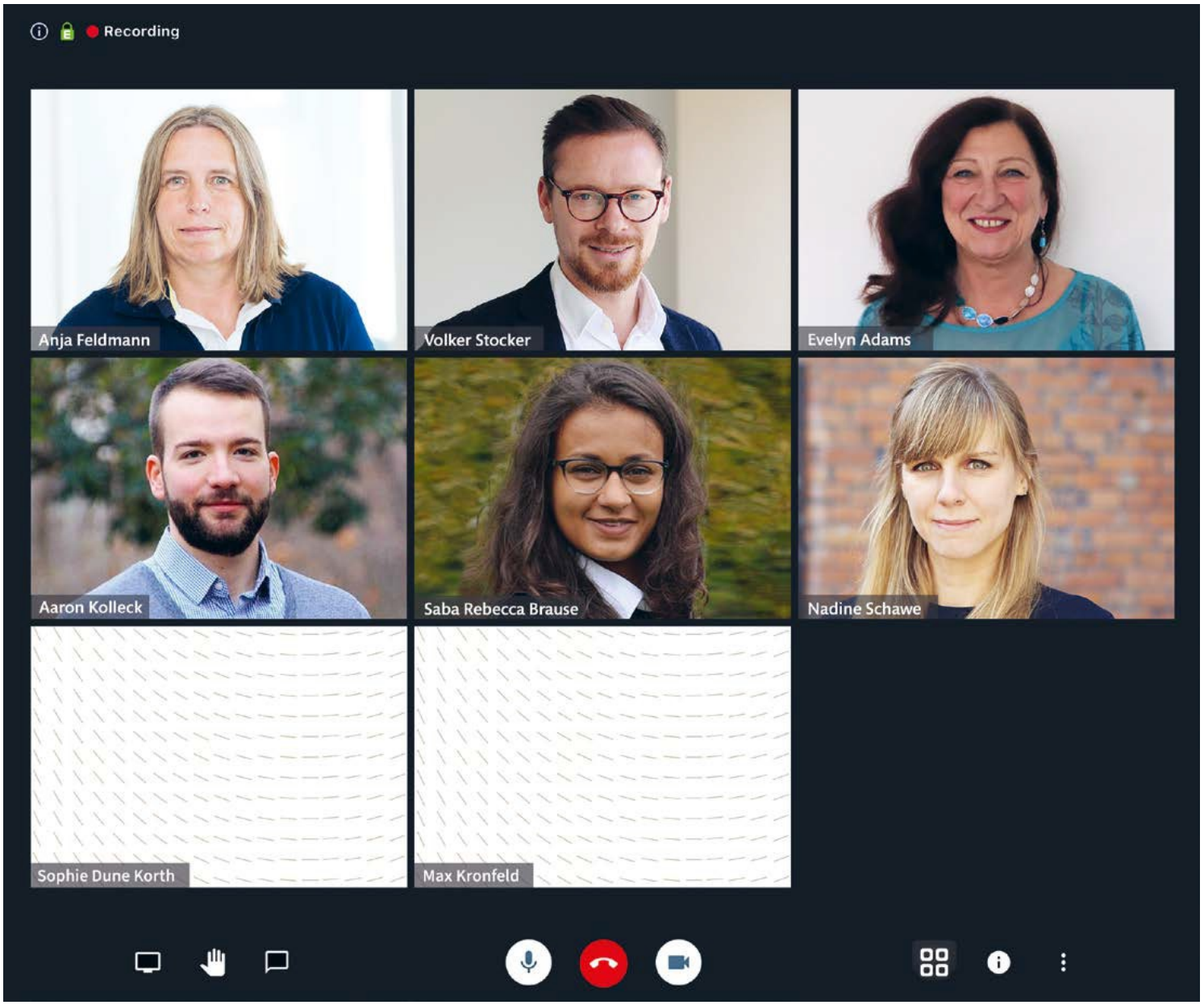
In cooperation with the Einstein Center Digital Future, the international symposium "Trans/Feminist Hacking – Spaces, Communities, Practices" was carried out in December 2019. Perspectives on feminist and queer spaces and practices were presented and discussed by researchers and activists from Germany, Austria, Greece, Croatia, Spain, Israel, Canada, Indonesia, India and Ghana.

In the area of sustainability, the research group is investigating the potential for environmental and economic sustainability arising from open source and do-it-yourself cultures. At the symposium "Open Materials – Crystal, Communities, Concerns" in December 2019, questions concerning the politics of resources and material circularity were discussed with workshop participants. Subsequently, alternative approaches from the fields of open science, community science and citizen science were presented and discussed in a public podium event in the Berlin Open Lab. With regard to the economic sustainability of the maker movement, the group examines cooperative principles in the networked society. In this context, Rashid Owoyele's dissertation project focuses on platform cooperativism and examines how the inclusive design of alternative concepts of ownership might enable more democratic and decentralised economic models.

From September to July 2020, open science researcher Gameli Adzaho from Ghana (Africa Open Science & Hardware / Global Lab Network) joined the group as a research fellow. In collaboration with the research group, he co-organised the digital roundtable "African Makers Against COVID-19" in May 2020. Makers from Ghana, Togo, Senegal, Nigeria and Cameroon were invited to present their perspectives, inventions and reactions in the fight against the spread of COVID-19.

Together with over forty participants from West and East Africa and beyond, the roundtable collectively identified and formulated opportunities and challenges of making in times of the global pandemic. Furthermore, Sénamé Koffi Agbodjinou joined the group as a research fellow from June to September 2020. The architect and anthropologist explores the bottom-up development of African smart cities and is the founder of Woelabs, a network of grassroots makerspaces in Lomé. Within the context of his fellowship, Agbodjinou explored concepts and curricula for a further lab – a design school in Lomè that aims to combine pre-colonial approaches to building and organising communities with modes and tools of the maker movement.

RESEARCH GROUP 3:
WORK AND COOPERATION IN THE SHARING ECONOMY



MEMBERS OF THE RESEARCH GROUP:

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Aaron Kolleck

Sophie Dune Korth

Max Kronfeld

Nadine Schawe

Dr. Volker Stocker (research group leader)

The research group deals with the sharing economy. This phenomenon of the digital transition, which is gaining substantially in socio-economic importance, promises to fundamentally change consumer habits and revolutionise value chains and economic activities. Sharing approaches enable new forms of allocation, by using mostly idle capacities. New potentials for improving efficiency and increasing economic and ecological sustainability emerge above all through internet-based intermediation between suppliers and consumers. However, to exploit such potentials, it is necessary to identify the associated challenges and risks and appropriately address them. This gives rise to a wealth of research questions that sometimes require interdisciplinary approaches.

Due to its interdisciplinary composition, the research group combines methods and perspectives from economics, law, sociology and computer science. This enables the group to conduct studies and analyses that contribute to a more differentiated understanding of various individual phenomena and help identify and describe connections between different individual phenomena. Within the research projects, there is a special focus on core questions concerning the sharing economy. For example, the projects examine the efficiency, mechanics and evolution of sharing markets, the influence of the sharing economy on market, industry and employment structures, the role of data and data access, and the need to reform existing regulatory frameworks.

Sharing platforms are internet-based and closely linked to the platform economy. To take this into account, the research group also investigates complementary and upstream issues. The group project “Navigating the Landscape of the Sharing Economy – A Cross-Disciplinary Study” identifies gaps in the research on the sharing economy via a structured, interdisciplinary literature review and derives policy recommendations. The group also investigates the underlying economic conditions, trust, barriers to switching and participation in the sharing economy. Other key issues are the interplay between data and regulatory frameworks in the sharing economy, with a special focus on the online platform Airbnb, the role of trade unions in the organisation and mobilisation of workers in the gig economy and switching barriers between online platforms. Furthermore, the group also examines alternative sharing approaches based on various “as-a-service models” in the context of 5G-based mobile networks and addresses questions of internet policy (especially network neutrality).

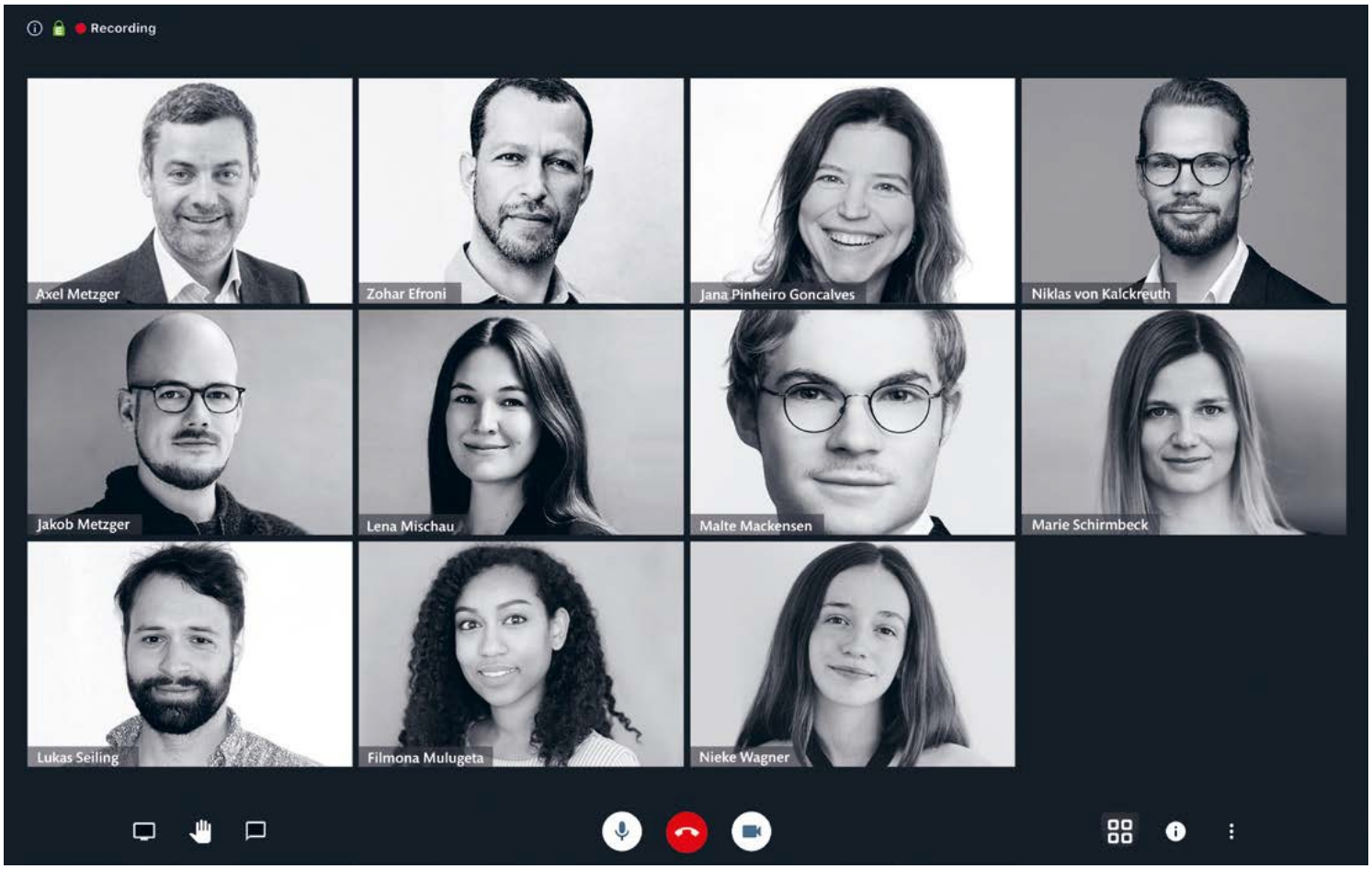
In addition to publishing two books, the members of the research group have produced a considerable number of publications, among others in high-profile, peer-reviewed journals and conference proceedings as well as contributions to book volumes and blogs. While the focus was on research and transfer, the research group also continued its networking efforts. Thus, in addition to renowned national and international guest speakers, the group attracted a number of international fellows and established research cooperations.

Three fellows visited the research group during the reporting period. A long-term cooperation with Prof. Jason Whalley (Northumbria University, United Kingdom) was initiated as part of a research project consisting of several sub-projects on “Broadband in the Sharing Economy: Congestion, Quality of Service and Investment”. With Dr. Wolfgang Briglauer (Vienna University of Economics and Business, Austria), we have established a research cooperation in which we empirically investigate the effects of net neutrality regulations. The research visit by Serpil Ta (Wissenschaftliches Institut für Infrastruktur und Kommunikationsdienste GmbH – WIK) is linked to a joint research project being conducted by the research group and WIK on the topic of multihoming in sharing services in Germany. In addition, there were a number of research projects with academics from other institutes, including the TU Berlin, the Oxford Internet Institute (UK), the Massachusetts Institute of Technology (USA), the University of Pennsylvania (USA) and the Politecnico di Torino (Italy), as well as with Research Group 6, “Responsibility and the Internet of Things”, at the Weizenbaum Institute.

4.2 Research Area II
Contract and Responsibilities on Digital Markets

Self-determined individuals have the freedom to make decisions that contractually bind them and for which they are morally responsible when they disclose data. Networking and algorithmisation, however, are changing the conditions for this self-determination. The following research groups examine the resulting social effects in an interdisciplinary way from a legal, moral and economic point of view.

RESEARCH GROUP 4:
FRAMEWORKS FOR DATA MARKETS



MEMBERS OF THE RESEARCH GROUP:

Dr. Zohar Efroni (research group leader)

Niklas von Kalkreuth

Malte Mackensen, LL.M (King's College)

Prof. Dr. Axel Metzger, LL.M. (Harvard) (PI)

Jakob Metzger

Lena Mischau

Filmona Mulugeta

Jana Pinheiro Goncalves

Marie Schirmbeck

Lukas Seiling

Nieke Wagner

The group's research agenda encompasses fundamental questions regarding private autonomy considering the intricate relationship between data protection and contract law, the functioning of digital markets, the application of civil law to contracts for data, and user behaviour in the disclosure of personal data. These core topics are examined from the perspectives of law, psychology, engineering and economics.

Four projects in particular were further developed during the reporting period.

Data as a Means of Payment: The business models of many internet services are based on the provision of supposedly "free" services, where users provide personal data instead of paying a monetary price. The group's research particularly focuses on contract law-related challenges that arise in this context, for example, the emergence and early implementation of the recently adopted EU directive on certain aspects concerning contracts for the supply of digital content and digital services (2019/770).

Privacy Icons: The aim of the project is to visualise data processing aspects that are particularly risky for users via pictograms in order to strengthen their private, autonomous decision-making capacity when giving their consent to the processing of personal data. Before the actual icons are designed and subsequently evaluated, relevant data processing aspects are identified and a risk assessment and classification is carried out.

Legal Framework for the Data Industry: In exploring data markets, the group looks at existing and possible new data access rights and the concept of personalised pricing. The group also analyses the functioning of digital markets and studies data ecosystems in the field of networked driving.

Digital Trust: This project explores the extent to which trust in data protection and the trustworthiness of hardware and software as motivators play a role in decisions to use digital products such as mobile applications. Furthermore, it examines whether benefits
– such as monetary premiums, in-app features or special services – as well as user manipulation by dark patterns impair this trust or render it obsolete. In addition, the project will explore possible interventions to warn users of potential risks without disturbing them in their use.

The group presents its findings to a broad public from the fields of research, business and politics in a large number of national and international conferences, through articles in specialist journals, via statements, and through blog entries and its own internet platform. In cooperation with guest researchers, it organised numerous events and lectures.

The research group has also contributed to the further development of the Knowledge Hypercube as part of the cross-sectional format "Digitalisation and Sustainability". This is an interdisciplinary, interactive discourse and workshop tool for which an analogue concept tool has already been developed. In the second funding phase, we plan to develop a digital, interactive prototype.

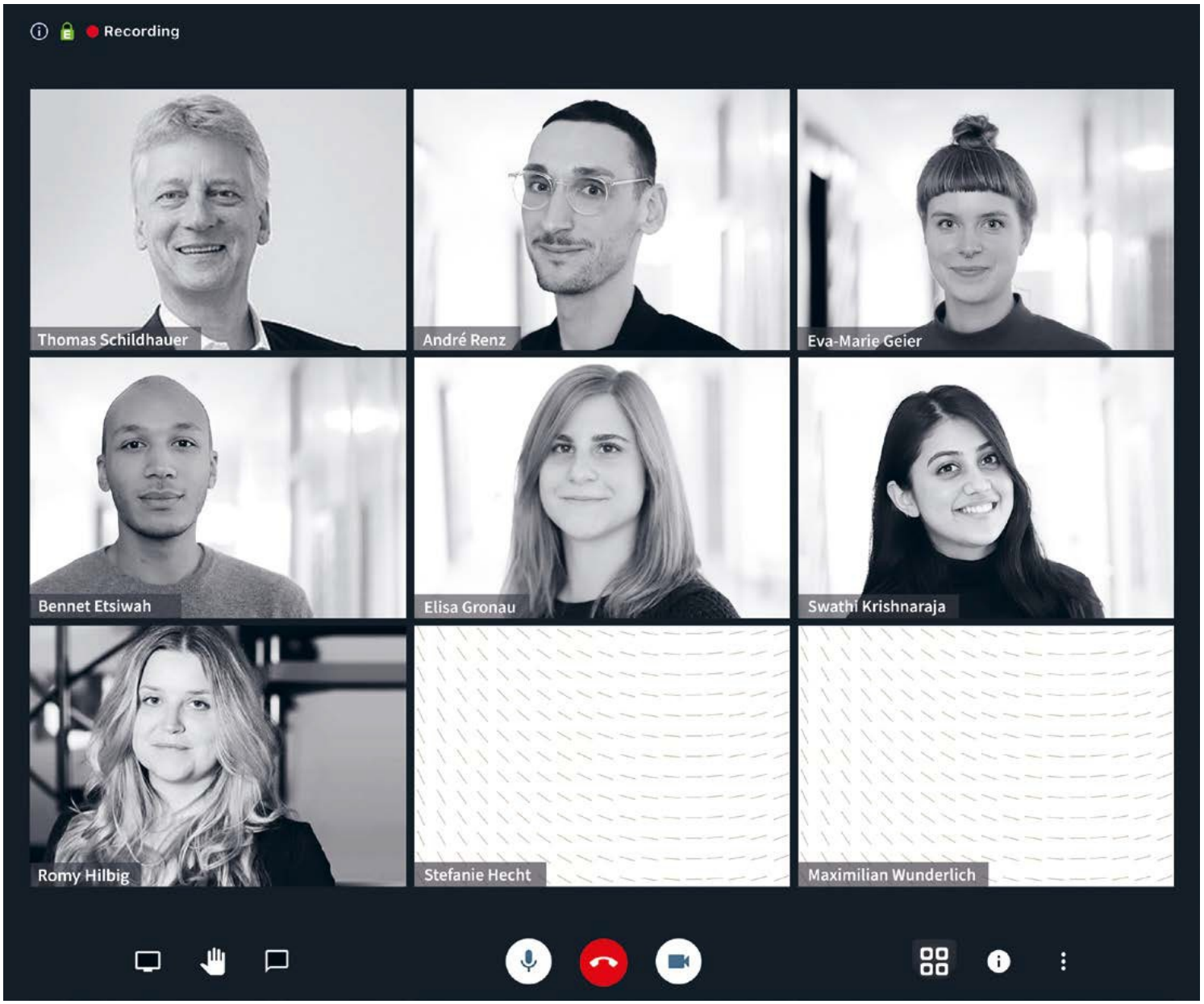
Together with Research Group 5, "Data-Driven Business Model Innovations" and Research Group 6, "Responsibility and the Internet of Things", the group has developed the Weizenbaum Lab. This is a novel format for transferring and exchanging knowledge, which is set to be applied and practised at the Weizenbaum Institute according to certain criteria, such as quality, transparency, documentation, reflection on methods and publication.

During the reporting period, the following fellows were guests in the research group:

- **Prof. Niva Elkin-Koren** (Haifa Center for Law & Technology, Israel): research focus "Contesting Algorithms: From Theory to Policy".
- **Prof. Wolfgang Kerber** (University of Marburg): research focus "Data Protetction, Market Power, Competition Policy, and Consent".
- **Prof. Philipp Hübl** (philosopher and journalist): research focus "Digital Rationality and Informational Autonomy".
- **Dr. Henning Grosse Ruse-Khan** (University of Cambridge, United Kingdom): research focus "Platform Policies as Transnational Law – towards Monetising User Content".

Members of the research group completed a number of research stays abroad during the reporting period. Dr. Zohar Efroni focused on various aspects of data management during his visit to the institute for data law at the University for Political Science and Law in Beijing (China). Niklas von Kalckreuth spent some time at the Human-Computer-Interaction research group of the Cognitive Science and Assessment Institute of the University of Luxembourg (Luxembourg) and did research on digital trust and dark patterns. Jakob Metzger was a guest at the Center for Cyber Law and Policy at the University of Haifa (Israel), where he conducted research on personalised pricing.

RESEARCH GROUP 5:
DATA-DRIVEN BUSINESS MODEL INNOVATION



MEMBERS OF THE RESEARCH GROUP:

Karsten Bernsee
Bennet Etsiwah
Eva-Marie Geier
Elisa Gronau
Stefanie Hecht
Dr. Romy Hilbig (research group leader until October 2019)
Swathi Krishnaraja
Dr. André Renz (research group leader)
Prof. Dr. Dr. Thomas Schildhauer (PI)
Maximilian Wunderlich

The research group combines theory formation on business model innovations with the empirical analysis of sectoral data-based innovation processes in the fields of education/training and open data. As part of digitalisation and the associated datafication of society – i.e. the modelling of social reality in data structures and the use of these data – the research field around data-based business model innovations is experiencing a new dynamic. In today's society, people are producing more and more data that is having a lasting effect on how business models are conceived and optimised. The use of data in data-based business models as well as the implementation of these new, innovative business models in the market presents established companies and start-ups alike with a multitude of hurdles, especially in traditional areas such as education and training.

This research group's work aims to support companies and institutions in theoretical and practical terms in recognising and using spaces of potential for datafication processes to develop and sustainably implement data-driven business model innovations. The research group uses qualitative and quantitative research methods such as interviews, surveys, observational studies, user testing and action research.

Through comprehensive market and discourse analyses, the group has sketched a comprehensive picture of pioneering developments in the context of data-driven business model implementation in the education sector. The group has gone beyond the status quo in the research on the datafication and digitalisation of education by incorporating educational technology (edtech). Furthermore, to promote a responsible and self-determined handling of sensitive data by learners and teachers, the group has identified recommendations for action and strategies for dealing with learning analytics and AI and introduced them into the scholarly discourse.

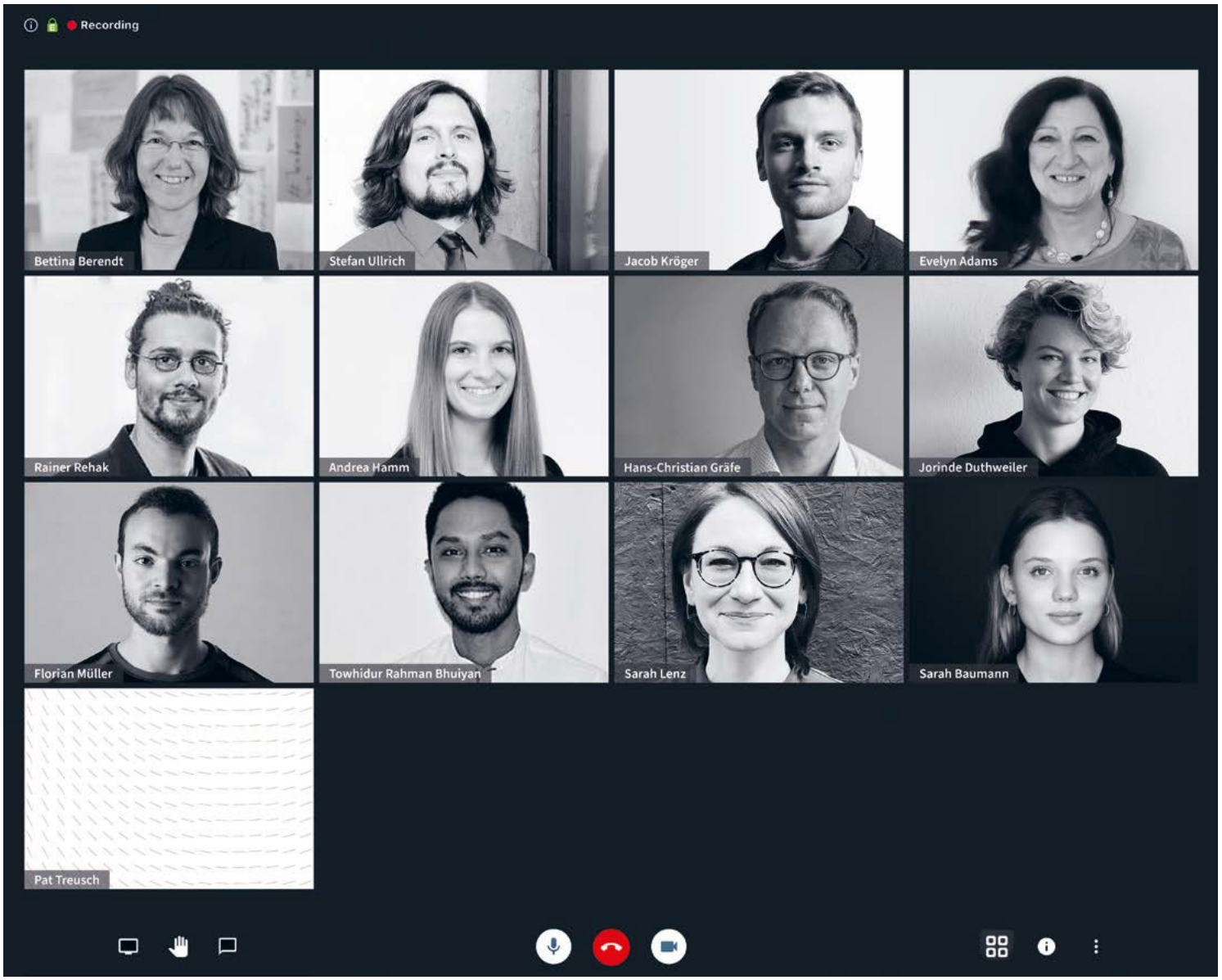
The practical contributions of this research group include the development of research and practice-oriented tools in the context of data-based process and business model innovations. The group also contributes to the formulation of strategic and action recommendations for politics, business and civil society and to the expansion of transfer formats at the Weizenbaum Institute, for example with its own podcast series "Voices for the Networked Society".

During the period under review, the research group increasingly devoted itself to the task of critically analysing the data discourse. One central question is whether current developments are really data-driven or whether they are driven by the phenomenon of datafication. Thus, many companies and institutions are generating more and more data – whose potential uses are often not recognised and acted on in a goal-directed manner – by shifting processes into virtual space. Here, the research group sees a special responsibility to identify and investigate concrete challenges with research partners from the field and to develop recommendations for action. As a result, the group established a practical cooperation with partners from industry, launched a podcast on data literacy and initiated planning discussions for a series of workshops as part of a research project in the field of action research.

In autumn 2019, John Zysman (University of California, Berkeley USA), professor emeritus of political science and researcher on digital platform economics, joined the research group as a senior research fellow. During his stay, Prof. Zysman participated in the Weizenbaum Research Days, where he gave a lecture on the digital transformation of the world of work in the platform economy. Together with his colleague Dafna Bearson, he also participated as a guest in one of the research group's podcast episodes.

As part of the research exchange with the University of California, PI Thomas Schildhauer travelled to Berkeley in autumn 2019. In early 2020, André Renz and PhD student Bennet Etsiwah spent several weeks as researchers in residence in the USA, investigating how digital learning solutions are used in American schools and what effects they have on knowledge transmission. During their stay, the researchers attended the "Future of Education Technology Conference" in Florida and held several expert discussions with education stakeholders from the Bay Area in California. The results of this trip were published in a field report on the Weizenbaum Institute's website and have also been incorporated into various working groups and expert panels in the field of political consultation.

RESEARCH GROUP 6:
RESPONSIBILITY AND THE INTERNET OF THINGS



MEMBERS OF THE RESEARCH GROUP:

Evelyn Adams

Sarah Baumann

Prof. Dr. Bettina Berendt (PI)

Jorinde Duthweiler

Hans-Christian Gräfe

Andrea Hamm

Jacob Kröger

Sarah Lenz

Florian Müller

Towhidur Rahman Bhuiyan

Rainer Rehak

Pat Treusch

Dr. Stefan Ullrich (research group leader)

As part of its interdisciplinary research, the research group investigates key concepts of digitalisation, from wearable devices, smart home and smart citizenship to data platforms with regard to responsibility, liability and regulation.

One focus of the research is on data protection issues related to sensor data from networked devices. In previous publications, the group had already investigated what sensitive personal information can be derived from data from motion sensors, smart meters and infrared sensors. In early 2020, the group published two new papers on this topic, focusing on voice recordings and eye-tracking data. The information that can be derived includes, for example, gender, age, emotions, geographical origin, personality traits and state of health. In a next step, the group wants to investigate the extent to which users are aware of these technical possibilities and what concerns they have about them. Furthermore, the group investigates the extent to which operators of mobile apps handle the data they collect transparently and to what extent they disclose such data upon request. In August 2020, the group presented a longitudinal undercover study on this topic at the International Conference on Availability, Reliability and Security (ARES), in which they analysed the behaviour of 225 iOS and Android apps. For this, it was awarded the Best Paper Award.

Another key issue the group focuses on is the social internet of things and the question of whether and how sensor technology can be used by citizens' initiatives to create a more sustainable future in cities and communities. A pilot study on a citizens' initiative on particulate matter sensors in Germany was conducted during the reporting period. The group is currently working with researchers from the University of Tokyo (Japan) to verify and deepen the findings with further case studies from Europe and Asia. By combining information technology and communication science research approaches, the group develops novel methods to achieve interdisciplinary research results in this area.

The third research focus is on the legal assessment of automation and AI in (social) media. The topic covers the production, distribution and regulation of digital content. Concerning the production of digital content through AI, the group looks at the legal classification of text generators. Regarding the context of distribution, the group is mainly concerned with intermediaries – for example, with one of the newest intermediaries, TikTok – and the question of how the new regulations on transparency obligations are implemented. The legal assessment of automation and AI in (social) media conducted in the group is partly based on social media law. At the same time, the analysis draws on general civil law, basic and European law and parts of classic media, intellectual property and copyright law.

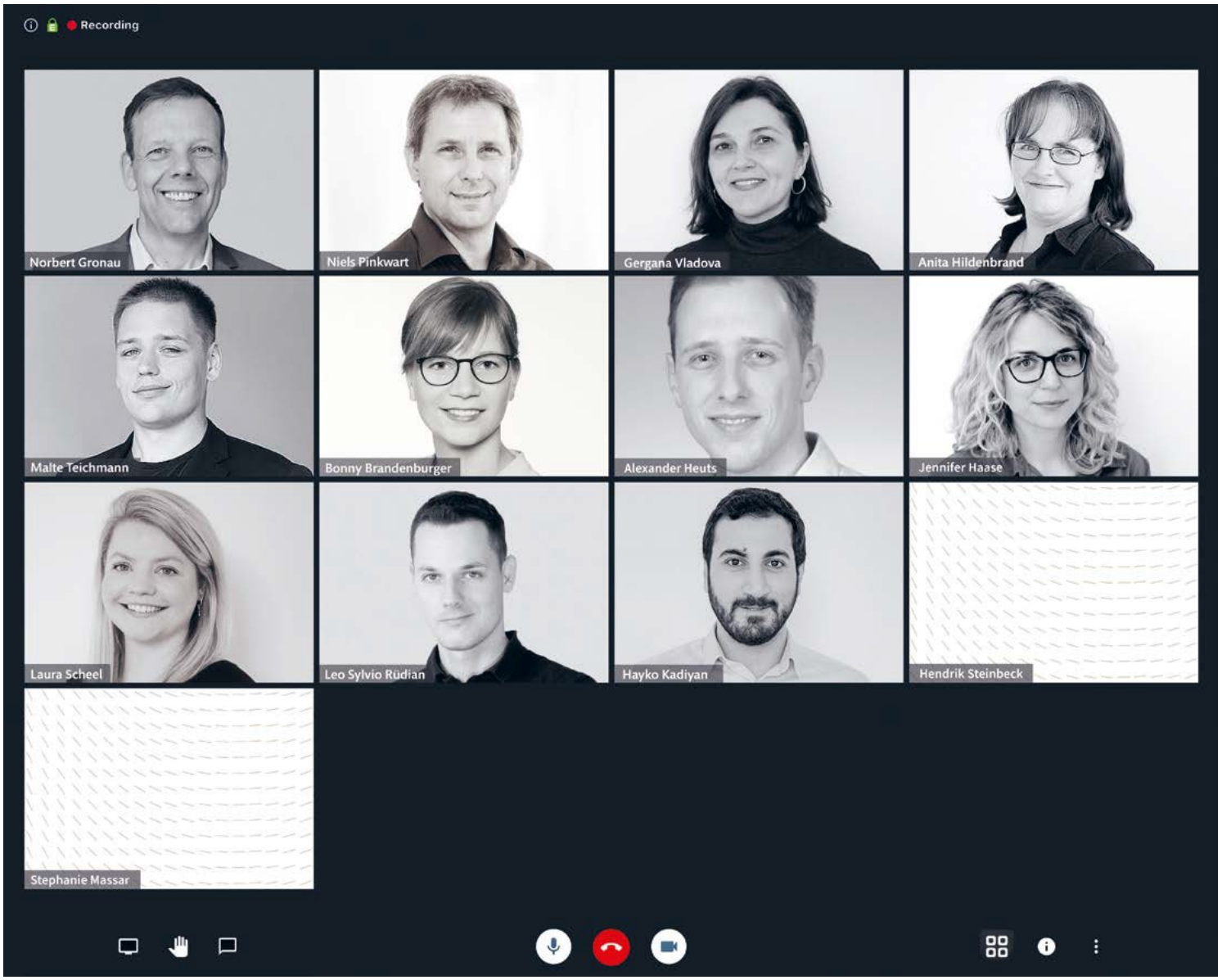
During the reporting period, the group contributed to organising a workshop on the Bits & Bäume movement's demands on digitalisation and sustainability at the Chaos Communication Camp 2019 in Mildenberg.

During the reporting period, several research fellows were guests of the research group. Prof. Dr. Melinda F. Lohmann is assistant professor of business law with a focus on information law and director of the research centre for information law at the University of St. Gallen (Switzerland). Her research interests include self-driving vehicles, robots and AI. She examines how the law should deal with these innovations. During her stay at the Weizenbaum Institute and as part of her habilitation project, she looks at contractual aspects of digitalisation and the internet of things. In the project "The Networked Self. A Feminist-Interdisciplinary Study on Changing Learning Cultures through Digitalisation Processes in the Age of the Internet of Things", Research Fellow Dr. Pat Treusch investigated how learning processes at the human-technology interface change when everyday digital objects begin to learn. Digital Research Fellow Yuya Shibuya, Ph.D., is a researcher at the Interfaculty Initiative in Information Studies at the University of Tokyo (Japan). Her current research interests focus on social and economic recovery after disasters, as manifested, for example, in the communication content of social media.

4.3 Research Area III
Knowledge, Education and Social Inequality

Digital technologies and the internet are placing fundamentally new demands on education. The following research groups aim to investigate what knowledge and competences will be needed in the future in the context of digital education in a digital world. People must be enabled to recognise both the dangers that may arise from everyday pragmatic usage situations and the potential of digital technologies to facilitate knowledge transmission. A particular challenge is to identify and counteract social inequalities in the transmission of digital skills.

RESEARCH GROUP 7:
EDUCATION AND ADVANCED TRAINING IN THE DIGITAL SOCIETY



MEMBERS OF THE RESEARCH GROUP:

Bonny Brandenburger

Prof. Dr.-Ing. Norbert Gronau (PI)

Jennifer Haase

Alexander Heuts

Anita Hildenbrandt

Hayko Kadiyan

Stephanie Massar

Prof. Dr. Niels Pinkwart (PI)

Leo Sylvio Rüdian

Laura Scheel

Hendrik Steinbeck

Malte Teichmann

Dr. Gergana Vladova (research group leader)

The research group investigates new ways and forms of developing and imparting knowledge that are emerging in the course of digitalisation. This is leading to increasing inequalities in access to and mastery of digital technologies, which should be addressed by developing appropriate skills at each stage of life. As these competences have not been sufficiently researched to date, the group's research activities concern identifying precisely these challenges of the digital society. In different projects, group members apply both theoretical and strongly application-oriented research methods.

The group's projects, presented below, provide important insights both independently and together, as they address the different stages of education and thus contribute to the overall picture of skills development in the digital society.

Identification and Transmission of Necessary Digital Competences in the Context of School Education: The research group analyses existing competency models, curricula and educational plans, conceptual models and recommendations for digital education, and has critically tested and expanded them based on the results of a qualitative survey of educational actors. The resulting catalogue of competences serves, among other things, as a basis for conceiving, implementing and evaluating exemplary didactic units for teaching relevant digital competences that are currently underrepresented in the school environment.

Competence Development in a University Context: The research group investigates changes in teaching and learning processes and the organisation of teaching at universities. These are usually driven by both teachers (e.g. developing innovative teaching concepts) and students (e.g. using self-learning opportunities). The research focuses on new forms of teaching and learning. By including an external doctoral candidate in the research group, we have been able to gain a broader perspective that includes organisational conditions for teaching digital skills in universities. Consequently, we are researching the pedagogical potential of DIY lab infrastructures for digital competence transfer.

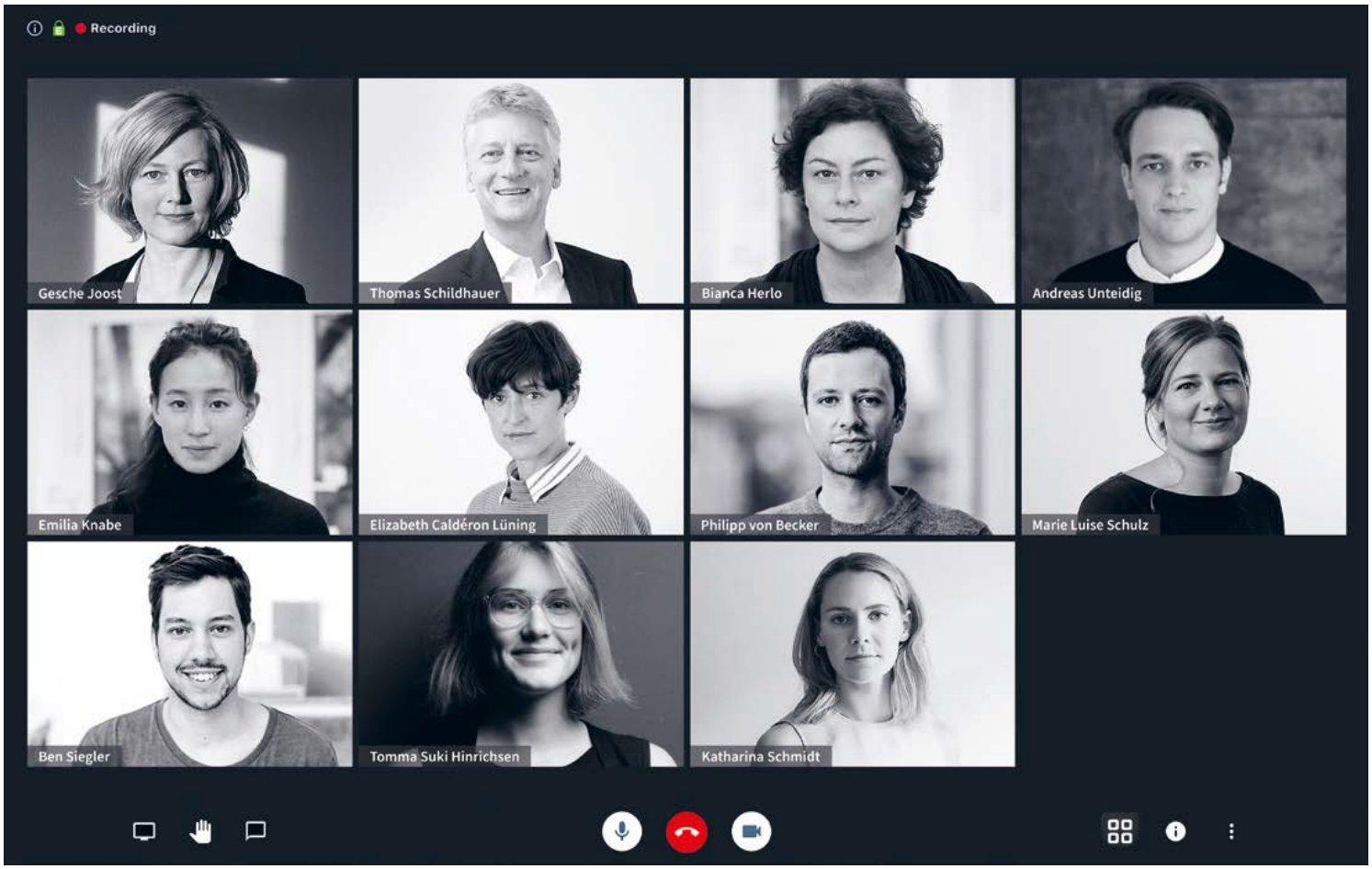
Adult Education and Further Training in a Company Context The development of suitable learning and qualification concepts for lifelong company learning requires the consideration of the specifics of different employee groups. To this end, we are conducting research with the aid of experiments, for example, on how the use of digital media promotes process and task knowledge (with a focus on older employees, among others) and how a systematic transfer of empirical knowledge can be enabled in order to develop adapted solutions for training offerings. During the period under review, particular importance was placed on studies and experiments carried out at the Research and Application Centre Industry 4.0 (FAZI) in Potsdam, including a joint project with Research Group 1, "Working in Highly Automated, Digital-Hybrid Processes" on the topic of assistance systems. The aim was to examine the effects of different training measures on the development of competences in a digitalised working environment.

Generation and Personalisation of Online Courses Through the Use of Data-Supported Procedures: The aim of this research project is to develop a procedure for identifying predictable user characteristics in order to personalise online courses at the micro level in terms of didactic methods and thus improve their effectiveness and individual acceptance by users. In an experiment conducted in cooperation with the Goethe Institute, Doctoral Candidate Leo Rüdian has developed a procedure for evaluating the answers to short-answer tasks in language courses. This has given rise to an AI that explains its assessment. The accuracy is 70 percent, which corresponds exactly to the consensus between the assessments of tutors and shows that the procedure results in realistic decisions.

Creativity as a Key Competence of The Future: Creatively intensive processes in working life have so far been insufficiently investigated. The group is researching them in a series of experiments with the aim of formulating recommendations for recognising and promoting creative phases, including in learning processes. Together with a research partner, Johnathan R. Cromwell (University of San Francisco, USA), we are currently working empirically and conceptually to develop survey methods for creative thinking in the context of digital media.

Another focus is the extensive research activities of Research Group Leader Gergana Vladova in the context of the COVID-19 outbreak. The pandemic has significantly affected educational processes at all levels. Within various empirical studies at schools and universities, researchers have investigated the handling of the situation by relevant actors and the possible long-term effects on education. Conceptual models (e.g. on teaching innovations in schools) and various publications (position papers, interviews and reports) have emerged as a result. In light of the particular conditions present in the 2020 summer semester due to the coronavirus pandemic, we were able to empirically investigate the digitalisation of higher education. This allowed us to gain important insights into the digitalisation of teaching.

RESEARCH GROUP 8:
INEQUALITY AND DIGITAL SOVEREIGNTY



MEMBERS OF THE RESEARCH GROUP:

Philipp von Becker

Elizabeth Caldéron Lüning

Dr. Bianca Herlo (research group leader)

Tomma Suki Hinrichsen

Prof. Dr. Gesche Joost (PI)

Emilia Knabe

Prof. Dr. Dr. Thomas Schildhauer (PI)

Katharina Schmidt

Marie Luise Schulz

Benedikt Siegler

Dr. Andreas Unteidig

The research group investigates the scope for action and decision-making for the sovereign use and appropriation of digital technologies and their design. The aim is to contribute to the construction of new models for people in the digital world. In the tension between regulation, technological development and digital skills, the group carries out qualitative research and asks

- How individuals and collectives deal with increasingly complex technologies and the resulting changes in relations of inequality,
- How informal practices of appropriation and use condition the negotiation processes around governance and
- How questions of regulation can be framed as a prerequisite for civil-societal and political design and participation.

The different perspectives of the research group are based on participatory and transdisciplinary design research, in which methodological approaches such as real-world labs and social living labs are anchored. Based on the research questions, the group developed dissertation projects, studies and transfer projects that deal with the different practical and discursive developments with regard to data sovereignty, digital participation, digital literacy, public-interest oriented digitalisation strategies and policy design. The following projects, among others, were initiated and continued in the reporting period:

Digital City Berlin Alliance: The Digital City Alliance Berlin is a transdisciplinary network of organisations and individuals from science and civil society that was co-initiated by the research group. The alliance works on the topics of urban policy and digital transformation and has been guiding the process of developing the Berlin Digitalisation Strategy since March 2019 with the aim of building a broad alliance of civil society, academia and parliamentary representatives.

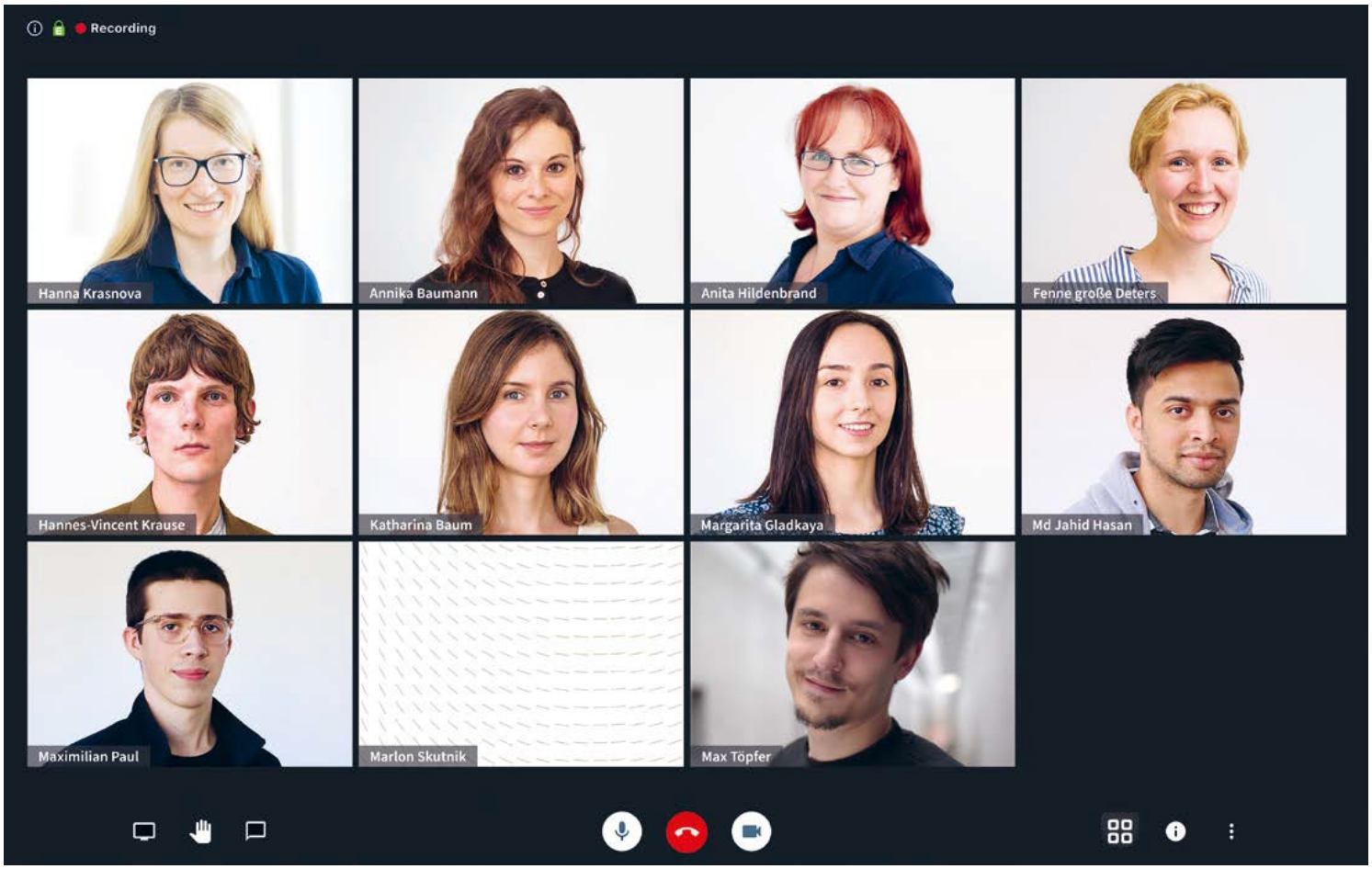
Intercultural Spaces of Participation: Together with the Berlin Senate Department for Urban Development and other partners from the fields of science, participatory practice and urban planning, the group is conducting a practice-led investigation into how digital participation can be made more inclusive in a post-migrant society and what conditions are necessary for intercultural opening in public administrations, among other through real-world laboratories in Berlin and Wiesbaden.

Workshop Discussions: The Workshop Discussions are an inter-research group series dealing with topics such as digitalisation for the common good, civic tech, experimental spaces for engaging with technology, new forms of knowledge production, platform cooperativism digital commons and digital participation. At regular intervals, representatives from politics, administration, civil society and academia are invited to the workshop discussions for informal talks in order to jointly develop socially relevant questions and areas of action with regard to helping to collectively design the digital transformation and with a view to generating further research fields and transdisciplinary projects.

The multi-day event “Practicing Sovereignty – Symposium, Exhibition, Workshops” planned for March 2020 was intended to create a space to discuss digital sovereignty at the level of individuals, groups and communities in various formats. It was intended to provide a stage for scientists, activists and artists who develop practices or provide spaces and structures to promote digital sovereignty. The event had to be cancelled at short notice due to the coronavirus pandemic. An interdisciplinary publication in the form of an edited volume is being planned.

During the reporting period, several research fellows were guests of the research group: Paola Pierri (University of the Arts London, United Kingdom) does research on social movements and civil society engagement. In particular, she examines the way in which digital technologies shape activists’ identities and how they mobilise dissent. Dr. Daniel Irrgang, who was initially a research fellow in the research group and is now part of its core team, deals in his research with visual representations of information from the perspectives of media theory and cognitive science (diagrammatics), interface and general HCI paradigms as well as with media archaeological issues. As a geographer, Dr. Bastian Lange (University of Leipzig) explores perspectives on “regional sovereignty” in the debate on “digital sovereignty”. By linking questions of digital sovereignty with questions of regional sovereignty, he wants to prepare a conceptually supported path to a spatially based differentiation of the meta-narrative of digitalisation. Author Dr. Thomas Ramge explores how machine learning and data richness can help people make more informed decisions. In his research project “MegaPixels”, the artist Adam Harvey seeks out facial recognition and facial analysis data sets to examine their ethical, legal and privacy implications. The project should help to establish clear guidelines for the use of images of other people as training data, to remove data records that violate the GDPR, and to provide journalists and academics with a permanent resource.

RESEARCH GROUP 9:
DIGITAL TECHNOLOGIES AND WELL-BEING



MEMBERS OF THE RESEARCH GROUP:

Katharina Baum

Dr. Annika Baumann (research group leader)

Margarita Gladkaya

Dr. Fenne große Deters

Md Jahid Hasan

Anita Hildenbrandt

Prof. Dr. Hanna Krasnova (PI)

Hannes-Vincent Krause

Maximilian Paul

Marlon Skutnik

Max Töpfer

The research group investigates the long-term individual and social consequences of the use of digital technologies. Digital technologies – from smartphones to social media – are omnipresent in our everyday lives. They are changing how we work and spend our free time, what information we are exposed to and how we interact with each other. The aim of our research group is to develop a better understanding of how using digital technologies affects the well-being, behaviour, perceptions and decision-making processes of users. On the basis of the knowledge gained, the group wishes to inform society about the possible negative consequences of digitalisation and enable people to reinforce the positive consequences. To answer the overarching research questions, the research group uses a variety of empirical methods such as surveys, interviews, experiments and machine-learning methods.

The following is a selection of current sub-projects.

Positivity on Social Media and the Spiral of Envy: This project aims to investigate the phenomenon of positivity distortion on social media, i.e. the observable tendency of users to primarily publish extremely positive content on their profiles. This project aims to investigate the emotion of envy as a causal explanation for the idealisation of an individual's own published images on social media. To answer this question, an online experiment was developed to investigate the effects of experimentally induced envy on the positivity of images published subsequently on Instagram.

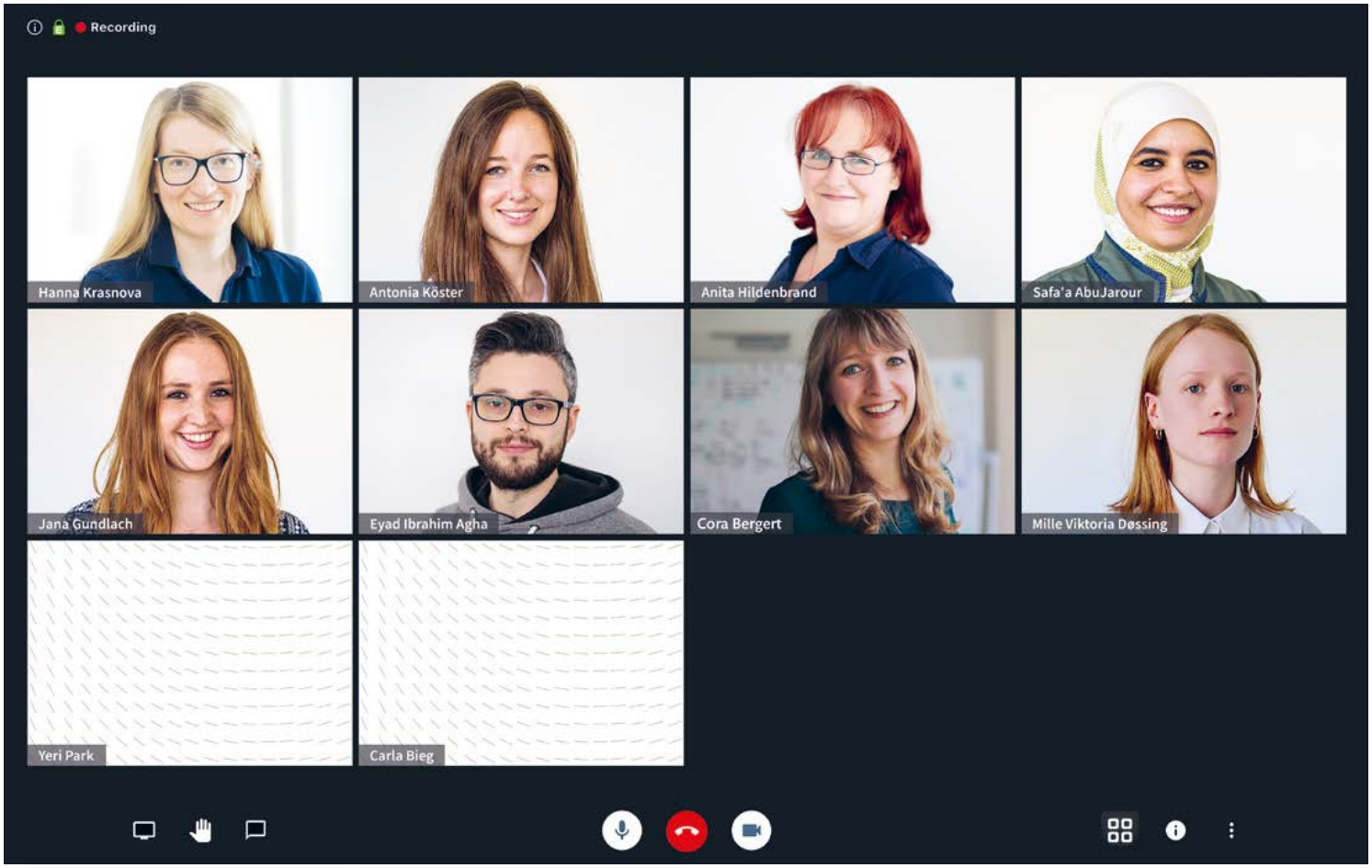
Smartphones and Well-Being: This project investigates the consequences of the use of smartphones on individuals' well-being. Smartphone use is an everyday, very frequent and highly fragmented behaviour. Accordingly, self-reported and objectively measured smartphone use differ greatly. With the help of objective research methods and both experimental and longitudinal studies, this project investigates the influence of smartphone use on physical, psychological and social aspects of well-being. The focus here is on mental and cognitive overload and a potential reduction of so-called affective clarity.

Social Media and Privacy: Despite growing concerns about privacy on social media, individuals still rarely seek to protect their personal data. Based on an online experiment, this project aims to gain deeper insights into how individuals behave with regard to the disclosure of information on social media and to develop an intervention that leads to improved protection of individuals' privacy. The first results of a preliminary study show that an increased commitment induced by an intervention can lead to a positive change in data protection behaviour.

The research group is well connected internationally. This can be seen in the researcher-in-residence stays of research group members at renowned international institutes (for example, Katharina Baum's stay at the Norwegian School of Economics, Norway; Dr. Annika Baumann's stay at the University of Queensland, Australia). Furthermore, networking continued in the reporting period via junior and senior research fellows. The following are noteworthy:

- **Prof. Dr. Monideepa Tarafdar** (University of Lancaster, United Kingdom): in a joint project, the role of social media in the perception of social inequality is being investigated.
- **Dr. Michael Wessel** (Copenhagen Business School, Denmark): in a joint project, the strategic behaviour of doctors on doctor-patient portals as well as the existence of possible biases in the online evaluations of doctors depending on the platform will be investigated.
- **Dr. Marten Risius** (University of Queensland, Australia): a cooperation in the project "Social Media and Privacy" is underway in collaboration with this research fellow.
- **Ramona Schödel** (Ludwig-Maximilians-UniversityMunich): a cooperation in the project "Smartphones and Well-Being" is underway in collaboration with this research fellow.

RESEARCH GROUP 10:
DIGITAL INTEGRATION



MEMBERS OF THE RESEARCH GROUP:

Safa'a AbuJarour
Cora Bergert
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Ibrahim Agha Eyad
Jana Gundlach
Anita Hildenbrandt
Dr. Antonia Köster (research group leader)
Prof. Dr. Hanna Krasnova (PI)
Yeri Park

Growing social inequality has gained in importance worldwide as a result of refugee movements, migration and the current coronavirus crisis. The impact of the coronavirus pandemic, for example, highlights the importance of ensuring that all children can avail of digital educational opportunities. Against this background, the research group examines the potential of digitalisation to promote the participation of vulnerable groups in society and reduce perceptions of inequality. The focus is on how using social media and other digital solutions influences the processes of social inclusion but also the development of stressors. The key research questions are:

- How do vulnerable population groups (refugees, children, youth) engage with new digital solutions?
- What factors should the various stakeholders (platform providers, governments, educational authorities) consider in this context?

In the period under review, the group's activities centred on two main research areas, with two projects being carried out in each area. Empirical methods were used to answer the respective research questions. A large number of surveys and qualitative interviews were conducted.

Research Focus 1: Effects of Information Organisation and Presentation in Social Media

Social Media and the Perception of Inequality: The research project analyses how the use of information and communication platforms such as Instagram influences perceptions of social inequality in society. The first results were presented and published at the European Conference of Information Systems. The project is being carried out together with Research Group 9 and in collaboration with Research Fellow Prof. Dr. Monideepa Tarafdar (University of Lancaster, UK)

Social Media and Stressors: This research project investigates the effects of information organisation and presentation on the psychological stress experienced by social media users and on problematicbehaviour (e.g. discrimination or hate speech). Initial findings provide indications of a connection between perceived information disorder on social media and the associated stress effects on users. Results were presented and published at the European Conference of Information Systems. Follow-up studies should examine both the mechanisms that favour and the effects on potentially anti-social behaviour (exclusion). This project is also being developed together with Research Fellow Prof. Dr. Monideepa Tarafdar .

Research Focus 2: Use of Digital Technologies by Vulnerable Population Groups

Children's Use of Smartphones or Tablets: This research project investigated the benefits that parents see in terms of children's gadget use and what concerns they have. The study also examined the influence of parental behaviour on children's use of technology. The results were presented at the German Business Informatics Conference in Potsdam and published in cooperation with Research Fellow Prof. Ofir Turel (University of California, USA). Follow-up studies are being planned in order to highlight the particular challenges of providing successful digital education to children in times of COVID-19.

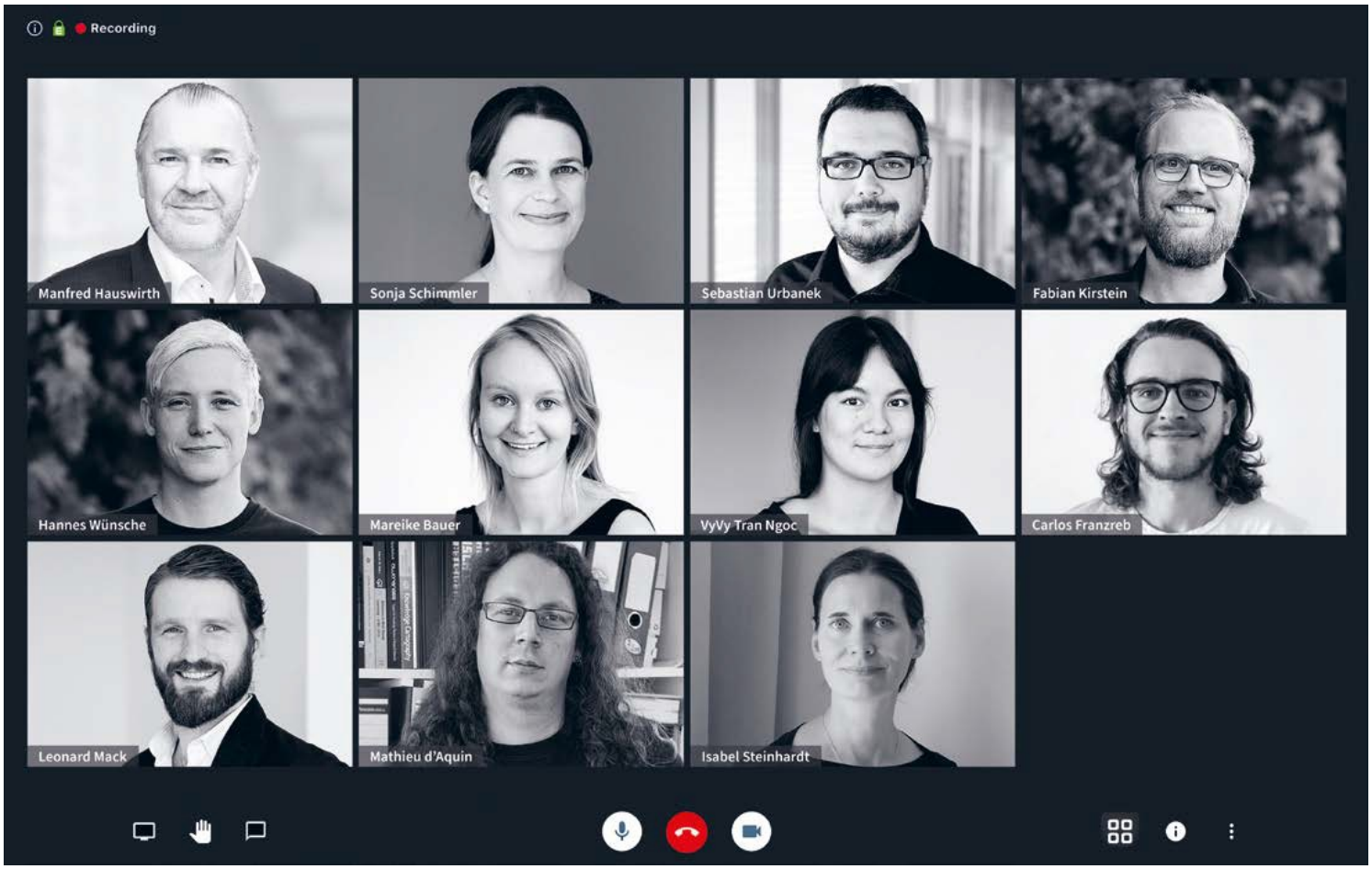
Social Inclusion of Refugees: In this research project, the potential of information and communication platforms to facilitate the social inclusion of refugees in the host country was investigated using qualitative research methods. The research project on the empowerment of refugees is being developed with Safa'a AbuJarour (former doctoral candidate) and Research Fellow Prof. Dr. Manuel Wiesche (Technische Universität Dortmund).

With regard to international cooperation, the research group was able to attract Prof. Dr. Monideepa Tarafdar (University of Lancaster, Great Britain) for a further research stay. She participates in several of the group's research projects.

The group's research results were presented in various lectures and transfer events during the reporting period. For example, the results of the research project on children's use of technology were incorporated into a "Digital Flyer" workshop with children from the John Lennon Gymnasium school in Berlin. Building on this, the results were presented at a parliamentary evening at the Weizenbaum Institute in the keynote speech entitled "Our Children and the Smartphone" and were also presented and published at the Business Informatics Conference in Potsdam. Furthermore, the results were addressed during the panel discussion "Digital Fears as a Challenge for Society" at the event: "Myths, Visions and Dystopias – How Digital Fears Influence Our Society" organised by Freiwillige Selbstkontrolle Fernsehen (FSF) and Freiwillige Selbstkontrolle Multimedia-Diensteanbieter (FSM) in Berlin.

It should also be emphasised that the research group organised a panel on "Open Data in Business Informatics" at the European Conference on Information Systems during the reporting period. In a discussion with professors, the issue of which steps are necessary to establish open science more firmly in the discipline were addressed.

RESEARCH GROUP 11:
DIGITALISATION AND SCIENCE



MEMBERS OF THE RESEARCH GROUP:

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Carlos Franzreb

Prof. Dr. Manfred Hauswirth (PI)

Fabian Kirstein

Leonard Mack

VyVy Tran Ngoc

Dr. Sonja Schimmler (research group leader)

Dr. Isabel Steinhardt

Sebastian Urbanek

Hannes Wünsche

The research group investigates the influence of digitalisation on academic research. Digitalisation is understood as a change in research and publication processes that aims to increase the usefulness of research. The research group concerns itself with open science, in particular with data platforms (open data) and forms of citizen participation (citizen science). In doing so, it works as openly as possible and strives, among other things, to make publications available as open access, data as open data and software as open source.

The work of the research group is influenced by current technical developments in the fields of the semantic web and linked data as well as data science and artificial intelligence. The group draws on the extensive experience of Fraunhofer FOKUS in the field of open data management and open data platforms. As a basis for the work, the group uses piveau, an internal project to create a data management ecosystem, and the European Data Portal, which is an EU project.

The work focuses on the conception, development and evaluation of an open science infrastructure tailored to the needs of the users at the Weizenbaum Institute. In the medium term, all the systems developed are intended to serve as a basis for the research group's further research activities. The research group is gradually expanding these systems, in particular adding innovative (partially) automated methods and experimenting with new forms of scientific communication and collaboration.

As a first building block of the open science infrastructure, the research group has developed a repository for publications and research data, the Weizenbaum Library, together with an external service provider. The aim is to collect as many publications and as much research data as possible, together with detailed metadata, and make them available to the public for further use. The repository will be introduced at the Weizenbaum Institute at the end of 2020 and then tested with the other research groups. The research group also designed a citizen science portal and implemented it as a prototype. The aim of the portal is to involve citizens in the research of the Weizenbaum Institute. A first evaluation of the prototype took place at the Internet Governance Forum 2019. In 2021, the development of the portal will continue, and it will be evaluated in some initial projects.

Alongside the conception and implementation of the open science infrastructure, the group developed three research projects, two on data platforms and one on public participation: Decentralised Management and the Tracking of Provenance Data of Linked Open Data (Fabian Kirstein), Applying Statistical Methods to Evaluate and Possibly Improve the Quality of (Research) Data (Sebastian Urbanek) and Digitalisation, Democracy and Citizen Science (Hannes Wünsche)

The first results have already been published and presented at conferences and workshops. A highlight of last year was the publication "Piveau: A Large-Scale Open Data Management Platform Based on Semantic Web Technologies", which was nominated for the Best In-Use Paper Award at the ESWC 2020. Another crowning moment of last year was the 19th ACM Symposium on Document Engineering (DocEng 2019), which the research group hosted in September 2019, with Sonja Schimmler in the role of general chair and programme co-chair.

Within the Weizenbaum Institute, the research group is in continuous dialogue with the other research groups in order to establish an open science infrastructure tailored to the needs of the institute. Sonja Schimmler continued her involvement in the IT working group to support the development of an open IT infrastructure at the Weizenbaum Institute. The research group continued the interdisciplinary cooperation within the cross-sectional format "Security & Openness". It also contributed to two position papers of the Weizenbaum Institute on the German federal government's data strategy and the European data strategy.

The research group cooperates closely with its associated researchers Dr. Isabel Steinhardt (University of Kassel) and Prof. Mathieu d'Aquin (National University of Ireland Galway, Ireland). Another highlight of last year was a collectively organised workshop, the results of which were published in the form of a handbook "Das Öffnen und Teilen von Daten qualitativer Forschung" (Opening and Sharing Data from Qualitative Research) in the Weizenbaum Series.

The research group is actively networking both nationally and internationally. Existing cooperations, for example, with Wikimedia Deutschland e. V., will be expanded. New cooperations will also be established as required.

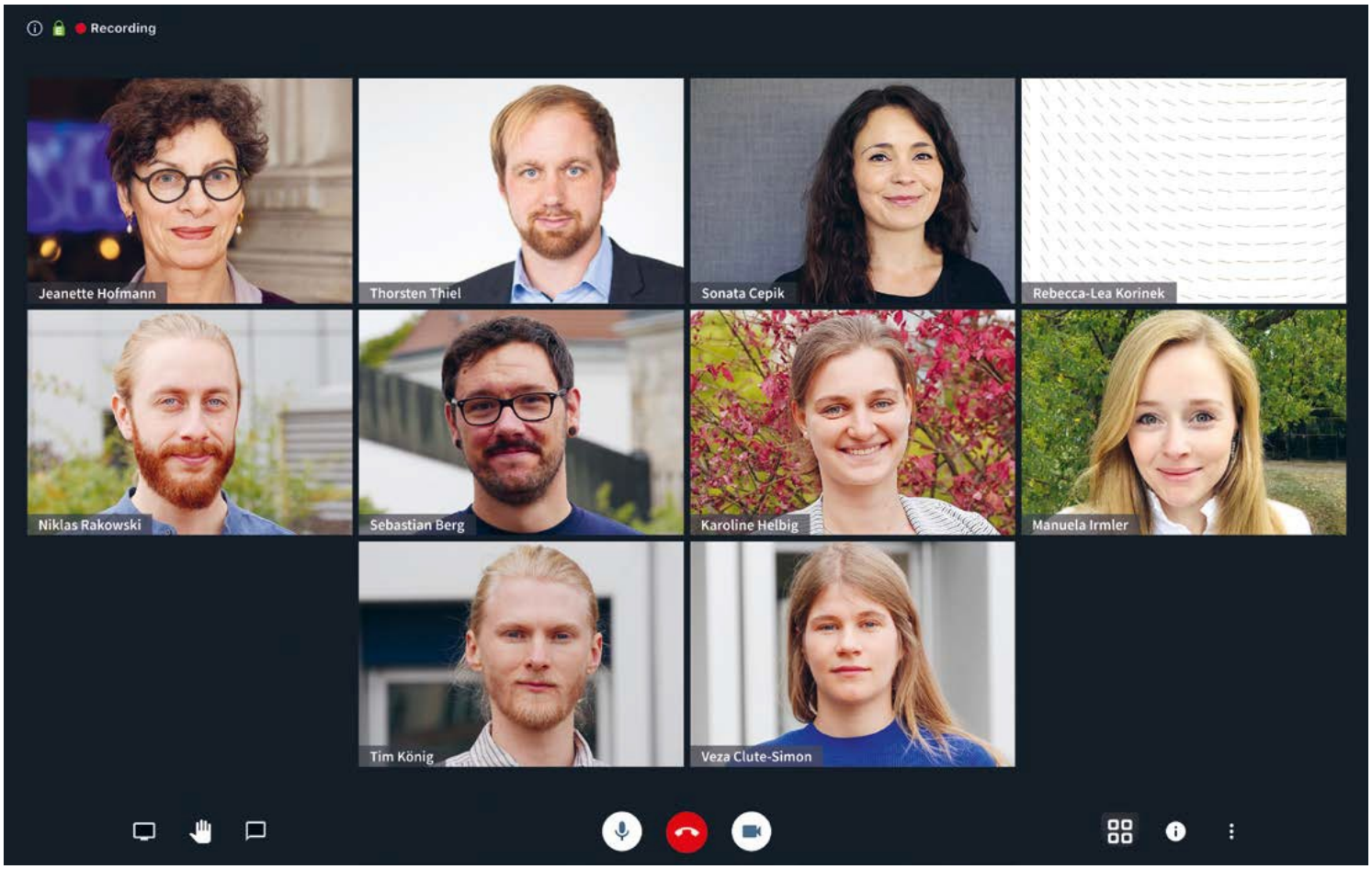
The research group is active in the Berlin University Alliance, owing to a successful application from the last funding round of the Excellence Strategy. It was involved in the areas of "Advancing Research Quality and Value" and "Sharing Resources". Highlights include the cooperation project "Open Science by Design" with Oxford University and the project "A Digital Research Space for the Berlin University Alliance".

The research group is participating in the NFDI initiative, which aims to establish a national research data infrastructure. A high point was the joint organisation of a series of workshops, as a result of which the paper "Leipzig-Berlin-Erklärung zu NFDI-Querschnittsthemen der Infrastrukturentwicklung" (Leipzig-Berlin Declaration on NFDI Cross-Cutting Topics of Infrastructure Development) was published. Another highlight was the participation of the research group in the consortium "NFDI4Cat: NFDI for Catalysis-Related Sciences".

4.4 Research Area IV
Democracy, Participation and the Public Sphere

In this research area, our research groups investigate how participation processes in contemporary democracies are fundamentally changing under the influence of digital technologies and what influence digitalisation has on the formation of public opinion and discourse.

RESEARCH GROUP 12:
DEMOCRACY AND DIGITALISATION



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Veza Clute-Simon
Karoline Helbig
Prof. Dr. Jeanette Hofmann (PI)
Manuela Irmler
Tim König
Rebecca-Lea Korinek
Niklas Rakowski
Dr. Thorsten Thiel (research group leader)

The research group investigates the interaction between digitalisation and democratic self-determination with a focus on the question of how liberal-democratic societies are changing in the process of digitalisation. Three thematic complexes are explored: in the area of political participation, the group examines the question of how the individual and collective capacity to act and the forms of political interaction are changing and how this change is to be evaluated in terms of democratic theory. In the area of changing public spheres, the group is discussing the significance of datafication and the algorithmic selection of information and the dissemination of these processes in the context of privately organised, globally active platforms and examining the means by which democracies can structure and moderate their public spheres. In the area of law and governance, the focus is on the effective institutionalisation of basic democratic rights, such as privacy and freedom of assembly.

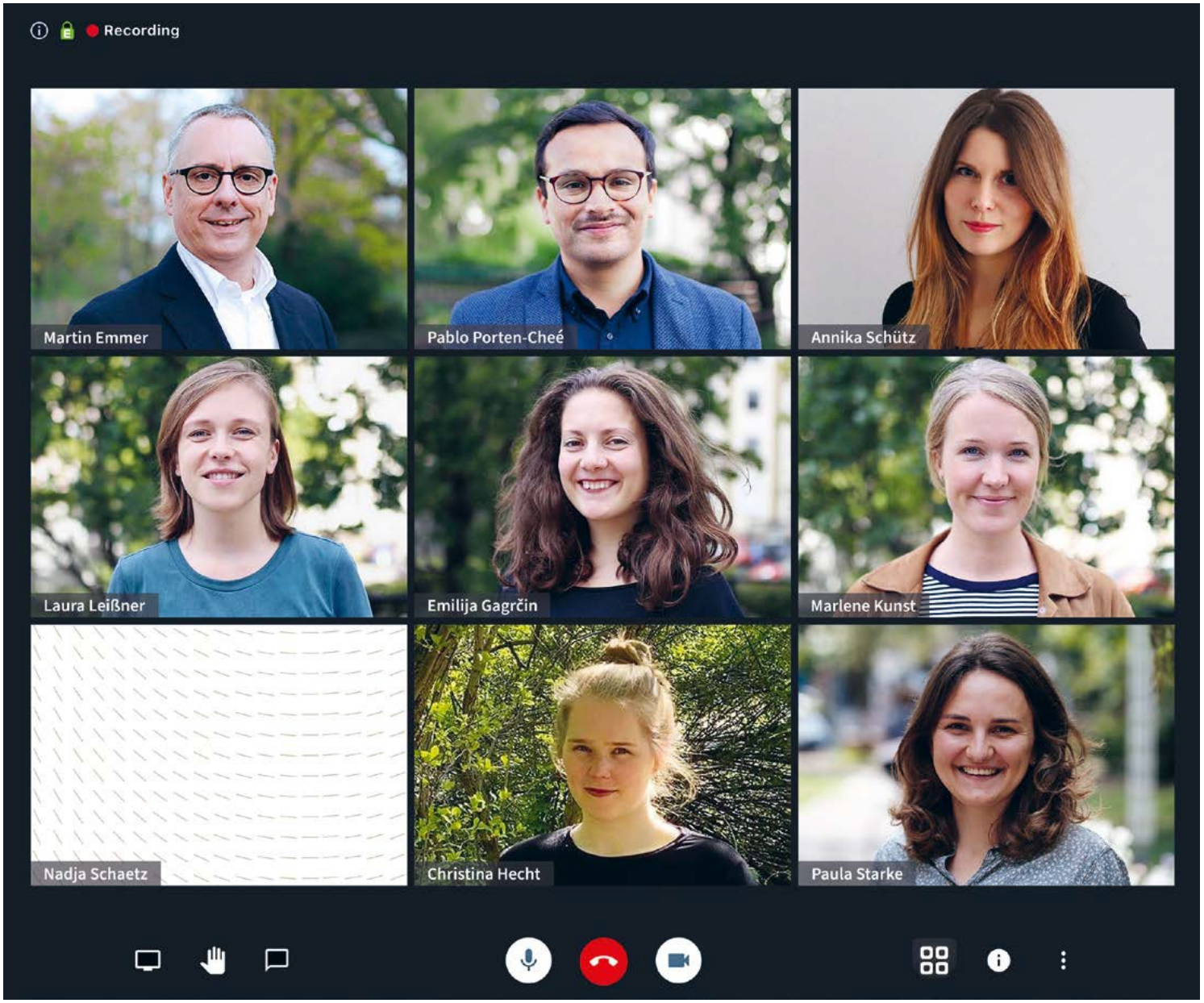
In the period under review, the group wrote a new, jointly authored study addressing the basic theoretical underpinnings of such issues under the title “Die digitale Konstellation. Eine Positionsbestimmung” (The Digital Constellation. A Determination of Position), which was published in the *Zeitschrift für Politikwissenschaft*. In it, the members of the research group discuss, on the one hand, how the digital society has become a central research topic in the social sciences and, on the other hand, what methodological and conceptual challenges the digital constellation poses for political science in particular.

A major focus of the research group’s work in the period under review was the investigation of developments in civic tech. Here, the coronavirus pandemic and the approaches to its management by civil society provided an important new project area. An initial analysis of the #WirvsVirus hackathon by five members of the research group, which was initiated by the civic-tech scene and ultimately funded by the German government, was published in the WZB-Mitteilungen. Further analyses are to follow. This research was accompanied by a podcast interview in the series “Weizenbaum im Homeoffice” (Weizenbaum in Home Office) with research group leader Thorsten Thiel and Adriana Groh from the Prototype Fund.

From February 2020, Doctoral Student Sebastian Berg was on a research stay at Princeton University, USA, where he was invited by Prof. Jan-Werner Müller to conduct research on the nexus of demoscopic procedures, political advertising and representative democracy. The stay had to be shortened due to the coronavirus pandemic.

Robert Gorwa (Oxford University, United Kingdom) and Torben Klausa (Bielefeld University) were fellows during the reporting period. Both have a research focus in the area of public or platform regulation, which was reflected, among other things, in jointly organised guest lectures at the Weizenbaum Institute. Two other transatlantic fellowships had to be postponed due to the coronavirus pandemic; Prof. Colin Bennett (University of Victoria, Canada) conducted an online seminar on election campaigns and data collection at the end of the reporting period in anticipation of his stay.

RESEARCH GROUP 13:
DIGITAL CITIZENSHIP



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Marlene Kunst

Laura Leißner

Dr. Pablo Porten-Cheé (research group leader)

Nadja Schaetz

Annika Schütz

Paula Starke

The research group examines how political participation and social commitment develop under the conditions of digitalisation and seeks to identify which factors could explain political and social participation today. For this purpose, the group systematically looks at several change processes: it identifies and analyses changing and newly emerging attitudes towards and expectations of civic engagement in democracy – so-called emergent citizen norms – and their consequences for people's political action. The group also deals with participation in discourse under difficult conditions, such as those created by hate speech.

The research group wants to find out, first, how people understand their relationship to democracy today and second, how this relationship is changing in the context of digital media environments over time. The theory formation is based on broadly conceived empirical work. The research group collects and examines data from representative telephone surveys in panel design, from qualitative interviews and focus groups, and from web-based experiments with citizens. The group is currently also using digital methods, such as the analysis of simulated user data.

Four current projects should be highlighted in the reporting period:

Networked Civil Standards: Based on qualitative interviews and group discussions among regular users of social media, project

members identified how the ideals of citizenship are shaped by individual experiences with calls for political action and mutual observation of this on social media. The resulting citizen norms include, for example, the careful compilation of personal informational menus and the commitment to maintaining positive discourse conditions online in terms of content and form. These findings were presented virtually at a renowned communication science conference, the International Communication Association Conference (ICA) in May 2020; a manuscript is about to be submitted to an international journal.

The Long-Term Development and Explanation of Political Participation in Germany: In annual quantitative survey studies, the research group investigates which personal and media characteristics affect the exercise of political participation. These factors were investigated for the first time in autumn 2019 in a telephone survey with about 1,300 persons in the laboratory of the FU Berlin in a longitudinal study that is representative of the German population. A Weizenbaum Report (No.1) provides initial insights; a further publication testing an explanatory model for newer forms of political participation is currently being prepared.

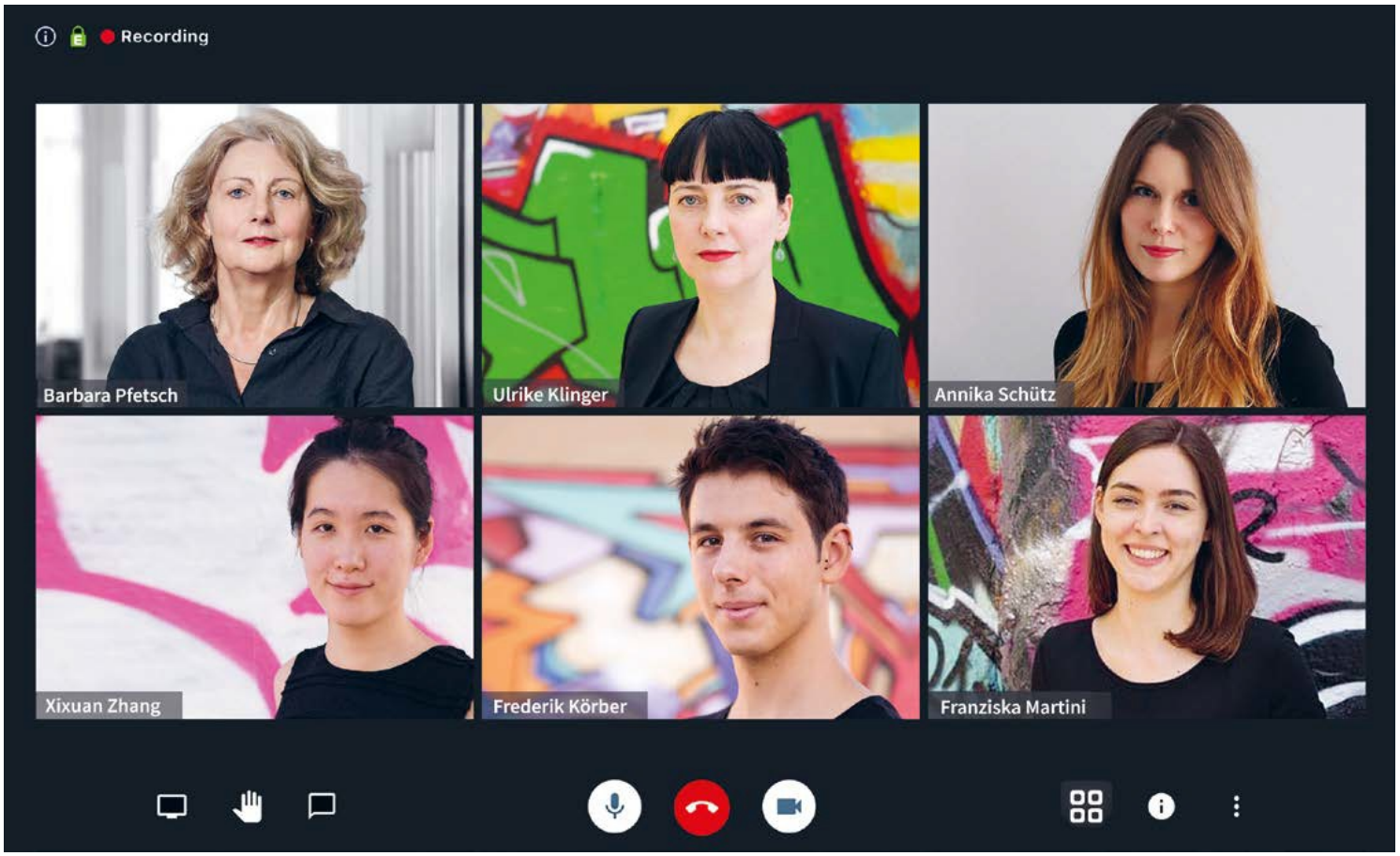
Factors Influencing Participation in Online Petitions in a Country Comparison: In an international comparative online survey in Australia and Germany, the group and its fellow, Prof. Dr. Ariadne Vromen, (Australian National University, Canberra) investigated how certain individual characteristics and properties of online media content affect participation in online petitions. The research shows that storytelling in the petition descriptions and the visualisation of the number of previous participants were relevant. The results were submitted as a manuscript to an international journal and also presented at ICA 2020.

Online Civic Intervention (OCI): Based on a systematic literature review, the project conceptualised users' reactions to hate speech, incivility etc. as a new intervention-related form of political participation aimed at restoring an accessible and rational discourse. The results of this theoretical work were presented at a renowned European conference (ECREA Political Communication Section) and published as a journal article in the noted *International Journal of Communication*.

In a subsequent empirical project, the group is currently investigating how the emergence of discursive norms on the internet can be traced using simulated user interventions in online discussions. The goal here is to identify which factors favour or hinder the emergence of such discoursive norms. Initial findings will be presented at the Weizenbaum Conference 2021.

In addition, research collaborations with other fellows were intensified. In collaboration with Prof. Dr. Michael Xenos (University of Wisconsin-Madison, USA), a former senior research fellow, the group established a publication project focusing on participation, political polarisation and news use.

RESEARCH GROUP 14:
NEWS, CAMPAIGNS AND THE RATIONALITY OF PUBLIC DISCOURSE



MEMBERS OF THE RESEARCH GROUP:

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Frederik Körber

Franziska Martini

Prof. Dr. Barbara Pfetsch (PI)

Annika Schütz

Xixuan Zhang

The research group theoretically and empirically studies the contents and processes of political communication in digital public spheres with a focus on election campaigns and discursive dynamics in social media platforms such as Facebook or Twitter. In the period under review, the following projects were the main focus:

Who is #MeToo? A Network Analysis of (Anti-)Feminist Protests on Twitter (Franziska Martini) Feminist activism on digital platforms comes with both opportunities and new dangers – from the networking potential and organisation of feminist public spheres on the one hand to new forms of hatred against activists and the exclusion of certain groups of people on the other. Using network and content analyses, this study examines the German-language #MeToo protest on Twitter and asks which actors were influential and visible here and successfully used Twitter as a platform for themselves. It reveals that, besides private users, traditional mass media played a central role on Twitter. At the same time, a dense network of anti-feminist and racist voices who wanted to mobilise strategically for their own concerns could be found within the #MeToo protest. Based on this, we can conclude that hierarchical structures and qualitative differences in networking are also emerging on Twitter and that these constitute barriers to the public articulation of feminist concerns. The article on this study was published in August 2020.

Understanding Contentious Politics on Twitter: A Case Study of #HomeToVote and the Irish Abortion Referendum 2018 (Xixuan Zhang): With this case study of the Irish #HomeToVote campaign in the run-up to the referendum to abolish the ban on abortion in Ireland in 2018, Xixuan Zhang further developed her master's thesis. Many studies have examined digital political actions by analysing social networks. However, most of these studies model their networks by mapping political data at a particular point in time rather than working chronologically and examining the changing nature of the process. Using a combination of social network analysis and content analysis, Xixuan Zhang examined each actor and linkage of #HomeToVote during different phases to explain the development of networking on a controversial political issue within and beyond groups. The manuscript of the research article is in the review process of an international scientific journal.

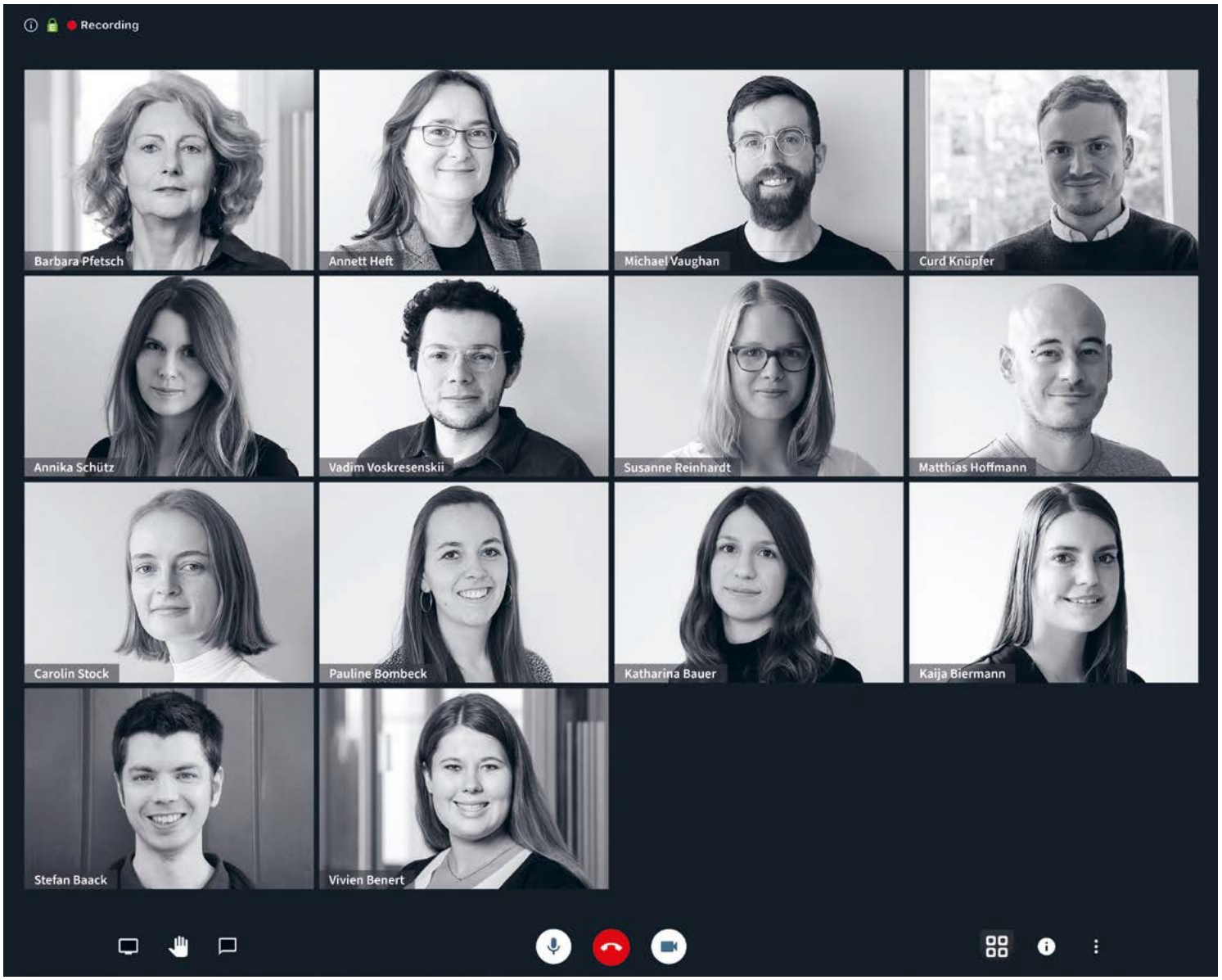
EU Election Campaigns on Facebook: In this project, the research group compares the Facebook postings made by political parties from twelve European countries during the hottest phase of the election campaign for the 2014 and 2019 European elections. Among other things, the aim is to find out why some content was frequently shared, liked and commented on while other content was not – in other words, which factors could predict the popularity of content and thus discourse dynamics. To this end, the group developed a codebook and conducted a quantitative manual content analysis of approximately 20,000 postings.

COVID-19 and Government Communication in Germany: In this cooperative project with Dr. Isabelle Borucki (NRW School of Governance at the University of Duisburg-Essen), the research group is investigating the German government's communication about the coronavirus and COVID-19. One book chapter is under review.

In addition, projects (such as "Loud Minorities in Dissonant Public Spheres: Mapping the Protest Campaign against the UN Global Compact for Migration") from the previous year were completed, and manuscripts were written and revised.

The task of organising four international conferences, three of which had to be postponed until 2021 due to the pandemic, was a particular focus of work. Together with Research Group 15, the group was in charge of organising the annual conference of the Digital Communication Section of the German Society for Journalism and Communication Science. The conference entitled "Automating Communication in the Networked Society: Contexts, Consequences, Critique" was organised in cooperation with the Alexander von Humboldt Institute for Internet and Society and took place from 6 to 8 November 2019 in Berlin. From over 80 submissions, 29 presentations from 13 countries were selected. The conference itself was attended by 132 people. A special highlight was the keynote by Shoshana Zuboff (Harvard University, USA) on surveillance capitalism, which was attended by about a thousand listeners at Urania Berlin.

RESEARCH GROUP 15:
DIGITALISATION AND THE TRANSNATIONAL PUBLIC SPHERE



MEMBERS OF THE RESEARCH GROUP:

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Pauline Bombeck

Dr. Annett Heft (research group leader)

Dr. Matthias Hoffmann

Dr. Curd Knüpfer

Prof. Dr. Barbara Pfetsch (PI)

Susanne Reinhardt

Annika Schütz

Carolin Stock

Dr. Michael Vaughan

Vadim Voskresenskii

The research group deals with the role that digital technologies and the media play in the formation of transnational and national public spheres, political issue networks within civil society and processes of political mobilisation. It focuses on right-wing populist and right-wing extremist groups, media and parties and seeks to determine the extent to which the internet contributes to the formation, consolidation and transnationalisation of digital communication ecologies. It thus investigates digital communication environments that emerge in connection with right-wing populist issues such as migration, asylum, anti-feminism or anti-Islamism in different Western democracies.

In the reporting period, projects in the area of (trans)national political publics were continued. The main focus of the research group's work was a project on the digital communication and interaction of right-wing populist parties in the context of the 2019 European elections. Here, four sub-studies explored:

- The thematic agendas of the radical right in six countries,
- Digital links between right-wing parties and mobiliisation networks,
- Attention dynamics between extreme right-wing parties, media and social media followers, and
- Platform effects on the anti-elitism of European right-wing parties.

Closely related to this is a project that dealt with pan-European journalistic collaboration from a journalistic perspective – also in the context of the European elections. To this end, together with associated researcher Dr. Stefan Baack, the group is carrying out an analysis of collaboration practices in the research network Europe's Far Right", an association of European media for reporting on European right-wing parties.

The "Right-Wing News Infrastructures" and "Hijacking MeToo" projects, which were a key focus in 2018, were largely completed during 2019. In new research projects, which started during the reporting period, the group deals on the one hand with the thematic convergence and radicalisation of the alternative, reactionary right on YouTube and on the other hand with the resilience of public spheres in the context of the COVID-19 pandemic. In addition, emerging researchers continued their PhD projects in the reporting period; Matthias Hoffmann successfully completed his doctorate in April 2020.

Once again, the research group cooperated closely in its projects with proven national and international experts. During the reporting period, the guests included Prof. Hans-Jörg Trenz (University of Copenhagen, Denmark) as a senior fellow and Ofra Klein (European University Institute, Italy), Anna Litvinenko (FU Berlin), Jordan McSwiney (University of Sydney, Australia), Eva Mayerhöffer (University of Roskilde, Denmark) and Elena Pavan (University of Trento, Italy) as junior fellows. Scientific contributions by members and fellows of the research group have been published in internationally renowned journals and national book publications.

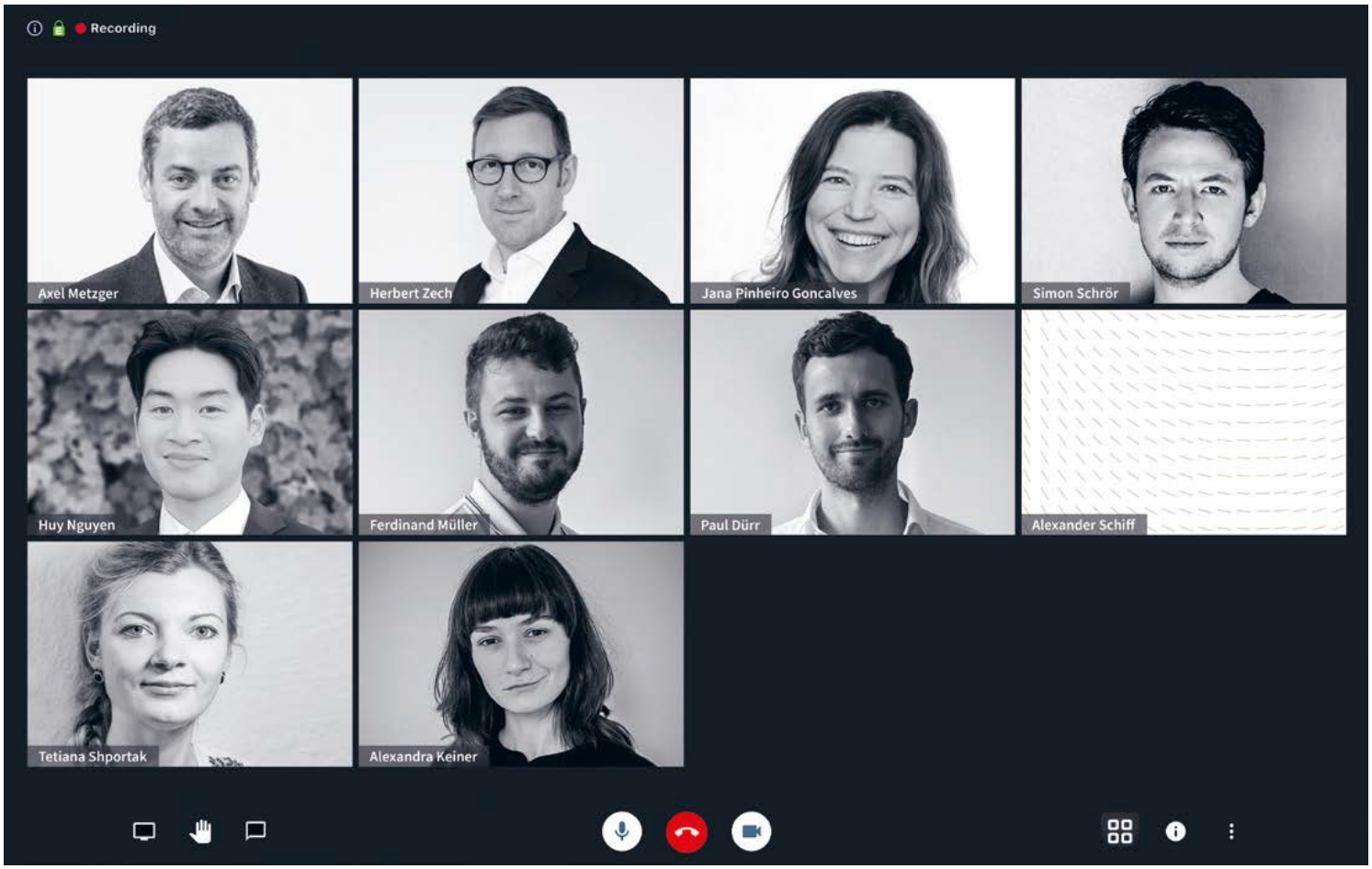
The findings of the group's research activities were also presented at international scientific conferences, national symposia and workshops, including the Conference of the International Journal of Press/Politics, the Annual International Communication Association Conference and the General Conference of the European Consortium for Political Research. In addition, the members of the research group were instrumental in organising the Weizenbaum Research Days and the third Weizenbaum Conference on "Democracy in Transition: Order – Dynamics and Opinions in Digital Public Spheres", which was to take place in Berlin in June 2020 and had to be postponed due to the COVID-19 pandemic. Representatives of the research group also took part in networking meetings with actors from politics and society, for example, in a discussion round of the Heinrich-Böll Foundation on the topic "Lessons Learned from 2016? Strategies for Internal and External Cybersecurity Threats in 2020", an event organised by the Robert Bosch Foundation to present the study "Online Ecosystems of Right-Wing Extremist Actors" and a panel discussion in the event series "Forum Bellevue on the Future of Democracy" on the topic "Which Future? On Democracy and Progress" with Federal President Frank-Walter Steinmeier.

Group methodological training was furthered, among other things, by the participation of staff in workshops, for example, a workshop by GESIS – Leibniz Institute for the Social Sciences on "Automatic Sampling and Analysis of YouTube" and courses of the European Consortium for Political Research Winter School 2019 in Bamberg on "Automated Web Data Collection with R". There was also a personnel change in the research group in the reporting period. The departure of Dr. Curd Knüpfer, who now holds a position as junior professor, made it necessary to fill a new position. Since 6 December 2019, Dr. Michael Vaughan has been working as a post-doctoral fellow in the research group, strengthening its international and interdisciplinary orientation.

4.5 Research Area V
Governance and Norm Setting

In the networked society, we are observing a profound change in social-coordination, control and legislative processes. Our research groups investigate how the conditions underpinning them, the forms they take and the objects they concern themselves with are changing in the course of the digital transformation.

RESEARCH GROUP 16:
SHIFTS IN NORM SETTING



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Huy Nguyen

Jana Pinheiro Goncalves

Alexander Schiff

Simon Schrör (research group leader)

Tetiana Shportak

Prof. Dr. Herbert Zech (PI)

Does automated or machine-based communication damage the democratic decision-making process? What does open source software have to do with conflicts in global markets for cultural goods? How can machines participate in legal processes? What structures discourses on law and technology? What is common to all these is the element of standardisation. Who creates such standards, how are they implemented and how does the potential of social actors to set standards change? To this end, the research group systematicallyexamines the developments in and interdependencies of social, legal and technical standards against the background of the networking and digitalisation of society.

Social norms, conventions or underpinning social structures are the least obvious but most basic rules that seem to be changing with the digitalisation of society. The studies undertaken by the research group systematically incorporate the socio-normative dimensions underlying the subjects they investigate.

Legal standards, be they national or European laws, international agreements or even private codes, are increasingly being affected by digitalisation. Shifts in standard-setting powers or the application of existing law to new subjects of regulation make the analysis of legal standards urgent and relevant.

Finally, the research group includes technical norms, i.e. standard-setting in technical systems and processes, in its analyses. What is at issue here is not so much the nature of such technical standards themselves as the legally and sociologically observable effects that such regulations have on law, the economy and society.

In accordance with this three-dimensional concept of standards, which the research group uses as a basis for its work, the group looks at the following areas of the networked society, among others: Corporate (self-)regulation, European legal forms, transformation of the cultural goods industry or automated communication. These are all examples of processes in which the potential to regulate life circumstances and set standards is fundamentally changed by digitalisation.

Researchers from the legal and social sciences approach such processes methodologically very differently. Legal analyses of public and private law and sociological, empirical studies using artefact-oriented situation analyses are supplemented by interdisciplinary approaches. These include, for example, object-related dovetailing of legal and social science knowledge or the systematically controlled, empirical analysis of legal discourses.

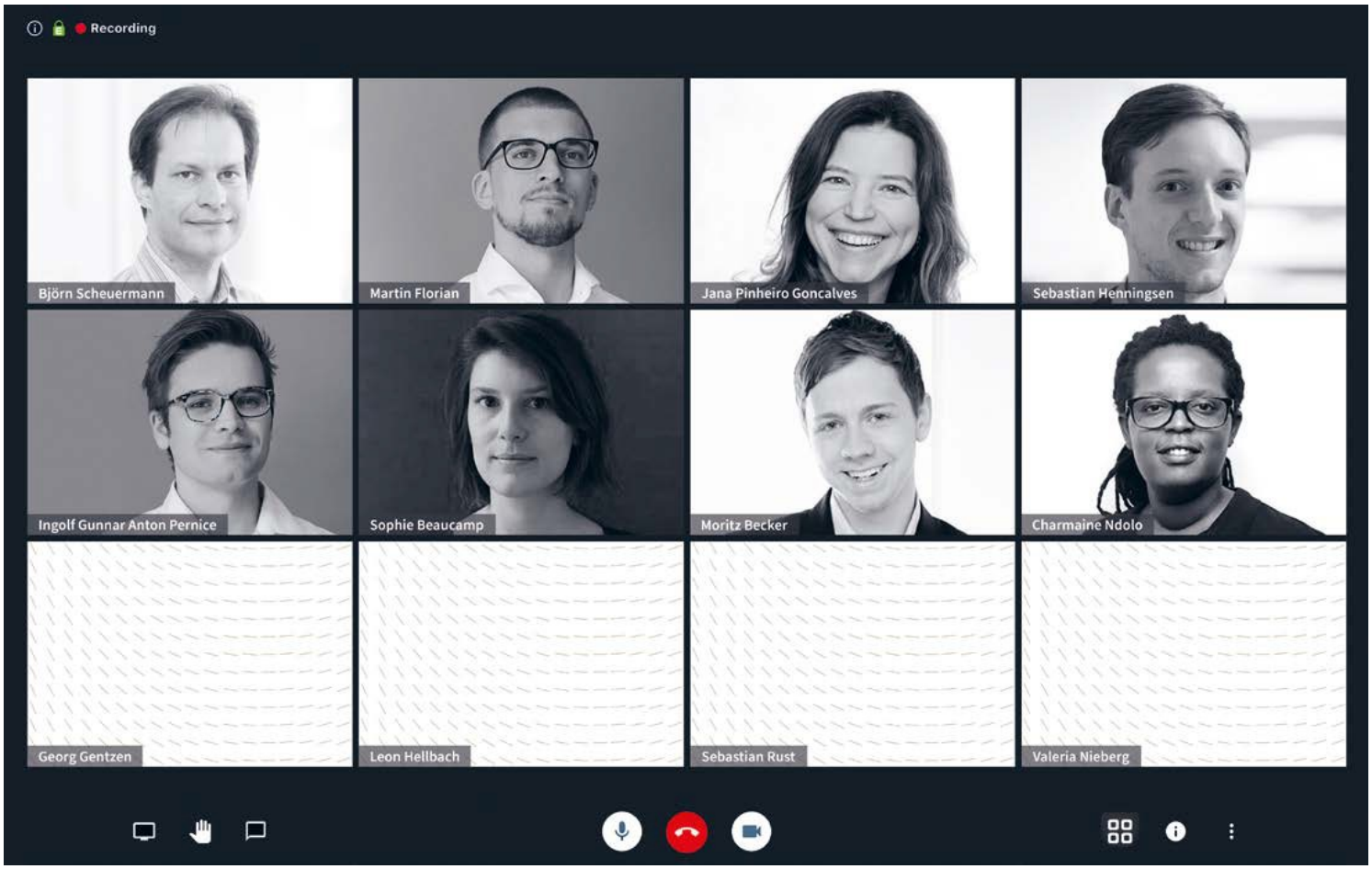
In the period under review, the group managed to broadly address the diversity and complexity of the described potential for shifts in norm setting by closely integrating research work, the fellow program, events and research stays in Switzerland and Israel by closely interlocking research content.

A highlight of the reporting period was the international and transdisciplinary conference “Tipping Points – On the Relationship Between Freedom and Restriction in Copyright” in February 2020. Copyright law has been particularly affected by digitalisation-related changes, as can be seen in the EU Copyright Directive or the changing requirements for art and technology as well as for the archiving of existing works or the creation of new ones. The conference, which was attended by researchers from the social sciences, law, music, culture and literature, was devoted to the breadth of these topics. The event tested a format that gave a lot of space to the interdisciplinary debate. An edited volume containing papers from the conference will be available on open access during 2020.

The continuation of the exchange with the University of Haifa in Israel should also be highlighted. During the fellowship of Prof. Niva Elkin-Korens (University of Haifa, Israel) in the last reporting period, a close exchange already took place on the interdependencies of legal and mechanical regulation, its social effects and how states and other bodies should react to it. This collaboration continued in autumn 2019, when Paul Dürr visited the Center for Cyber Law and Policy in Haifa for three weeks to give a lecture and engage in close exchange with other researchers on the use of social bots in election campaigns and the effects of automated communication on democratic processes.

During the reporting period, seven fellows visited the research group, thereby broadening the focus to include the following topics: Prof. Dan L. Burk (University of California, Irvine, USA) worked on copyright issues and the use of algorithmic decision systems. Prof. Dr. Martin Kretschmer (University of Glasgow, United Kingdom) worked on questions of copyright and algorithmic cultural production. Prof. Dr. Benjamin Raue (University of Trier) researched freedom of expression on social media platforms and the significance of (EU) fundamental rights for copyright. Ass. Prof. Blayne Haggart (Brock University, USA) conducted research on the global knowledge society and ownership in smart cities. Dr. Dr. Hanjo Hamann (Max-Planck-Institute for research on Collective Goods, Bonn) engaged with questions of private law. Torben Klausa (University of Bielefeld) examined the media and constitutional obligations of the state in dealing with platforms. Pablo Schumacher (University of Basel, Switzerland) did research on intellectual property rights as a means of security and financing.

RESEARCH GROUP 17:
TRUST IN DISTRIBUTED ENVIRONMENTS



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Georg Gentzen

Leon Hellbach

Sebastian Henningsen

Charmaine Ndolo

Valeria Nieberg

Ingolf Gunnar Anton Pernice

Jana Pinheiro Goncalves

Sebastian Rust

Prof. Dr. Björn Scheuermann (PI)

The research group investigates automated systems that limit the possibilities for misbehaviour and influence and thus reduce the need for “trust”. There is a focus on distributed systems and so-called blockchain technologies, such as those used in cryptocurrencies or “decentralised autonomous organisations”.

Such systems are transparent, both in terms of how they work and the data they store. They thus promise to do away with intermediaries and trust anchors and to promote bottom-up approaches. The research group investigates both the actual technical characteristics and possibilities of novel approaches and their implications for existing social, legal and (financial) economic contexts.

The guiding questions of the group are:

- What can the technical measures under consideration actually achieve?
- To what extent and in what contexts is their use, in terms of existing legal principles and established social values, even desirable?

To answer the research questions, five complementary projects have been established:

- Resilience and Decentralisation of Technically Distributed Systems
- Algorithmic Governance in Collective Decision-Making Processes
- Law Enforcement Through Technology
- Price Instability in Digital, Decentralised Monetary Systems
- Legal and Social Challenges, With a Focus on Transfer

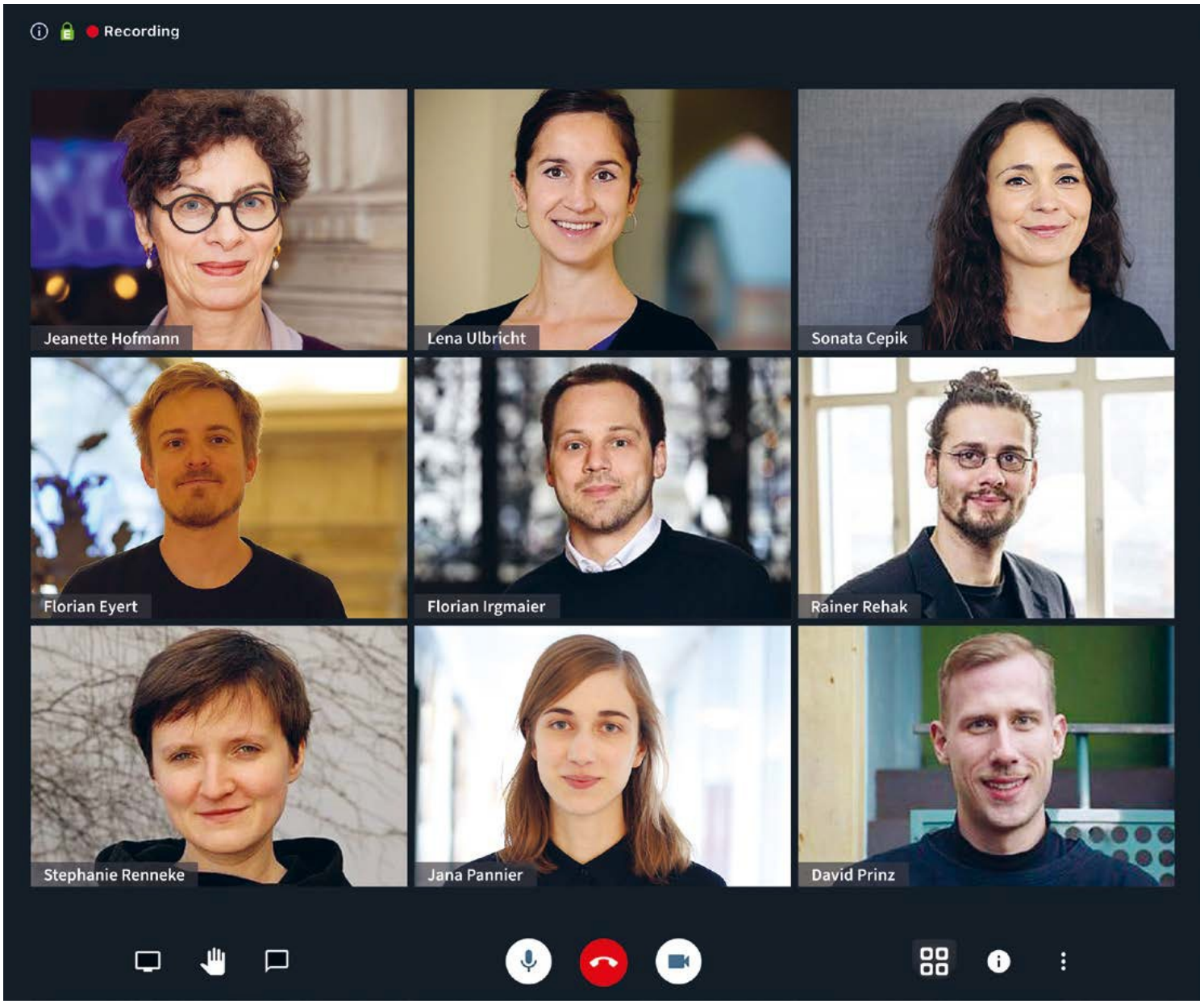
Highlights of the reporting period included

- Various scientific achievements (publications, lectures, project milestones)
- Transfer activities
- Cooperation on Weizenbaum Institute initiatives, in particular:
    - Weizenbaum position papers on the national and European data strategy
    - Organisation of the conference “Tipping Points – On the Relationship Between Freedom and Restriction in Copyright”
- Exchange and networking with scientific cooperation partners

Six fellows were guests of the research group during the reporting period:

Balász Bodó (University of Amsterdam, Netherlands) did research during his stay on the technical “mediation” of trust and worked on a book on this topic ("Mediating Trust"). Hermann Elendner (University College London, United Kingdom) deepened his research on the economic valuation of crypto currencies during his stay. Jaap Henk Hoepmann (Radboud University Nijmegen, Netherlands) worked on technological trust-but-verify mechanisms for creating trust in peer-to-peer networks and other distributed systems. During his visit to the institute, Jan Groos (University of Duisburg-Essen) sought to map and analyse the socio-technical concepts of governance created within the sphere of contemporary blockchain-based technologies and to locate the findings in a genealogy of visions of technological methods of governance. Together with the research group, he organised an open discussion round on “Dime and Punishment – Cryptoeconomics as an Art of Government” on 26 February 2020 with the participation of Dr. Jaya Klara Brekke (University of Durham, United Kingdom), Dr. Benjamin Seibel (Technology Foundation Berlin) and Martin Köppelmann (Gnosis) – an event which was very well received and brought many external experts to the Weizenbaum Institute. During his stay at the Weizenbaum Institute, Dr. Jason G. Allen (HU Berlin) did research on private law issues in the context of digital assets (such as cryptocurrencies). His work and discussions during his time with the research group resulted in several articles in renowned journals. Valeria Ferrari (University of Amsterdam, Netherlands) researched data protection and financial issues in the context of crypto-currencies and planned systems like Facebook’s Libra. During her time with the research group, she was involved in a joint study on the novel payment system GNU Taler.

RESEARCH GROUP 18:
QUANTIFICATION AND SOCIAL REGULATION



MEMBERS OF THE RESEARCH GROUP:

Sonata Cepik
Florian Eyert
Prof. Dr. Jeanette Hofmann (PI)
Florian Irgmaier
Jana Pannier
David Prinz
Rainer Rehak
Stephanie Renneke
Dr. Lena Ulbricht (research group leader)

Research Group 18's work centres on the key question of how regulation is changing due to the use of technologies such as big data, algorithms and AI. The group used the reporting period primarily to work on theses, to carry out further research, to present and publish results and to further promote networking.

Advanced conceptual and empirical results from the staff members' individual projects were presented at numerous conferences and events, including the conference "Great Transformation: The Future of Modern Societies" in Jena, the 4th European Technology Assessment Conference in Bratislava, the first perspective conference of the German Association for Political Science on "Interdisciplinary Research – Opportunity or Risk for Young Researchers" in Berlin, the conference "Artificial Intelligence as Wonderland" of the Forum InformatikerInnen für Frieden und gesellschaftliche Verantwortung e.V. in Bremen and the conference "Fabrication of Democracy" in Duisburg.

A number of new publications should be highlighted. These include five articles in the handbook "Digitalisierung in Staat und Verwaltung" on data protection supervision, regulation through algorithms, data mining for responsive policy-making, organisational change in ministries and computer simulations in policy advice. More extensive articles have been published in the journals *Democratization*, *Zeitschrift für Vergleichende Politikwissenschaft*, *Internet Policy Review* and *Beiträge zur Hochschulforschung*. In an edited volume on "Politics in the Digital Society", Lena Ulbricht has written an article on big data and governance. The journal *Neue Politische Literatur* has published a review of a monograph that discusses, among other things, the implications of digitalisation for the conditions of freedom.

The group has also worked and published on recent developments in the context of the coronavirus pandemic from the perspective of its research agenda. A particularly noteworthy contribution in this respect is a data protection impact assessment on the coronavirus tracing app, which was developed and published in collaboration with Rainer Rehak and has resulted in a number of subsequent publications. Florian Eyert also conducted and published a sociological analysis of epidemiological forecasting models. Lena Ulbricht launched a research project on the use of digital tools for pandemic control in Latin America.

Despite the limited possibilities due to the coronavirus pandemic, the group also organised scientific events. At the EASST/4S-conference, Florian Eyert together with Hannes Wünsche (Research Group 11) organised a panel on "Digital Technologies Shaping the Politics of Science and the Science of Politics". Together with Paola Lopez (University of Vienna, Austria), Florian Eyert organised a panel for the 19th Annual STS Conference Graz, which was postponed to 2021 due to the pandemic.

The research group's commitment increased with its participation in cross-sectional and reading formats as well as the founding of a working group initiated by Lena Ulbricht for shaping and improving the institute's internal diversity. Cooperation outside the institute was also initiated and expanded. In addition to various co-authorships, these include the national and international fellows, who were guests of the research group during the reporting period: Paola Lopez (University of Vienna, Austria) worked with Florian Eyert and on a joint interdisciplinary publication on the social dimensions of fairness, accountability and transparency in machine learning. Dr. Simon Egbert (TU Berlin) worked with Lena Ulbricht on a joint publication on platform regulation. He also gave an e-fellow talk for the institute in August 2020. Prof. Dr. Martin Kretschmer (University of Glasgow, United Kingdom) and Janosik Herder (University of Osnabrück) were also fellows in the research group.

Furthermore, Florian Eyert and Florian Irgmaier participated in the working group "Political Theory of the Digital Constellation" at the Center for Advanced Internet Studies in Bochum (CAIS), a network partner of the Weizenbaum Institute, and will contribute to a joint special issue of the *Zeitschrift für Politikwissenschaft*. Lena Ulbricht was active as a reviewer for the CAIS and numerous scientific journals: *Big Data and Society*, *Internet Policy Review*, *New Media and Society*, *Regulation and Governance*, *Politische Vierteljahresschrift* and *Zeitschrift für Wirtschafts- und Unternehmensethik.*

The members of the group presented the results of their joint research work to a broad public, among other things through lectures, online seminars, colloquium contributions, texts for a general audience and panel discussions, for example, in the Berlin Futurium, in a meeting with members of the Bundestag, in an expert opinion for the Federal Constitutional Court, at the Weizenbaum Film Night in the Berlin cinema Babylon, in a committee of the Bundestag, at events by the Federal Office for Information Security, the Internet Policy Evening of the Digitale Gesellschaft e. V., the Internet Governance Forum 2019, the Zündfunk Netzkongress and the 36th Chaos Communication Congress hosted by the Chaos Computer Club e.V.

In addition, the group members communicated their findings through media work, for example, in podcasts, on the radio and in various background discussions with politicians and the media.

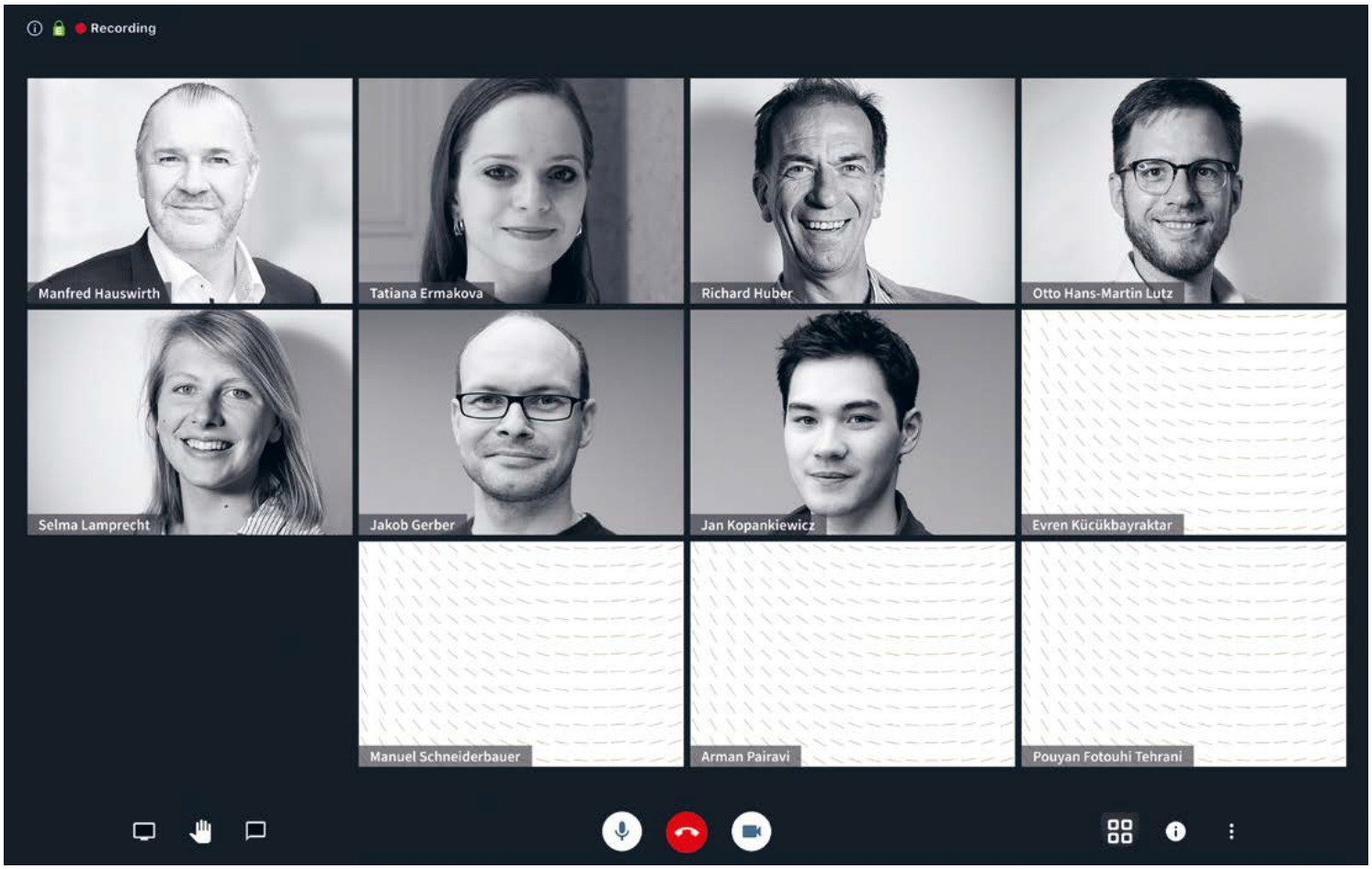
Lena Ulbricht was also involved in an interdisciplinary application consortium led by the Ruhr University Bochum, which submitted an application to the Volkswagen Foundation and made it to the final round. The title of the proposal is "Adversarial Manipulation of Machine Learning and the New Risk Society"; the funding decision will be made at the end of 2020.

4.6 Research Area VI

Technological Change

We use the term “digital networking” to describe the linking of the physical world with the digital world. This process involves the digital capturing, mapping and modelling of the physical world and the linking of the resulting information. The question of how this complex process should be coordinated in various areas between society, politics, manufacturers and operators is the subject of the research in this area.

RESEARCH GROUP 19:
DIGITALISATION AND NETWORKED SECURITY



MEMBERS OF THE RESEARCH GROUP:

Dr. Tatiana Ermakova (research group leader)

Jakob Gerber

Prof. Dr. Manfred Hauswirth (PI)

Richard Huber (research group leader)

Jan Kopankiewicz

Evren Kücükbayraktar

Selma Lamprecht

Otto Hans-Martin Lutz

Arman Pairavi

Manuel Schneiderbauer

Pouyan Fotouhi Tehrani

The research group focusses on functional safety and IT security across the digital network. With digital networking, previously separate infrastructure systems are becoming digitally connected, creating further dependencies and cascading risks. Both resilience and practicability of security concepts and solutions as well as understanding of the actors' patterns of action and thinking are becoming increasingly important.

The research group largely combines an informatics perspective with a social science perspective. The conception, development and iterative refinement of technological solutions are supported by comprehensive literature analyses and empirical studies. The empirical research is mainly based on ethnographic semi-structured expert interviews, surveys, experiments and data collected on social media and on the internet.

During the reporting period, the research group has achieved several noteworthy advances in its projects.

Security in Critical Infrastructures: In view of the high importance of IT security in critical infrastructures, the corresponding requirements were systematically derived and prioritized from the user perspective. The resulting ranking can be applied in release and resource management in the software engineering process as well as in the evaluation of such infrastructures. Further, an IT compliance reference model was developed. Based on the assumption that the security of third-party software components can be compromised in numerous critical IoT infrastructures, initial preventive measures were initiated by developing a rough concept for the identification of such components.

Functions and Platforms for the Deployment of Civil Security Personnel: The detection and deletion of illegal depictions of abuse on the internet can prevent the revictimization of victims. To support the law-enforcement authorities, international legal frameworks, criminal distribution channels, applications and implementations for automatic detection of such depictions were surveyed. Furthermore, the issue of the inclusion of visual evidentiary material in court was raised. In view of the rising crime rate in the digital space, enabling companies to be viewed as victims was addressed by transferring and adapting existing individual-centered victimological approaches.

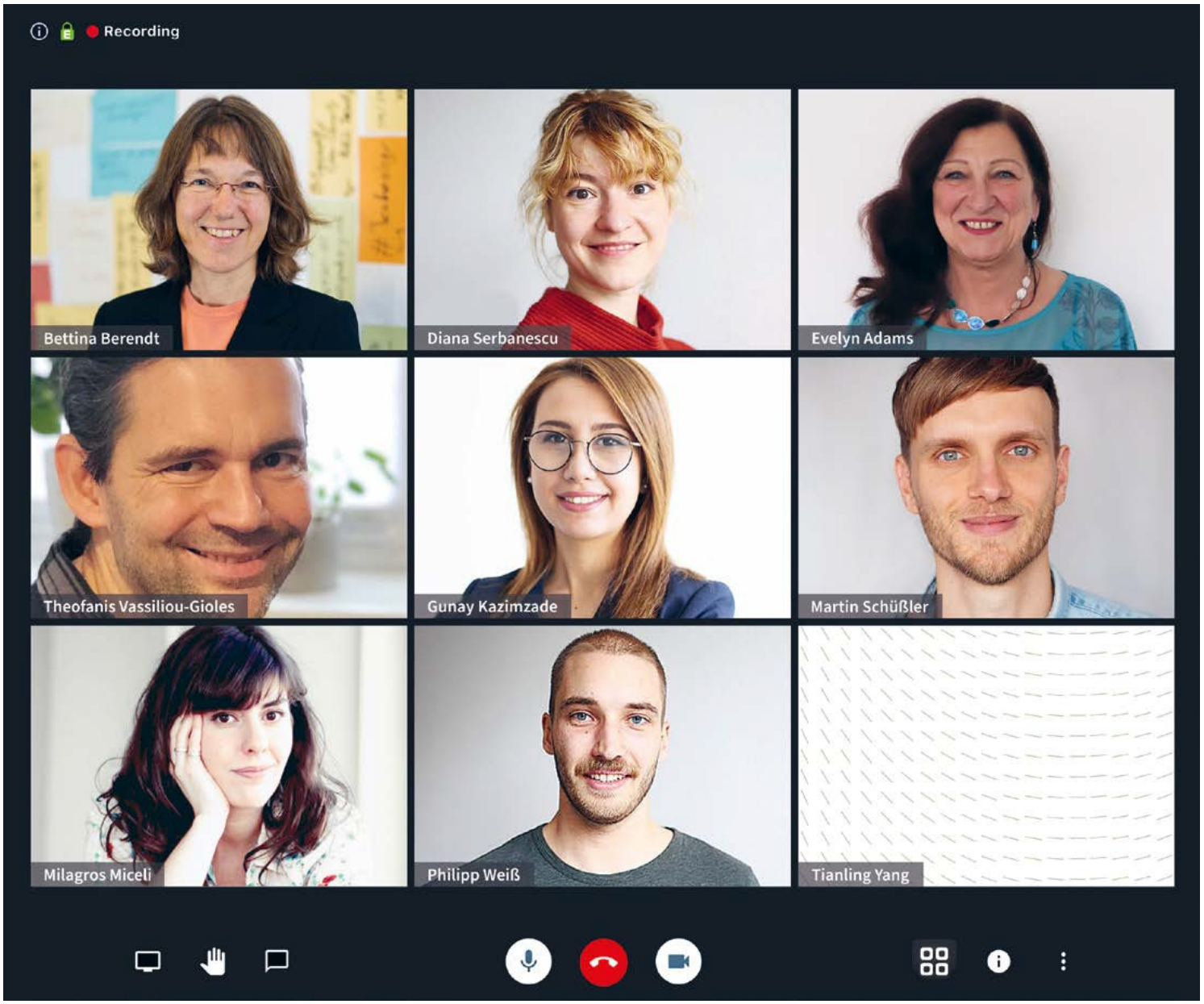
Communication in Crisis and Disaster Scenarios: Given that crisis situations can cause communication channels to be overwhelmed or to completely fragment, the timeliness and trustworthiness of information can be essentially affected. With this in mind, a scalable approach for managing hierarchical names in information-centered networks was designed and prototypically implemented. The feasibility of the approach was demonstrated using the future-oriented Named Data Networking Internet architecture with enhanced security standards. Based on this, an approach for offline authentication for failure and disaster scenarios was designed. Finally, potential factors influencing trust building in digital crisis communication were captured.

Privacy Sonification: Considering the increasing role of auditory modality as an alternative or supplement to visualization techniques, especially for people with visual impairments, an overarching framework for real-time sonification of network traffic of arbitrary devices when privacy is threatened by web tracking was designed, prototypically implemented and evaluated with respect to strengthening the awareness of internet users in laboratory experiments. A further prototype for password strength sonification was launched and advanced by a research stay at the Ambient Intelligence Group of the University of Bielefeld and the resulting cooperation. In addition, personal data were outlined in a structured way for the research agenda, that can be derived from eye movements as well as from human speech and other acoustic elements.

The research group also contributed to the organization of external events. The exhibits of web traffic sonification and password strength sonification were demonstrated to a target group of IT security experts at “Meet-the-Expert” on the Berlin Science Week Campus and at “Berlin Hack-and-Tell”, respectively.

The findings on the use of apps and Twitter for police public relations work were presented at the 2019 annual conference of the Institute of Protest and Movement Research Berlin. Another contribution was made by taking on the organization of a lecture slot with a panel discussion on the topic “AI Ethics & Compliance” at the Viadrina Compliance Congress 2019.

RESEARCH GROUP 20:
CRITICALITY OF AI-BASED SYSTEMS



MEMBERS OF THE RESEARCH GROUP:

Evelyn Adams

Prof. Dr. Bettina Berendt (PI)

Gunay Kazimzade

Maria de los Milagros Miceli

Martin Schüßler

Dr. Diana Serbanescu (research group leader)

Theofanis Vassiliou-Gioles

Philipp Weiß

Tianling Yang

The task of the research group is to identify the critical aspects of emerging AI-based systems. These systems already permeate many aspects of private and public life. This gives them the potential to fundamentally change our increasingly interconnected society. Although they offer the opportunity to expand human knowledge and support people, their complexity means that they can fail in unpredictable ways and cause systematic disadvantage (bias).

The research group aims to develop a quality framework for AI-based systems. This will go beyond the framework of traditional quality assurance approaches and be tailored to the specific challenges of these systems. This has given rise to the following research priorities:

- Identifying bias,
- Uncovering symbolic power mechanisms embedded in AI-based systems, and
- Assessing and improving the traceability, transparency and interpretability of AI-based systems

These aspects are multi-dimensional and interconnected, so they cannot be studied in isolation. Instead, it is necessary to ensure interdisciplinary cooperation between experts and to engage in dialogue with society to address these research questions.

In the first funding phase from September 2017 to September 2020, five mutually supportive and complementary projects were promoted to achieve a common goal: the development of guidelines for a responsible, reliable and people-centred design of AI-based systems. These projects have a strong connection to fundamental rights, including the rights set out in the Charter of Fundamental Rights of the European Union (human dignity, non-discrimination and equality between women and men) and the principles enshrined in the GDPR for the purpose of respecting fundamental rights, such as transparency and accountability, and the resulting information and intervention rights. The five projects are:

Analysis of the Causes of Bias and Systematic Discrimination (e.g. on the Basis of Gender and Ethnic Origins) in AI-Based Systems: Methods and guidelines for promoting inclusion and diversity in computer vision data sets will be developed. These should then be used in the future by various actors involved in the AI development structure.

Symbolic Power Mechanisms in Data Annotation: This project deals with the question of how power is exercised by autonomous classification systems from a social science perspective and examines organisational structures and actors involved in the creation of training data sets for machine learning.

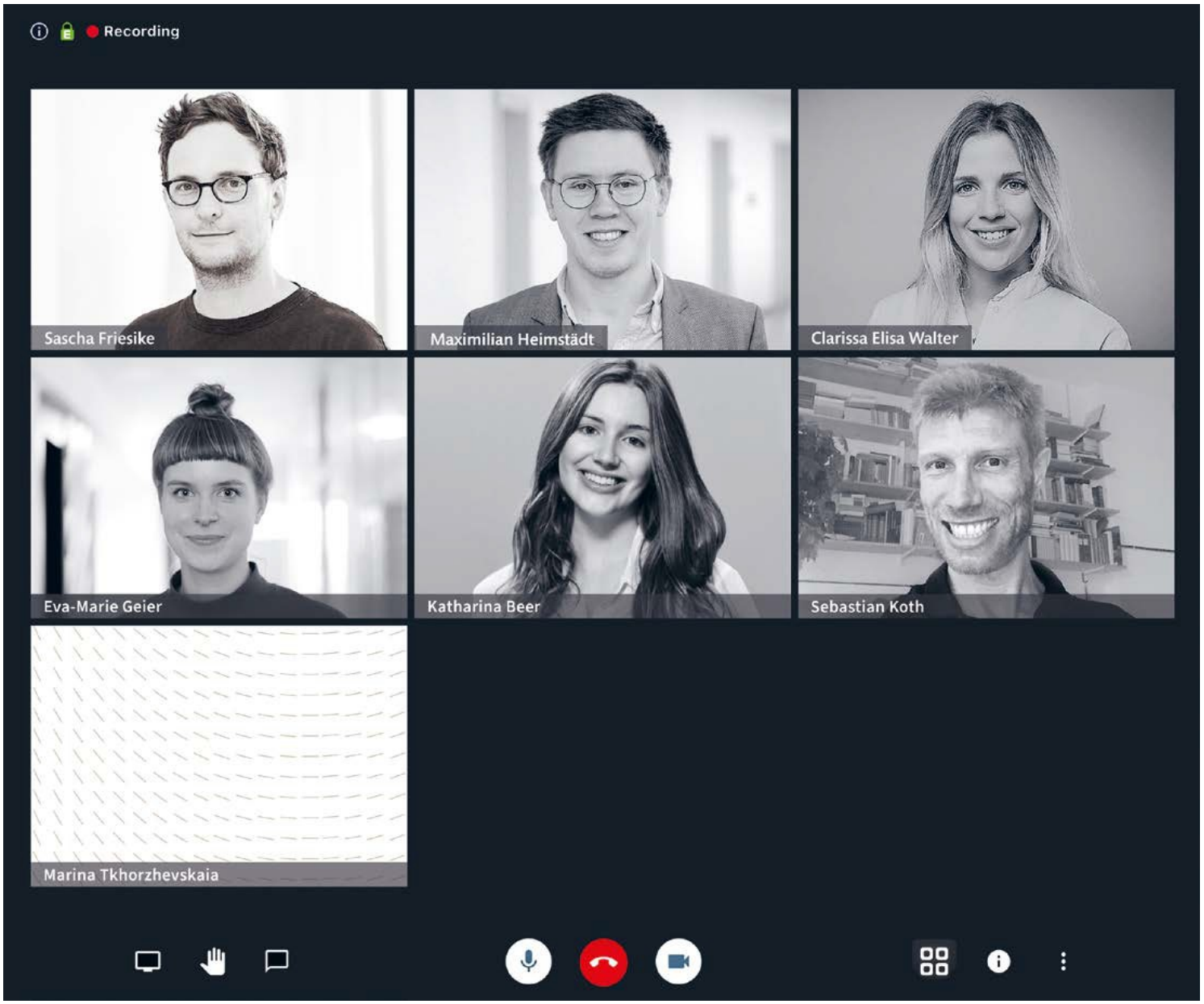
The Benefits of Explainable AI for End Users: This project draws on user studies to investigate the specific requirements of explainability and comprehensibility that AI-based systems must meet in order to be reliable and trustworthy.

Critical Identities: This project investigates ways of strengthening users' self-determination in the use of their personal data by not only formally disclosing the collection of the data itself but also the intentions behind the collection and the possible uses of personal and derived personal data. This project is closely linked to the work of Research Group 6 and will therefore be based there.

The Shape of Things to Come: This project combines AI with the performing arts and investigates democratic and participatory practices for the design of sustainable future technologies. It uses the concepts of embodiment, collective co-creation and dialogical cooperation between different communities and promotes knowledge transfer and practice-oriented experimentation.

As part of its research work, the group has organised and carried out experiments, workshops, field studies and interviews in interdisciplinary cooperation. It has also collected and evaluated a large quantity of qualitative and quantitative data and jointly presented and published the results at conferences. An example of successful interdisciplinary cooperation is the ethnographic study of working practices in data annotation, which was conducted over several weeks in two companies in Bulgaria and Argentina. The data collected there was used, on the one hand, to investigate the power dynamics that influence the interpretation and labelling of data. On the other hand, these data were also used to investigate the bias introduced by these practices and to draft guidelines for ethical data annotation for computer scientists.

RESEARCH GROUP 21:
REORGANIZING KNOWLEDGE PRACTICES



MEMBERS OF THE RESEARCH GROUP:

Katharina Berr

Prof. Dr. Sascha Friesike (PI)

Eva-Maria Geier

Dr. Maximilian Heimstädt (research group leader)

Sebastian Koth

Marina Tkhorzhevskaia

Clarissa Elisa Walter

The research group was newly established in 2020 and addresses the question of how research that is consistently based on digital principles can and should be organised. The starting point for this process of inquiry is the observation that scientific practice continues to be largely based on analogue principles of self-referentiality, purity and closure. However, it is becoming increasingly clear that such analogue knowledge practices cannot adequately address complex and dynamic societal challenges such as migration, climate change and political polarisation. Digital innovations also make clear that previous forms of organisation in science have become solidified but are by no means the only alternative.

The main objective of the group is to engage with the ways in which the changes in scientific practices are caused by digitalisation in a way informed by basic science. The research group operates empirically and brings an organisational science perspective to the issue of shaping digitalisation in a scientific context. This allows the group to address a complementary goal: to provide impetus not only for the scientific community in general, but also for the organisational development of the Weizenbaum Institute. The group approaches this overarching research question based on three sub-projects:

The **sub-project on the impact of research** examines the organisation of interfaces between science and society. In the course of digitalisation and increasing specialisation in the science sector, we are currently experiencing an explosive growth in the number of publications. As they become more and more specialised, the work needed to make them comprehensible for a broad public is growing. Science is thus confronted with a paradox: increasing specialisation stands in the way of a desired broader diffusion of its own results. The answer to this paradox cannot be provided by individual scientists, but only by the reorganisation of knowledge practices.

The **sub-project on interdisciplinarity** investigates hybrid forms of organisation that enable collaborative work across the boundaries of different research logics. The organisation of science in disciplines, each with its own traditional knowledge practices, is an important mechanism for ensuring quality and plurality. At the same time, it seems that the major social issues of our time can only be comprehensively researched if disciplinary boundaries are overcome – at least temporarily. This sub-project investigates organisational forms that enable interdisciplinary cooperation without, however, giving up the advantages of an internally differentiated science.

The **sub-project on iteration** examines how knowledge practices can be organised more around the principle of updates and less around the analogue principle of closure. A digital science must be organised around the principle of updates. In contrast to the analogue organisation principle of closure, an orientation towards updates allows knowledge to be supplemented, curated and re-contextualised rather than constantly being created anew. Examples of experiments with update-oriented knowledge practices include knowledge maps, open peer review and open educational resources. The aim of this sub-project is to explore how organisational conditions can contribute to shifting knowledge practices away from the idea of “authorship” and towards the idea of “contributorship”.

The work of the research group started in March 2020 with the appointment of Maximilian Heimstädt as head of the research group. The group was completed with the appointment of two doctoral candidates, Katharina Berr and Sebastian Koth, in August 2020. The research group was able to start work on the topics of impact and iteration during the reporting period. A conceptual contribution on the issue of impact that develops a post-heroic perspective on the social impact of research is currently being drafted. In addition, the working group has started a project on science slams as a novel form of science communication (in cooperation with the University of Tilburg, Netherlands). In the field of iteration, a research project on preprints and disinformation.

4.7 Cross-Section Formats

The work of our 21 research groups is complemented by thematic groups of a cross-sectional nature. The cross-section formats pursue two main objectives. First, they bring together research results and compile them so that they can help to inform these overarching ethical and political issues. The aim is to provide expertise on the major strategic issues with regard to the relationship between society and digital technology. Second, they generate innovative and risky ideas for the further development of the research agenda of the Weizenbaum Institute. Yet, the cross-section formats are to remain a living instrument in this process. Correspondingly, the number of such formats and also the issues the address will be adapted in line with the development of the Weizenbaum Institute.

AUTONOMOUS SYSTEMS AND SELF-DETERMINATION

This cross-section format addresses the question of how the increasing use of autonomous or semi-autonomous information technology systems affects the possibilities of individual and collective self-determination. While the main focus was initially on an interdisciplinary understanding of the concept of autonomy and collecting practical examples, the second phase of the institute's development will focus more specifically on individual areas of society in which autonomous technical systems are tested and used, such as industrial production, the financial markets or autonomous driving.

In the reporting period, this cross-section format continued its series of lectures and worked on the production of a podcast series with lectures and interviews with the speakers invited so far, which will be released in autumn 2020. In addition, the cross-section format has developed a programme for the second iteration of the lecture series and approached speakers, but it had to interrupt this project for the time being due to the pandemic; it will resume in due course.

SECURITY AND OPENNESS

In this cross-section format, our researchers seek to promote discussion and joint research on topics that relate to the tension between security and openness. The following research questions guide our work: What dimensions of security and openness are there and what related concepts can be found in different research disciplines? What are the new design perspectives for digital societies to reconcile openness and security?

In the current reporting period, several lectures and discussion rounds were organised in this regard. Due to the special situation, these were partly carried out as video conferences. This did not just have disadvantages, as it turned out that it was easier for external people to participate in the digital events. In addition to the interdisciplinary exchange of content, work is also being done on publication formats with which the knowledge gained can be made accessible to the research community as well as political actors and society.

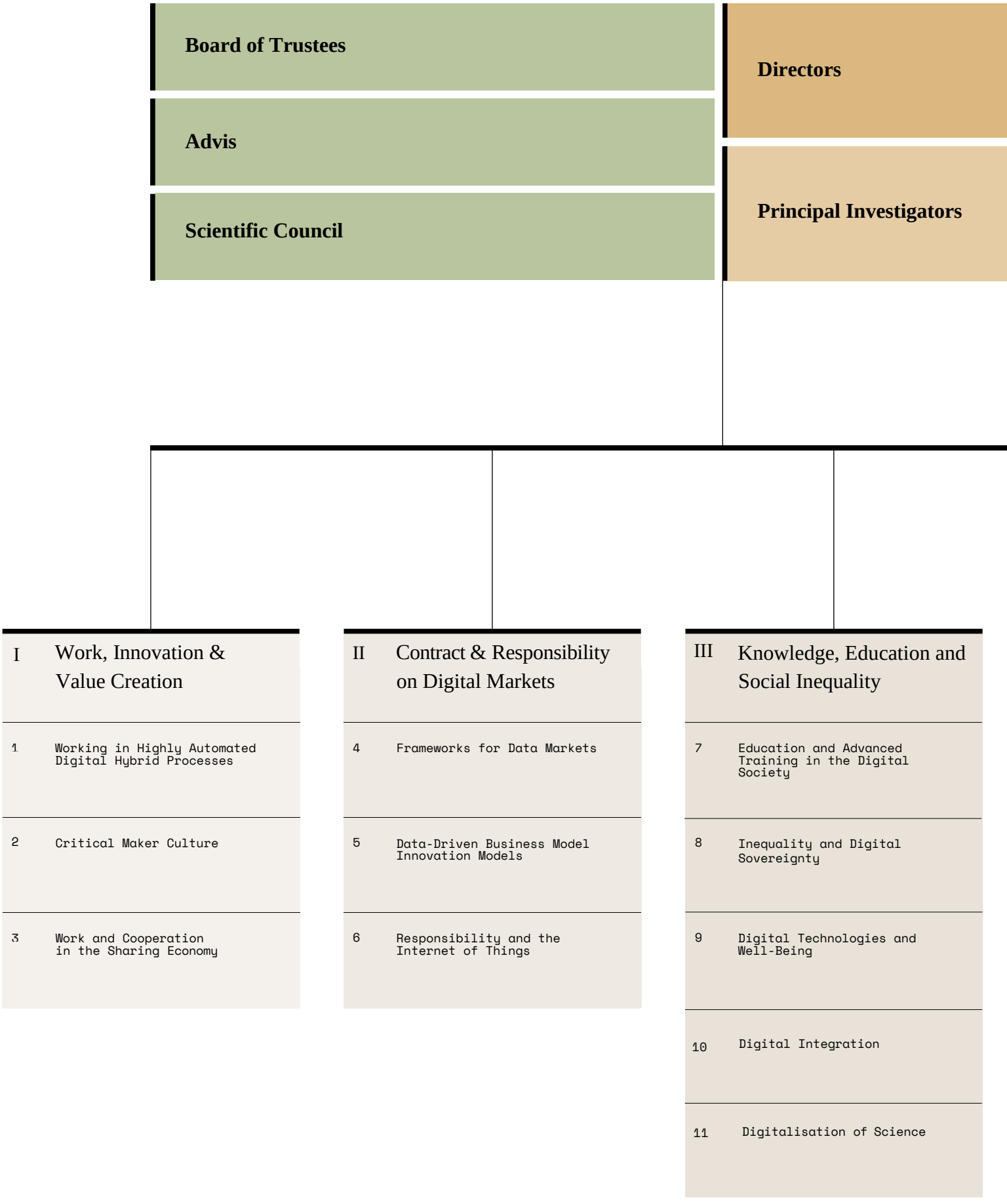
DIGITALISATION AND SUSTAINABILITY

This cross-section format concerns the transformation to a sustainable networked society. The transformation processes observed include the sustainable digitalisation of energy networks, mobility and education, but also substitution effects in the working environments of the future. The participating research groups address the overarching question of how information and communication technology systems (ICT) have a positive or negative impact on achieving the UN sustainability goals of the Agenda 2030.

In addition to the participation of researchers from this format in symposia (such as the Great Transformation Conference of the German Sociological Association), the participating research groups are jointly developing the "Weizenbaum Knowledge Hypercube" knowledge and workshop tool. A prototype of the hypercube was tested in December 2019 at the research conference "Shaping the Future: Digital and Sustainable" with social stakeholders at the Federal Ministry of Education and Research (BMBF), organised together with the German Advisory Council on Global Change (WBGU).

V. Directors, Head Office and Committees

5.1 Organisation chart of the Weizenbaum Institute



Head office

Management
Consortium coordination
Event and transfer management
Press and public relations
Commercial administration
IT Administration

IV Democracy, Participation and the Public Sphere

12 Democracy and Digitalisation

13 Digital Citizenship

14 News, Campaigns & the Rationality of Public Discourse

15 Digitalisation & the Transnational Public Sphere

V Governance & Norm Setting

16 Shifts in Norm Setting

17 Trust in Distributed Environments

18 Quantification and Social Regulation

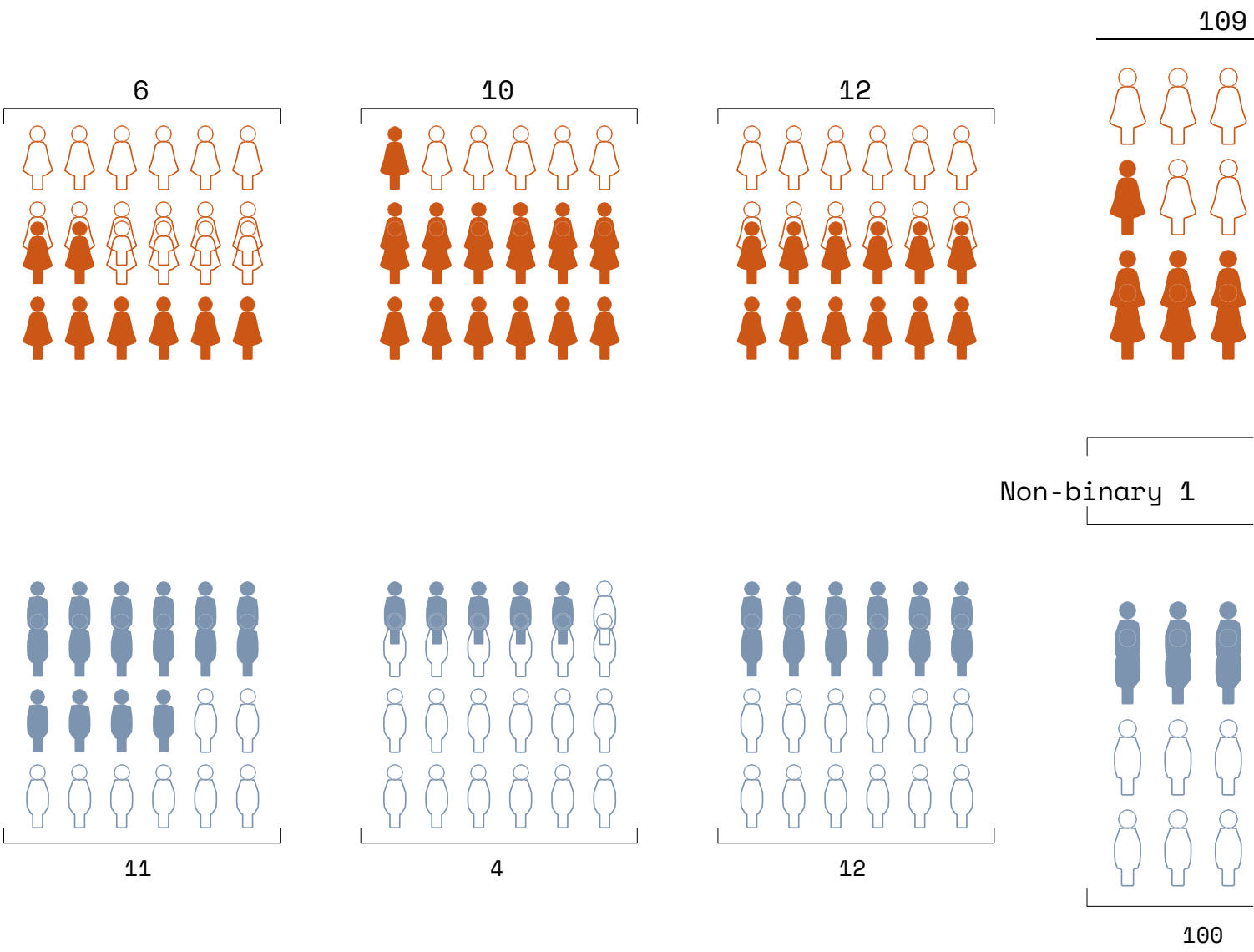
VI Technological

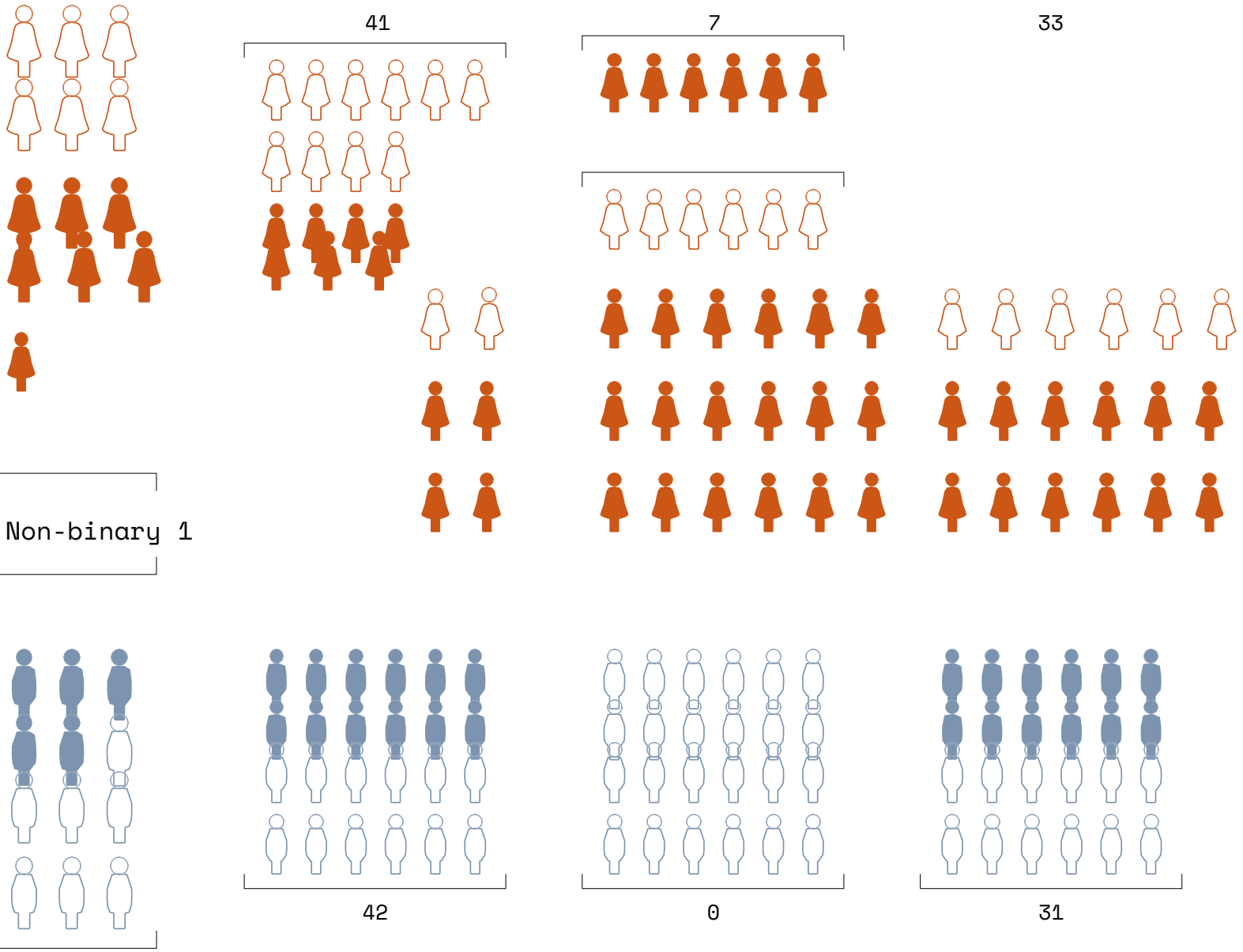
19 Digitalisation and Networked Security

20 Criticality of AI-Based Systems

21 Reorganising Knowledge Practices

5.2 People at the Weizenbaum Institute





Doctoral candidates/ Scientific Assistants (84)

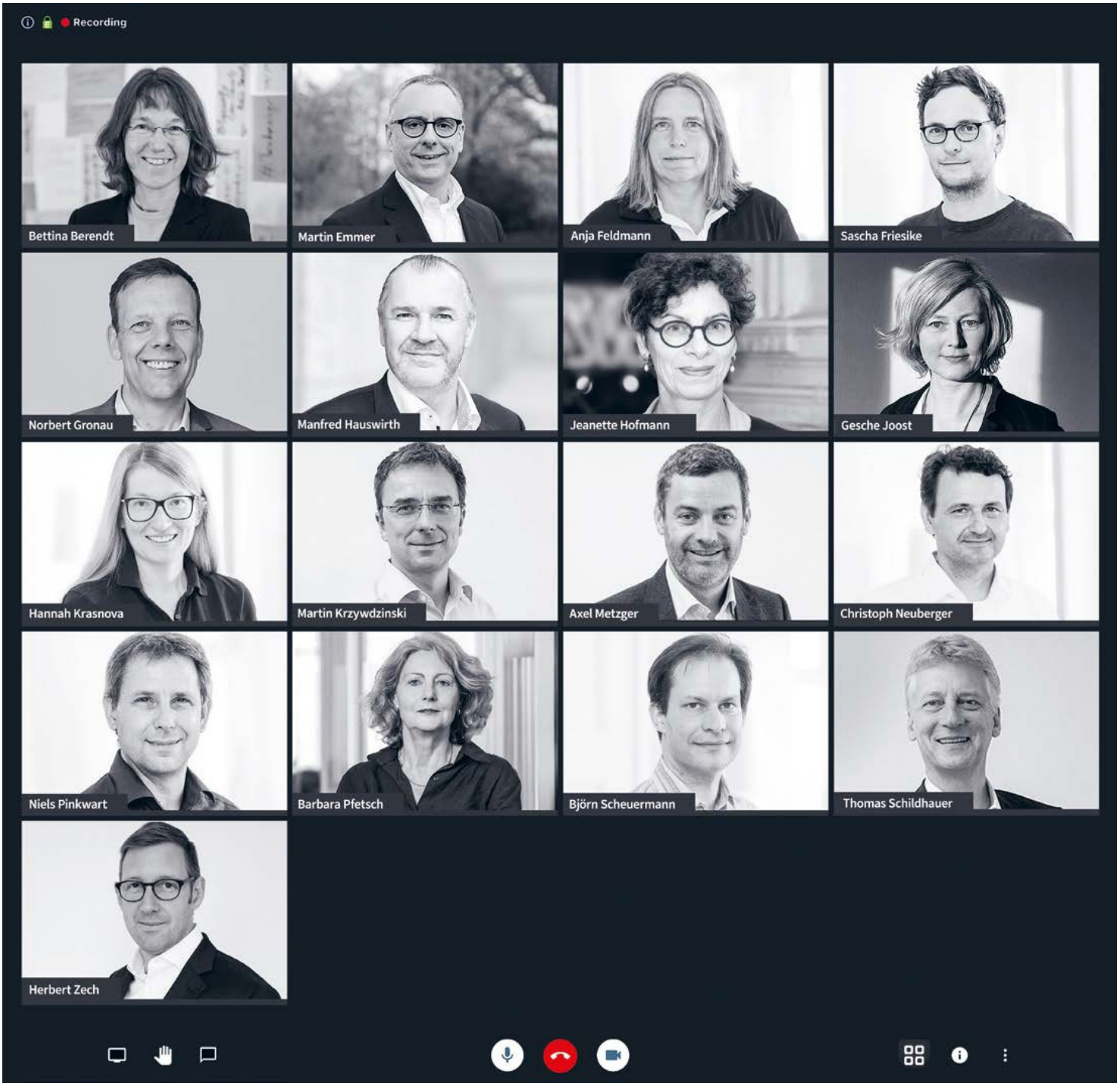
Research Group Assistants (7)

Student Assistants (64)

Date: September 14, 2020.

5.3 Scientific management

The scientific management of the Weizenbaum Institute consists of a seven-member Board of Directors and the principal investigators (PIs).



BOARD OF DIRECTORS

The Board of Directors of the Weizenbaum Institute for the Networked Society consists of the five W3 professorships at the participating universities and one representative each of the WZB and Fraunhofer FOKUS. The legal representation of the Weizenbaum Institute is carried out by the management of the WZB. The task of the seven-member scientific directorate is the scientific-strategic coordination of the consortium project.

In the current phase, the Board of Directors in cooperation with the administrative office is responsible, among other things, for the coordination of the institute's research groups and projects as well as for the development of concepts for the establishment and strategic further development of the institute with the participation of the PIs, as well as the establishment and dissolution of research groups, including the appointment and dismissal of PIs.

The members of the new Board of Directors are the executive director Prof.Dr. Christoph Neuberger (FU Berlin), his deputies Prof. Dr. Herbert Zech and Sascha Friesike (UdK Berlin), the directors Prof. Dr. Bettina Berendt (TU Berlin) and Prof. Dr. Hanna Krasnova (University of Potsdam) and the directors Prof. Dr. Martin Krzywdzinski (WZB) and Prof. Dr. Manfred Hauswirth (Fraunhofer FOKUS).

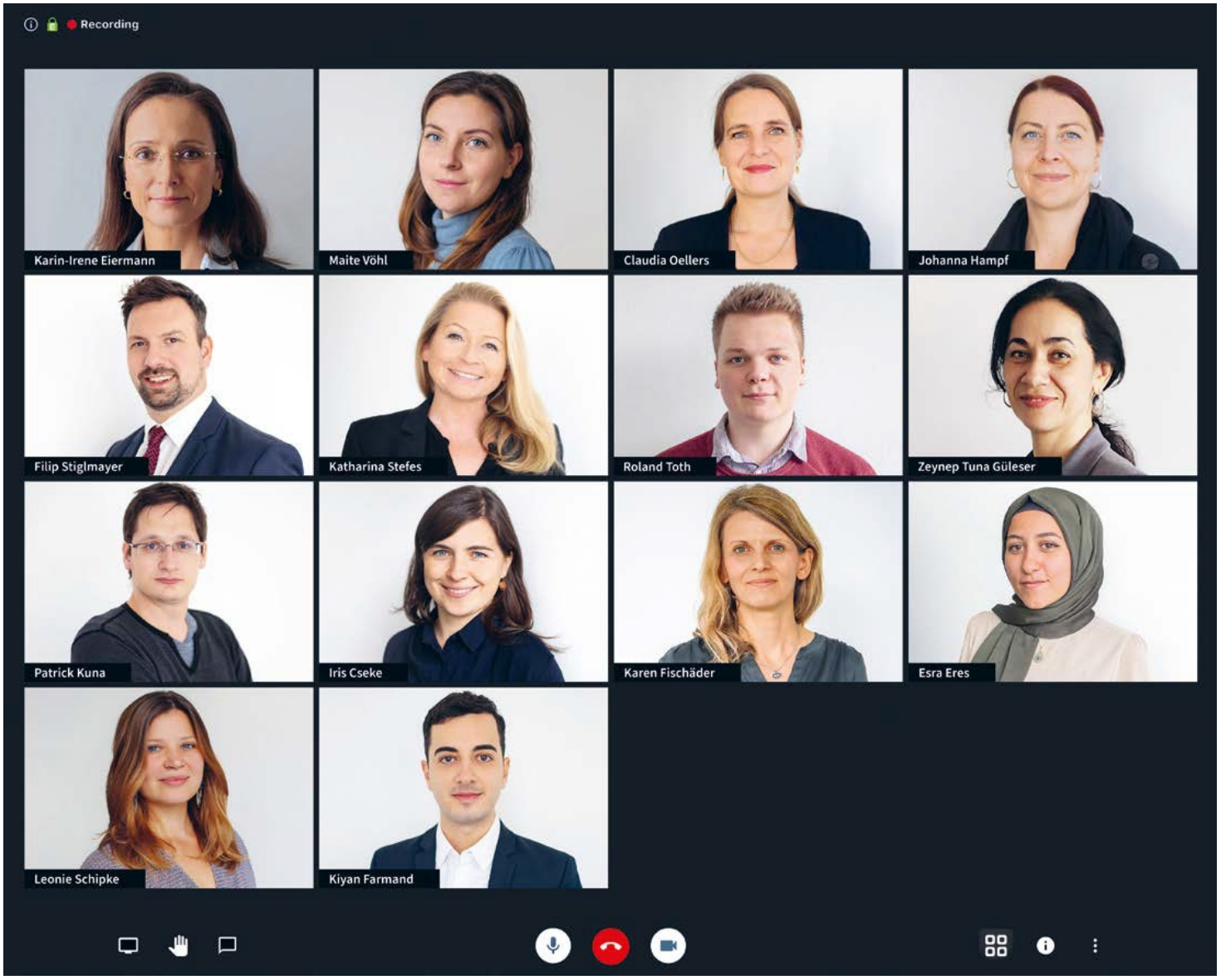
PRINCIPAL INVESTIGATORS (PIs)

PIs are professors of the respective partner institutions and the researchers of the institute who are mainly responsible for the research groups. The PIs ensure the coherence and further development of the research program as well as the scientific excellence and thematic range of the institute’s research. They determine the scientific-strategic orientation of their research groups and promote cooperation with other research groups. They encourage the establishment or dissolution of research groups, cross-sectional formats and projects and develop guidelines for work in the research groups. They advise the Board of Directors on the preparation of concepts for the strategic development of the Institute.

The following PIs were active at the institute during the reporting period: Prof. Dr. Bettina Berendt (TU Berlin), Prof. Dr. Martin Emmer (FU Berlin), Prof. Anja Feldmann, Ph.D. (TU Berlin), Prof. Dr. Sascha Friesike (UdK Berlin), Prof. Dr.-Ing. Norbert Gronau (Uni Potsdam), Prof. Dr. Manfred Hauswirth (TU Berlin/Fraunhofer FOKUS), Prof. Dr. Jeanette Hofmann (WZB), Prof. Dr. Gesche Joost (UdK Berlin), Prof. Dr. Hanna Krasnova (Uni Potsdam), Prof. Dr. Martin Krzywdzinski (WZB), Prof. Dr. Axel Metzger, LL.M. (Harvard) (HU Berlin), Prof. Dr. Barbara Pfetsch (FU Berlin), Prof. Dr. Niels Pinkwart (HU Berlin), Prof. Dr. Björn Scheuermann (HU Berlin), Prof. Dr. Dr. Thomas Schildhauer (UdK Berlin), Prof. Dr. Herbert Zech (HU Berlin).

5.4 Head office

The Weizenbaum Institute's head office coordinates the cross-consortium activities and, together with the Board of Directors, is responsible for the management of the consortium, the programmes for training young scientists, the strengthening of interdisciplinarity and the press and public relations work. In addition, the head office coordinates events and knowledge transfer in politics, business and society.



Head of the head office
Dr. Karin-Irene Eiermann

Assistant to the head office management
Maite Vöhl

Network coordination
Claudia Oellers:
Iris Cseke (until January 2020)

Communication
Filip Stiglmayer
Roland Toth
Katharina Stefes M.A.

Events and transfer
Johanna Hampf

Purchasing and real estate
Tuna Zeynep Güleser

IT administration
Patrick Kuna

Design
Karen Fischäder

Student assistants
Esra Eres
Kiyan Farmand
Leonie Schipke

5.5 Committees

Three committees support the work of the Weizenbaum Institute at different levels. Their establishment and tasks are laid down in the institute's rules of procedure.

BOARD OF TRUSTEES

The Board of Trustees advises the Board of Directors on the strategic direction of the institute and its organisation. It consists of the presidents of the consortium partners or their deputies, two representatives of the BMBF and one representative of the State of Berlin. The chair of the Board of Trustees and the deputy chair are appointed by the BMBF. During the reporting period, the Board of Trustees held its meeting on November 17, 2020 .

MEMBERS:

Ministerial Director Matthias Graf von Kielmansegg, head of Department 1: "Fundamental Issues, Strategy, Digital Change", Federal Ministry of Education and Research

Undersecretary Dr. Angelika Willms-Herget, head of Subdivision 42 "Research Institutions", BMBF

Prof. Dr.-Ing. Reimund Neugebauer, president, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e. V.

Prof. Dr. Günter M. Ziegler, president, Freie Universität Berlin

Prof. Dr.-Ing. Dr. Sabine Kunst, president, Humboldt-Universität zu Berlin

Steffen Krach, state secretary for science and research to the governing mayor of Berlin, Senate Chancellery Berlin

Prof. Dr. Christian Thomsen, president, Technische Universität Berlin

Prof. Dr. Norbert Palz, president, Berlin University of the Arts

Prof. Dr. Oliver Günther, president, University of Potsdam

Prof. Dr. h.c. Jutta Allmendinger, Ph.D., president, Berlin Social Science Center (WZB)

ADVISORY BOARD

The Advisory Board advises the Board of Directors and the head office on the development and implementation of the institute's strategic orientation, its transfer formats, its work with network partners and its external presentation. This board consists of ten academic members and four representatives from civil society, politics, business and the media. In the reporting period, the Advisory Board meeting took place on 18 November 2019. The Advisory Board meets at least once a year in accordance with its rules of procedure.

MEMBERS:

Prof. Dr. Christoph Bieber, Institute for Political Science, University of Duisburg-Essen/ scientific coordinator, Center for Advanced Internet Studies (CAIS)

Prof. em. Dr. Uta Brandes, design researcher, Köln

Prof. Dr. Johannes Buchmann, informatics, Head of CDC – Theoretical Computer Science - Cryptography and Computer Algebra, Technische Universität Darmstadt

Prof. Dr. Peter Buxmann, Department of Law and Economics, Chair of Information Systems / Software & Digital Business, Technische Universität Darmstadt

Prof. Dr. Christiane Eilders, Chair of Communication and Media Studies, Heinrich-Heine-University Düsseldorf (Chair)

Prof. Dr. Konrad Förstner, head of the programme area “Provision of Information Services” at the ZB MED - Life Sciences Information Centre, Technical University of Cologne

Prof. em. Dr. Dr. h.c. mult. Martin Grötschel, president of the Berlin-Brandenburg Academy of Sciences and Humanities, Berlin

Elvan Korkmaz-Emre, member of the German Bundestag, Member of the Enquete Commission "Artificial Intelligence”

Prof. Dr. Sabine Pfeiffer, chair of Sociology (Technology - Work - Society), Friedrich-Alexander-University Erlangen-Nürnberg

Stefan Sauer, member of the German Bundestag, deputy chairman of the Enquete Commission “Artificial Intelligence“

Joanna Schmölz, digital strategist, Senate Chancellery Free and Hanseatic City of Hamburg

Prof. Dr. Indra Spiecker called Döhmann, LL.M., chair of public law, information law, environmental law, administrative science, Goethe University Frankfurt am Main

Harald Summa, managing director of eco – Verband der Internetwirtschaft e.V. V.

Prof. Dr. Stephan Weichert, course director Digital Journalism /Head of the "Digital Journalism Initiative”, Hamburg Media School gGmbH (Deputy Chairman)

Prof. Dr.-Ing. Thomas Wiegand, Head of Fraunhofer Heinrich-Hertz-Institute

SCIENTIFIC COUNCIL

The Scientific Council advises the Board of Directors and the head office on all essential matters of the institute, in particular on questions of strategic and scientific priorities and the design of formats for scientific work and transfer formats. The Scientific Council is made up of one PI per consortium partner and two representatives each of the research group leaders, the scientific staff, the student assistants and the administrative and technical staff. The managing director, Prof. Dr. Christoph Neuberger, his deputies Prof. Dr. Herbert Zech and Prof. Dr. Sascha Friesike and the office manager Dr. Karin-Irene Eiermann, take part in the meetings in an advisory capacity. During the reporting period, the Scientific Council met on October 22, 2019, January 30, 2020, April 30, 2020, July 2 2020 and August 27, 2020.

MEMBERS:

PRINCIPAL INVESTIGATORS

Prof. Anja Feldmann, Ph.D. (TU Berlin)

Prof. Dr. Manfred Hauswirth (Fraunhofer FOKUS).

Prof. Dr. Jeanette Hofmann (WZB)

Prof. Dr. Hanna Kransova (University of Potsdam)

Prof. Dr. Barbara Pfetsch (FU Berlin)

Prof. Dr. Niels Pinkwart (HU Berlin)

Prof. Dr. Dr. Thomas Schildhauer (UdK Berlin)

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Dr.-Ing. Martin Florian (HU Berlin)

DOCTORAL CANDIDATES

Andrea Hamm (TU Berlin)

Philipp von Becker (UdK Berlin)

STUDENT ASSISTANTS

Esra Eres (WZB)

Jan Kopankiewicz (Fraunhofer FOKUS)

ADMINISTRATIVE-TECHNICAL EMPLOYEES

Patrick Kuna (WZB)

Annika Schütz (FU Berlin)

VI. Memberships, Positions and Functions

PROF. DR. BETTINA BERENDT

Professor and Head of the Department Internet and Society at the Faculty IV Electrical Engineering and Computer Science of the Technical University Berlin

Member of the Institute for Telecommunication Systems

Visiting professor in the Declarative Languages and Artificial Intelligence Group of the Department of Computer Science of the KU Leuven, Belgium

PROF. DR. MARTIN EMMER

Professor at the Freie Universität Berlin, Department of Political and Social Sciences, Centre for Media Usage

Principal investigator at the Einstein Center Digital Future

Member of the Advisory Board of DEKRA Hochschule für Medien

Member of the Expert Commission for the Third Engagement Report of the Federal Government "Future of Civil Society: Young Engagement in the digital age."

PROF. ANJA FELDMANN, PH.D.

Director at the Max Planck Institute for Informatics

Member of the Leopoldina - National Academy of Sciences

Member of the National Academy of Science and Engineering (acatech)

Member of the Berlin-Brandenburg Academy of Sciences and Humanities

Member of Academia Europaea

Member of the Supervisory Board Institute of Technology (KIT)

Member of the interdisciplinary working group "Responsibility in the digital age"

Member of the Committee for Communication and Information of the German Commission for UNESCO

Member of the scientific advisory board, Leibniz Centre for Research in Computer Science of the Leibniz Association

Member of the Executive Committee eco – Verband der Internetwirtschaft e. V.

Member of the Board of Trustees of the Gemeinnützig e Gesellschaft zur Förderung des Forschungstransfers e. V.

Principal investigator at the Berlin Big Data Center

PROF. DR. SASCHA FRIESIKE

Professor for Designing Digital Innovation at the Berlin University of the Arts

Head of the Leadership in Digital Innovation degree programme at the University of the Arts Berlin

Affiliated prof essor at the KIN Center for Digital Innovation at the Vrije Universiteit Amsterdam

Associate researcher at the Alexander von Humboldt Institute for Internet and Society

Delegated representative of the German Forschungsgemeinschaft in the working group Science Practice of the Allianz-Initiative Digital Information

PROF. DR.-ING. NORBERT GRONAU

Professor at the University of Potsdam, Chair of Business informatics, processes and systems

Member of the Executive Board of the Wissenschaftliche Gesellschaft für Arbeits- und Betriebsorganisation e.V.

Spokesperson of the Board of the Institut für Wirtschaftsinformatik und Digitale Gesellschaft e. V.

Member of the National Academy of Science and Engineering (acatech)

Member of the Board of Trustees of the Heinz-Nixdorf Institute

PROF. DR. MANFRED HAUSWIRTH

Director of the Fraunhofer Institute for Open Communication Systems (FOKUS)

Professor at the Technische Universität Berlin, Department of Open Distributed Systems

Principal investigator at the Berlin Big Data Center

Principle Investigator Berlin Institute for the Foundations of Learning and Data (BIFOLD)

Principal investigator at the Einstein Center Digital Future

Member of the scientific steering committee of the Daimler Center for Automotive Information Technology and Innovations

Member of the scientific advisory board of CONNECT, Ireland's national research centre for Future Networks and Communications

Member of the Association for Computing Machinery

Member of the German Informatics Society

Senior Member of the Institute of Electrical and Electronics Engineers (IEEE)

Member of the IEEE Computer Society Conference Advisory Committee

Principal investigator at the Helmholtz Einstein International Berlin Research School in Data Science

Member of the sector committee Digital Economy of the Berlin Chamber of Industry and Commerce

Fachbeirat Salzburg Research

Executive Committee of the Institute for Computer Science at the University of St. Gallen

Advisory board of the Center for Advanced Internet Studies

PROF. DR. JEANETTE HOFMANN

Member of the Advisory Board of the Center for Interdisciplinary Risk and Innovation Studies, University of Stuttgart

Member/Advisory Committee for Digitalisation and Sustainability, Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Chairwoman of the Expert Commission for the Third Engagement Report of the Federal Government "The Future of Civil Society: Young Engagement in the Digital Age."

Member of the Expert Group of the EU- Observatory on the Online Platform Economy.

Research Group Leader at the Berlin Social Science Center (WZB)

Special Professor at Freie Universität Berlin, Department of Political and Social Sciences

Honorary Professor at the Berlin University of the Arts

Research Director at the Alexander von Humboldt Institute for Internet and Society

Member of the scientific commission "Digitalized Society" of the Leopoldina – National Academy of Sciences

Speaker of the Planning Group "Digitalisation & Democracy" of the Leopoldina - National Academy of Sciences

Member of the working group “Big Data - Data Protection - Privacy" of Leopoldina - National Academy of Sciences

Member in the Program Advisory Council of the RCUK Centre for Copyright and New Business Models in the Creative Economy (CREATe)

Member of the International Scientific Advisory Board of Internet Interdisciplinary Institute (IN3).

Member of the Committee for Communication and Information of the German UNESCO Commission

Member of the Grüne Akademie of the Heinrich Böll Foundation

Member of the discussion group "Digital responsibility", Facebook

PROF. DR. GESCHE JOOST

Professor at the Berlin University of the Arts

Member of the speaker circle of the Einstein Center Digital Future

Supervisory Board member SAP

Supervisory Board member Ottobock

Supervisory Board member ING DiBa

Member of the Board of the Studienstiftung des deutschen Volkes

Founder of Calliope gGmbH

Member of the Synod of the Evangelical Church Germany

Member of the Board of Trustees of the Telekom Foundation

Member of the Board of the German Gesellschaft für Designtheorie und -forschung e.V.

Research Group Leader of the German Research Center for Artificial Intelligence

Member of the Expert Commission for the Third Engagement Report of the Federal Government “The Future of Civil Society: Young Engagement in the Digital Age."

PROF. DR. HANNA KRASNOVA

Professor at the University Potsdam, Chair for Business Informatics, especially Social Media and Data Science

Member of the Association for Information Systems

Member of the Board of Directors of the Institut für Wirtschaftsinformatik und Digitale Gesellschaft e. V.

Member of the High-Tech Forum

PROF. DR. MARTIN KRZYWDZINSKI

Head of the Research Group "Globalisation, Work and Production" at the Berlin Social Science Center (WZB)

Professor for International Labour Relations at the Helmut Schmidt University Hamburg

Member of the Executive Board of the Section of Sociology of Work and Industry of the German Sociological Association

Member of the Programme Committee of the Priority Program "Digitization of Work Foundation Environments" of the German Research Foundation (DFG)

Member of the Scientific Advisory Board of the “Future of Work” Program of the Massachusetts Institute of Technology

Member of the International Steering Committee of the automotive research network GERPISA

PROF. DR. AXEL METZGER

Professor at the Humboldt-University Berlin

Head of the Arbitration Board of the Deutsche Gesellschaft für Recht und Informatik (German Society for Law and Informatics)

Co-Rapporteur (co-management) of the commission “Intellectual Property and Private International Law“ of the International Law Association

Founding member of the Institute for Legal Issues of Free and Open Source Software

Member of the German Association for Intellectual Property and Copyright Law, Expert Committee for Copyright and Publishing Law, Working Group Software

Member of the German Gesellschaft für Recht und Informatik

Member of the European Copyright Society

Member of the European Law Institute

Arbitrator at the German Institution of Arbitration (Deutsche Institution für Schiedsgerichtsbarkeit e. V.) e.V.

PROF. DR. CHRISTOPH NEUBERGER

Professor at the Free University Berlin, Institute for Journalism and Communication Studies

Member of the Bavarian Academy of Sciences

Member of the National Academy of Science and Engineering (acatech)

Member of the Excellence Council of FreieUniversität Berlin

Member of the Advisory Board of the Research Association NRW "Digital Society”

Member of the Scientific Advisory Board of the Mainz Media Institute

Member of the Selection Committee of the State Research Prize, Ministry of Science, Research and Art Baden-Württemberg

Member of the jury of the Grimme Research College

Member of the interdisciplinary working group "Quality of Communication of Science under Conditions of Digitalisation" of the Berlin-Brandenburg Academy of Sciences and Humanities and the German Academy of Science and Engineering (acatech)

Co-Speaker of the Ad Hoc Working Group "Facticity of the World" of the Bavarian Academy of Sciences

Member of the ad-hoc working group "Future Values" of the Bavarian Academy of Sciences

PROF. DR. BARBARA PFETSCH

Special Professor at Freie Universität Berlin, Department of Political and Social Sciences

Professor at the Faculty of the Berlin Graduate School for Global and Transregional Studies (BGTS)

Head of Project B5 "Translocal Networks", Special Research Area 1265 "Re-Figuration of Spaces" of the German Research Foundation

Head of the project “Spatial policies in times of the SARS-CoV-2 pandemic" in the framework of the Berlin University Alliance - Special Call for Proposals Pandemic Research

Member of the joint project “Social Cohesion and Civil Society. Interaction Dynamics in Times of Disruption”, Projekt im Rahmen der Grand Challenge Initiative Social Cohesion in der Berlin University Alliance

Principal investigator at the Einstein Center Digital Future

Ombudswoman and member of the Scientific Advisory Board of the Leibniz Institute for Media Research, Hans Bredow Institute

Member of the Advisory Board of the Center for Advanced Internet Studies North-Rhine-Westphalia

Member of the working group “Digitalization and Democracy” of the Leopoldina - National Academy of Sciences

Member of the Advisory Board of the proposal initiative "Research Center for Science Communication in Political Contexts" of the Berlin Brandenburg Academy of Sciences

PROF. DR. NIELS PINKWART

Professor at the Institute for Informatik of the Humboldt-Universität zu Berlin

Dean of Studies, Faculty of Mathematics and Natural Sciences, Humboldt-Universität zu Berlin

Spokesperson of the ProMINT-Kolleg of the Humboldt-Universität zu Berlin

Head of the Center for technology-Based Learning at the Professional School of Education of the Humboldt-Universität zu Berlin

Principal investigator at the Einstein Center Digital Future

Head of the research area "Educational Technology Lab" at the German Research Centre for Artificial Intelligence

Member of the German Informatics Society

Member of the Board of Directors of the Educational Technologies Division of the Gesellschaft für Informatik e. V.

Spokesperson of the working group Learning Analytics of the Gesellschaft für Informatik e. V.

PROF. DR. BJÖRN SCHEUERMANN

Professor at the Humboldt-University Berlin

Member of the Düsseldorf Institut für Internet und Demokratie

Member of the Advisory Board of the Blockchain & Society Lab of the University Amsterdam

Member of the extended executive committee of the department Communication and Distributed Systems of the Gesellschaft für Informatik e.V.

Research director at the Alexander von Humboldt Institute for Internet and Society

Lecturer of the Studienstiftung des deutschen Volkes

Member of the Gesellschaft für Informatik

Jury member of the German IT-Security Award of the Horst Görtz Foundation

Jury member of the Dissertation Award of the Gesellschaft für Informatik e.V.

Principal investigator at the Einstein Center Digital Future

Principal investigator at the Helmholtz Einstein International Berlin Research School in Data Science

PROF. DR. DR. THOMAS SCHILDHAUER

Professor at the University of the Arts Berlin , Department of Electronic Business with a focus on marketing

Managing director of the Berlin Career College at the University of the Arts Berlin

Director of the Institute of Electronic Business at the Berlin University of the Arts.

Research director at the Alexander von Humboldt Institute for Internet and Society

Board of the Foundation for Internet and Society

Member of the Technology Advisory Board Berlin Partner

Member of the Advisory Board of Skubch&Company GmbH

Member of the Advisory Board of Neuem GmbH

Member of the Advisory Board of equeo GmbH

Member of the Advisory Board of EDUMode Software GmbH

Member of the supervisory board of Bluechip Computer AG

Member of the supervisory board of cbe AG

Member of the supervisory board of Stone One AG

Principal investigator at the Einstein Center Digital Future

Member of the Advisory Board of Industry 4.0 of the German Academy of Science and Engineering (acatech)

Jury member of the Diamond Star Innovation Award of the Handelsblatt

Member of the Berlin-Brandenburg Academy of Sciences and Humanities

PROF. DR. HERBERT ZECH

Professor at the Humboldt University of Berlin, Chair of Civil Law, Technology and IT Law

Board member of the German Gesellschaft für Recht und Informatik e. V.

Co-Chairman of the Technical Committee “Recht der Daten“of the German Vereinigung für gewerblichen Rechtsschutz und Urheberrecht e.

VII. Facts and Figures

7.1 Publications, lectures and teaching

THE PUBLICATIONS, LECTURES AND TEACHING EVENTS OF OUR INSTITUTE MEMBERS DURING THE REPORTING PERIOD CAN BE FOUND UNDER THE FOLLOWING LINK: HTTPS://WWW.WEIZENBAUM-INSTITUT.DE/JB2020/

7.2 Prizes and awards

AbuJarour, S.: AIS Doctoral Student Service Award of the International Conference on Information Systems 2019, Munich, Germany, December 15 – 18, 2019.

Brandenburger, B. / Vladova, G.: Best Paper Award at the 27th Annual Conference of the Gesellschaft für Medien in der Wissenschaft e. V. (GMW 2020) for the paper „Technology enhanced learning in Higher Education – In sights from a qualitative study on university-integrated makerspaces in six European countries" Zürich, Switzerland August 24–26, 2020.

Gundlach, J.: Outstanding Reviewer Award Winner at the Americas Conference on Information Systems (AMCIS 2020), virtual, August 28, 2020

Kazimzade, G. KI-Newcomers 2019, #KI50, Category Informatics, Berlin, Germany, November 29, 2019.

Kirstein, F.: Nomination for Best In-Use Paper Award, ESWC 2020.

Köster, A.: (President SIG Culture) The Association for Information Systems has named the Special Interest Group (SIG) Culture as an outstanding community for the year 2019.

Köster, A.: Appointment to the Editorial Board of the Journal Internet Research.

Kröger, Jacob: Best Paper Award at the Conference on Availability, Reliability and Security 2020 (ARES), August 27, 2020.

Porten-Cheé, P. Top-Paper Award (Young author) of the journalStudies in Communication and Media for the article „Popularity cues in online media: Theoretical and methodological perspectives" (best article of 2018/2019) together with Dr. Jörg Haßler, Pablo B. Jost, Prof. Christiane Eilders and Prof. Marcus Maurer.

Schirmbeck, M. / Seiling, L. / Kröger, J.: Winners of the ideas competition "ClimateCrafting" for the idea of the app „EATernative Al-ternative Zutaten und Methoden für deine Lieblingsrezepte" Inspiration basis for the CoDesignSH Summercamp, 22/23. August, 26 August and 29/30. August 2020.

Teichmann, M.: Best Reviewer Award of the International conference Wirtschaftsinformatik 2020, Potsdam, March, 9–11, 2020.

Vladova, G. / Ullrich, A.: Award "Innovative Lernprojekte" of the University of Potsdam for the learning project: "Fit for the Future - Scenario technique based competence acquisition and teaching content design in the digitalised society".

7.3 Network partners

SCIENCE PARTNERS

Alexander von Humboldt Institut für Internet und Gesellschaft gGmbH (HIIG)

Berlin-Brandenburgische Akademie der Wissenschaften (BBAW)

Center for Advanced Internet Studies (CAIS)

Center for Communication & Civic Engagement (CCCE), University of Washington, WA, USA

Cologne Center for Ethics, Rights, Economics, and Social Sciences of Health (ceres)

Deutsche Akademie der Technikwissenschaften (acatech)

Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)

Educational Technology Lab Deutsches Institut für Urbanistik gGmbH (DIFU)

Deutsches Institut für Vertrauen und Sicherheit im Internet (DIV-SI)

Deutsches Institut für Wirtschaftsforschung e. V. (DIW)

Einstein Center Digital Future ECDF

Forum “Privatheit und selbstbestimmtes Leben in der digitalen Welt“

Gesellschaft für Informatik e. V. (GI)

GESIS – Leibniz Institute for Social Sciences

Hasso-Plattner-Institut Potsdam (HPI)

Innovationszentrum für Mobilität und gesellschaftlichen Wandel (InnoZ)

Konrad-Zuse-Zentrum für Informationstechnik (ZIB)

The GovLab, New York University, NY, USA

Münchner Kreis – Übernationale Vereinigung für Kommunikations-forschung e. V.

SCIENCE PARTNERS

Arbeitskreis Software-Qualität und -Fortbildung e. V. (ASQF)

Berlin Partner für Wirtschaft und Technologie gGmbH

Bundesverband Deutsche Startups e. V.

eco – Verband der Internetwirtschaft e. V.

INIT AG für digitale Kommunikation

iSQI GmbH – International Software Quality Institute

Technologiestiftung Berlin (TSB)

Telefónica Deutschland Holding AG

Verband kommunaler Unternehmen e. V.

(VKU)

Wirtschaftsförderung Land Brandenburg GmbH (WFBB)

PARTNERS FROM THE FIELDS OF POLITICS, CIVIL SOCIETY, MEDIA AND TRADE UNIONS

Der Tagesspiegel

Diakonie Deutschland – Evangelischer Bundesverband

Goethe-Institut e. V.

Friedrich-Naumann-Stiftung für die Freiheit

Futurium gGmbH IG

Metall (IGM)

Initiative D21 e. V.

Netzwerk für die Digitale Gesellschaft

iRights.Lab, Think Tank für die digitale Welt

Open Knowledge Foundation (OKF)

Stiftung Datenschutz

Vereinte Dienstleistungsgewerkschaft (ver.di)

Wikimedia Germany e. V.

Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen (WBGU)

Umweltbundesamt Zentralstelle für ausländisches Bildungswesen (ZAB)

Imprint

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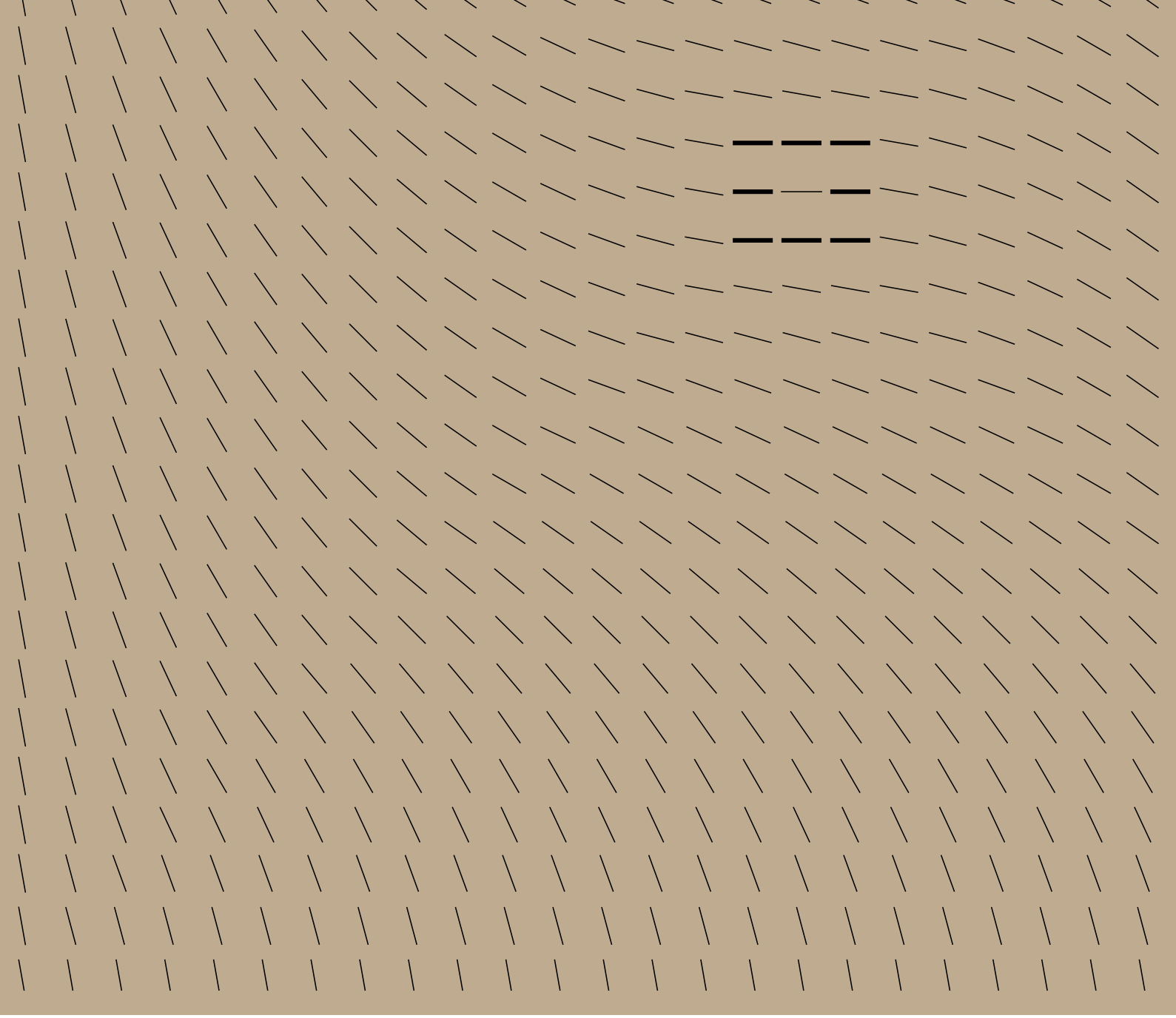

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The German Internet Institute is a joint project of the following partners:

Fraunhofer FOKUS

Freie Universität Berlin

Humboldt-Universität zu Berlin

Technische Universität Berlin

Universität der Künste Berlin

Universität Potsdam

WZB Wissenschaftszentrum Berlin für Sozialforschung

Bundesministerium für Bildung und Forschung

www.weizenbaum-institut.de