encore

MAGAZINE ON INTERNET AND SOCIETY

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SELECTED CONTENT ON OUR SIX RESEARCH TOPICS IN FOCUS

Digital organising and the future of work

Artificial intelligence and society

Digitalisation and sustainability

Open higher education

Platform governance

Data governance

EDITORIAL

In 2024, we at the Alexander von Humboldt Institute for Internet and Society (HIIG) explored the contradictions of the digital transformation, where the promise of innovation intersects with its multifaceted implications. Generative AI promises efficiency, but also introduces new tasks, challenges and dependencies. The rise of data and algorithms demands a balance between progress and the protection of rights and freedoms. Meanwhile, the growing demand for science communication contrasts with an increasingly visible hostility towards it, revealing a fragile relationship between scientists and the public. This calls for even more interdisciplinary approaches to understand and address the inherent tensions. At the same time, we explore how the digital space can both protect and threaten democratic values, combining theoretical insights with practical solutions.

In this issue of encore, we share stories that reflect the breadth of our research: AI empowering workers to reclaim agency in datafied workplaces, the evolving regulatory framework of the EU's Digital Services Act and Indigenous communities blending ancestral wisdom with digital tools. We also explore whether human oversight is essential in automated decision making. Our events, educational resources and prototypes bridge the gap between research and practice. They challenge entrenched misconceptions about science, provide tools such as Claimspotting to help monitor potential misinformation and foster a deeper understanding of how to measure AI fairness.

We invite you to explore this year's reflections, spark dialogue and rethink digital transformation.

Björn Scheuermann,
Director at HIIG

Katharina Mosene,
Researcher at HIIG

Jörg Pohle,
Research lead at HIIG

Digital organising and the future of work

Wo

AI

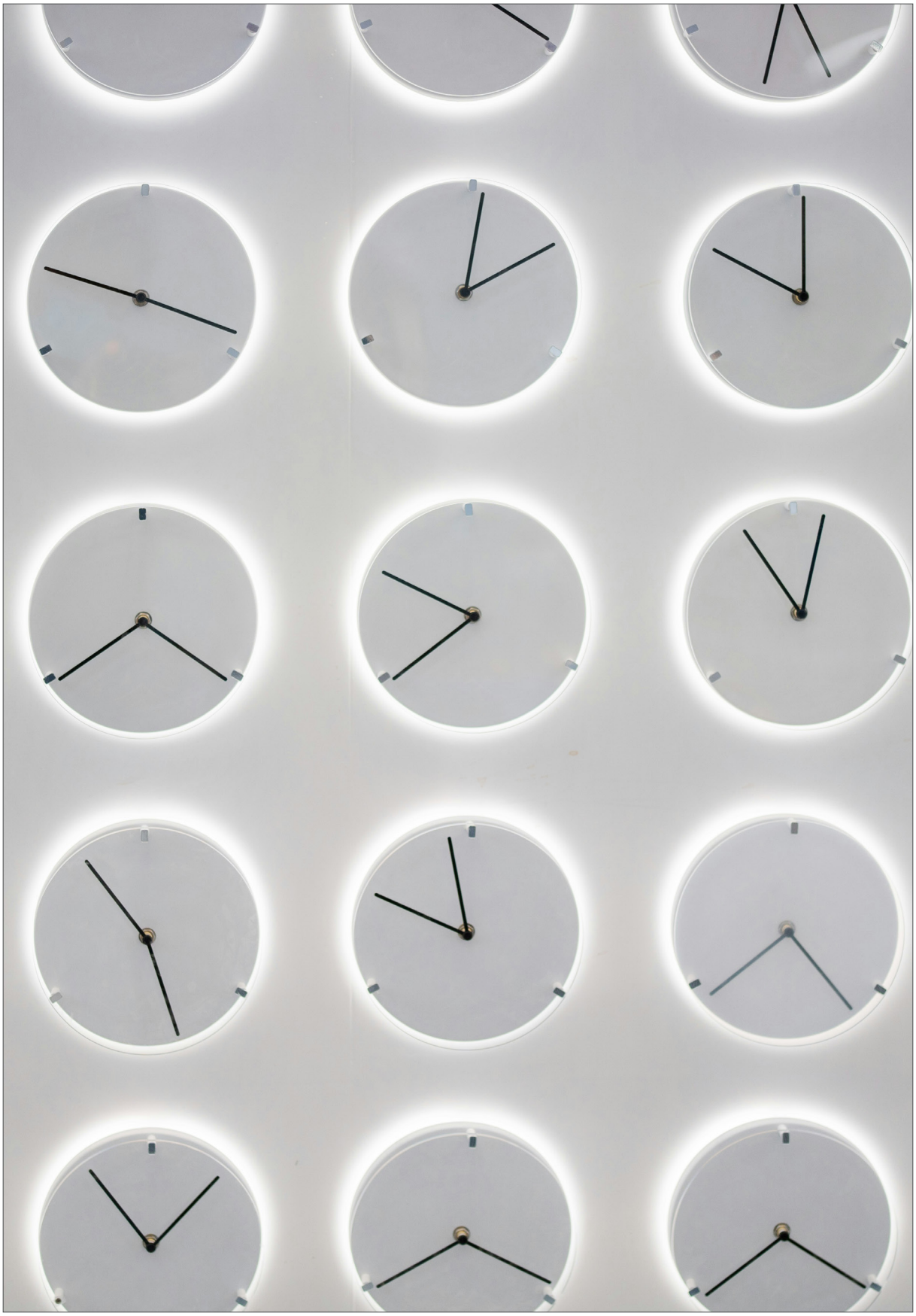
Artificial intelligence and society

FOCUS

Digital organising and the future of work

The dynamic interplay of digitalisation and artificial intelligence (AI) is about to fundamentally reshape the workplace landscape. While there is a consensus that this shift is happening, the precise contours of the impending transformation remain unclear. How exactly will digital organising, digitalisation and AI in the workplace change our working world? In our research, we explore and explain these phenomena, assessing their impacts as well as the associated opportunities and risks for the future of work.

VISIT TOPIC OVERVIEW ONLINE



GEORG VON RICHTHOFEN

Between time savings and additional effort: Generative AI in the workplace

AI-based chatbots are transforming the workplace significantly. They are assisting in information retrieval, analysis and text creation, promising substantial productivity gains. Consequently, generative AI is often portrayed in the media as a catalyst for employee productivity. In practice, however, employees report contradictory experiences. While ChatGPT saves time on research, for example, it also creates additional work in fact-checking. In this article, senior researcher Georg von Richthofen explores the paradoxical impact of generative AI in the workplace.

AI-based chatbots such as Open AI's GPT-4 are highly versatile. They can be used for searching, analysing and summarising information, as well as generating and editing ideas, texts and codes. Because of their technological maturity and wide range of uses, these AI applications are attractive to both companies and employees. Yet, opinions diverge on their impact.

GENERATIVE AI AS A PRODUCTIVITY CATALYST

A few months after the hype around ChatGPT began, researchers began publishing working papers attesting to the program's significant potential to boost employee productivity (Brynjolfsson et al., 2023; Noy & Zhang, 2023). These and similar studies have led to a media narrative depicting generative AI as a productivity catalyst that can reduce employee workloads and accelerate processes for employees. Headlines claim that AI boosts worker productivity by 14%, and another article compares the anticipated productivity gains from generative AI to those of the Industrial Revolution. However, what those articles often overlook is that the studies in question are based on experiments that do not necessarily reflect real working conditions and are focused on specific professions (such as customer service).

GENERATIVE AI AS A CATALYST FOR ADDITIONAL WORK AND BUREAUCRACY

Contrary to the dominant media narrative, critical voices emerged soon after the release of ChatGPT. In an article for The Atlantic, Ian Bogost argued that ChatGPT is burdening us with more work. On top of all our

existing tasks, we now need to spend time distinguishing between human and AI-generated content and dealing with the associated bureaucracy. Numerous examples illustrate this point. Universities must decide how to handle AI-generated student papers, academic journals must determine the extent to which AI can be used in submissions and societies must address AI-generated misinformation.

PARADOXES IN THE CONTEXT OF TECHNOLOGIES

In our quest to understand these contradictory perspectives, we can benefit from a paradox perspective. A paradox in the context of technological change refers to inherent contradictions, dilemmas or unexpected consequences arising from the use and development of technology (Mick & Fournier, 1998). A paradox means that technologies can simultaneously produce X and -X, such as fostering independence while leading to dependency, conveying the feeling of intelligence alongside the feeling of ignorance, and bringing people together while also causing isolation. A prime example of this is the smartphone. It makes it easier to stay in touch with friends and family yet makes it more difficult to deeply connect during in-person interactions.

PARADOXES IN WORKING WITH CHATGPT

A recent study involving 48 interviews with advertising industry professionals explored how ChatGPT impacts their work. The findings reveal that employees experience ChatGPT's impact as contradictory and identify three paradoxes in their interaction with the program (Osadchaya et al., 2024). First, ChatGPT both facilitates and obstructs research. While employees find AI-based chatbots such as ChatGPT more effective than search engines, they also bemoan the extra effort required to verify the answers. Second, AI-based chatbots promote both creativity and standardisation. Though respondents use ChatGPT beneficially in the creative process, they also observe an increasing homogenisation of advertising messages. Third, from the respondents' perspective, using ChatGPT leads to both efficiency gains and losses. You can quickly generate a blog post such as this one, but then you have to spend a lot of time revising it, both validating facts and adjusting the tone to avoid the text from sounding too AI-generated.

OUTLOOK

My own preliminary analyses of online forum discussions among creatives in the advertising industry align with the study's findings. This does not imply that generative AI cannot enhance employee productivity. However, the productivity effects may have been overestimated in initial studies. Understanding why this is the case and when the negatives outweigh the positives remains an open question that requires further research. Such research needs to consider the application context more thoroughly. For this

very reason, we have decided to investigate the applications and impacts of generative AI in selected professional fields such as human resources and marketing in our project Generative AI in the Workplace.

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SONJA KÖHNE, NELE BUSS,
GEORG VON RICHTHOFEN & HENDRIK SEND

Empowering workers with data

The workplace is becoming increasingly datafied. But should this data serve management alone? This article asks how workers and their representatives are reclaiming data to advocate for fairer working conditions. Using innovative tools like self-tracking apps and union-led surveys, workers are now gathering evidence on critical issues such as unpaid labour, pay transparency and workplace inequality. Could this new, data-driven approach to organising reshape power dynamics in the workplace?

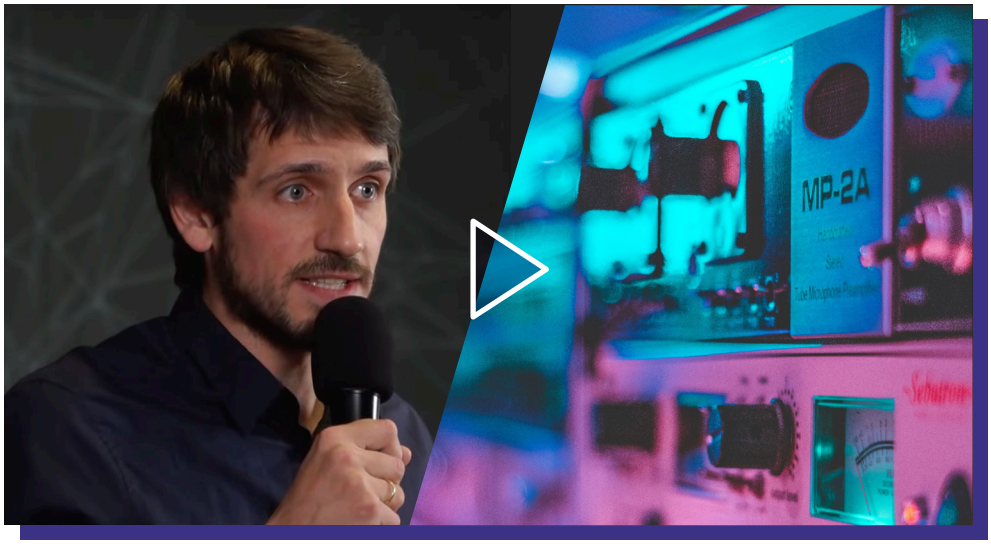
READ FULL ARTICLE

ELISKA DRAPALOVA & KAI WEGRICH

Platforms' regulatory disruptiveness and local regulatory outcomes in Europe

Platform power refers to the capacity of platforms to bypass existing regulations and disrupt established regulatory frameworks. Although the disruptive impact of the platform economy is frequently discussed, it has rarely been studied in depth. This article explores whether platform companies have genuinely disrupted local regulations. By analysing 99 city regulations, the authors reveal that these platforms may be less disruptive than widely assumed. Is the disruption narrative exaggerated?

READ FULL ARTICLE



DIGITALER SALON

DJ AI

Once a month, we publicly discuss the impact of digitalisation on society at Digitaler Salon. In light of the fast evolution of AI-generated music, in our September episode, we raised key questions about copyright and fair compensation. Who owns computer-generated art, and how can we ensure that the creative professionals who contribute data are fairly paid?

WATCH FULL TALK

ENGLISH SUBTITLES AVAILABLE

DIGITALER SALON

Pixel statt Pinsel

Creativity and intelligence have long been considered uniquely human. Now AI models are producing art, text, video and music of compelling quality, challenging those boundaries. What does this shift mean for our jobs, our sense of identity and the future of creative work? In this edition of Digitaler Salon, our panel reflects on the role of AI in creative professions.

WATCH FULL TALK

ENGLISH SUBTITLES AVAILABLE

STRIVING FOR IMPACT
2024

Creating fair and inclusive workplaces in the digital age

Together with unions and industry representatives, we co-developed strategies for the responsible integration of digital technologies, ensuring alignment with workers' rights and interests.

Our empirical findings on the use of data in contemporary workplaces provided the German Federal Ministry of Labour and Social Affairs (BMAS) with concrete findings on use cases and practical perspectives. At the request of the Ministry, we will collect insights from companies about their experiences with the European AI Regulation in order to develop practical recommendations on the implications of generative AI in the workplace. Our scientific findings from the field serve as a basis for discussion in regulatory debates at BMAS.

Public events such as re:publica allowed us to engage with diverse audiences, from citizens to business leaders, sparking dialogue about creating equitable labour policies in the digital era.

FREYA HEWETT

From theory to practice and back again: A journey in public interest AI

FURTHER ARTICLES

AI systems for the public interest

AI under supervision: Do we need humans in the loop in automation processes?

One step forward, two steps back: Why artificial intelligence is currently mainly predicting the past

ONLINE TOOL

Claimspotting

CONVERSATIONS

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Artificial intelligence and society

Artificial intelligence unveils a world where the capabilities of technical systems are similar to those of human intelligence. But, AI isn't just about algorithms; it's deeply interwoven with our society. The future of AI technologies is strongly interlinked with the automation of social processes and will touch every facet of our lives: rom tailoring your social media feeds to driving innovations in healthcare and even climate research. It's beyond the screens we scroll; it's in our offices, our hospitals, our roads and even in the cutting-edge robotic systems we design. Our research investigates the interplay of AI within the political, social and cultural landscapes, and explores the impact of AI discourses on society.

VISIT TOPIC OVERVIEW ONLINE

FREYA HEWETT

From theory to practice and back again: A journey in public interest AI

Complicated online texts are a hurdle for many people in their daily lives. Simba offers two innovative AI-based tools to simplify German-language online texts and help people better understand them. The first is an app that simplifies personal texts, and the second is a browser extension that automatically summarises texts on websites. This article explores the principles behind the development of Simba and sheds light on the technological details as well as the accessibility of the tools.

In our research group on public interest-oriented AI, we don't just talk about the theory; we take a practical approach, developing technical prototypes. One of these is Simba, our tool that automatically simplifies German-language texts online. Therefore, we reflect on our initial thoughts on public interest AI using our experiences from developing Simba.

WHAT'S WHAT

Simba features two AI-supported tools designed to help users better understand German-language online texts. The first is an internet app that simplifies self-authored content, while the second is a browser extension that automatically summarises texts on websites. Both utilise an AI-based language model to automatically simplify German-language texts. Simplification is the act of reducing complexity while still maintaining the core message; it involves replacing longer words with short synonyms, shortening sentences or inserting additional information to make relations between concepts clearer. We have been developing Simba against the backdrop of our six public interest AI principles. These principles were formulated at the beginning of our research project, which are visualised below.

JUSTIFICATION

What is the societal purpose of this system? Is this AI application the best and most sustainable way to solve an existing problem?

EQUITY

Does the system enhance equity, or does it at the least not hinder it?

PARTICIPATORY DESIGN / DELIBERATION

How can citizens get informed, participate, co-design, or otherwise have a stake in the design and the use of the system?

TECHNICAL STANDARDS / SAFEGUARDS

Is the system secure, accurate, and robust the way it is built? Was there an audit to make sure?

OPEN FOR VALIDATION

How can citizens or third parties audit and understand the architecture and performance of the system?

SUSTAINABILITY

How sustainable is the AI system – regarding its ecological as well as its social and economic impacts?

The six public interest AI principles.

BUT FIRST: WHY?

"Why" is an important question to ask in the context of public interest AI, reflected in the principles justification and equity. Does the system have a societal purpose that, which does not hinder equity?

The societal purpose of simplified language is to give as many different people as possible access to the same information. According to the LEO study, conducted by the University of Hamburg in 2018, around 12% of German-speaking adults in Germany have low literacy skills, which means they are capable of reading and writing simple sentences at most. The target groups for simplified language range from people with cognitive disabilities to non-native speakers, children and non-experts. While we still maintain that certain processes themselves could be systematically simplified – particularly in a bureaucratic context – we believe that providing as much information in simplified language is beneficial for a democratic society and contributes to promoting equity.

An AI-based tool could improve efficiency and support translators in providing a wider range of simplified information. Our research has revealed that the websites of public administrative bodies, educational institutions and scientific institutes often exclude a substantial portion of the population from accessing vital information due to their complex language.

LET'S GET TECHNICAL

Technical knowledge is required to develop an AI-based tool – to ensure that the tool is successful, that no unnecessary risks are created and that resources (such as time and money) are not wasted. These points are reflected in the technical standards condition. As a small team, we are reliant on technology made by other players – Simba is based on a large language model from Meta called Llama-3. The model is available on HuggingFace, a platform that hosts language models and is often referred to as being open-weight: there is little documentation of the training data or process, but the model itself is openly available. While using a fully open model would be ideal, Llama-3 is highly efficient and produces outputs of high quality compared to other models that we tested. We used our own datasets to further fine-tune Llama-3; this means we used simplification data to adjust the model to perform better at this specific task. With the condition of sustainability in mind, we used efficient fine-tuning techniques that result in lower emissions. Finally, we performed an in-house evaluation, with annotations done by our team, so we could ensure fair working conditions.

OPEN VALIDATION AND DELIBERATION

We have made the thinking process behind Simba public knowledge, with articles such as this one and research papers in the pipeline. Additionally, our code is on GitHub, our models are accessible on HuggingFace, a subset of our training data is documented and publicly available and our website is accessible to the public. On our website, we have tried to adapt

the information about Simba so that it can be understood by an audience that is technically less well versed. We began the project by consulting the existing literature, talking to experts and holding an initial consultation with potential stakeholders, that is, a group of researchers who have experience with disability and discrimination. We also explicitly ask for feedback and actively encourage other researchers, professionals and dedicated users from the simplification world to collaborate with us and help us make Simba better. So far, we have exchanged thoughts and ideas with a variety of organisations and potential users. We believe that it is only through collaboration that we can truly have a tool that works for as many different people as possible.

The openness of Simba – including explanations tailored to different target groups – meets a necessary prerequisite for participation and deliberation. However, we propose that requirements and expectations for projects – particularly in regards to participation – should be adapted depending on the scale of the project. Initiatives realised by public sector bodies, by mid to large commercial entities and by small non-profit groups will have different resources available and potentially have a different impact. For Simba, a more participatory design process would have been difficult, given the costs of involving stakeholders and users and the intricacies involved in design.

A STRONG FOUNDATION

Overall, our original thoughts on public interest AI provided a valuable foundation for thinking about AI for the public. And since we published

these thoughts, we have learned from a variety of public interest AI projects, including our own prototypes. Our experiences with developing Simba have shown us that the principles we formulated at the beginning of the project are still relevant, but that slight adjustments would be valuable. In particular, having a justification, technical safeguards, being open for validation and fostering collaboration are important factors regardless of the size and scope of a project, whereas participation and sustainability should be considered in a more nuanced way. Simba, for example, has been developed in the context of a research project by a small team; including more participatory processes would be difficult given the costs of involving stakeholders/users and the intricacies involved in (co-)design. Additionally, as is the case for many research projects, success is often measured by academic publications and less so by practical output. Ideally, in the long term, more economic resources and incentives should be dedicated to practical outputs created in research contexts. In the meantime, we hope that this documentation of our insights and lessons learned will help researchers and developers navigate their own public interest AI projects.

START SIMPLIFYING WITH SIMBA

AI

THERESA ZÜGER & HADI ASGHARI

AI systems for the public interest

What does it mean for AI to serve the public interest? The latest special issue of Internet Policy Review, the open access journal on internet regulation, tackles this question head on. Different authors examine how AI can address global challenges like reducing CO_2 emissions, improving public health and enhancing social services. Moving beyond abstract debates on ethics, the editors provide fresh insights into the real-world implications of responsible AI development and use.

EXPLORE FULL SPECIAL ISSUE

AI

PHILIPP MAHLOW, THERESA ZÜGER & LARA KAUTER

AI under supervision: Do we need humans in the loop in automation processes?

Does human oversight fix automation's flaws? Many believe that involving people in automated processes can reduce biases and improve decisions. This article explores how human input might help create better outcomes by examining key insights from the Human in the Loop project. Can people truly make automation smarter and fairer?

READ FULL ARTICLE

AI

KATHARINA MOSENE

One step forward, two steps back: Why artificial intelligence is currently mainly predicting the past

Artificial intelligence is often hailed as the technology of the future. Yet it primarily relies on historical data, reproducing old patterns instead of fostering progress. This blog article examines how AI systems can reinforce societal inequalities and marginalisation and explores their impact on social justice. Can we create AI that moves beyond the biases of the past?

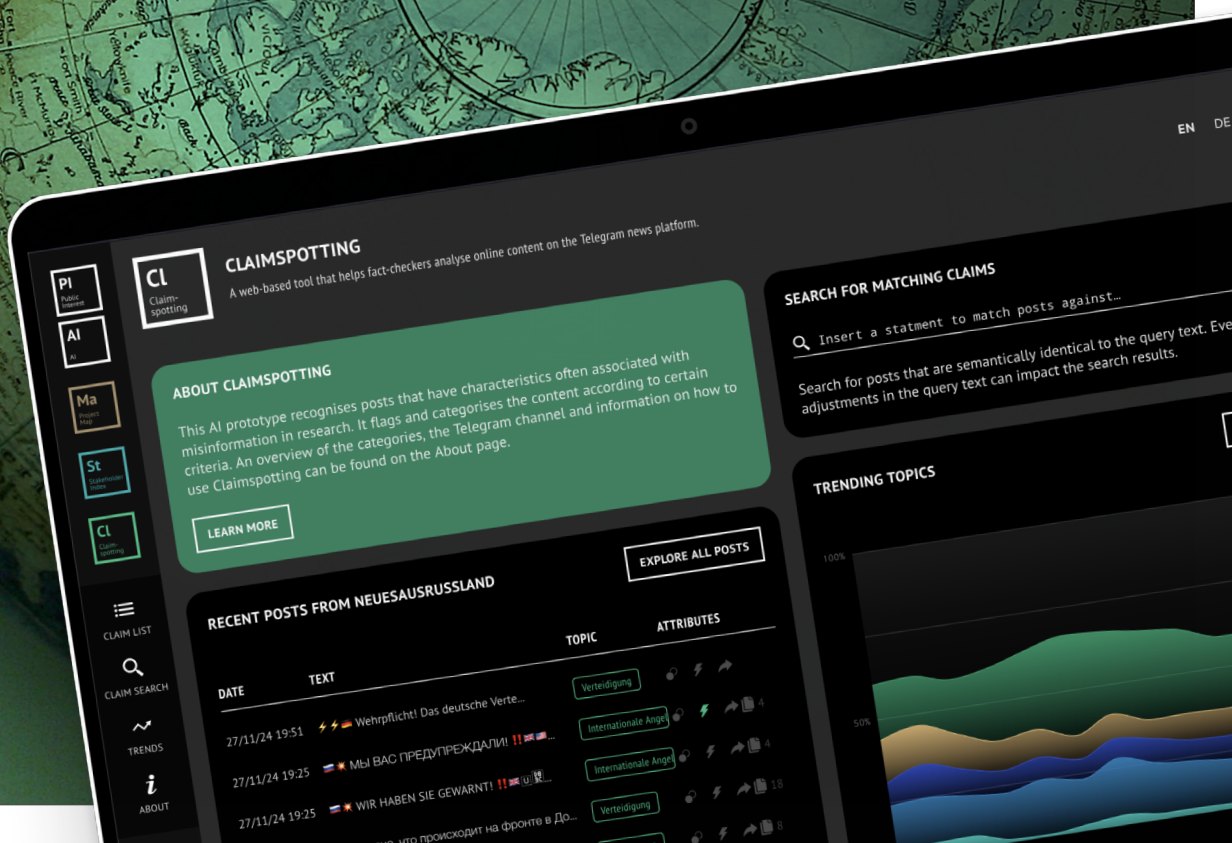
READ FULL ARTICLE

Cl
Claim-
spotting

CLAIMSPOTTING

Misinformation is omnipresent and easy to find; what's challenging is identifying content worth verifying. Claimspotting is a web-based AI tool that helps fact-checkers identify and organise online content from the Telegram news platform. It screens and tags posts from 200 Telegram channels that have been identified as problematic by experts, highlighting content with characteristics often linked to misinformation.

EXPLORE THE TOOL



AI

LECTURE BY KIM LANE SCHEPPELE

Democracy at risk – the autocrat's spyware?

Spyware has become a powerful tool for autocrats, threatening democracy while exploiting legal loopholes meant to prevent authoritarian overreach. Yet, democracies often defend its use due to its value for law enforcement. In this edition of the HIIG lecture series, Kim Lane Scheppele examines how spyware undermines democratic principles and explores options for regulation. Addressing this challenge is crucial to safeguarding democratic institutions.

WATCH FULL LECTURE


auditorium

AI

DIGITALER SALON

Damage Control

Automated lending is becoming the norm, but applicants are frequently left in the dark when they are denied credit – were missed payments or the wrong job to blame? What is the role of humans in this process? Are they decision makers or mere figureheads in a system beyond their control? The May issue of Digitaler Salon explored the challenges of ensuring fairness and accountability in AI-driven credit decisions.

WATCH FULL TALK

ENGLISH SUBTITLES AVAILABLE

STRIVING FOR IMPACT
2024

Promoting responsible AI for the public good

Our researchers contributed to shaping the European Commission's Code of Practice for General-Purpose AI Models under the AI Act, collaborating with AI providers, industry organisations, academia, and civil society.

We brought together global experts to develop policy recommendations for the G20, addressing ethical regulatory sandboxes, public interest AI to achieve the SDGs and copyright challenges in the AI era. These insights provided a framework for navigating the global opportunities and risks of AI.

We partnered with seven federal agencies for civic education to distribute the AI Compass card game, which is now being used in over 8,000 schools, universities, and educational institutions across Germany.

We developed prototypes for public interest AI applications, including Claimspotting, a web-based tool that helps fact-checkers analyse online content on the Telegram news platform. The tool is being tested by public broadcasters and journalistic fact-checkers to monitor and research problematic content.

Digitalisation and sustainability

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Digitalisation and sustainability

When it comes to sustainability, digitalisation opens up great opportunities but poses myriad challenges. It is important that societies, organisations and individuals begin to grasp the sustainable potential of digital technologies. Currently, their negative effects often outweigh the positive ones due to enormous requirements for material and energy, but also due to discrimination against certain social groups – the same ones affected most by the negative consequences of outsized material and energy consumption on the whole. In our research at HIIG, we investigate how digital and sustainable transformation can be shaped together. How can technology be introduced and used in a responsible manner from a social, economic and ecological perspective?

VISIT TOPIC OVERVIEW ONLINE

PAUL VILCHEZ

Exploring digitalisation: Indigenous perspectives from Puno, Peru

Have you ever thought about what Indigenous perspectives on digitalisation look like? In this article, Paul Vilchez provides insights from Quechua communities in Puno, Peru, as they navigate the world of digitalisation and reflects on how these communities are using technology to empower themselves and foster economic independence. Through stories of local entrepreneurs and their deep-rooted traditions, he uncovers how ancestral wisdom can guide modern digital projects, reshape Western understandings of digital economies and lead to more sustainable practices.

Within management and organisation studies, Indigenous literature has been gaining attention as an alternative to the Western principles that are largely responsible for the environmental and social problems the world faces today. At the same time, while digitalisation can be used to do good, major digital platforms have been criticised for being based on commercial values. Therefore, diverse Indigenous perspectives on digitalisation can offer valuable insights into how we can steer digital projects sustainably. In this article, I share reflections on a recent visit to Quechua communities in Puno, Peru. Puno is a region in the south of Peru where 90.8% of the population self-identifies as Indigenous. Moreover, 42% of the population's mother tongue is Quechua, which was also the official language of the Incas. Throughout the years, the Quechuas – along with other Indigenous groups in the region – have kept their traditions and fought to remain autochthonous and protect their lands. Speaking with local entrepreneurs and people from urban and rural areas, I learned about the emancipatory value of digital technologies, the challenges of growing the digital sector and how their ancestral principles and traditions frame new developments in the region.

THE EMANCIPATORY VALUE OF DIGITAL TECHNOLOGIES

Quechua communities in Puno have largely maintained agriculture as their main economic activity. However, in recent decades, they have also engaged with ethnic tourism and artisanal production as additional and impactful endeavours. Digital technologies have helped Quechuas gain independence from outside players in these industries, who dictate prices and schedules.

For example, tourism in Puno has been lower than in other parts of Peru, and travel agencies have favoured certain towns more than others. Digital lodging platforms are playing an important role in the autonomous development of tourism in the area because they allow Quechuas to directly connect with guests. For instance, Taquile Island in Lake Titicaca is often sold to tourists as a half-day boat tour starting in the city of Puno; this is changing as more residents of Taquile are building lodges and persuading tourists to stay longer in the area. Another example of the emancipatory value of digital technologies is the use of social media, as it enabled artisans to continue selling their products through the devastating economic turmoil of the COVID-19 pandemic. The use of digital technologies within Quechua communities has been growing and is playing an important role in local economies. Still, they currently use mostly enabling digital technologies, such as social media and apps. The question is: how large is the potential for growing the digital economy in this region?

ONWARDS TO A LARGER DIGITAL ECONOMY

It is important to remember that Indigenous communities often have a history of suppression. Quechuas in Peru suffered from systems of mandated servitude (called *pongaje*) and were subject to especially high taxes, among other injustices. Consequently, many communities today live in extreme poverty. While the region has rather modern urban areas like Juliaca and the city of Puno (I even found a gym with a face-recognition system), rural communities have more limited access to digital technologies. For instance, internet coverage varies dramatically across settlements (in the islands of

Amantani and Taquile, there is only one reliable internet provider). At the same time, conversations with educational professionals revealed that most schools (and municipal libraries) do not have computer labs, meaning there is an urgent need for training in basic computing skills for teachers and students. As described in these first sections, while there are many interesting examples of digital technology adoption in the region of Puno, there is also a large gap in the region in being able to provide digital access and training to its people.

FRAMING DEVELOPMENTS WITHIN ANCESTRAL PRINCIPLES

Despite some initial small initiatives, there are few examples of larger digital projects in this region. However, as the region engages more with digital technologies, it is important to consider the Quechuas' way of life with a view to imagining an authentic digital economy. The Quechuas' way of life is rooted in honouring and depending on nature and their communities. One of the many ancestral rituals and principles is the tribute to *Pachamama* and the *Ayni*. In the tribute to Pachamama, people bring their best crops and other gifts as offerings to Mother Earth. While there is an official celebration in August, it more often takes place privately. Ayni is the principle of "today for you, tomorrow for me", which is reflected in a spirit of reciprocity and cooperation regarding work. This principle is often associated with the building of houses, where members of a community come for full days to build another community member's house. Simple construction projects can take up to two days. The future house owner is

also expected to participate in building houses for other people from the community.

This strong sense of care for nature and their communities is also evident among entrepreneurs. One case that stood out for me during my recent visit was that of *solidarity tourism*, a concept introduced to me by the owner of a well-known lodge. He has intentionally decided to limit his business to lodging, because, among other reasons, he believes his whole community should benefit from tourism and not just his family. He continues to support other members of his community in related and even competing ventures (related to food, transportation, etc.). The tribute to Pachamama and the Ayni are just a few examples of the rich and lively worldview of the Quechua communities in Peru.

EMBRACING INDIGENOUS PERSPECTIVES ON DIGITALISATION

There is increasing interest in including the voices of Indigenous people in the development of digital projects; however, barriers to equitable inclusion are still very prevalent in different parts of the globe. The Quechuas of Puno are still at an early stage of their participation in the digital economy. Continuing to support their inclusion through digital learning and accessibility may expedite this process as well as helping protect the identity of these communities. It is important to continue questioning the frameworks through which digital projects are implemented and support projects that offer alternatives to our typical global economy. The region of Puno has room to grow within the digital economy, but the principles, way

of life and the way they are translated into entrepreneurial ventures can inspire local and global people alike to build sustainable digital companies.

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RAINER REHAK

On the (im)possibility of sustainable artificial intelligence

It is true that some AI applications show potential in areas such as optimising the circular economy or reducing CO2 emissions. However, this opinion piece, published in Internet Policy Review, argues that focusing on AI could distract from the more important societal changes needed for true sustainability. Instead, it suggests a problem-led approach where AI can play a secondary role within a larger, purpose-driven change.

READ FULL ARTICLE

IRINA KÜHNLEIN & BIRTE LÜBBERT

One small part of many – AI for environmental protection

AI applications as such are not sustainable. But can they still help save our planet? In this article, Irina Kühnlein and Birte Lübbert take a look at six innovative German projects that are using artificial intelligence to protect the environment. From monitoring sewer systems to detecting forest fires and tracking garden dormice, they showcase the diverse ways AI can contribute to sustainability goals. Can technology truly be a force for good?

READ FULL ARTICLE

DIGITALER SALON

Quanten statt Quaken

This episode of the monthly discussion series Digitaler Salon is dedicated to climate modelling in the face of global challenges such as natural disasters and global warming. What are the technical limits of machine learning and quantum computing as beacons of hope for climate impact research?

WATCH FULL TALK

ENGLISH SUBTITLES AVAILABLE

LECTURE WITH ROB KITCHIN

Navigating smart cities

When people talk about smart cities, technology and data-driven urban planning take centre stage. But how can these digital innovations be used to promote social justice and participation by all citizens? The answer lies in developing sustainable cities that truly prioritise people's needs. In this edition of the HIIG lecture series, Rob Kitchin explores the ideals, logics and potential perils of the smart city vision. What will the future of urban living look like?

WATCH FULL LECTURE

OPEN EDUCATIONAL RESOURCE

AI on the table: A card game changes perspectives worldwide

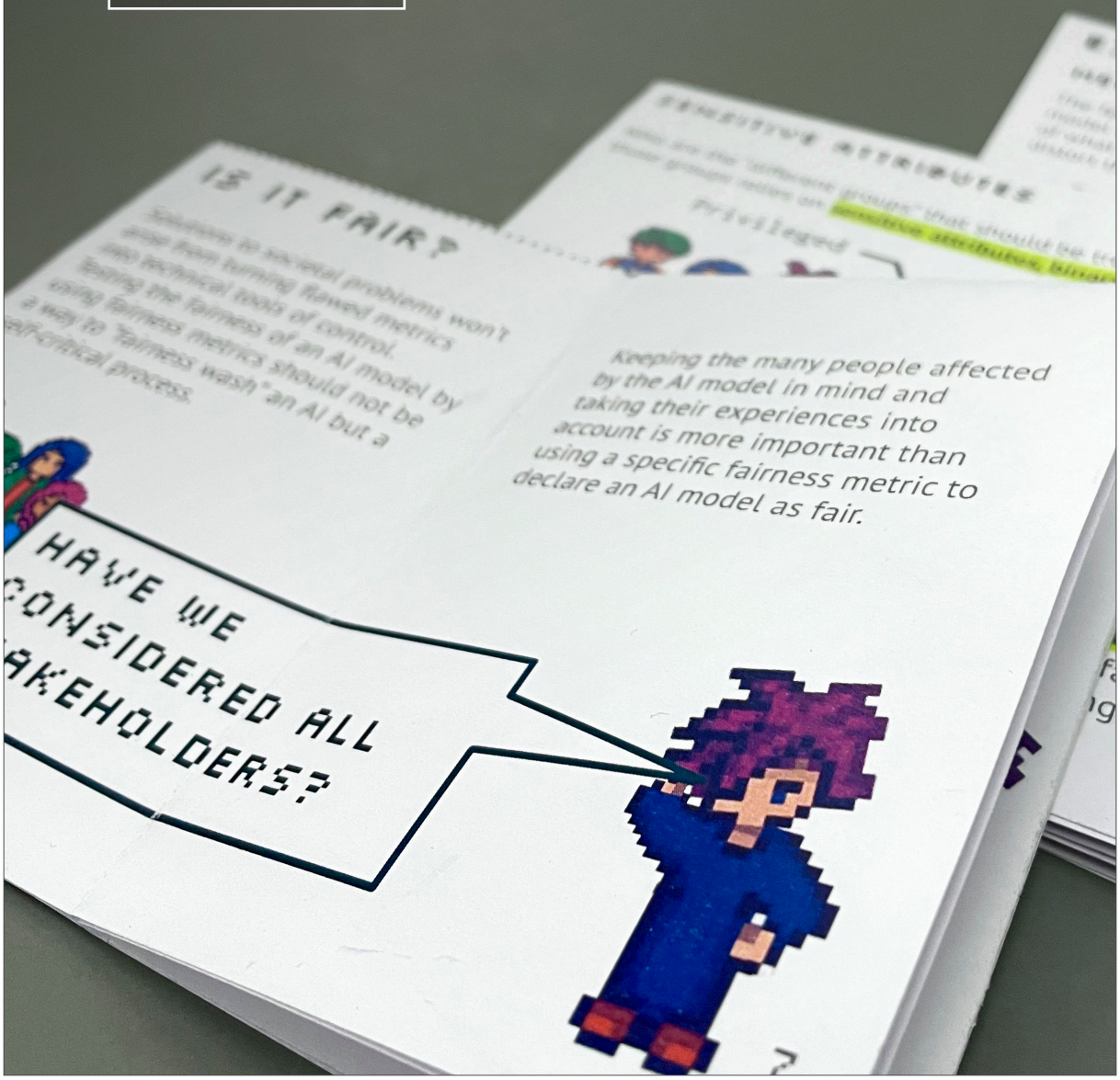
How can technology address challenges like climate change and social inclusion while promoting sustainability? Our educational card game AI Compass has become a worldwide success, with over 10,000 copies reaching diverse audiences. From classrooms and political workshops to retirement communities and corporate events, it encourages meaningful dialogue about AI's potential and limitations. Offering a practical understanding of artificial intelligence, the AI Compass enables people to make thoughtful choices about AI's role in shaping an equitable future.

GET YOUR OWN DECK OF CARDS

ZINES ON FAIRNESS IN AI SYSTEMS

What does fairness in AI really mean? Follow Techie, a data scientist, through four engaging chapters as she tackles bias in automated hiring decisions. Learn how AI models are trained, where biases emerge, and how fairness can be measured – all through the creatively designed, easy-to-read mini-magazines.

START FOLDING



STRIVING FOR IMPACT
2024

Embedding long-term viability into common good projects

We supported the sustainability of public interest AI prototypes, such as Simba and Claimspotting, by identifying partnerships and organisations willing to provide long-term support.

Our data governance workshops explored how municipalities can implement participatory processes and integrate sustainable, data-driven decision-making into their administrative practices.

We found new co-funding partners for the Internet Policy Review journal, ensuring long-term access to high quality research and open access publishing.

Open higher education

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Digitalisation and sustainability

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Platform governance

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Open higher education

The idea of open (higher) education is driven by the aspiration to share knowledge across diverse communities and broaden access to education for everyone, regardless of background, digital skills, finances or location. The field of educational technology (EdTech) builds on the belief that open educational resources should be public assets. They should be open source, readily accessible and not solely driven by the pursuit of profit. Educational technology tools like digital spaces, open-source knowledge bases and repositories have the potential to democratise access within the higher education sector. Universities, publishers and libraries are pivotal in managing access to knowledge and open education resources. In our research on open education, we study these key actors and their practices and explore a more equitable future for educational technology amidst evolving trends and solutions.

VISIT TOPIC OVERVIEW ONLINE

NATALIIA SOKOLOVSKA

Science hostility: What we know and what we can do about it

Public communication on controversial issues like climate change or global health crises has meant that science is more relevant than ever before. At the same time, it has made researchers vulnerable to attacks that undermine their credibility, potentially silencing them and prompting them to withdraw from the public sphere. In 2023, we launched the project Capacities and Competencies in Dealing with Hate Speech and Hostility towards Science (KAPAZ), funded by the Volkswagen Foundation. It seeks to understand the prevalence and forms of science hostility in Germany and aims to create resources to support researchers. Early findings indicate that hostility arises from both scientific and non-scientific actors, manifesting as online harassment, verbal threats and even physical attacks. The project highlights the need for communication training, institutional support and protective measures to empower researchers to deal with these challenges.

Have researchers become public targets? During the COVID-19 pandemic, hostility towards experts from academia and researchers was strikingly evident. Many scientists who shared their work found themselves at the centre of shitstorms and facing public character assassination campaigns or online harassment. Notable examples include the attack on the German virologist Christian Drosten while vacationing at a campsite, and the controversial article "Die Lockdown Macher" (The Lockdown Makers), which attributed researchers responsibility for COVID-related social restrictions. These incidents are merely the tip of the iceberg, illustrating the aggression that researchers may face when sharing their work with the public. A 2021 survey published by Nature revealed that some scientists commenting on COVID-19 even received death threats (Nogrady, 2021). Research is becoming increasingly entangled with a public discourse that operates differently than communication with academic peers. This may bring unintended consequences for researchers and their reputations.

Despite the growing visibility of these issues, hostile attitudes and attacks on researchers have not been extensively studied. To address this gap, the KAPAZ initiative seeks to provide in-depth, up-to-date insights into science hostility in Germany. The project also aims to develop and sustain resources to support researchers facing such challenges. In this article, we share some initial observations on the phenomenon of science hostility and explore strategies to counteract it.

MORE COMMUNICATION, MORE EXPOSURE

Before diving more deeply into the phenomenon of science hostility, let's have a look at three key developments in research that have profoundly impacted scientists' communication behaviour. These should be noted when reflecting on the negative consequences of researchers' public engagement.

First, over recent decades, many Western countries, including Germany, have emphasised the societal relevance of science. This shift has fundamentally changed funding priorities and institutional strategies, meaning that public communication and societal impact have grown in importance. Researchers increasingly need to engage with the public to secure funding and advance their careers. Second, digitalisation and the rise of social media, digital platforms and open science practices have removed traditional gatekeepers, enabling researchers to interact directly with non-academic audiences. Finally, researchers often have a strong intrinsic motivation to contribute to societal processes. A recent survey among German researchers found that a significant majority across disciplines view societal impact as integral to their work, despite lacking adequate institutional support (Fecher & Hebing, 2021). However, this greater engagement and motivation also exposes researchers to a different – and often more hostile – culture of debate, making them more vulnerable to attacks and conflicts. It's worth noting that hostility towards science is not limited to communication between academia and society; it also exists within scientific communities, arising from debates over methodology, data quality, or openness. However, this article focuses on hostility in public science communication, not on internal academic tensions.

NOT NEW BUT LARGELY UNKNOWN

Hostility toward science is not new; it has appeared throughout history in many different forms. While once rooted more in religious beliefs, hostility now often stems from the interplay between political attitudes and scientific expertise (Gauchat, 2012). Since the 1970s, fields like climate research, animal or food-related research and gender studies have faced hostility. Such opposition has often been labelled "anti-science" (Holton, 2000; Gauchat, 2012; Goldenberg 2016), "science rejection" (Lewandowsky et al., 2013; Lewandowsky & Oberauer, 2016; Goldenberg, 2016) or "science scepticism" (Allum, 2008; Rutjens et al., 2022) – and indeed, all of these describe attitudes that challenge or dismiss scientific inquiry. Nevertheless, in the KAPAZ project, we adopt a broad perspective on science hostility, encompassing not only direct attacks on researchers in public debates but also other disruptive behaviours that hinder academic and social dialogue.

There is a scarcity of empirical evidence on the forms and dimensions of science hostility. A recent systematic review by Seeger et al. (2024) highlights that such attacks can be made by both scientific and non-scientific actors, manifesting as coordinated efforts (e.g. by populist groups) or spontaneous incidents like online harassment campaigns. Although science hostility is often linked to digital communication, the authors note that science hostility may be expressed in emails, social media posts, letters, personal calls and even physical attacks, sometimes backed by interest groups.

The literature review highlights that attacks and expressions of hostility can undermine researchers' perceived credibility. They can also provoke

cognitive and emotional responses, such as a fear of future attacks, insecurity about their work or the need for emotional or institutional support. These reactions can even lead to reduced public communication, a phenomenon called "silencing". Other studies support these findings. They note that some researchers withdraw from public discourse or avoid engaging with non-academic audiences due to fears of reputational damage or diminished credibility as experts (Väliverronen & Saikkonen, 2021). More broadly, "silencing" or "self-censorship" occurs when scientists remain silent to protect their careers, reputations or well-being (Nogrady, 2021; Vidal Valero, 2023).

WHAT WE KNOW ABOUT SCIENCE HOSTILITY IN GERMANY

A recent study conducted by the DZHW within the KAPAZ project explores the personal perceptions, forms and consequences of science-related hostility. While most respondents reported observing an increase in hostility, the survey only offers a snapshot of perceived incidents. It does not provide objective information on trends, as no long-term comparative data exists.

Despite this limitation, this data is nonetheless valuable, as we must understand personal experiences before developing resources to enhance researchers' resilience. Such resources can support them in managing attacks, preventing their voices from being "silenced". Nearly half of the respondents reported experiencing hostility. The most common forms were doubts about their competence and condescending criticism. Though often unjustified, such incidents reflect a clash between academic norms and

non-academic debate cultures. These clashes are fuelled by personal values and differing views of "truth". Politicians or journalists often navigate such dynamics, but scientists presenting conflicting results in public can unsettle audiences expecting clear "truths" from science. Researchers must therefore be prepared for these discourse dynamics. Communication training needs to be a part of scientific education. The survey also reveals that around 10% of respondents faced serious attacks, including verbal threats, death threats and vandalism, underscoring the need for protective measures.

CREATING RESOURCES TO COMBAT SCIENCE HOSTILITY

There are several effective strategies for supporting researchers who face hostility or are cautious about it. One such strategy is institutional backing, where the organisation concerned issues public statements or assists with moderating social media discussions. In some cases, documenting incidents or reporting abusive behaviour also prove key measures. Another way to foster constructive public discourse is to demonstrate awareness of political tensions and frame messages in a neutral tone while transparently presenting limitations and uncertainties. However, such actions only scratch the surface. Within KAPAZ, we are working to develop more comprehensive and sustainable resources. These aim to drive organisational change across the whole research community and provide tailored support to individual researchers. We offer a number of training programmes to build competence and maintain institutional structures that provide support for those affected by hostility.

For example, our Train-the-Trainer programme brings together science communication managers and press officers from universities and research institutions. It gives participants the knowledge and tools they need to address science hostility effectively. The programme focuses on developing tailored institutional strategies, raising awareness about the issue of science hostility and advocating for organisational change. Through interactive workshops and collaborative exercises, participants gain the practical skills they need to support their institutions in fostering resilience and creating safer environments for researchers engaging with the public.

The Summer School is another initiative designed for researchers of all career stages and from diverse disciplines. It supports these researchers in engaging with non-academic audiences, whether through public communication, science-policy consulting or citizen science. Combining interactive workshops, practical exercises and collaborative sessions, the programme gives participants essential skills to enhance their communication strategies and build resilience against hostility. By fostering a supportive environment, it also helps researchers develop confidence and create networks to navigate the challenges of public engagement effectively.

RESILIENCE: EMPOWERING RESEARCHERS IN CHALLENGING TIMES

Science hostility is not just a challenge for individual researchers; it is a broader societal issue that requires collective effort. By recognising the forms and consequences of hostility, supporting people affected by

hostility and fostering constructive public discourse, we can protect the integrity of research and help it continue to play an essential role in society. At KAPAZ, we are committed to creating resources and initiatives that empower researchers to navigate these challenges while ensuring that science remains accessible, credible and impactful. Together, we can build a research community that is resilient in the face of hostility and better equipped to engage with society on the critical issues of our time.

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BRONWEN DEACON & MELISSA LAUFER

Resistance to change: Challenges and opportunities in digital higher education

How can universities turn resistance to new technologies into positive change? In the higher education landscape, resistance to change is an inevitable part of transformation processes. A new study by HIIG and the CATALPA research cluster at FernUniversität in Hagen aims to shed light on how both individual and organisational resistance emerged, especially during the rapid shift to digital teaching during the COVID-19 pandemic. The findings offer valuable insights into how universities can better understand and address these challenges.

READ FULL ARTICLE

EXPLORING THE LONG NIGHT OF THE SCIENCES

Research in action: Questions, myths, and hands-on discovery

During the Long Night of the Sciences 2024, we welcomed curious minds eager to explore the fascinating crossroads of research, technology and society. Visitors perused the interactive stations, AI oracles, exhibitions and thought-provoking talks that addressed some of today's most pressing questions. Is AI the solution to everything? Can ChatGPT replace jobs? Are supercomputers and sustainability a good match? And how do smart cities really function?

A standout feature of the evening was the Debunking Science Myths station, where researchers Freia Kuper and Lena Henkes invited visitors to challenge common misconceptions about science. Tackling topics like funding bias, disagreements among scientists and the disconnect between research from reality, they shed light on the truth behind these myths – fostering trust and understanding in the process. Do you want to find out more about these myths and their effects?

READ FULL ARTICLE


MYTHOS
Wissenschaftler*innen machen häufig Fehler.
Researchers are prone to making mistakes.
MYTHOS


MYTHOS
Wissenschaftler*innen sind stark abhängig von ihren Geldgebern.
Researchers are highly dependent on their funders.

MARCEL WRZESINSKI & EVIN DALKILIC

Diamond OA: For a colourful digital publishing landscape

It is time to rethink the way we publish. Scholarly publishing often revolves around prestige and profit, leaving little room for alternative models. Diamond Open Access (OA) challenges this norm, offering community-driven, paywall-free publishing that prioritises collaboration and openness over commercial interests. But how can such an alternative model be sustainably funded? What does it take to build a collaborative publishing infrastructure that meets the needs of scholars, libraries and publishers alike?

READ FULL ARTICLE

Ed

ELEPHANT IN THE LAB ISSUE

AI in research

The elephant is back in the lab with a fresh, redesigned look! Our revamped blog journal continues to tackle the unspoken challenges of science, kicking off with a timely deep dive into artificial intelligence in research. Generative AI tools like ChatGPT are sparking debates across academia. For some, they offer powerful solutions to streamline administrative tasks and save time. For others, they raise red flags about scientific integrity, potential bias and the risk of spreading misinformation. At the centre of this conversation lies a pressing question: what role should AI play in shaping the research process?

EXPLORE FULL ISSUE

OPEN EDUCATIONAL RESOURCE

Making sense of the future: How will students shape our digital society?

HIIG's future thinking toolbox now includes a ready-to-use future skills workshop for schools and universities. Designed for middle school teachers, this resource features a PowerPoint presentation with clear instructions, perfect for project days or multi-session classes. Available in English and German, it helps students explore how today's choices shape tomorrow's world.

EXPLORE WORKSHOP MATERIAL

PODCAST EPISODE

Shaping the future of teaching with open educational resources

This episode of our Exploring Digital Spheres podcast features Katharina Mosene and Hanna-Sophie Bollmann discussing how open educational resources can transform classrooms and universities. Using HIIG's future-thinking toolbox as an example, they explore how innovative teaching methods prepare students to navigate AI, global crises and media literacy challenges.

LISTEN TO THE EPISODE

STRIVING FOR IMPACT
2024

Building resilience in science communication

The research and study findings of the KAPAZ project have been widely publicised in the media and the issue of hostility towards science has been discussed in political bodies such as the German Bundestag.

Our summer school and train-the-trainer programmes provided researchers and communicators with practical tools for dealing with hostility, fostering resilience and enhancing their skills. The strong response to these initiatives highlighted the urgent need for support systems to enable safer and more inclusive public engagement.

We moved the conversation on Diamond Open Access forward by engaging stakeholders to collaborate on solutions to challenges in financing, governance, and quality standards for royalty-free publishing.

Platform governance

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Platform governance

Platform governance refers to the rules, regulations and framework within which digital platforms are managed in our society. This includes social networks, online services, digital marketplaces or messaging services, to name a few. These digital platform ecosystems facilitate the exchange of information, goods and services in our daily lives. As an integral part of our modern communication, they also have a profound impact on public discourse and economic processes. In our research on sustainable platform governance, we therefore examine how entrepreneurial goals, individual rights and societal values can be aligned or at least harmonised in these online communication spaces. This includes questions related to online platform regulation, competition law, freedom of speech, individual autonomy and (democratically anchored) decision-making.

VISIT TOPIC OVERVIEW ONLINE


Platforms

ANN-KATHRIN WATOLLA & MATTHIAS C. KETTEMANN

Navigating platform power: From European elections to the regulatory future

The month of June 2024 was the occasion for the first EU-wide election since the new EU rules on digital services and markets came into force. Six weeks after the ballots were cast, Ann-Kathrin Watolla and Matthias C. Kettemann took stock. How are the new EU rules against platform-based challenges for democracy working in real life conditions? Has the vaunted Digital Services Act (DSA) worked in terms of navigating platform power? This article shows that the challenges of implementing the DSA have only just begun to emerge.

THE ANTICIPATED WAVE OF DIGITAL CHALLENGES

In the weeks leading up to the European elections, news outlets, researchers, authorities and civil society actors alike warned about an anticipated wave of disinformation. Held most recently in early June 2024, EU elections are "a flagship of European democracy", as the European Parliament puts it. However, experts across the globe feared the very real possibility that actors both inside and outside the European Union would try to undermine the democratic processes of European elections. Their main concern was about the dissemination of false information about voting procedures and the sowing of division and polarisation within the EU. Apart from disinformation, the NGO Democracy Reporting International (DRI) identified hate speech, foreign interference and paid political ads (PPAs) as the most dominant digital threats to the EU elections. However, if there is one thing we can learn from DRI's stakeholder meeting, it is that these threats do not come in one massive wave but rather as separate, smaller surges that slowly try to erode the foundations of democratic discourse. In an effort to halt these highly dispersed attacks, projects like Elections24Check, with its fact-checking database ahead of the 2024 EU elections, are important to counterbalance online disinformation online.

NO (MAJOR) NEWS IS GOOD NEWS?

Now that the elections are behind us, we can safely say that the anticipated massive wave did not wash over the EU. According to the European Digital Media Observatory's (EDMO) Task Force on the EU Parliament elections,

there were no major disinformation incidents. Is this good news? Not quite. Just because there were no radical accounts of disinformation does not mean that the digital threats identified by DRI have not become a reality. Let's take disinformation as an example. Correctiv and DRI have identified how chatbots provided misinformation about the EU elections. Irrespective of the chatbot used – be it Google Gemini, Microsoft Copilot or ChatGPT – accurate information about the voting process was not always provided. This is all the more alarming as people also use chatbots like a search engine. As DRI reminds us, "when voters are wrongly informed on electoral requirements, they may be deterred from voting (for example, thinking it is more complicated than it is), miss deadlines, or make other mistakes. In short, this unintentional misinformation can impact the right to vote and electoral outcomes." This is why navigating platform power is crucial to protect democratic principles.

But it's not just that chatbots provided disinformation around the EU elections; studies also show a variety of specific disinformation narratives. These often include targeting politicians, anti-EU sentiments or fake election results.

PROBLEMS – MEET LAWS

Since February 2024, a new set of EU rules has been in place to counteract these digital challenges and to create a safer and more equitable digital space where users' fundamental rights are protected. In particular, the Digital Services Act (DSA) requires platforms to "put in place reasonable,

proportionate and effective mitigation measures" (Art. 35 (1)) targeting, for example, "any actual or foreseeable negative effects on civic discourse and electoral processes, and public security" (Art. 34 (1) (c)).

As the DSA has been in force for five months now, this would mean that platforms are now obliged to develop measures to counter the digital threats mentioned above. However, as a recent study suggests, we may not be quite there yet. Looking at the five very large online platforms (VLOPs) – Facebook, Instagram, TikTok, X and YouTube – the study, conducted by the Spanish fact-checking portal Maldita, found that in 45% of instances of disinformation content, the platforms took no visible action. With digital platforms as the "primary public opinion battleground", this is not something to be taken lightly. And while the European Commission continues to open formal procedures against service providers to ensure these obligations are met, we still have a long way to go in navigating platform power to create a safer digital environment.

WHERE DO WE GO FROM HERE?

While it may seem somewhat disappointing that the commencement of the DSA in February 2024 did not immediately solve all the challenges of the digital space, this does not mean that things are not changing. To begin with, recent analyses of how disinformation agendas were deployed in the context of the EU elections are already providing us with valuable insights about platform-based challenges to democracy. We anticipate that we will gain even more insights from the individual services' systemic risk

assessments (Art. 34) to be published in autumn 2024. Moving forward, further research can build on this to better understand "what the most pressing sources of systemic risk are, where common vulnerabilities arise, and what mitigations can effectively reduce negative effects", as the Centre for Regulation in Europe (CERRE) points out. Since navigating platform power is a highly complex endeavour, we have built our DSA Research Network on the principles of communication and collaboration: bringing together stakeholders from NGOs, academia and regulatory bodies, we set out to provide early recommendations on how to implement the DSA properly and identify possible areas for a needed reform early on. With our Circle of Friends, we provide a unique space for merging diverse perspectives on the challenges and opportunities of the DSA in need of further research, putting further emphasis on the multi-stakeholder engagement.

As a collaborative initiative of the Alexander von Humboldt Institute for Internet and Society (HIIG), the Leibniz Institute for Media Research | Hans Bredow Institute, and the DSA Observatory, funded by the Mercator Foundation, the project was built on an interdisciplinary approach from the design stage onwards. Bringing together legal and social-science perspectives, we aim to provide a comprehensive view on the implementation of the DSA. Therefore, we are currently working on three focus areas:

- Operationalisation of risk-based governance approaches
- Impact of hybrid and risk-based governance on collective rights and values

– Assessment of due diligence and hybrid governance from a fundamental rights perspective

When our Circle of Friends came together for the first time in 2024, these focus areas served as the basis to discuss the DSA-areas in need of further academic research. With the individual services' risk assessments made available around that time as well, this serves as a solid basis for better understanding and navigating platform power in the context of the DSA.

ADRIAN KOPPS

Two years after the takeover: Four key policy changes of X under Musk

Rollback or reform? Two years after controversial businessman Elon Musk took over Twitter, now X, significant changes have unfolded. This article highlights four of its critical developments. These include the removal of protections against misgendering, the expansion of child abuse policies and shifts in managing hate speech and misinformation. How have these policy changes affected content moderation? And what do they reveal about X's overall approach?

READ FULL ARTICLE

DAVID NIEBORG, THOMAS POELL,
ROBYN CAPLAN & JOSÉ VAN DIJCK

Locating and theorising platform power

Where does platform power actually take shape? In June, the Internet Policy Review released one of its standout special issues of the year. The topic: locating and theorising platform power! Ten articles explore topics such as platform infrastructures and markets, platform governance and the negotiation of platform power and its alternatives. In the special issue, the guest editors explored the complexities of platform power, offering fresh perspectives and critical insights.

EXPLORE FULL SPECIAL ISSUE

PANEL DISCUSSION

Bridging the gap: Safeguarding Online Freedom Across the Atlantic

Content moderation is a critical challenge in today's digital age, where communication is increasingly moving online. In April, HIIG co-hosted a transatlantic event at the German Consulate in New York, exploring the balance between moderating online speech and safeguarding freedom of expression. Speakers Chinmayi Arun, Zoe Darmé, Ellen P. Goodman and Peter Micek discussed the contrasting legal frameworks in the US and EU, offering insights on how these regulations are reshaping content moderation practices on global platforms.

WATCH FULL DISCUSSION

GLOBAL NETWORK OF INTERNET AND SOCIETY RESEARCH CENTERS

Connecting Ideas: Exploring the network's activities in 2024

How can we address the societal and policy challenges posed by emerging technologies? This year, the Global Network of Internet and Society Research Centers (NoC) and HIIG hosted a series of high-impact events, from exploring the societal implications of quantum computing to examining digital rights and platform regulation. These gatherings brought together experts from around the world to foster dialogue on the transformative role of technology. With topics such as generative AI and the Digital Services Act at the forefront, NoC continues to shape global conversations about the future of the internet and society.

EXPLORE ALL ACTIVITIES

STRIVING FOR IMPACT
2024

Fostering fairness in digital platforms.

We worked with policymakers, including the Chair of the Digital Committee of the German Bundestag, to develop research findings on the integration of human oversight into automated decision-making systems, focusing on the balance between autonomy and accountability.

Collaborating with industry leaders, we explored risk-based governance models that address content governance while safeguarding freedom of expression. Our expertise has supported experts in designing the national implementation rules under Europe's new Digital laws package, providing actionable knowledge that has been translated into laws that align with human rights objectives and societal values and help mitigate systemic risks to democratic decision-making processes.

Advising international organisations, we developed ethics-based approaches to framing the use of AI in information conflicts and piloted ethics and governance concepts for frontier technologies.

Data governance

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Platform governance

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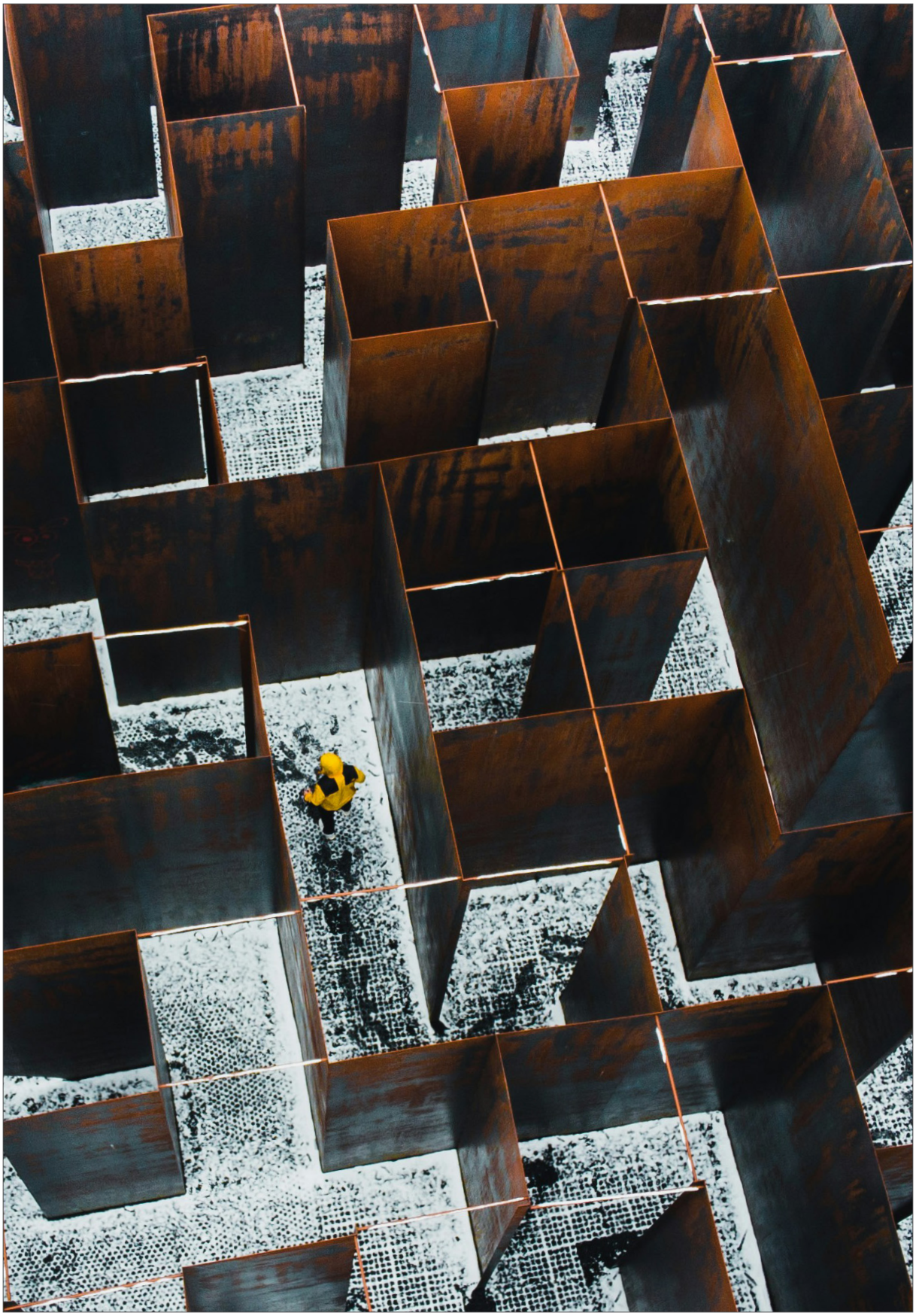
Data governance

Data governance refers to technical, organisational and regulatory mechanisms for responsible data sharing and use. These components are deeply connected to broader societal concerns such as data security, privacy, autonomy and political engagement. Data governance includes infrastructures, artificial intelligence integration and issues around data ownership and commodification. In our research, we explore the development of resilient data governance frameworks, tools and best practices. Part of this is the responsible use of data in the public interest across organisational and national boundaries.

VISIT TOPIC OVERVIEW ONLINE



PHILIP MEIER & GEMMA NEWLANDS

Navigating the urban maze: GIS technology and the blurring boundaries between digital and physical infrastructure

Introducing the progression of geographic information systems (GIS) technology and its varied applications, we provide an entry point to the debate on whether digital maps should be treated akin to physical public infrastructure, given their critical role in private and public decision-making. Examining the risks and dependencies created by proprietary geodata services, we call for a re-evaluation of digital maps in the public utility and governance framework.

GEOGRAPHICAL DATA UTILISATION IN URBAN SPACES

21st-century metropolises increasingly face an omnipresence of mobile cyber-physical systems (CPS). Such systems integrate computational and physical processes to effectively monitor urban spaces, blurring the boundaries between the physical and digital worlds (Lee, 2008). Common public use cases for CPS include city-wide functions, such as infrastructure planning or managing public transportation. Private entities also utilise CPS, such as digital maps and geodata collection for food delivery, restaurant recommendations or travel planning. However, although they are frequently used by both public and private entities, the most prominent CPS have been developed by a small handful of private companies.

CPS-based monitoring can involve passive data extraction modalities, like utilising real-time data from stationary cameras in public transport systems, or active control modalities, such as intelligent traffic light systems for optimising traffic flow. One area where passive data collection and active control come together to create real-time digital representations of urban spaces is in geographic information systems (University of Wisconsin-Madison, 2024). This is made possible by computers that are scaled down to the point where they can be embedded in everyday objects and activities and by advances in sensing and computing power, all of which allow for the ubiquitous integration of increasingly capable microelectronics (Kandt & Batty, 2021).

HOW DID WE GET HERE, A VERY BRIEF HISTORY

Today, GIS technology and geodata-based maps are dominated by private actors. Products like Google Maps, Apple Maps and Baidu Maps divide up the market for consumer applications. At the same time, HERE and TomTom extend the range for integrable solutions in the business-to-business (B2B) and business-to-public (B2P) sectors.

The genesis of the GIS industry can be traced back to the early 1960s, a pivotal moment when the confluence of computer science, geography and cartography gave birth to a new way of analysing and visualising geographical data. During the 60s, the pioneering work by Roger Tomlinson – often hailed as the "Father of GIS" – on the Canada Geographic Information System, laid the foundations for GIS by introducing the concept of overlaying various datasets on a digital map for comprehensive spatial analysis (AAG, 2024).

This innovation marked the beginning of a transition from traditional, manual cartography to digital mapping techniques, leveraging the burgeoning power of computer technology to process and analyse spatial data. It also opened up mapping operations, which had previously been subject to restrictive control by the public sector, to private companies.

Throughout the 1970s and 1980s, the GIS industry benefited from rapid advances in computer technology, including the development of more sophisticated software, and the introduction of user-friendly interfaces, which made GIS tools more accessible to a broader audience. The establishment of the Environmental Systems Research Institute (Esri) in 1969 by Jack and Laura Dangermond propelled the industry forward, with Esri's ArcGIS

becoming a cornerstone technology in the field. Another pioneer, Open Street Maps (OSM) emerged in 2004 as an open-access map alternative, integrating crowdsourcing as its primary medium for data acquisition and validation.

The advent of the internet, smart mobile devices and the proliferation of GPS technology in the late 20th and early 21st centuries further revolutionised the GIS industry, enabling real-time data collection and expanding the application of GIS across diverse fields, such as private transportation, logistics, and workplace surveillance. The contemporary GIS industry continues to evolve with advances in cloud computing, big data analytics and artificial intelligence. This underlines its critical role in addressing complex spatial challenges and shaping decision-making processes across the globe.

The interlinking of public and private actors permeates the entire geospatial data ecosystem. Most GIS providers of proprietary digital maps, like Google or Apple, extensively incorporate publicly available data while also influencing how societal actors, be they public authorities or citizens, navigate physical spaces. These companies also allow users to contribute and add contextual data, thereby shaping users' geographical choices and behaviour. Esri is expanding its worldwide partnerships with cities and communities to connect proprietary mapping data – despite open-source alternatives (Anselin et al., 2009).

OPENING A DEBATE ON TREATING DIGITAL MAPS AS PUBLIC INFRASTRUCTURE

Because public data is significant and maps impact the public's daily lives, we want to initiate a debate on the extent to which digital maps can or should be considered digital public infrastructure, incorporating both GIS technology and geodata (Eaves & Sandman, 2023). We attribute a public component to the creation, governance and exploitation of physical maps, which have always been tied to geographic sovereignty issues and the public sector's authority. In our view, this is no less the case with digital maps.

Regarding the infrastructure component, we share Brett Frischmann's (2012) view of infrastructure as a "shared means to many ends". For example, roads (the shared means) are a common way to transport individuals or goods for various purposes – to get to hospitals, schools, supermarkets or anywhere else for any reason (the many ends). Similarly, a digital map is a means of finding the road mentioned above and thus the way to the final destination. Public authorities oversee road construction, substantially influence traffic flow and are interested in providing their citizens with accessible and sustainable urban mobility.

However, public authority and citizens' sovereignty may be at risk if digital map providers utilise proprietary black-box algorithms (Abadi & Berrada, 2018) to collect and collate data in a non-traceable way to compile

recommendations. Because they are owned by private companies, such as Google, Apple or Baidu, digital maps can also be taken offline, altered or restricted based on corporate interests – an inherent unreliability and unpredictability that precludes the infrastructural resilience demanded of public infrastructure.

Emerging discussions about mapping the supply chain of digital services demonstrate that digital maps should not be the sole object of discussion given that they are only the final result of geodata processing. Rather, the entire process should be examined, beginning with the question of suitable geodata sources, collection procedures and integration workflows (Law et al., 2018).

We are left, therefore, with three pressing questions: How did digital mapping services develop over time to become quasi-public digital infrastructure? To what extent are current private and public digital services reliant on (a small number of) privately owned digital mapping/GIS services? Will the digital mapping ecosystem expand in the future with a greater variety of services, ownership and business models, or will we witness increasing concentration and monopolisation? In our ongoing research, we are attempting to provide answers and actionable insights.

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ALEXANDRA AUER & MAURICE STENZEL

Participation in smart cities

Public acceptance is a major challenge in the transition to smart cities and climate neutrality. One way to increase the general acceptance of change is to involve all relevant stakeholders – including citizens – in the decision-making process. This article examines how this can work in the case of a data-driven transformation of cities into green urban environments.

READ FULL ARTICLE

GLOSSARY OF DECENTRALISED TECHNOSOCIAL SYSTEMS

New entries on Data commons and Data cooperative

How can we foster a shared understanding of data governance? The Glossary of Decentralised Technosocial Systems defines key concepts in decentralised, distributed and sovereign technologies. Recent additions include data commons, which go beyond data sharing to encompass community dynamics, relationships with third parties and sustainability challenges. Also featured are data cooperatives, which are intermediaries that use cooperative models to manage data on behalf of members, benefiting them directly or facilitating trade with external users.

EXPLORE FULL GLOSSARY

LECTURE BY CAROLA WESTERMEIER

Money as a digital technology

As part of our HIIG lecture series, Carola Westermeier explored how digitalisation is transforming monetary systems, shifting power from banks to tech giants and from states to private actors. She examined the development of digital money by central banks and the challenges this poses for our digital autonomy and societal relationships.

WATCH FULL LECTURE

Da

DIGITALER SALON

Fahrplan 4.0

Self-driving cars could soon become a reality, raising major concerns about whether they can be used safely and efficiently – especially for large automotive companies. Lawyers, too, are grappling with complex new ethical and legal challenges. This edition of Digitaler Salon explores how self-driving cars, buses and trucks can be used to maximise their benefits for society.

WATCH FULL TALK

ENGLISH SUBTITLES AVAILABLE

DASHBOARD

Rethinking urban data governance

How can data foster collaboration for the common good in urban development? The Data & Smart City Governance project uses air quality management in Berlin as a case study to develop a data governance concept that connects public administrations, businesses and civil society. The preliminary results cover theoretical approaches, like data-driven administration and participation, and practical applications, like measures for monitoring air quality using data-driven tools. An interactive dashboard illustrates these findings, showing how data can model scenarios, guide decisions and enhance transparency.

EXPLORE PROJECT RESULTS

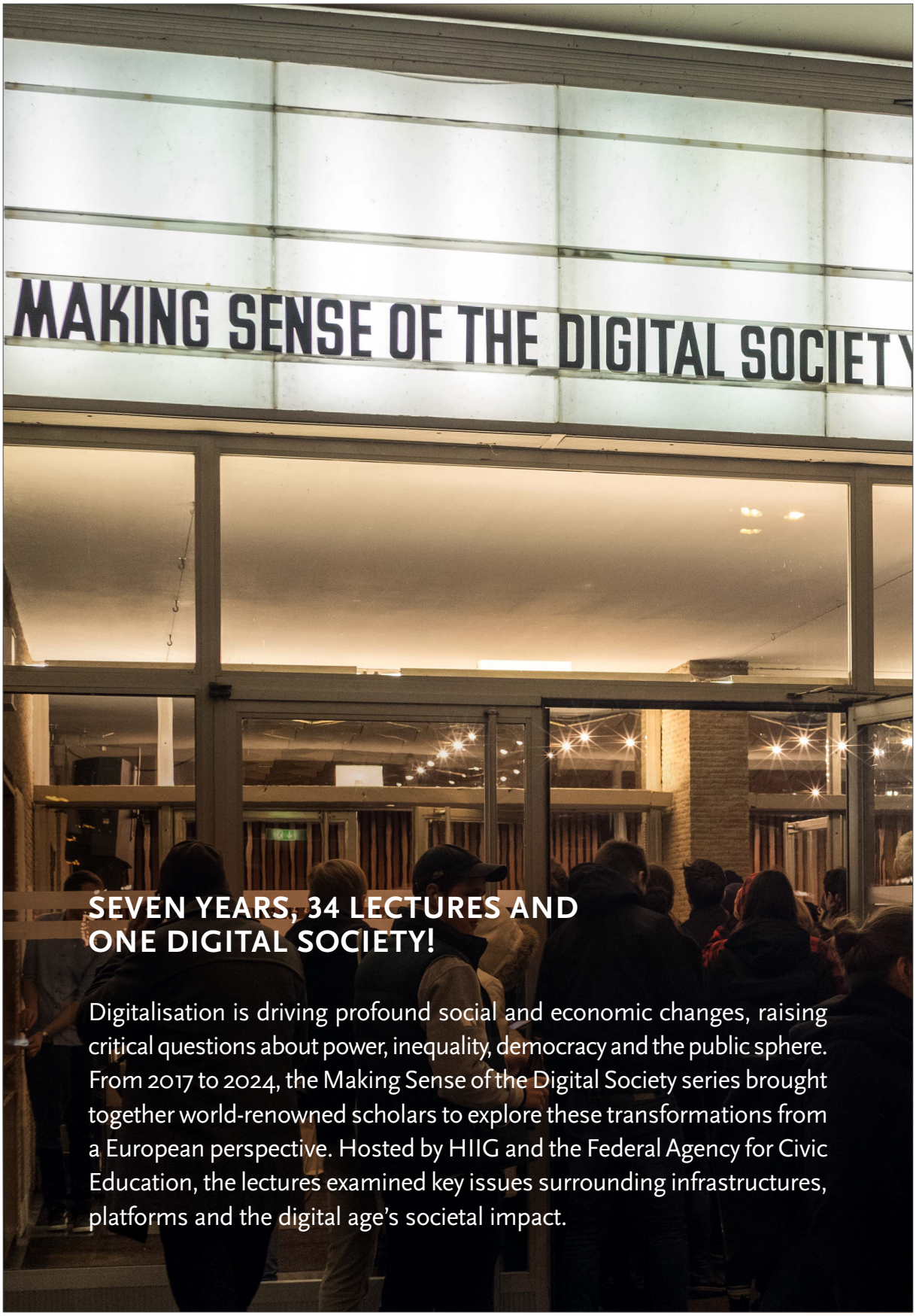
STRIVING FOR IMPACT
2024

Strengthening trust in data-driven innovation in a digitally connected world

We presented innovative approaches to data governance to policymakers and stakeholders, showcasing ways to balance conflicting interests in data usage.

Our interactive online toolkit was developed to help municipalities, citizens, and businesses use data for the common good, translating research into actionable solutions.

Citizen dialogue sessions addressed concerns about online personalisation and profiling. We developed solutions to empower participants to actively intervene in their personal data processing and profiling.



SEVEN YEARS, 34 LECTURES AND ONE DIGITAL SOCIETY!

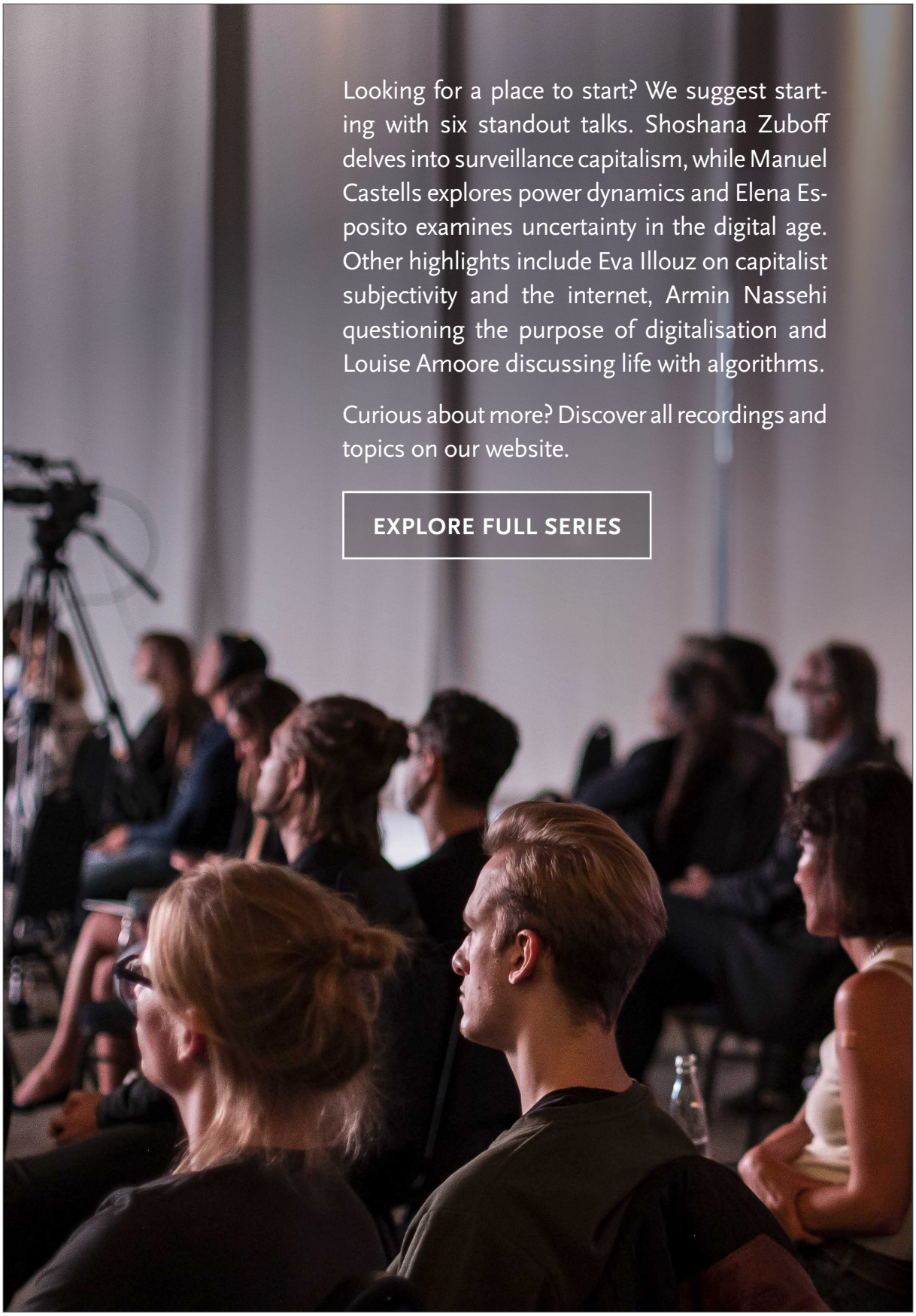
Digitalisation is driving profound social and economic changes, raising critical questions about power, inequality, democracy and the public sphere. From 2017 to 2024, the Making Sense of the Digital Society series brought together world-renowned scholars to explore these transformations from a European perspective. Hosted by HIIG and the Federal Agency for Civic Education, the lectures examined key issues surrounding infrastructures, platforms and the digital age's societal impact.

Manuel Castells

Shoshana Zuboff

Eva Illouz

Louise Amoore



Looking for a place to start? We suggest starting with six standout talks. Shoshana Zuboff delves into surveillance capitalism, while Manuel Castells explores power dynamics and Elena Esposito examines uncertainty in the digital age. Other highlights include Eva Illouz on capitalist subjectivity and the internet, Armin Nassehi questioning the purpose of digitalisation and Louise Amoore discussing life with algorithms.

Curious about more? Discover all recordings and topics on our website.

EXPLORE FULL SERIES

EMPOWER RESEARCH TO INSPIRE CHANGE

Help amplify Europe's voice in the global dialogue on the internet and society. By supporting us, you contribute to advancing scientific research and fostering public engagement. Addressing societal challenges starts with solid foundational research – your support ensures we can continue to explore and critically shape the digital transformation. Together, we can make a lasting impact.

SUPPORT OUR WORK

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