

Ideas in Action

Annual Report
2025

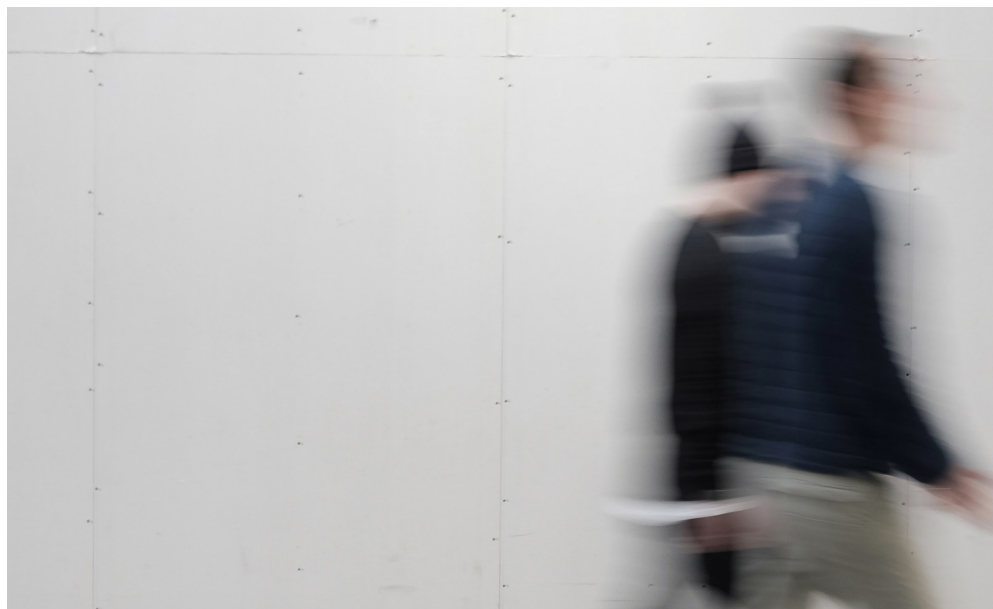


Annual Report 2025

TUM Think Tank

A Home for Ideas. **A Driver for Change.**

Shaping Society-Centered Innovation —
Future-Proofing the Operating Systems of
Democracy



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Markus Stewart
TEAM THIN THIN

A Message from the Managing Director

On the Value of Trust-Based Collaboration

Academic excellence should generate not only economic but also societal value. Achieving this requires more than isolated collaborations — it requires sustained, trust-based partnerships between universities and other sectors. This is precisely where we see a blind spot in many innovation ecosystems: while well-established structures exist for industry partnerships, spin-offs, and start-ups, far fewer exist for ongoing collaboration with public administration, municipalities, or civil society.

This is where our work comes in. Over the past years, we have established ourselves as a platform for collaboration across politics, public administration, business, and civil society. Our networks, fellowship programmes, and thematic labs bring together actors who rarely work together in a systematic way — and create spaces that go beyond mere exchange: co-creation, policy sprints, learning formats, and joint problem solving.

We understand community work not as simple network maintenance, but as transfer infrastructure: the development of durable blueprints and collaborative frameworks that make cross-sector cooperation more reliable, from shared problem definition to implementation pathways. We function as translators between different logics and time horizons: scientific rigour, administrative feasibility, societal legitimacy, and economic scalability. Trust-based collaboration within the TUM Think Tank thus becomes a transfer infrastructure that creates genuine societal value.

The TUM Think Tank is one piece of the larger mission shared by HfP and TUM: to strengthen the university as a society-centred space for innovation. We are embedded in a growing ecosystem under the umbrella of the Public Engagement Strategy — comprising the DFG Excellence Clusters TransforM and MCube, the TUM Public Science Lab, the Munich Design Institute, and the TUM Center for Arts & Culture.

Looking ahead, we aim to engage more intentionally with the interplay between ‘weak ties’ and ‘strong ties’: open, low-threshold connections that enable new perspectives and partnerships, alongside deeper, more resilient collaborations capable of sustaining implementation and learning over time. Three priorities follow: further improving the interlinking of our existing initiatives, labs, and programmes; deepening our integration into the

TUM ecosystem to make better use of synergies between research, public engagement, and governance practice; and continuing to expand our bridges into broader political and societal arenas, locally in Munich, toward Berlin and Brussels, and through our partnerships into international contexts, with a particular focus on the Global South.

We are deeply grateful for the trust, friendship, and productive collaboration over the past year and look forward to continuing this work together.

Dr. Markus B. Siewert
Managing Director, TUM Think Tank

How Insight *Becomes* *Practice*

At the TUM Think Tank, different worlds meet by design: research and practice, technology and society, creation and responsibility.

The TUM Think Tank develops updates for the social, political, and technological operating systems of our democracy. Scientifically grounded, societally embedded, and practically implemented. Hosted at the Munich School of Politics and Public Policy (HfP) at the Technical University of Munich (TUM), we combine academic expertise with the ambition to shape technology in the public interest.

We work in interdisciplinary teams and in cooperation with partners from public administration, politics, business, and civil society. In labs and communities of practice. Our goal is to create spaces for shared learning, experimentation, and co-creation, to enable society-centred innovation and develop democratic institutions to meet the demands of the digital age.

At the centre of our work lies a guiding question: how can society-centred innovation succeed at a time when technological acceleration, geopolitical fragmentation, and pressure on democratic institutions are simultaneously increasing? We work toward answers by bringing together relevant actors, developing solutions interdisciplinarily, and creating formats that translate knowledge into action, from governance concepts and prototypes to learning and exchange formats.





01

Shaping Society-Centered Innovation

6

Fellows of Practice, including three new ones in 2025: Nicklas Berild Lundblad, Nadine Schön, and Kai Zenner

11

active labs and initiatives with 69+ members

16

Friedrich Schiedel Fellows across two cohorts

100+

(co-)organized events with more than

1.250+

participants

3.5 Mio €

of third party funding secured with TUM Think Tank involvement



Behind these figures lies our theory of change. The TUM Think Tank functions as an extended workbench for our researchers and a maker space for updating the institutions, processes, competencies, and rules through which we shape technological change. In doing so, we work along five mechanisms:

Building bridges

1

We connect actors across sectors who would otherwise rarely meet in any systematic way — strengthening innovation ecosystems, arenas, and communities of practice in which trust, shared learning, and implementation become possible.

Prototyping over explaining

2

We create spaces in which prototypes and approaches — technical and non-technical alike — are developed, tested, and iteratively refined.

Strengthening capacity for action

3

We translate knowledge into tools, trainings, and formats so that actors in politics, public administration, business, and civil society can actively shape technological change.

Empowering the next generation

4

We support students and student initiatives as future public entrepreneurs and societally oriented innovators — with proximity to practice, real responsibility, and room to make an impact.

Providing orientation

5

We contextualise, make trade-offs visible, and set impulses for debates and decisions in a dynamic socio-technical landscape.

Dr. Markus B. Siewert
Managing Director

Rahel Roloff
Communications Manager

Dr. Philip Pfaller
Innovation Manager



The TUM Think Tank is built on a conviction: that universities have a specific and irreplaceable role to play in the governance of technology, not as neutral observers, but as trusted platforms for working through the hardest questions our societies face. That conviction makes this work worth doing.

Making complex, important work legible to the people who need to act on it, and to the wider public who should know it exists.

What drives me is the collective creativity we bring to solving real challenges.

Philip coordinates the following labs and initiatives: Creativity Lab · Ethical Data Initiative · Immersive Realities Group · Quantum Social Lab · Youth & Media Lab

The Core *Team*

Dr. Gesa Lüdecke
Community & Strategic
Partnership Expert



Being inspired by amazing people and projects, supporting impactful endeavors that unlock innovation potential for society.

Gesa coordinates the following labs and initiatives: Democratic Innovations Lab · Transformation Finance Lab · Urban Digitainability Lab · Friedrich Schiedel Fellowship

Andras Molnar
Senior Digital Policy Manager



Building an evidence-based digital safety portfolio that strengthens trust in the digital economy and protects users, particularly those most vulnerable, through inclusive multi-stakeholder policy-making.

Stefanie Schick
Team Assistance



Supporting the TUM Think Tank by maintaining dependable administrative, financial, and organisational processes that help the team work smoothly and focus on what matters.

The people behind the TUM Think Tank. What follows is a small glimpse into who we are and what drives us, in our own words.



Fernanda Sauca
AI4POL Communication Manager



Framing the TUM Think Tank as a bridge between research and policymaking, while serving as a platform that unites stakeholders across sectors to advance more participatory digital policy.

Fernanda coordinates the following labs: Civic Machines Lab · Content Moderation Lab

Arfa Khan
Graduate Assistant



Making complex, important work legible to the people who need to act on it, and to the wider public who should know it exists.

Lara Blittersdorf
Graduate Assistant



The collaboration with inspiring people on current topics and the chance to put my studies into practice.

Duaa Bahleem
Graduate Assistant



The growing community at the TUM Think Tank and great projects drive my work exponentially towards growth and improvement.

Caroline Breit
Graduate Assistant



Designing cross-sectoral event formats that translate scientific insights into practice.

Elizabeth Emery
Graduate Assistant



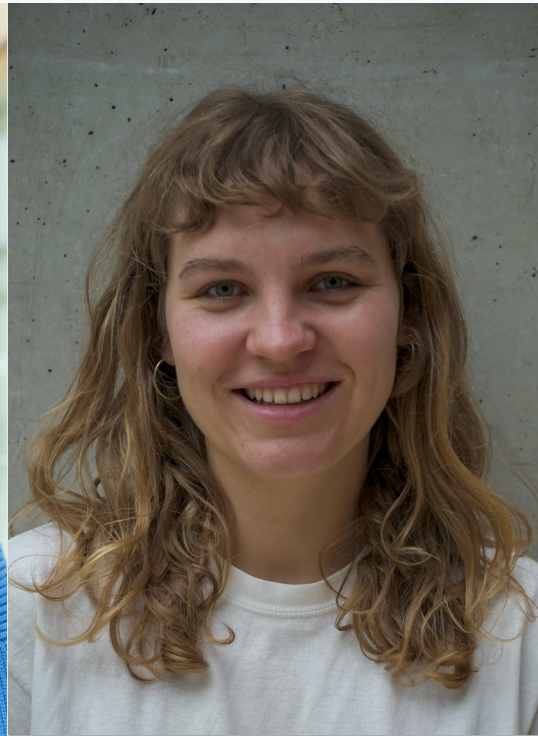
A commitment to bringing human value discussions into the technologies driving societal change, and translating academic work on what benefits our societies into evidence-based regulations.

Kenzi El Shaer
Graduate Assistant



Seeing real-life results, our projects and ideas coming to life.

Ana Isabel Genz
Graduate Assistant



Ongoing learning, exploring new and interesting topics, and working with a lovely team.

Alumni 2025

Our community grows beyond those currently on the team. Thank you to everyboday that was part of the TUM Think Tank and its projects in 2025.

Felix Beer

Ecosystems Manager

Jennifer Bettinger

Creative Program Manager

Yerkenaz Arinova

Project Manager

Eric Jacob

Graduate Assistant

Yannic Plumpe

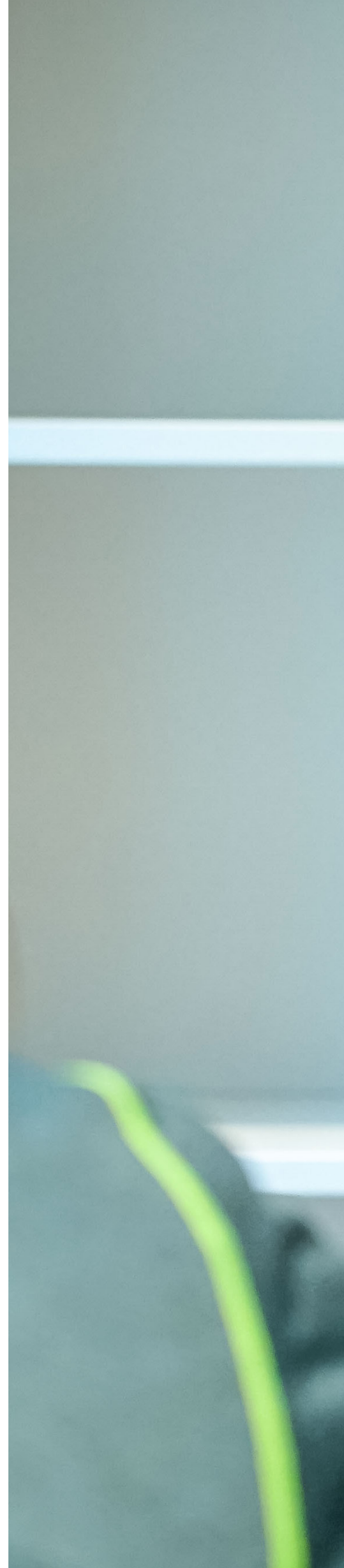
Graduate Assistant

Updating the System *Lab by Lab*

The TUM Think Tank's labs are its spaces where questions about technology, democracy, and society are not just studied but actively worked on — in collaboration with practitioners and communities most affected.

Each lab is led by one or more principal investigators and operates with its own research agenda, its own community of partners, and its own theory of change. What connects them is a shared conviction: that the most pressing questions of our time cannot be resolved from within a single discipline, and that the gap between knowledge and action is itself a design problem worth solving.

In 2025, the lab ecosystem grew with three new additions — the Youth and Media Lab, the Creativity Lab, and the Democratic Innovations Lab — while three completed labs left behind lasting contributions and open-source outputs. What follows is a snapshot of each lab's work in 2025.





02



The Civic Machines Lab explores AI as a socio-technical system, shaping democratic and inclusive technologies from chip to code.

Orestis Papakyriakopoulos | Lab PI

Lab Members

Dalia Yousif Ali | Chiara Ullstein |
Naira Paola Arnez Jordan | Muneeb
Ahmed | Cheng Yu | Jawid Baktash

Coordinated by

Fernanda Sauca

LinkedIn

Civic Machines Lab

Website

<https://tumthinktank.de/en/project/civcmachineslab/>



AI Lifecycle Ethics: Socio-Technical Insights and Solutions for a Sustainable and Equitable AI Future

When the risks embedded in AI technologies and the infrastructures that support them go unexamined, the consequences are severe: trust erodes, resources are misallocated, and inequalities deepen. This is why the Civic Machines Lab asks a simple but urgent question: what does it mean to design AI as a civic machine – one that is democratic, inclusive, and sustainable from chip to code?

In 2025, we followed this question into practice. Together with WWF and the Innovation for Impact Network, we looked at how mission-driven organizations already use AI day to day. A clear pattern emerged: experimentation is common, but governance, data foundations, and institutional confidence often lag behind. Our whitepaper turns these findings into practical pathways that help NGOs adopt AI strategically—without losing sight of their values.

We also examined risks and responsibilities across the AI stack: from AI agents (where external information access

can degrade safety) to the EU AI Act (where participatory ambition does not always translate into binding requirements). Upstream, we worked with Sony AI and Infineon to reframe semiconductors as civic infrastructure—showing how supply-chain choices shape sustainability, resilience, and technological sovereignty.

Looking to 2026, a Volkswagen Foundation Change Fellowship will support data-driven tools for measuring transformative social impact in NGOs, while a joint scoping effort with NetHope explores what an “AI Lighthouse” for responsible innovation in the humanitarian sector could look like.

Selected Highlights - 2025

- Won a Volkswagen Foundation Change Fellowship: “Data-Driven Transformative Impact: Reshaping Innovation in NGOs for Social Change” with WWF & Innovation for Impact Network.
- Published the whitepaper: AI Adoption Across Mission-Driven Organizations and the peer-reviewed study: Fair Human-Centric Image Benchmark (standards for consent, fairness, transparency in computer vision).
- Organized several multi-stakeholder workshops on topics such chips and semiconductors in the AI lifecycle, risks and opportunities of AI agents, and high-risk AI systems
- Contributed to several high-level discussions such the EU Implementation Dialogue on “Securing Peace: The EU as a Peace and Security Actor in a Changing Conflict Landscape.
- Released a discussion paper on the ethics and sustainability of semiconductors, reframing chips as civic infrastructure.



“Semiconductors power technologies from AI and 5G to medical devices and renewable energy, but their global, resource-heavy supply chain is increasingly fragile.”

– Orestis Papakyriakopoulos

The Chip and Its Shadow

Every AI model, every 5G antenna, every medical device runs on semiconductors. Behind those chips lies a global supply chain that is fragile, resource-intensive, and largely invisible. The Civic Machines Lab set out to map what responsible looks like.

The geopolitics of semiconductors entered public consciousness with the Taiwan Strait and the chip shortage that left car plants idle and consumers waiting months for electronics. But the strategic and ethical dimensions of the semiconductor supply chain go well beyond any single chokepoint. The minerals that go into chips are often extracted under hazardous conditions in politically fragile regions. The fabs that manufacture them consume extraordinary quantities of water and energy. The equipment they use is controlled by a handful of companies in a small number of countries. And the waste they generate, both during production and at end of life, is substantial and poorly tracked.

In early 2025, the Civic Machines Lab convened a two-day interdisciplinary workshop to examine these pressures from multiple angles simultaneously: ethical, environmental, geopolitical, and economic. The resulting discussion paper, authored by Naira Paola Arnez Jordan, Orestis Papakyriakopoulos, Fernanda Sauca, and Chiara Ullstein, and developed in collaboration with Sony AI and Infineon, summarizes the workshop's insights into findings and forward-looking recommendations.

What the workshop surfaced was a set of systemic issues that tend to be addressed in separate conversations but are in practice deeply entangled. Environmental impact, high energy and water consumption, pollution, the mounting problem of e-waste, cannot be addressed without also confronting the economic incentives that drive facility migration toward jurisdictions with weaker environmental safeguards. Transparency across a supply chain that spans dozens of countries and layers of subcontracting is made harder by industrial espionage risks and intellectual property (IP) concerns. Human rights conditions in mining regions are shaped by the same competitive pressures that drive semiconductor pricing.

The geopolitical dimension runs through all of it. Access to semiconductor technology has become a lever of foreign policy: export controls, tariffs, and industrial subsidy pro-

grammes have reshaped the competitive landscape faster than regulation has been able to respond. For Europe, the implications are particularly acute: a continent heavily dependent on imported chips and foreign-controlled manufacturing capacity, with significant vulnerabilities to the kind of external shocks that recent years have amply demonstrated.

The paper's recommendations are practical and cross-cutting: clear targets on emissions, water, and energy; stable policy frameworks that enable long-term investment; supply chain diversification as basic prudence rather than protectionism; and urgent investment in education and talent mobility. Two scenarios for 2030 were developed, one built around climate-driven global collaboration, another around regulation-led sustainability as tools for coordinated action across industry, government, academia, and civil society.

■ **Read the full paper:** tumthinktank.de/en/output/expert-recommendations-for-the-future-of-the-semiconductor-supply-chain

The Content Moderation Lab explores how digital platforms regulate online speech and how these choices influence user behavior, public attitudes, and democratic engagement.

Yannis Theocharis & Spyros Kosmidis | Lab PIs

Lab Members

Friederike Quint | Jan Zilinsky

Coordinated by

Fernanda Sauca

LinkedIn

Content Moderation Lab

Website

<https://tumthinktank.de/en/project/content-moderation-lab/>



Empirical Research on *Content Moderation*, *Platforms*, and *Free Speech*

Online speech underpins democratic participation, yet decisions about what is acceptable online are often made with limited input from the people most affected: users. When platform rules and enforcement diverge from public expectations, a legitimacy deficit emerges—driven not only by transparency or enforcement failures, but by the speech models platforms apply.

In 2025, the Content Moderation Lab grounded this debate in evidence. Cross-national research examined how people experience moderation and how this shapes trust and participation. Across countries, a consistent pattern emerges: strong majorities support limits on harmful content (e.g., incitement to violence, targeted abuse), while only small minorities favor unrestricted offensive speech, challenging the idea that robust moderation lacks public support.

We connect attitudes to lived experience through projects such as ToxicAlment and Platforms for the People, stud-

ying how exposure to toxicity, hate, and misinformation affects tolerance and civic engagement. In parallel, we strengthen shared research infrastructure for accountability: COMPARE tracks moderation policies across 132 platforms, and PoliTok-DE has assembled content that has been removed on TikTok—building baselines for comparison and for better understanding platforms takedown decisions.

In 2026, we will continue our research on understanding content governance and attitudes towards free speech by combining user-centered research, empirical methods, and policy engagement aiming for our research to provide evidence-based policies that can make online spaces safer, more inclusive and grounded in public values.

Selected Highlights - 2025

- Released the report “Content Warning: Public Attitudes on Content Moderation and Freedom of Expression.”
- Ran a large-scale cross-national survey on public attitudes toward freedom of expression and content moderation across 10 countries (Europe, the Americas, Africa, and Australia).
- Co-organized an interactive workshop at re:publica 2025 on how citizens navigate content moderation, with Das NETTZ.
- Our activities within the project “Transparency in Content Moderation” led to the launch of the Content Moderation Policies and Reports (COMPARE) Dataset mapping content moderation policies across 132 platforms and published an associated paper in ICWSM.
- Participated in the training program of the European Observatory of Online Hate (EOOH).
- Submitted evidence to Hessian Parliament about young people’s (digital) political participation and the role of platforms’ content moderation practices in democratic engagement.
- Participated and presented the academic work of the lab in various academic workshops, including the 2025 Annual Meeting of the American Political Science Association.



“We are seeing widespread resignation. People feel that despite promises to combat harmful content, nothing is improving. This habituation effect is dangerous — it erodes social norms and normalises hatred and violence.”

– Yannis Theocharis

People Want Safer Platforms. They Just Don't Believe It's Possible

A major survey by the Content Moderation Lab at the TUM Think Tank and the University of Oxford finds broad global support for restricting harmful content online – and equally broad resignation that it will never happen.

As X and Meta loosened their content rules in 2024, citing free expression, and Australia moved in the opposite direction by banning social media for under-16s, the debate about online speech had never felt more urgent, or more polarized. What was largely missing from it was the voice of users. The Content Moderation Lab set out to change that.

Yannis Theocharis, Spyros Kosmidis, Jan Zilinsky, and Friederike Quint surveyed approximately 13,500 people across ten countries, six in Europe, plus the US, Brazil, South Africa, and Australia in autumn 2024. The result is one of the most comprehensive cross-national portraits of public attitudes toward content moderation to date

79%

of respondents support deleting incitement to violence on social media platforms

The findings cut against the narrative that there is a broad public appetite for less moderation. Across every country surveyed, majorities supported removing violent threats and content targeting specific groups. Support for deleting incitement to violence reached 86% in Germany, Brazil, and Slovakia. Even in the United States, where the cultural weight of free expression runs deepest, 63% backed removal. Only 17% of all respondents believed offensive posts targeting specific groups should be permitted.

Opinions on who should bear responsibility for online safety were more evenly distributed. Across all countries, 35% pointed to platform operators, 31% to citizens, and 30% to governments. The picture shifts significantly by country: in Germany and France, 37% favour government responsibility, while in Slovakia that figure drops to just 14%.

59%

believe exposure to intolerance and hatred on social media is now inevitable

Perhaps the most striking finding is not about what people want, but about what they expect. A majority of respondents believe online hostility is simply unavoidable, and 65% anticipate aggressive reactions when sharing their own views. That expectation rises to 81% in South Africa and 73% in the US. When people stop believing improvement is possible, they stop demanding it.

The report arrives at a moment when platform governance decisions are being made rapidly and often unilaterally. By putting user attitudes at the centre of the analysis, the Content Moderation Lab offers policymakers and platform operators something they rarely have: evidence of what the public actually wants – and how far current reality falls short of it.

■ **Read the full report:** tumthinktank.de/en/output/global-survey-shows-rejection-of-unrestricted-free-dom-of-expression

The Creativity Lab at the TUM Think Tank is a research-driven collaborative space that brings together scholars, young people, artists, and decision-makers to study, experiment with, and translate human creativity.

Sandra Cortesi | Lab PI

Lab Members

Gabriel Garbers | Kirsten Mueller-Daubermann |
Alexa Hasse (Visiting Scholar) | Camila Hidalgo (Lab
Co-Lead) | Anyu Jiang (Lab Co-Lead)

Coordinated by

Philip Pfaller

Website

[https://tumthinktank.de/en/
project/creativity-lab/](https://tumthinktank.de/en/project/creativity-lab/)



Curiosity. Connection. Craft.

Creativity is a critical driver of innovation, democratic participation, and societal adaptation—yet its underlying processes remain poorly understood, especially as generative AI becomes part of daily life. Decisions about what is created, amplified, automated, or suppressed shape cultural expression and our ability to respond to change. The Creativity Lab addresses this by generating empirical insight, tested methods, and transferable formats for understanding and supporting creativity as it is practiced, experienced, and shared.

The Lab works across three domains—curiosity, connection, and craft. The “ai-dentities” project advances empirical research on how people integrate generative AI into everyday life: in collaboration with the University of Zurich, a survey study examines how AI reshapes individual experiences, social relationships, and expectations around creativity. With Munich’s Lenbachhaus, the Lab created “Happy Places”, a workshop series combining physical

materials, personal objects, and generative AI. Through “Imagination in the Loop,” we explored imagination as a human capacity and learnable skill by testing co-creative formats without predefined outcomes. We also reimaged teaching assignments, encouraging students to present research in creative yet rigorous formats—podcasts, zines, interactive tools, public events, or visual arguments.

In 2026, we are excited to build a Creativity Lab Network with partner labs in Bogotá, Santiago, and beyond. Prototype Sprints will enable students to design and test physical artifacts that can later be translated into digital formats, while a Creative Methods Toolkit will curate practices spanning creativity, deliberation, and foresight.

Selected Highlights - 2025

- Designed and delivered creative workshop series such as Happy Places and Imagination in the Loop, prototyping hands-on formats for creative co-creation with generative AI.
- Introduced innovative teaching formats and assignments that strengthen creative science communication and public engagement.
- Launched a representative survey study on how generative AI shapes individual experience, social relationships, and expectations around creativity, participation, and agency.
- Convened cross-sector creativity workshops with leaders from civil society, industry, and policy to test transferable methods for creative practice in real-world settings.

Focal Areas

Resilient Narratives for Democracy: Working with partners from various sectors, we examine how creative storytelling can strengthen democratic discourse in digital spaces.

Speculative Futures in Public Space: In collaboration with cultural institutions such as museums, the Lab creates public-facing experiments that invite participants to explore alternative futures for places they care about. Using a combination of generative AI tools, artistic methods, and guided reflection, these projects turn speculation into a collective practice, helping people imagine, question, and negotiate possible futures together.

Human-Centric Governance and Creative Agency: We translate research into formats that support evidence-informed governance. This includes working with regulators and public institutions to develop guidelines that protect people in digital environments while preserving their capacity to act as creators, not just consumers, in an AI-driven world.



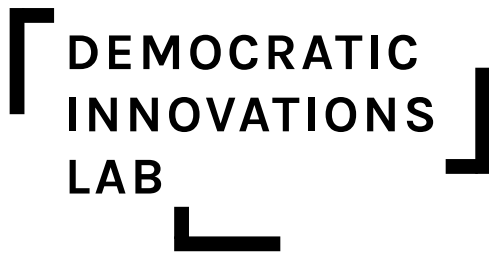


How to get engaged

Researchers and practitioners interested in co-designing studies or contributing empirical expertise are invited to explore partnerships with the Lab.

Students, policymakers, artists, technologists, and civil-society actors can participate in selected Lab sessions announced via our website and channels.

We collaborate with illustrators, filmmakers, designers, writers, and developers who are interested in translating research into high-quality public-facing outputs.



The Democratic Innovations Lab explores new forms of political participation that can make democratic processes more inclusive, effective, and sustainable.

Manon Westphal | Lab PI

Lab Members

Philip Stehr | Emily Katzenstein

Coordinated by

Gesa Lüdecke

Website

<https://tumthinktank.de/en/project/democratic-innovations-lab/>



Exploring Updates of Institutional Infrastructures for *Resilient and Future-Proof Democracies*

Democracies are under pressure worldwide—from social, political and technological transformation to the accelerating climate crisis. As trust in representative institutions declines, political alienation grows. Updating the institutional infrastructures of democracy—and expanding opportunities for meaningful participation—is therefore not a “nice to have”, but part of making democracies more resilient, inclusive, and capable of solving complex problems.

The Democratic Innovations Lab explores and tests new forms of political participation and institutional design that can revitalize democratic practice. We ask how democratic innovation models can be diversified and strengthened—drawing on the often-untapped resources of democratic theory and linking them with empirical evidence and practical experience. A distinctive focus of the Lab is connecting debates across the political and economic sphere, showing how democratic innovations

can form an ecosystem spanning society—from citizens’ assemblies and digital participation to questions of corporate democratization of tech industry.

Launched in November 2025, the Lab convened leading scholars and practitioners to map achievements, gaps, and next questions in the field. Building on this start, 2026 will focus on community-building and cross-sector collaboration: bringing together researchers, civil society, policymakers, and business to evaluate what works, develop design tools and guidelines for implementation, and identify ambitious yet realistic approaches that can be prototyped and tested in different contexts.

Selected Highlights - 2025

- Launched the Democratic Innovations Lab as a new hub for participatory and institutional innovation.
- Hosted kick-off event with Graham Smith, Yves Dejaeghere, Anna Mikhaylovskaya, Hannes Kuch, and more than 50 participants from civil society, local government, industry and academia.
- Developed ideas for a future agenda with experts in collaboration with the TUM Political Theory and Philosophy Colloquium



A Different Approach

The Democratic Innovations Lab adopts a multiperspectival approach to democratic innovations that is sensitive to the varying contexts of participatory processes.

Its work is based on the assumption that bringing together different perspectives – from political theory, empirical research, and practical experience – is the best way to expand possibilities for imagining and rethinking democratic innovations.

We collaborate with a range of researchers, academic institutions, actors from civil society, corporations, and policymakers, to identify ambitious yet realistic ways of conceptualizing, prototyping, and testing new forms of democratic engagement.

The lab's work aims to contribute to the creation and development of participatory ecosystems that render democracies more inclusive, effective, and sustainable.



New Models of Democratic Innovation

The Democratic Innovations Lab welcomes collaboration with theorists, empirical researchers, and practitioners across disciplines, sectors, and regions. Individuals and institutions interested in engaging with the lab's

activities or collaborating on public events or joint research projects are encouraged to get in touch.



The Ethical Data Initiative is a non-partisan platform fostering open discussions on data ethics. The initiative focuses on equity and engagement across different domains of data work for public interest.

Sabina Leonelli | Lab PI

Lab Members

Kathryn Bailey | Suchith Anand | Stephan Guttinger | Silvia Milano | Karen Jeffers | Kim Hajek | Paul Trauttmansdorff | Nathanael Sheehan | Nathalia Uribe | Lena Sindel

Coordinated By

Philipp Pfaller

LinkedIn

Ethical Data Initiative

Website

<https://tumthinktank.de/en/project/ethical-data-initiative/>



Putting *Values at the Heart* of Data

Data ethics is too often discussed among experts—while the people most affected by data-driven decisions are rarely in the room. The Ethical Data Initiative (EDI) exists to change that: ethical data practice must be co-created, not merely prescribed.

In 2025, EDI moved from principles to practice across policy, education, and public engagement. Two Town Halls (in-person in spring and virtual in late autumn) provided the backbone for a growing community of practice, with materials published openly for reuse. EDI also intervened where rules and incentives are set—contributing to the UK Research and Innovation draft data policy, co-organizing a Brussels conference on research assessment in the AI era with CoARA and the European Commission, and engaging in high-level discussions on AI for science and policy.

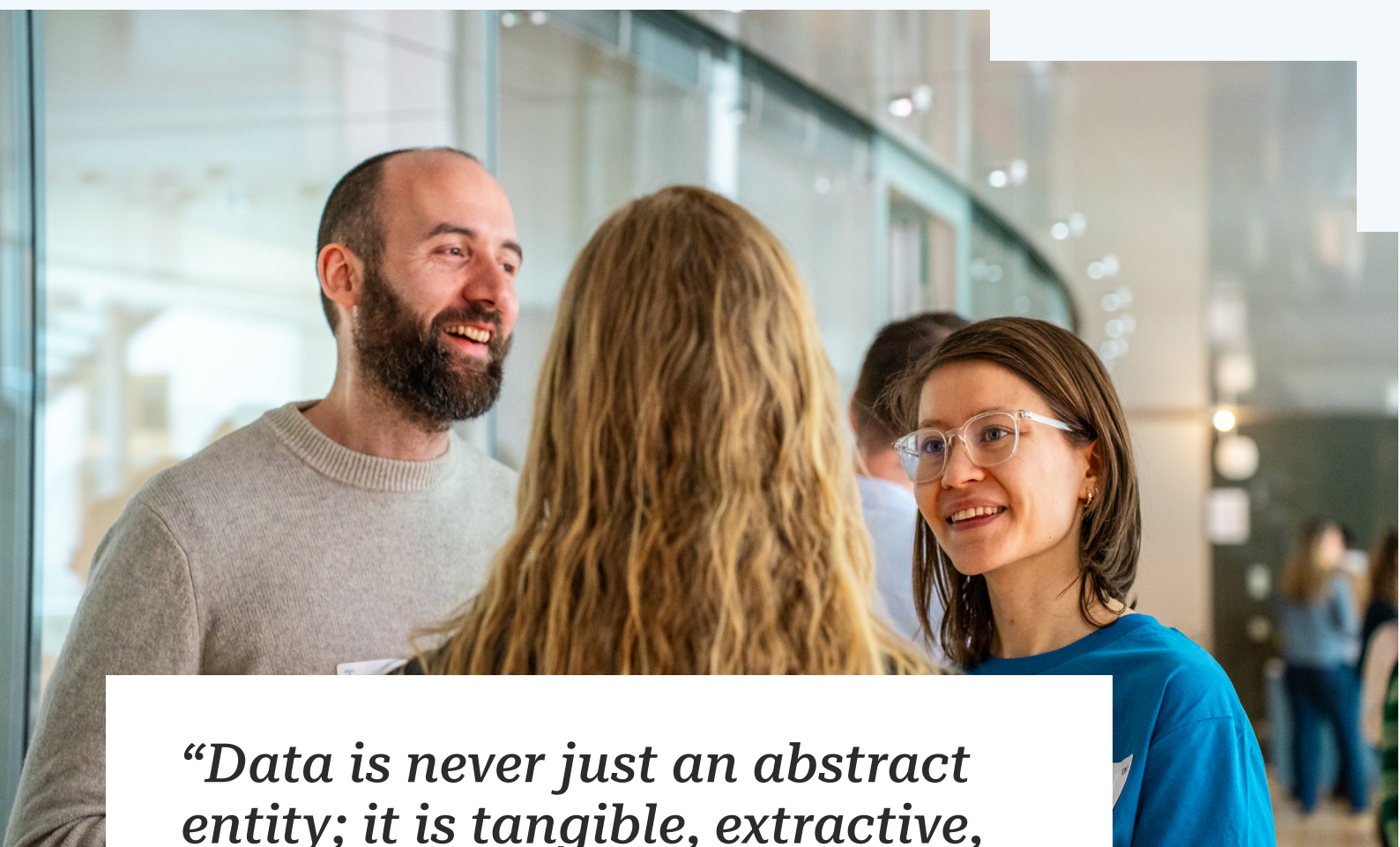
Capacity building became tangible through Data Clinics that paired real-world challenges with student teams—

ranging from responsible fintech in West Africa to ethics for a green-energy dashboard and the secondary use of health data in the context of the European Health Data Space. In parallel, the thematic strand “Recommender Systems for Social Good” advanced evaluation methods, while screenings of the film “Data Shadows” made ethical tensions visible beyond expert circles. A year-long seminar series with the Association of African Universities extended EDI’s reach into new academic communities.

In 2026, EDI will consolidate and carefully scale: deepening partnerships, expanding Data Clinics, and translating shared insights into implementable guidance for funders and institutions—staying anchored in one premise: data ethics has to be built together.

Selected Highlights - 2025

- Convened two Town Hall Meetings, bringing together 150+ participants.
- Contributed to the UK Research and Innovation (UKRI) draft research data policy, and the EU high-level commission on AI for Science and Policy.
- Co-organized a conference on research assessment in the AI era with CoARA and the European Commission in Brussels.
- Delivered Data Clinics that paired partner-led, real-world data ethics challenges with student teams.
- Hosted screenings of Data Shadows in various cities, bringing data-ethics dilemmas to wider audiences.
- Ran a year-long seminar series with the Association of African Universities.



“Data is never just an abstract entity; it is tangible, extractive, and interwoven with the material world”

– Sabina Leonelli

What Data Leaves Behind

Data ethics is usually discussed in conference rooms, between experts, in language most people never encounter. In January 2025, the Ethical Data Initiative took a different approach: they hired a cinema.

On 16 January 2025, the Rio Filmpalast in Munich hosted the world premiere of *Data Shadows*, a 20-minute film that asks, without a single human figure on screen, where data comes from, what forms it takes, and what it costs. The film, a collaboration between artist Jacob van der Beugel, philosopher and the Ethical Data Initiative's principal investigator Sabina Leonelli, and filmmaker Oliver Page, reimagines data through soil, stone, water, and light. Physical cores are extracted from the earth, graded, polished, placed in repositories. Some, when you try to return them to their extraction holes, no longer fit. The hole has changed, the core has changed. What was taken cannot simply be put back.

The concept of "data shadows", Sabina's term for what is missing, unavailable, or invisible in data, sits at the centre of the film. Data, the argument runs, is not the neutral, immutable, virtual substance that most of us have been taught to imagine. It is tangible, extractive, fragile, and dependent on the specific human and non-human contexts from which it is drawn. When those contexts are stripped away (as they always are, in the process of collection and analysis) something is lost. The shadow is what remains of that loss.

The panel discussion that followed the screening brought the film's themes into direct conversation with data governance, research ethics, and the political economy of scientific knowledge. The audience, drawn from research, policy, and civil society, left with answers but also with deeper questions that conference papers rarely generate: not just what the rules should be, but what is actually happening to data, physically, ecologically, and socially, every time it is produced, shared, or stored.

This is the spirit in which the Ethical Data Initiative operates. Data ethics is too often a conversation among experts about other people's data. The EDI's conviction, that ethical data practice must be co-created, not merely prescribed, shapes everything from its Town Halls and Data Clinics to the choice to premiere a 20-minute art film in a Munich cinema and let it do work that a policy brief simply cannot achieve. *Data Shadows* has since screened in Exeter, Brussels, Leipzig, Padova, Lund, and online. It is now also openly accessible in full.

■ **Watch the film and learn more about it here:** <http://opensciencestudies.eu/datashadowsfilm>

The Government Innovation & Technology Initiative is Munich's catalyst for public sector innovation, bridging government, academia, and industry to build future-ready institutions.

Urs Gasser, Boris Paal & Markus Siewert | Lab Pls

Lab Members

Nadine Schön (Fellow of Practice) | Nicklas Lundblad (Fellow of Practice) | Kai Zenner (Fellow of Practice) | Yannic Plumpe | Eric Jacob | Lara Blittersdorf | Andras Molnar | Fernanda Sauca | Armando Guio Espanol

Coordinated By

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Website

<https://tumthinktank.de/en/project/government-innovation-technology-initiative/>



The Munich Hub for *Public Sector Innovation* - Shaping Future-Ready Public Institutions.

Governments today face a dual challenge: accelerating innovation and strengthening state capacity while maintaining trust, accountability, and democratic legitimacy. Digital transformation has never been a mere technical task. In today's fast-paced environment, it demands institutional adaptability and a rethinking of how public institutions learn, decide, and evolve.

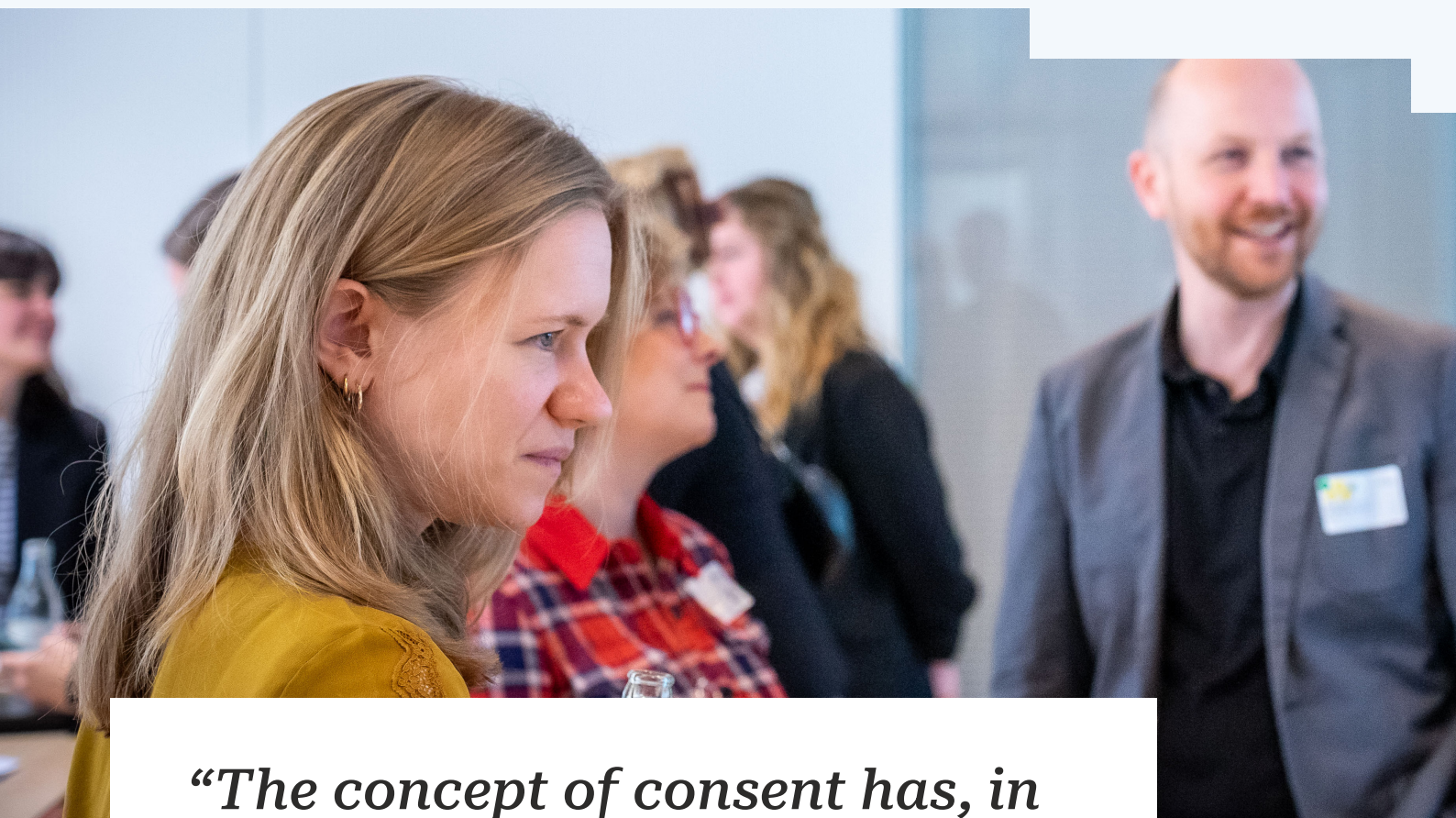
The Government Innovation & Technology Initiative at the TUM Think Tank sees this moment as a design opportunity: to help build institutions that are more responsive, tech-enabled, and centered on the public good. Our mission is to support governments in updating operating models, expanding learning capacity, and navigating complexity in an era of rapid technological and societal change.

Through interdisciplinary research, cross-sector partnerships, and future-oriented learning formats, we strengthen state capacity, innovation leadership, and public sector resilience. In 2025, we deepened collaborations nationally—with GovTech Germany or the Hertie School—and internationally, with the WEF Global Government Technology Centre, the Network of Centers on Internet & Society, or GIZ. At HfP, we also equip future public entrepreneurs supporting the student-led Public Makers initiative and developing new learning formats at the intersection of GovTech and public innovation.

Across all activities, we pursue one key goal: enabling public institutions not just to adopt new technologies, but to learn faster, together, and at scale.

Selected Highlights - 2025

- Launched the “GenAI 101” learning series in collaboration with GovTech Germany, reaching nearly 1,000 participants across local, regional, and federal public administration.
- Hosted a delegation of policymakers from eight Latin American countries for a study visit on regulatory learning and public sector innovation, in partnership with GIZ and UN ECLAC, and welcomed members of the European Parliament’s Committee on Legal Affairs (JURI) for a dialogue on institutional learning and governance innovation.
- Participated in international multi-stakeholder events, including the Africa AI Stakeholder Meeting on Innovative Governance and Capacity Building in Accra, Ghana.
- Published the policy brief “AI Sandboxes: Global Insights for Regulatory Learning and Adaptive Governance”
- Hosted a Policy Sprint on GDPR Reform, producing actionable recommendations.



“The concept of consent has, in its sweeping open-endedness, failed.”

– Louisa Specht-Riemenschneider

Fixing the GDPR Without Breaking It

Everyone agrees the General Data Protection Regulation (GDPR) needs updating. Almost nobody agrees on how. The TUM Think Tank convened a working group of regulators, academics, practitioners, and civil society to find out what, if anything, common ground looks like.

The GDPR is simultaneously one of Europe's most celebrated digital frameworks and its most contested one. It exported a rights-based model of data protection to much of the world: the so-called Brussels Effect in action. It also generated a compliance industry of extraordinary complexity, a consent infrastructure that most users find either baffling or invisible, and a body of regulatory interpretation that even experienced practitioners struggle to navigate. The law has not failed. But few would argue, nine years on, that it is working as intended.

Against this backdrop, the TUM Think Tank brought together a working group of fourteen experts, among them Germany's Federal Commissioner for Data Protection Louisa Specht-Riemenschneider, privacy advocate Max Schrems of noyb, legal scholar Boris Paal, and EU digital policy expert Kai Zenner, to work through questions of reform. The ambition of this policy sprint from September to December 2025 was deliberately bounded: The ambition was deliberately bounded: not a root-and-branch redesign, but concrete, legally connectable proposals that could move quickly into implementation.

The working group produced four reform proposals. The first asks for a more consistently applied risk-based approach: the GDPR's existing risk-proportionality logic should be made explicit and enforceable rather than unevenly applied. The second targets B2B compliance, exploring certification-based alternatives that reduce transaction costs while maintaining accountability. The third proposes a traffic-light framework: green lists for socially desirable processing, red lists for categorical prohibitions, and a middle zone where consent can operate under conditions that make genuinely informed choice realistic. The fourth addresses consent fatigue directly, envisioning standardised browser-level preference signals that make a user's choice binding without requiring repeated interaction.

The proposals represent views carried by a majority of the working group. On specific points, members reached different assessments, which is unsurprising given the range of perspectives in the room, and in some respects the point. The four documents are explicitly framed as "Version 1.0": a first contribution to a wider debate. As the EU Commission's Digital Omnibus, started in November 2025, opens new legislative opportunities, the group intends to develop its proposals further.

The TUM Think Tank offered a structured process for working through disagreement toward something useful. The result is a set of reform proposals that are legally grounded, practically oriented, and honest about where the hard questions remain open.

■ **Read all proposals:** tumthinktank.de/project/arbeitsgruppe-dsgvo

The Immersive Realities Working Group pioneers responsible innovation in XR and social agents, bridging academia, industry, and policy to shape human-centered, equitable digital futures.

Auxane Boch & Daniel Saad | Lab Leads

Working Group Members

Camila Hidalgo | Ka Hei Carrie Lau | Chiara Ullstein | Darius Torabi | Efe Bozkir | Martin Wählich | Noha Lea Halim | Stephan Bantscheff | Yanik Teped | Akanksha Bisoy | Alexandra Savova | Alexandra Ginger | Alison Mcnamara | Christian Fieseler | David Torabi | Elizabeth Emery | Xinyi Cui | Georgina Török | Jennifer Bettinger | Joel Sebastian Christlein | Mengdi Wang | Michael Höhne | Michel Hohendanner | Süleyman Özdel | Pascal Bronner | Petra Dahm | Sena Yildiz Degirmenci | Silke Schmidt | Sonja Bunzeit | Ulrich Eck

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<https://tumthinktank.de/en/project/immersive-realities-working-group/>



Transforming Realities, *Empowering Futures.*

How do we make powerful emerging technologies—like AI-powered immersive experiences—understandable, accessible, and human-centered? The Immersive Realities Group starts from a simple observation: if XR and AI remain “black boxes,” they will be shaped by a few—and trusted by even fewer. Our response is practical bridge-building: prototypes people can experience, building capacity through practice that turn curiosity into capability, and democratizing development by publishing open tools others can reuse.

In 2025, this approach translated into concrete progress. Making the complex tangible, the group developed the immersive agent “Marvin” as part of the DemystifyAI project. Marvin explains mechanisms like tokenization and prediction, helping users see how conversational AI works, where it can fail, and what responsible use requires. Our second HACK:XR+AI hackathon brought 100+ students together for three intense days to proto-

type real-time personalization, ethical social agents, and AR gamification—supported by dual mentorship from academia and industry. Finally, the group released CUIfy at IEEE AIxVR 2025: an open-source Unity package that lets labs and educators integrate conversational agents into XR without big-company resources.

Our conviction is simple: trust in emerging tech starts with understanding—and understanding starts by building. When people can experience how these systems behave, where they break, and what trade-offs are embedded in design choices, the conversation shifts from hype or fear to informed judgement. That is the foundation for human-centered XR+AI: not only better tools, but better questions—and a wider community able to ask them.

Selected Highlights - 2025

- Hosted HACK:XR+AI, a student hackathon with 100+ participants exploring AI at the intersection of XR and immersive interaction.
- Published CUIfy at IEEE AIxVR 2025, an open-source Unity package enabling conversational AI agents in XR beyond large, well-resourced teams.
- Developed DemystifyAI, where the immersive agent Marvin explains “behind the scenes” AI concepts (e.g., tokenization and prediction) to support AI literacy.

IMMERSIVE REALITIES WORKING GROUP



“Responsibility by design is not a constraint on innovation. It is the point of it.”

– Auxane Boch

Build First, Understand Second

ThXRrdSpace is a peer support platform that uses AI to connect people in crisis and is specifically engineered to prevent users from becoming emotionally dependent on the AI itself. Aura gives people with communication disorders a way to practise speaking and presenting in XR, without judgment, at their own pace. Untangle guides people through emotional check-ins using affective psychology, gently, in an immersive environment. PigeonTown drops learners into a mixed reality village to practise navigating cultural scenarios with AI characters who respond like people.

Four projects, built in 48 hours by teams of students who hadn't even met before.

HACK:XR+AI 2025 ran from 13 to 15 November at the TUM Think Tank, and the winning projects tell you something important about what happens when you put interdisciplinary student teams in a room with a hard problem and enough time to actually build something. The abstractions dissolve and the trade-offs become real. A team designing an AI companion for emotional support has to make a decision in code, not in theory, about where the line is between helpful and dependent. A team building an accessibility tool in XR has to confront what accessibility actually means when the technology is immersive. They are design decisions, and making them teaches things that reading about them does not.

This is the conviction behind the Immersive Realities Group's hackathon: that trust in emerging technology starts with understanding it from the inside, and understanding it from the inside means building. Around 100 students and doctoral researchers from across Germany took part, working across three tracks: AI in immersive environments, social agents in immersive worlds, and gamification in AR, each with dual mentorship from academic and industry experts. Partners included the TUM Institute for Ethics in AI, AI Grid, XR Hub Nürnberg, Women in AI, and StellDirVor, with Accenture and Cancom among the sponsors.

The format has already proven it produces more than prototypes. The winning team from the first hackathon founded a student XR group that is now running its own projects with industry partners. The event is not just another hackathon with a prize at the end, but a space where the next generation of people who will actually build immersive technologies get their first serious experience of what responsible building looks like.

■ *See the winning projects here: <https://hack-xr-ai-2025.devpost.com/>*



The Quantum Social Lab is an interdisciplinary space dedicated to addressing the ethical, legal, societal and policy dimensions of the emerging field of second-generation quantum technologies.

Urs Gasser | Lab PI

Lab Lead

Fabienne Marco

Lab Members

Eden Castaneira Rios, Ana-Maria Cupes, Benedikt Wimmer, Gabriela Boechat

Coordinated By

Philip Pfaller

Website

<https://tumthinktank.de/en/project/quantum-social-lab/>



Explore *Today* How Quantum Will Impact *Tomorrow*

Is it too early—or already overdue—to address the implications of quantum technologies? At the Quantum Social Lab (QSL), we believe we cannot wait until quantum moves from lab to society to start asking questions about ethical, legal, societal, and policy implications. Our work turns quantum from an abstract scientific frontier into something people can understand, debate, and shape—before key design choices harden into infrastructures, tools, or mindsets.

QSL operates along three connected pathways: making quantum understandable through education and public engagement, responsible via anticipatory governance frameworks, and inclusive through global partnerships and formats that bring diverse voices into the conversation. In 2025, this approach matured from vision into tangible building blocks: convening cross-sector communities, advancing policy-relevant research, and developing learning infrastructure that will make quantum literacy

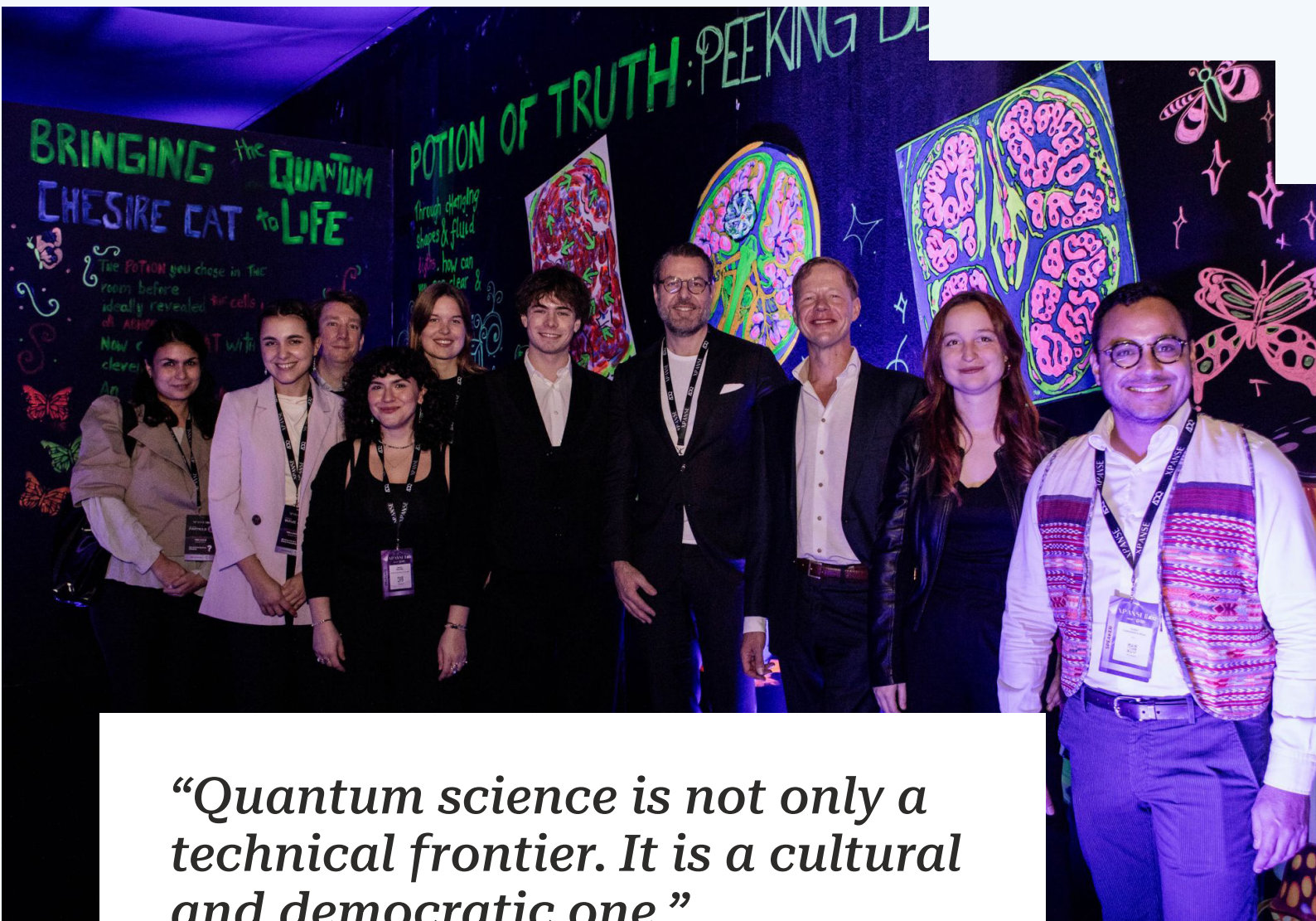
accessible beyond specialists.

Our work also reflects the TUM Think Tank's theory of change mechanisms in practice: catalyzing innovation ecosystems through convenings and partnerships; building capacity through projects such as QuantWorld; developing talent through the Young Quantum Social Scientists (YQSS) program; incubating new governance approaches through tools like the ELSPI framework and sandbox thinking; and setting the agenda through research and strategic engagement.

As quantum technologies accelerate, we remain committed to guiding this transition through vision, creativity, and authentic dialogue—so quantum innovation is inclusive by design, responsible by default, and shaped by those it will affect.

Selected Highlights - 2025

- Co-hosted the International Quantum Forum in Munich convening cross-sector stakeholders from 40+ countries, including public-facing formats to broaden access.
- Advanced QuantWorld (BMFTR-funded, €1.9m): a learning platform set to launch in May 2026, paired with strategic papers on learning, trust, and public engagement.
- Published several high-impact contributions on anticipatory quantum governance, including “Responsible Quantum Technologies” (ResQT community perspective), a policy brief via the T20 work stream on “Quantum sandboxes”, as well as “Cracking the Quantum Future of Finance”.
- Expanded the Young Quantum Social Scientists (YQSS) program, connecting students to real projects and international stages, and building a pipeline of public-interest quantum talent.
- Participated in a wide range of high-level multistakeholder convenings, including XPanse in Abu Dhabi, Lisbon Council’s “Europe’s Quantum Shield, Smart Energy Forum in Bogotá), and GITEX Germany, representing European perspectives at UN-supported ELSA initiatives in Istanbul



“Quantum science is not only a technical frontier. It is a cultural and democratic one.”

– Fabienne Marco

Before the Choices Harden

On 30 January 2025, a quantum physicist played guitar on a converted ship on the Isar. Earlier that day, an international group of researchers and policymakers had played a governance simulation game designed by GESDA for the first time ever. Young researchers had taken the stage at a science slam to present their work in formats that were, by design, both rigorous and genuinely funny. The following evening, a conceptual artist presented the “DNA of Democracy” at the Gasteig HP8, followed by sculptural performances, experimental music, and immersive installations exploring superposition, encryption, and the future of quantum in medicine and mobility. In between, participants from more than 40 countries had worked through workshops on quantum sovereignty, science diplomacy, and capacity building in the Global South.

This was the International Quantum Forum 2025. It was also, in miniature, an argument.

The argument is this: there is a narrow window, with any transformative technology, between the moment it becomes real and the moment its consequences become irreversible. Quantum computing, cryptography, and sensing are no longer theoretical. They are moving into hospitals, financial systems, communication infrastructure, and defence. The ethical and governance questions they raise need to be worked on now, before key design choices harden into structures that are very difficult to change. The Quantum Social Lab at the TUM Think Tank exists to hold that window open and the International Quantum Forum was the most public expression yet of what that looks like in practice.

Held during the United Nations Year of Quantum Technologies, the forum was designed from the outset to be something different from a standard academic conference. The daytime programme at the TUM Think Tank moved through quantum-inspired AI, scalable quantum software, a cultural briefing on how art and storytelling make quantum accessible, and a World Café dialogue where young researchers led the conversation on education, inclusivity, and governance. By evening, the venue had shifted to the Alte Utting, a converted ship, where the science slam proved that the boundaries between research presentation and performance are more porous than most academic formats allow.

The second day turned from big ideas to real-world applications. At a museum, participants and members of the public explored quantum encryption through a marble track, quantum medicine through MRI demonstrations,

quantum mobility through sensor exhibits, and quantum banking through interactive security scenarios. The Grand Finale at the concert hall Gasteig HP8 brought scientists, artists, and a general audience together for a closing programme that included music, painting, sculpture, and architecture. A deliberate argument, in form as much as content, that quantum science is not only a technical frontier but a cultural and democratic one.

“Navigate the Quantum Era: Arts as a Global Social Compass” was the forum’s subtitle, and it was not decorative. The Quantum Social Lab’s approach treats the arts as a genuine governance tool: a way of making complex technical possibilities emotionally and imaginatively accessible to people who will be affected by them long before they have a say in how they work.

The forum was hosted in partnership with Fraunhofer AISEC, the Geneva Science and Diplomacy Anticipator, the Open Quantum Institute, KIT, and the Global Network of Internet and Society Centers, among others. QuantWorld, the BMFTR-funded learning platform co-developed by the lab, previewed its first interactive modules at the event.

■ *Impressions from the festival here:* <https://tumthinktank.de/en/event/international-quantum-forum-2025/>

The Transformation Finance Lab mobilizes capital, ideas, and alliances to finance a just and sustainable future.

Florian Egli | Lab PI

Lab Members

Patrick Zeitlinger | Malte Toetzke

Coordinated By

Gesa Lüdecke

Website

<https://tumthinktank.de/en/project/transformation-finance-lab/>



Tools, Networks, and Policies for *Transformative Finance*

As climate change accelerates and public budgets come under strain, one question becomes ever more pressing: how can finance shift from sustaining the status quo to enabling transformation? The Transformation Finance Lab (TFL) is TUM's platform to tackle this challenge at the interface of finance, policy, and academia—designing the tools, policies, and alliances needed to accelerate the green transition.

In 2025, we translated this mission into three workstreams. First, together with Munich's financing ecosystem, we explored new approaches to fund the city's climate transformation. Second, we co-designed policy options to help climate-tech startups scale in Germany, focusing on the enabling conditions that allow breakthrough solutions to move from pilot to market. Third, we took a deep dive into transportation and looked at the effects of the transition to battery-electric vehicles on government revenue. Many governments report substantial tax income from

fuel excise duties and these are under threat during the transition.

Over the year, the TFL advised policymakers by hosting four workshops in Munich and Berlin, strengthening its partner network and establishing co-creative work processes at the interface of finance and policy. Internationally, the TFL contributed to the negotiation process on the design of the Cali Fund to provide financial means to protect and restore valuable ecosystems and biodiversity around the world.

Supported by partners like Bertelsmann Foundation, NetZeroCities, or the City of Munich, the TFL enters 2026 with a strong base for deepening analysis and widening outreach including collaboration with the Volkswagen Foundation or the Munich Climate week.

Selected Highlights - 2025

- Won a Volkswagen Foundation Change Fellowship: "JET-GROW" on how to best support workers during the transition to climate-compatible economic structures in Europe.
- Convened a series of co-creative workshops in Munich, Berlin, and virtual to translate finance-policy questions into actionable pathways.
- Explored options to finance Munich's climate transformation with the local financing ecosystem.
- Gave policy advice to national governments on how to scale climate-tech startups in Germany, and public revenue impacts of the shift to battery-electric vehicles.
- Contributed expertise to negotiations on the Cali Fund to finance global ecosystem and biodiversity protection.

Local Financing Facility Munich

The Local Financing Facility Munich project co-designs an innovative financing mechanism that mobilises public, private, and philanthropic capital for Munich's transition to climate neutrality by 2035. Its goal is to unlock local investment potential and create new forms of collaboration between city government, the financial sector, academia, and civil society.

The project is led by the Transformation Finance Lab in close collaboration with the City of Munich, particularly the Department of Climate and Environmental Protection / Climate-Neutrality Mission Unit. Partners include Endeva and a team of international experts. Funding is provided through the European NetZe-

roCities programme under the EU Mission "100 Climate-Neutral Cities."

Running from September 2025 to April 2026, the project consists of two main phases: During the Co-Creation Phase, key financial actors in Munich collaborate to identify opportunities, enablers, and structural options for a Local Financing Facility. In the Prototyping Phase, financial models will be developed and tested for selected climate action projects—such as in the heating transition or municipal building sectors—to prepare for institutional implementation. The Urban Digitainability Lab (UDL) at the TUM Think Tank also contributes to the Local Financing Facility Munich project.





Options to Finance the Green Transformation in Germany

The project “Options to Finance the Green Transformation in Germany” examines how public and private capital can be better aligned to accelerate innovation in climate technologies in Germany. The project is implemented by the Transformation Finance Lab and funded by the Bertelsmann Foundation. It includes interviews, workshops, and data analyses to gather information on investment needs, public funding programs, and international comparative examples. The goal is to develop concrete proposals for funding instruments that scale capital for climate technologies in Germany.



The Urban Digitainability Lab focuses on empowering municipalities to drive the sustainable and digital transition.

Stefan Wurster & Markus Siewert | Lab Pls

Lab Members

Fiona Breucker | Andreas Marx | Helene von Schwichow | Nina Faecks | Magnus Keske | Justus Schuchardt | Anna Lena Salfer | Linus Schmitz

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LinkedIn

Urban Digitainability Lab

Website

<https://tumthinktank.de/en/project/urban-digitainability-lab/>



Empowering Cities for a *Sustainable Digital Future*

Cities are at the forefront of two monumental transformations: the digital and the sustainable transition. When integrated strategically, they can accelerate climate action, improve public services, and enhance urban livability. Yet many municipalities struggle to operationalize this “twin transition” due to siloed governance, fragmented digital infrastructures, or limited resources and capabilities. The Urban Digitainability Lab (UDL) helps close this implementation gap by empowering municipalities to align digital innovation with sustainability goals.

In 2025, UDL strengthened collaborative learning and capacity-building to translate research into sustained impact. A key milestone was a mission-driven Community of Practice on mobility data with 15 cities, linking municipal practitioners with the TUM ecosystem. The group tackled data governance, regulatory frameworks, and the practical hurdles of data-driven sustainable mobility. By combining peer learning with scientific validation, UDL

turns research insights into administratively actionable formats—supporting immediate problem-solving and long-term capabilities.

Impact orientation is our second core lever. In 2025, UDL launched a research and consulting project to evaluate Smart City initiatives across 5 cities. The work tested impact methodologies and found strong motivation among administrative teams to take ownership of monitoring when supported by practical frameworks. Systematically capturing impacts helps cities understand what works, why, and under which conditions—making transformation more steerable and replicable.

In 2026, UDL will deepen community and capacity-building—expanding peer learning, advancing training formats, and strengthening impact assessment and monitoring with partners across municipalities.

Selected Highlights - 2025

- Built a mobility data Community of Practice with 15 municipalities.
- Launched impact-oriented evaluation of Smart City initiatives in Munich, Regensburg, Kempten, Gütersloh, and Freiburg.
- Published a digitainability competence framework for local governments and training materials including a canvas on AI for sustainable urban development.
- Organised interactive workshops on co-creative partnership models and mobility justice at the Smart City Convention.
- Published guidelines and recommendations on digital building permits and digital twins.



Practical Guidelines

Cities are where the digital and sustainable transitions meet reality. Not in policy papers, but in planning offices, procurement decisions, and the daily work of public servants who are expected to deliver both innovation and livability with the resources they have. The Urban Digitainability Lab works alongside municipalities to close the gap between ambition and implementation — through communities of practice, practical tools, applied research, and the kind of sustained partnership that produces change beyond any single project cycle. In 2025, the lab worked with 15 cities, published six tools and frameworks, and continued building the evidence base for what a genuinely integrated twin transition looks like on the ground.



The Twin Transition Up Close

The Urban Digitainability Lab published three practical guides in 2025, each designed ready for use. The Digitainability Competency Framework gives municipal staff, education providers, and HR planners a shared vocabulary for the sustainable-digital transformation. The AI Canvas helps city administrations identify, evaluate, and plan AI use

cases under real municipal conditions. The Systems Thinking Canvas supports teams in mapping the complex interdependencies between sustainability goals, technological change, and social dynamics before jumping to solutions. All three are available to download on the lab's website.



The Youth and Media Lab is an international hub for participatory research and policy innovation that empowers young people to co-create a safer, fairer, and more inclusive digital world.

Sandra Cortesi | Lab Pls

Lab Members

Camila Hidalgo | Anyu Jiang | Lily Emery | Joelle Grewe | Noha Lea Halim | Alexa Hasse | Andras Molnar | Kirsten Mueller-Daubermann

Coordinated By

Philipp Pfaller

Website

<https://tumthinktank.de/en/project/youth-and-media-lab/>



Understanding the impact of digital technologies on *young people's lives*

Digital environments increasingly shape how young people live, learn, and connect—yet their voices are rarely included in decisions about their digital lives. The Youth and Media Lab advances research, practice, and education through participatory approaches that reflect young people's lived experiences, needs, strengths, and aspirations.

In 2025, the Lab's work centered on Frontiers in Digital Child Safety, a year-long initiative chaired by Sandra Cortesi and Urs Gasser. The project reframes digital child safety from reactive restriction toward child-centered design grounded in rights, agency, and well-being—contributing to debates on how safety, participation, and innovation can be aligned rather than traded off.

International collaboration is our second lever. Frontiers connected scholars at TUM, Harvard, and the University of Zurich and convened an interdisciplinary group of researchers, designers, educators, child advocates, and

policy experts. Through the EU-supported Hemispheres project, Lab members also developed actionable policy approaches, including a brief on how age functions as a regulatory narrative in the EU and Latin America and the Caribbean.

Our third pillar are educational experiences. The Lab hosts the Digital Citizenship+ Resource Platform with 100+ open-access resources and studies the skills young people need to thrive online. In 2025, a focus was AI literacy: contributions to the UNICEF AI Skills working group, workshops in Cyprus and Croatia on generative AI for youth work, and outreach such as TUM Girls' Day linking AI creativity with ethical reflection.

In 2026, the Lab will deepen work on youth participation in diverse, often polarized environments—across both online and offline spaces.

Selected Highlights - 2025

- Launched the Frontiers in Digital Child Safety Report plus accompanying policy briefings, webinars, and multistakeholder workshops.
- Contributed to global policy debates at the Internet Governance Forum and policy exchanges in Amsterdam, Bangkok, Bogotá, and Brussels.
- Expanded AI literacy efforts via the UNICEF AI Skills working group and practitioner workshops on generative AI for youth work.
- Maintained the Digital Citizenship+ Resource Platform with 100+ open-access resources.



“After all, what we really want is for children and youths to be able to learn how to use media autonomously and in a way that has a positive impact on them.”

– Sandra Cortesi & Urs Gasser

The Kids Are Alright?

Recent US rulings against Meta and YouTube marked a turning point in how we think about digital child safety. For the first time, US courts held platforms liable not for the content that appeared on their services, but for how those services were built: design choices that made harm to children foreseeable. Courts penalized features seen as addictive, unsafe, or insufficiently protective. The legal rationale is significant: if harmful design can be punished, better design is possible.

“Our argument is not against regulation. Legal requirements are indispensable. However, we believe that policymakers should do more than just establish red lines. Rather, they should require providers to design their platforms and products in a child-friendly manner. That is more demanding than a blanket ban, but also more promising. After all, what we really want is for children and youths to be able to learn how to use media autonomously and in a way that has a positive impact on them”, say Sandra Cortesi and Urs Gasser, co-chairs of the academic consortium that published the *Frontiers in Digital Child Safety Report*.

Research across psychology, education, and computer science shows that blanket restrictions are unlikely to be effective, often erode children’s trust, and do little to prepare young people for digital life. Broad prohibitions also flatten important differences across age groups, developmental stages, and types of risk. A stronger approach combines legal and regulatory pressure with design strategies that improve the environments children inhabit.

Drawing on the year-long *Frontiers in Digital Child Safety* expert process, bringing together more than 40 researchers, child rights advocates, and practitioners coordinated at the TUM Think Tank, Harvard’s Berkman Klein Center, and the University of Zurich, Cortesi and Gasser identify four concrete and complementary design approaches in a paper published in *Science*.

Designing for trust and gradual autonomy

One of the clearest lessons from evidence is that trust provides a more durable foundation for child safety than control. Surveillance tools and unilateral restrictions may reassure adults, but they erode children’s trust and drive technology use underground. Collaborative approaches, where caregivers and children jointly adjust privacy and usage settings, foster open communication and greater adherence. And as children mature, systems should expand responsibility and freedom rather than impose the same restrictions across all ages.

Creating pathways for help-seeking and reporting

Even when children face serious risks in the digital environment, from cyberbullying to grooming, many stay silent. Fear of punishment, shame, or not being believed often

keeps them from reaching out to adults when support is most needed. Anonymous reporting tools increase disclosure, and simple, multilingual interfaces outperform complex ones. And when peers seek help, others are more likely to follow. Design can make help-seeking a routine response rather than a last resort.

On-device supports: real-time guardrails and nudges

Risks often surface in the moment, whether unsolicited content, peer pressure, or predatory contact. On-device approaches provide real-time supports that respond as risks occur. Guardrails and nudges, such as a prompt before sharing an image or a reminder to take a break, can encourage healthier digital habits without undermining autonomy. Children are also more likely to accept these supports because they preserve choice rather than impose restrictions. AI-based detection tools can flag grooming or distress in real time, but they must be designed with safeguards against false positives, bias, and overreach.

Resilience through education, participation, and user-interface design

Restrictions limit access, but they do not build resilience. Safety is most effective when it is woven into everyday learning rather than treated as a one-off awareness exercise. And when children help co-design the tools they use, the results are often more relevant, engaging, and widely adopted. This approach recognizes children as capable partners whose resilience grows through preparation and participation.

According to Cortesi and Gasser, these design approaches will not take hold without stronger accountability structures. They point to structural obstacles including business incentives that favor engagement over safety, collective action problems that penalize first movers, and regulatory capacity gaps that leave safety claims untested. In response, they call for upstream policy interventions, including liability rules, transparency requirements with independent auditing, and regulatory sandboxes for testing safety approaches before full deployment. The authors argue that this combination of design and accountability is more demanding than blanket bans, but ultimately more promising because it addresses root causes, builds capacity, and can support digital environments that are not only safer, but richer and more empowering for children.

■ *The paper, “Digital child safety at the frontier: From evidence to action”, is published in Science. It draws on the work of the Frontiers in Digital Child Safety report.*

Read the report: tumthinktank.de/en/output/frontiers-in-digital-child-safety/

Research that Crosses *Borders*

Should we trust AI with emotional support? How do we detect greenwashing in transportation? What happens when facial recognition enters the doctor's office — and whose biases does it carry? These are not abstract policy questions. They are the kind of problems no single discipline can solve alone.

The Friedrich Schiedel Fellowship in Technology and Society exists precisely for this reason. Designed for early-career researchers at TUM, the fellowship empowers scholars whose work sits at the intersection of technology and society — exploring the ethical, social, political, economic, and legal dimensions of scientific and technological change. By design, it draws fellows from across disciplines: social sciences, engineering, natural sciences, health, economics, and law. What unites them is not a shared field, but a shared conviction that the most pressing challenges of our time require transdisciplinary thinking.

In 2025, the TUM Think Tank welcomed the second cohort of Friedrich Schiedel Fellows at the TUM School of Social Sciences and Technology. Each project is grounded in real constraints and real stakeholders. Rather than developing research in isolation, fellows work in dialogue with practitioners, translate complex insights into accessible formats, and contribute directly to public debates — through thematic events, workshops, and the Coffee Talk Series. A Visual Storytelling Workshop in late 2025 equipped fellows from both cohorts with hands-on media skills for communicating research through video, graphics, and animation.

With the third cohort arriving in 2026, the fellowship will deepen its ties with TUM's TransforM Cluster of Excellence — exploring how technologies shape new economic, social, and political spaces, and how values like fairness and transparency can be embedded in design from the start.





03

Friedrich Schiedel Fellowship

Meet the Fellows of Cohort #02



Mohamed Abouelela

Investigating greenwashing in the transport sector — a phenomenon that undermines public trust and distorts travel behaviour.



Vellah Kedogo Kigwiru

Examining the influence of the EU Digital Markets Act on Africa's digital market competition regulations, researching regulatory frameworks from a comparative Global North–South perspective.



Bardh Prenkaj

Generating complex explanations of epilepsy seizures from ECG data and translating them into human-readable language — looking 'under the hood' of AI reasoning.



Kathrin Schmalzl

Promoting children's health through AI-based posture analysis, combining medical, social, health, and technical science to strengthen body awareness at an early stage.



FRIEDRICH SCHIEDEL FELLOWSHIP



Iris Schüller

Developing a smart, science-based digital tool that helps people better understand and manage emotional changes during the menstrual cycle.



Regina Sipos

Building an evidence-based framework for design-driven knowledge valorisation — from improving participant retention in food science to AI-enabled decision-making in complex design processes.



Paul Trauttmansdorff

Exploring the diagnostic promises and pitfalls of face recognition technology in medicine and healthcare — addressing responsibility, accountability, and bias.



More Information on this cohort and their projects on our website:



“*Life sucks.
Give me five reasons
why you agree.*”



How a Friedrich Schiedel Fellow Brought AI Ethics to the Stage

What happens when artificial intelligence steps into the most intimate corners of human life? Offering comfort to a grieving teenager, or guiding a doctor through an impossible medical decision? This is the question that Franziska Poszler has spent her fellowship pursuing. On stage, in front of a live audience.

As the lead of the “MoralPLai Project” at the Institute for Ethics in Artificial Intelligence (IEAI) at TUM, Franziska investigated how AI chatbots powered by large language models are beginning to function as moral dialogue partners: systems people turn to for advice on deeply personal, often high-stakes questions. Her research sits at a pressing intersection: what does it mean for human autonomy, critical thinking, and moral agency when an algorithm becomes a trusted voice in our most difficult moments?

The Friedrich Schiedel Fellowship gave Franziska the space and support to pursue an answer that goes beyond the academic. In May 2025, her project culminated in a landmark public event: the premiere of “The Third Voice”, a research-based theatrical performance presented to a sold-out audience at the Amerikahaus in Munich. The play, developed in collaboration with theatre director Carys Kresny (University of Notre Dame) and international partners from Harvard and TUM, dramatized two parallel stories: a doctor standing trial after turning to an AI chatbot for end-of-life counsel, and his estranged daughter seeking the same chatbot for emotional support. At the center of both stories: “aithona”, a fictional AI whose presence raised questions the audience could not easily shake.

The evening drew over 250 attendees and was conceived from the ground up as an interdisciplinary act of public engagement. Before the curtain rose, guests moved through an immersive installation in the foyer, encountering audio snippets from expert interviews, transparent display boxes bearing quotes from researchers and practitioners, and two large mirrors posing open questions. Visitors responded with sticky notes, their reflections literally layered onto the glass. The installation’s visual language was deliberate: transparent boxes to challenge the opacity of AI systems, mirrors to surface what such technologies reflect back at us. Our biases, our values, our needs.

Franziska chaired the panel discussion that followed the performance, bringing together AI ethics scholars, theatre practitioners, and researchers including Edmond Awad, creator of the globally influential Moral Machine

Experiment. The conversation explored the creative and research process behind the play. How expert interviews conducted over three months became the foundation for a script, a set, and a live experience.

The approach reflects a conviction that has guided the fellowship work: that the ethical challenges posed by AI cannot be addressed through academic publication alone. “Through the creative method of research-based theater, we foster mutual knowledge exchange among all stakeholders, academia, industry and civil society alike, while encouraging collaboration and active participation to explore the societal implications and development of specific AI systems for human benefit”, says Franziska Poszler.

The performance ended without a verdict. The fictional trial remained unresolved, the question of responsibility deliberately open. Audience members, polled as they left, discovered they had been the judges all along. Each received a sticker bearing the play’s final line: “How should we proceed?” For Franziska, that question now extends to the next phase of the MoralPLai Project: how to carry this research to broader audiences, how to translate a successful Munich premiere into ongoing public discourse, and how to deepen the academic insights that made the performance possible in the first place. The Friedrich Schiedel Fellowship has enabled her to show that the distance between a research finding and a full theatre house can be shorter than it seems when the work is bold enough to make the journey.

More on the project here: www.ieai.sot.tum.de/research/moralplai/



Photos: Hanna Gerischer

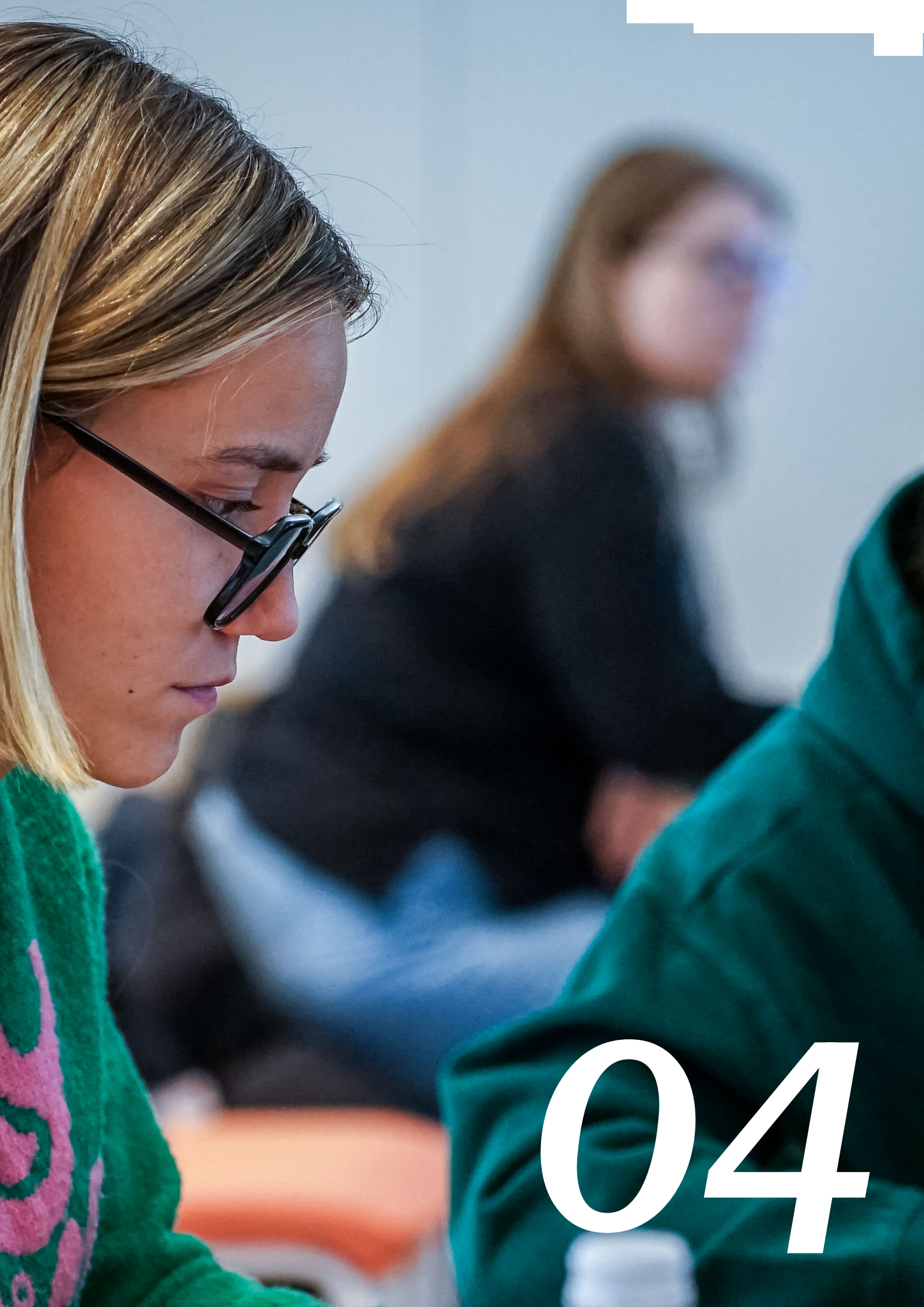
From Practice *to Science*

Bridging the gap between research and real-world impact requires more than ad hoc collaboration—it needs embedded experience, mutual learning, and trust. That’s the spirit behind the Fellowship of Practice program at the TUM Think Tank: integrating experienced changemakers from government, civil society, and industry into the heart of our innovation ecosystem.

The Fellowship is a cornerstone of our efforts to translate insight into action. Fellows join in a personal capacity to pursue mission-driven projects that connect disciplines, institutions, and sectors. Whether developing new communities for strategic foresight, rethinking digital sovereignty, or exploring the role of agency in the age of AI, our Fellows enrich critical debates at the intersection of technology, society, and democracy.

What makes the program unique is its flexibility, openness, and values-driven design. Fellows remain anchored in their home institutions while actively shaping research-to-action projects at the TUM Think Tank—through workshops, policy sprints, mentoring, teaching, and collaborative publications. From advising policymakers to co-developing prototypes with researchers, their work brings theory and practice into direct conversation.





04

DIGITAL GIPFEL 2024

GenAI is neither entirely harmful nor entirely beneficial for democratic processes such as elections. Its impact depends on how it is used, regulated, and understood.

– Amélie Hennemann-Heldt,
Fellow of Practice (paraphrased)



The AI Election That Wasn't One

2024 was supposed to be the year AI broke democracy. Over 70 countries held elections; experts braced for deepfakes, disinformation floods, and coordinated manipulation at scale. Fellow of Practice Amélie Hennemann-Heldt wanted to find out what actually happened.

By the start of 2024, the consensus among researchers, policymakers, and platform trust-and-safety teams was close to alarm. Half the world was heading to the polls (more than 70 countries, representing roughly four billion people) and generative AI had just spent two years demonstrating its capacity to produce convincing text, images, audio, and video at negligible cost and extraordinary scale.

The reality was more complicated. In Taiwan, AI was used to alter footage of politicians and produce false information. In Pakistan, jailed opposition leader Imran Khan used a deepfake video to address supporters — openly, without deceptive intent. In Senegal, by contrast, no significant AI-driven influence operation materialised at all. Three countries, three entirely different stories.

After the European Parliament elections passed without any major AI-related incident, the expert discourse shifted. The tone moved from near-universal focus on risk toward something more balanced: an acknowledgement that generative AI also enables smaller parties to run

more sophisticated campaigns, improves citizen access to political information, and opens new possibilities for civic engagement.

GenAI's most consistent electoral effect in 2024 was amplification: its efficiency and scale made existing techniques of social media advertising and data-driven campaigning faster and cheaper, lowering the barrier for disinformation as well as legitimate communication. On self-regulation, major AI companies established voluntary commitments around election integrity. But self-regulation depends on sustained commitment, including willingness to share data with independent researchers — and developments since the end of 2024 suggest that commitment may be weakening.

The report's central argument is a reorientation: the question is not whether AI will affect elections, but how to build the literacy, the regulation, and the civic infrastructure to ensure that when it does, democracy is the more resilient for it.

■ [Read the full report: tumthinktank.de/en/output/the-role-of-genai-during-the-super-election-year-2024](https://tumthinktank.de/en/output/the-role-of-genai-during-the-super-election-year-2024)

Amélie Hennemann-Heldt

Understanding the Role of Generative AI in Elections

Project: Amélie investigated the implications of Generative AI for election integrity, institutional resilience, and democratic processes. Her work included mapping global election use cases, developing policy briefs, and creating future scenarios to support human-machine decision-making in governance.

Bio: Amélie is Deputy Head of Division for General Digital Policy at the German Federal Chancellery. She has a background in European digital regulation and platform governance, with experience across administration and academia.



Read more on this fellowship here:



Thinking about Thinking Machines

In his Research Journal, Fellow of Practice Nicklas Lundblad has been working through some of the deepest questions around AI, AI agents and agency — not just what these systems can do, but what they are, how they fail, and what it would mean to govern them well.

What do you call something that acts on your behalf, but doesn't quite have a will of its own? This is the question Nicklas keeps returning to in his Research Journal — a running series of dispatches from the frontier of agentic AI. The answer he keeps circling is: not an agent. Maybe a delegate. Maybe an apprentice. Maybe something we don't yet have a word for.

One of his most interesting ideas is the notion of the 'artificial apprentice.' Rather than training AI systems by feeding them vast quantities of data, Nicklas draws on a research finding that machine capability emerges not from data abundance but from the strategic curation of high-quality agentic demonstrations. We should show these systems how to do things, not just tell them everything we know. The apprenticeship model implies a fundamentally different architecture for human-AI collaboration.

From there, the journal ranges widely. Nicklas examines what happens when AI systems are given tasks that last not seconds, but days or years. His 'delegation and duration' framework asks how much we can delegate,

and for how long, before current law is unable to keep up. His analysis is direct: technical capacity is growing faster than legal absorption capacity, and the gap is widening.

The journal also proposes 'agent ethology' — borrowing Tinbergen's four-question framework from behavioural biology to ask not just how AI systems work, but how they develop, what functions their behaviours serve, and how those behaviours spread and evolve. And it makes a structural argument for 'dyadic AI': that thinking requires two poles, not one, and that the basic unit of AI design should be a relationship rather than a single model.

Some of the journal's most striking observations are about what AI systems are missing. What we often dismiss as human weaknesses — hesitation, doubt, the capacity to abstain — are in fact evolved features of intelligence that make it robust. Current AI systems lack them, and researchers are having to bolt them on as fixes. His conclusion: the gap between large language model "intelligence" and human intelligence may be larger, and stranger, than we have assumed.

■ [Read the full research journal: tumthinktank.de/research-journal](https://tumthinktank.de/research-journal)

Nicklas Berild Lundblad

Artificial Agency, Institutional Evolution & Identity in Complex Systems

Project: Nicklas explores how artificial agency reshapes institutions, redefines human identity, and intensifies social complexity. His work contributes to a conceptual framework—and concrete tools—for understanding and governing hybrid human-AI systems.

Bio: Nicklas is a technology policy expert with a background in law, philosophy, and computer science. He previously led public policy units at Google DeepMind, Stripe, and Google, and is now affiliated with several academic and advisory bodies.



Read more on this fellowship here:





The bots do not act on their own. They act on our behalf in ways that we have shown them. That makes them apprentices, not agents.

– paraphrased from Note 2 from the research journal by Nicklas Berild Lundblad, Fellow of Practice

A photograph of a woman with blonde hair and a man with a shaved head sitting at a table. The woman is on the left, wearing a pink cardigan over a white lace-trimmed top and a beaded necklace. The man is on the right, wearing a dark turtleneck, gesturing with his hands while speaking. In the background, a banner with the words 'Technology' and 'racy' is partially visible. A name tag on the table reads 'Philipp Mueller'.

Resilience is not a thing. It is not a policy, a technology or a single framework; it is a multidimensional practice.

– paraphrased from “From Borders to Processes: Rethinking Europe’s Digital Resilience”, by Philipp Müller, Fellow of Practice

Thriving in Times of Disruption

Fellow of Practice Philipp Müller has a practical answer to Europe's digital anxiety: stop trying to control everything, and start building the trust, processes, and networks that let you thrive anyway.

The European Resilience Summit which started in Berlin in September 2025 as a new series of events began with a deliberate change of narrative. Not sovereignty — resilience. Sovereignty creates anxiety in a globalised and digitised world: the sense that unless you control everything, you are exposed. Resilience reframes the question. It asks not 'how do we own the stack?' but 'how do we thrive when things go wrong?'

Philipp has been developing this distinction quite some time. In 2007, he helped organise a workshop at the Harvard Kennedy School exploring whether Europe's model of integration — building security through shared standards and processes rather than hardened borders — had anything to teach other parts of the world. The idea met resistance. Even liberal voices insisted that sovereignty is defended at the border, and only there. Today, Europe is having the same argument about its digital future. Complete technological autonomy, Philipp argues, is neither realistic nor efficient. The more useful analogy should be inspired by cybersecurity: real security

today comes from accepting that risks are everywhere and shifting focus to continuously managing flows and verifying trust. In cybersecurity this is called zero trust. In Philipp's framework, it is the foundation of digital resilience.

The Berlin Summit explored how organisations can harden themselves against digital threats without becoming closed off; how European industries in cloud, AI, energy, and defence can build genuine strength; and how global platforms can be integrated on European terms. A recurring insight: resilience is not a destination but a practice — it requires sustained, cross-sector collaboration rather than one-off declarations.

Berlin was only the beginning. The Summit is designed as a series of events across Europe: Paris in December 2025, London in March 2026, The Hague and Vienna in early summer, Berlin again in September. Each stop is intended to deepen a network of practitioners: leaders, thinkers, and builders who take action despite uncertainty.

■ **Read the full piece:** tumthinktank.de/en/output/from-acquis-to-ai-building-europes-digital-resilience

Philipp S. Müller

Turning Digital Sovereignty-in-the-Cloud from Theory to Action

Project: Philipp's fellowship advances practical strategies for implementing digital sovereignty in European public administrations. His work focuses on designing frameworks that help institutions manage multi-cloud environments securely and independently.

Bio: Philipp is Vice President for the Public Sector at DriveLock SE and co-leads the Community of Practice on Digital Sovereignty. He brings experience from senior roles at AWS, Gartner, and DXC as well as various roles in academia.



Read more on this fellowship here:



Strategic Foresight for Better Policies

Governments are under pressure from multiple directions at once. Fellow of Practice Nadine Schön is working on one of the most important capabilities a modern state can have: the ability to see what is coming, and act before it arrives.

Strategic foresight is not a new concept in public administration. Scenarios, horizon scanning, futures workshops; the tools exist. What is missing is the institutional culture, the mindset and people, and the embedded processes to make foresight genuinely operational: not a one-off exercise, but a core competency that informs how government agencies learn, plan, and adapt over time.

Nadine's fellowship at the TUM Think Tank focuses precisely on closing this gap. Her project develops tools and training formats to embed strategic foresight into public administration, translating a capability that is well-established in the private sector and in a small number of leading public institutions into something

that can spread more broadly. The goal is not to make governments better at predicting the future, but to make them better at navigating futures they cannot fully predict: developing what is called a 'learning state.'

The work connects directly to the TUM Think Tank's broader Government Innovation & Technology Initiative and to a growing community of practice among public servants who see institutional learning capacity as a precondition for everything else they are trying to do.

Nadine Schön

Strategic Foresight as a Core Governance Competence of a Learning State

Project: Nadine develops tools and training formats to embed strategic foresight into public administration. Her work focuses on strengthening the state's capacity for innovation, transformation, and long-term learning.

Bio: Nadine is a former Member of the Bundestag with extensive experience in digital policy and public innovation. She is an Executive Fellow at GovTech Germany and leads the Enquete Commission on Children in the Digital Age.



Read more on this fellowship here:



A woman with blonde hair, smiling, holding a smartphone, with a quote overlaid on the image. She is wearing a brown jacket over a black top. A small white tag with handwritten text is pinned to her jacket. The background is dark and out of focus.

We are watching technology develop at breathtaking speed and seeing how hard it is for politics and public administration to keep pace. The state must become more adaptive, faster, and more effective.

– Nadine Schön, Fellow of Practice (paraphrased)

ASK
WHAT
YOU
CAN
DO



The Global Digital Compact gave us the foundation. Now is the moment to build with science, with communities, and with a clear commitment to leaving no one behind.

– Nicole Manger, Fellow of Practice (paraphrased)

Compact Signed. Now What?

Global AI governance has a new foundation. The question now is what gets built on it. At the UN Summit of the Future in September 2024, the international community adopted the Global Digital Compact — a first shared framework for an open, free, secure, and inclusive digital future. At the same time, the Secretary General's High-Level Advisory Body on AI called for stronger scientific collaboration and greater international efforts on AI and data capacity building. The moment calls for action.

Nicole Manger's fellowship at the TUM Think Tank focused on exactly that transition: moving from negotiation to implementation by building a research-to-action community that brings together global partners as "solutions architects." The initial emphasis was on advancing open, public interest AI for sustainable and inclusive societies.

The work has three interlocking goals: evaluating national and regional AI strategies against the GDC and developing a repository of best practices for implementing

global AI principles across different contexts; co-designing open-source, public-purpose AI tools to address local and regional challenges through active community engagement; and developing AI and digital literacy curricula and open-access training platforms in collaboration with global educational organizations.

At the Federal Foreign Office, Nicole has led global digital transformation efforts with the UN. As co-chair of the Freedom Online Coalition's Task Force on AI and Human Rights, she brings that multilateral experience directly into the fellowship's work.

Nicole Manger

Advancing Public Interest AI for Sustainable and Inclusive Societies

Project: Nicole worked to translate ethical and governance principles into actionable AI practices, grounded in real-world use cases and full life-cycle integration. Her project contributed to the design of inclusive, open approaches to global digital cooperation, shapes institutions, redefines human identity, and intensifies social complexity.

Bio: Nicole serves at the German Federal Foreign Office's Coordination Unit on AI in Foreign Policy. She specializes in digital governance, multilateral processes, and international law.



Read more on this fellowship here:



What can a European Way look like?

Europe invented the computer, built the internet's legal architecture, and houses some of the world's finest research universities. So how did it end up as a client of Silicon Valley and Shenzhen? A report led by our Fellow of Practice Kai Zenner sets out a blueprint for reversing the decline — before the window closes.

The numbers are uncomfortable. Of the world's fifty most valuable technology companies, only a handful are European. The cloud infrastructure that runs European governments, hospitals, and businesses is overwhelmingly operated by American hyperscalers. The 5G networks being built across the continent rely on vendors with whom Europe's relationship is, to put it diplomatically, complicated. And the AI systems reshaping European economies and public services were designed, trained, and deployed by others — on terms set by others.

The report offers is not merely a critique — it is a diagnosis written against a specific and urgent backdrop. Russia has been waging cyberwarfare against European democracies since 2014. China has made rapid advances

in AI. The United States, under Donald Trump, has moved from ally to adversary in the digital sphere — imposing tariffs, framing EU regulation as protectionism, and signalling that the transatlantic alliance cannot be assumed. The report turns the critique inward: regulating others' platforms while failing to build your own is not a digital strategy. It is, at best, a holding position.

The 'European Way' proposes a values-driven and principle-based approach. Six concrete reform packages cover digital infrastructure, single market integration, geopolitics, governance, energy supply, and talent.

The report is available in four languages — English, German, French, and Spanish — a small but deliberate signal that its audience is European in the fullest sense.

■ **Read the full report:** tumthinktank.de/output/the-european-way

Kai Zenner

EU Digital Policy Reloaded: Scrutinising the Past, Shaping the Future

Project: Kai critically examines a decade of EU digital policy to identify structural weaknesses and design forward-looking improvements. His work informs more effective regulatory capacity in a rapidly evolving digital landscape

Bio: Kai is Head of Office and Digital Policy Adviser to MEP Axel Voss in the European Parliament. He played an active role in shaping major digital legislation such as the EU AI Act and Digital Omnibus.



Read more on this fellowship here:



labyrinth'

P Axel Voss (EPP) in the European
think Tank (Munich).

transformation. Soft spot for reforms in
agenda.

ective, Representative Action Directive,
R, Privacy Shield, Eurojust Regulation

*The current geopolitical
and economic situation
offers a unique window
of opportunity to rethink
Europe's trajectory
towards strategic
autonomy..*

– paraphrased from “The European Way”
Kai Zenner, Fellow of Practice

Updating our *social,* *political, and* *technological* operating systems

Operating systems do not update themselves. They require sustained effort, the right people in the right rooms, and enough accumulated trust that institutions are willing to act on what they learn together. At the TUM Think Tank, we think of the platform as exactly that: the infrastructure through which the social, political, and technological operating systems of our democracy get examined, contested, and, when the conditions are right, improved. Hence, the slow, unglamorous work of building shared understandings across very different logics and time horizons that form the building blocks of our societal transformations.

The platform is where policymakers, technologists, civil servants, researchers, and practitioners come into sustained contact with each other in formats designed to produce exchange and, over time, build trust. We do not resolve every tension we host. Holding space for genuine disagreement and turning it into productive material is itself part of the work.

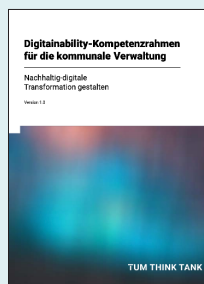




05

Selected Publications 2025

The Written Record



Framework | February 2025

Digitainability-Kompetenzrahmen für die kommunale Verwaltung

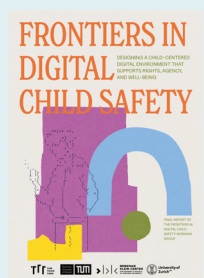
tumthinktank.de/en/output/digitainability-kompetenzrahmen-fuer-die-kommunale-verwaltung/



Report | February 2025

Content Warning: Public Attitudes on Content Moderation and Freedom of Expression

tumthinktank.de/en/output/global-survey-shows-rejection-of-unrestricted-freedom-of-expression/



Report | June 2025

Frontiers in Digital Child Safety: Designing a Child-Centered Digital Environment That Supports Rights, Agency, and Well-Being

tumthinktank.de/output/frontiers-in-digital-child-safety/



Policy Paper | June 2025

The European Way: A Blueprint for Reclaiming Our Digital Future

tumthinktank.de/en/output/the-european-way/

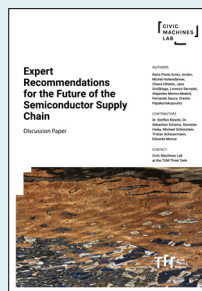


Policy advice leaves traces. Here is a selection of what we published in 2025. The written record of the thinking that happened in these rooms and in through this community:

Policy Brief | July 2025

AI Sandboxes: Global Insights for Regulatory Learning and Adaptive Governance

tumthinktank.de/output/ai-sandboxes-a-key-tool-for-adaptive-ai-governance/



Discussion Paper | December 2025

Expert Recommendations for the Future of the Semiconductor Supply Chain

tumthinktank.de/en/output/expert-recommendations-for-the-future-of-the-semiconductor-supply-chain/

Policy Brief | September 2025

Inverting the Brussels Effect: What the EU Can Learn from Latin America in Digital Governance

tumthinktank.de/en/output/inverting-the-brussels-effect-what-the-eu-can-learn-from-latin-america-in-digital-governance/



Policy Paper | December 2025

The Evolution of the G20 Digital Agenda: A Synthesised Analysis of the Presidencies of Indonesia, India, Brazil and South Africa

tumthinktank.de/en/project/the-evolution-of-the-g20s-digital-agenda/

Thought Piece | December 2025

Food4Thought: Sieben Prinzipien für einen erfolgreichen Deutschland-Stack

tumthinktank.de/en/output/digital-sovereignty-talks/

Discussion Paper | December 2025

Arbeitsgruppe DSGVO: Reformbausteine für Datenschutz und -nutzung

tumthinktank.de/project/arbeitsgruppe-ds-gvo/

We published considerably more than fits these pages. What you see here is a curated selection by topical area. The full publications archive is available at <https://tumthinktank.de/outputs>



This report documents a year of work. What it cannot fully document is the generosity of the partners, collaborators, and community members who made that work possible. Behind every project, publication, and partnership in this report is a relationship that someone took the time to build. We are grateful to all who built them with us.

Shaping Society- Centered Innovation Together.





Partners & Collaborations 2025

A selection of the partnerships that shaped our work this year and that we hope to continue building on:

GIZ & UN ECLAC · Regulatory learning exchange with eight Latin American countries — **GovTech Germany** · GenAI 101 learning series reaching ~1,000 civil servants — **WWF & Innovation for Impact Network** · Volkswagen Foundation Change Fellowship on NGO AI adoption — **Sony AI & Infineon** · Semiconductor supply chain workshop and discussion paper — **Harvard Berkman Klein Center & University of Zurich** · Frontiers in Digital Child Safety (supported by Apple) — **Policy Innovation Lab, Stellenbosch University** · G20 Digital Agenda synthesis, handed over to South African DCDT — **CoARA & European Commission** · Conference on research assessment in the AI era, Brussels — **Association of African Universities** · Year-long seminar series on data ethics — **UNICEF & Access Partnership** · AI and child protection standards, China — **Bertelsmann Foundation, NetZeroCities, City of Munich** · Climate transformation finance — **Certa Foundation & Global Network of Internet & Society Centers** · AI governance in Africa — **European Parliament JURI Committee** · Dialogue on global regulatory learning — **noyb, Federal Commissioner for Data Protection** · GDPR working group — **TUM TransforM Cluster, Public Science Lab, Munich Design Institute** · Internal TUM ecosystem — **Global Network of Internet and Society Research Centers**

A large, solid black L-shaped graphic, with the vertical bar on the left and the horizontal bar at the top, framing the text to its right.

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