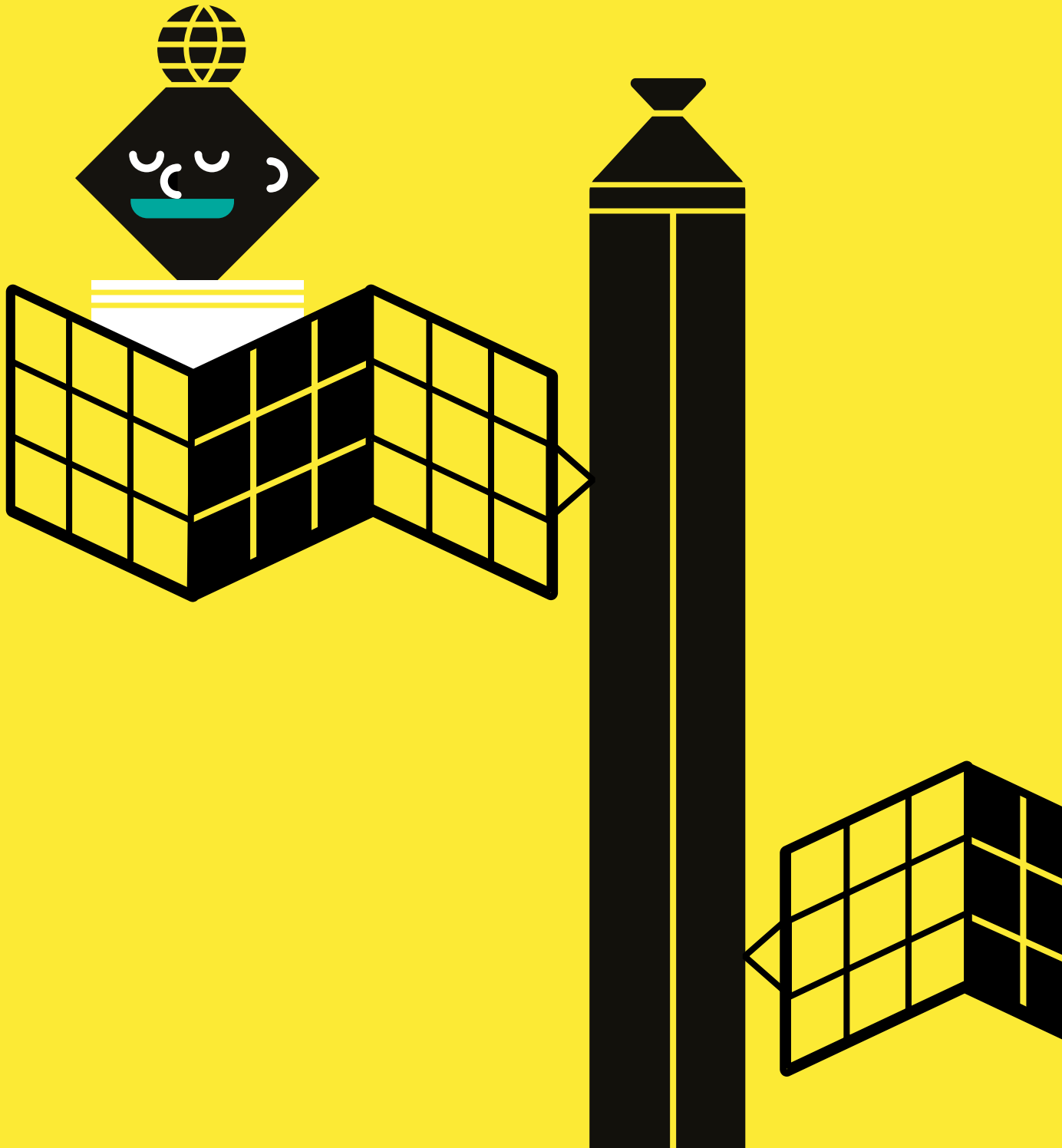
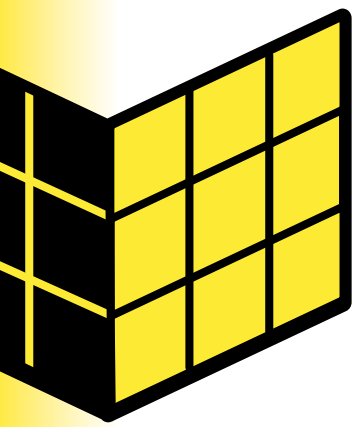
STANDARDS IN THE SPOTLIGHT

Making Governance Work for All



STANDARDS IN THE SPOTLIGHT:

Making Governance Work for All



UvA

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Standards in the spotlight

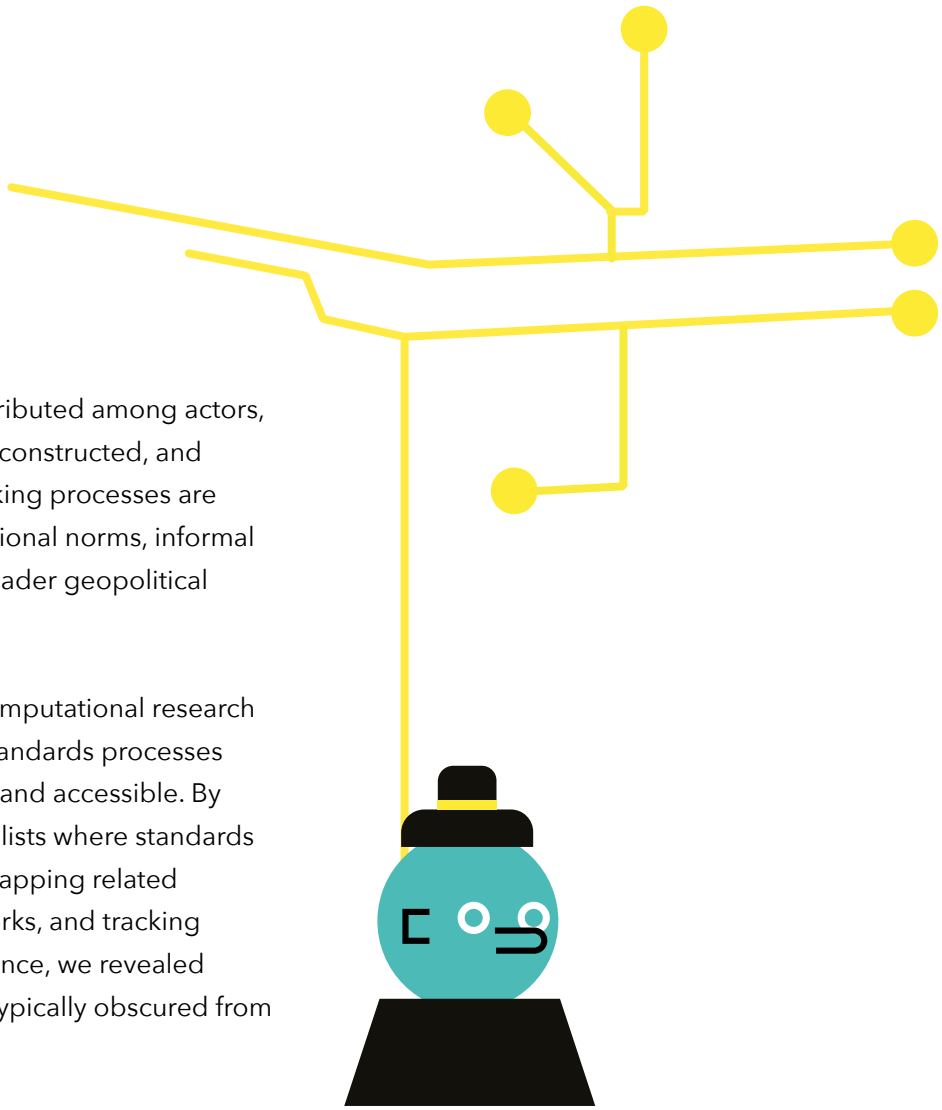
Every time you log into a digital identity system, connect to a 5G cellular network, or interact with a smart device, we're relying on a hidden layer of decisions made far from the public eye. These decisions - known as technical standards - determine how our digital systems communicate, share information, and control access. They're designed to make technologies work together smoothly, but they also carry deeper implications.

Standards aren't just technical instructions; they shape who gets access to what and under what conditions, how data flows, and whose interests are prioritized. Yet they are often developed in industry-led forums with little public oversight or democratic input - highlighting a growing democratic deficit in the way our digital infrastructures are governed. These standards reflect power dynamics, competing values, and visions of the future. Though mostly invisible, they play a powerful role in defining what digital citizenship looks like - and, ultimately, what kind of democracy we live in.

With IN-SIGHT (project title 'Making the Hidden Visible: Co-designing for Public Values in Standards-making and Governance'), we explored a question most of us rarely think about: who decides the rules that shape our digital lives, and how do those decisions affect democracy? We looked at how technical standards - like the ones behind our digital IDs or mobile networks - are created, and what values are (or aren't) built into them. Bringing together insights from media studies, computer science, sociology, and law, the project looked at standard-making not just as a technical task, but as a deeply social and political process - one that shapes how technologies are built, how rules are made, and how power is exercised. We asked ourselves, how can we make sure that the invisible rules behind our digital world reflect the values of the societies we want to live in?

Our work demonstrated that the democratic deficit that characterizes standard making can be addressed through **four complementary strategies**.

1. We examined the governance dynamics of standard-setting from a social science and media studies perspective, showing



how power is distributed among actors, how legitimacy is constructed, and how decision-making processes are shaped by institutional norms, informal practices, and broader geopolitical pressures.

2. We developed computational research tools that make standards processes more transparent and accessible. By analyzing mailing lists where standards are negotiated, mapping related knowledge networks, and tracking stakeholder influence, we revealed patterns that are typically obscured from public view.

3. We asked Dutch citizens to reflect on the question which public values - such as privacy, accessibility, security, and transparency - should guide the design of digital infrastructures, ensuring that standard-setting processes are grounded not only in expert input, but also in societal expectations and democratic values.

4. We created a new pathway for public participation by non-experts through artistic interventions, 'infrastructure walks', and co-design workshops that proved citizens can meaningfully engage with technical governance when given appropriate tools and contexts.

Our approach was one of true interdisciplinary collaboration. From a humanities and social science perspective, Stefania Milan and Niels ten Oever engaged in both qualitative and quantitative inquiry, understanding discourse in standards processes and understanding power dynamics in technical communities. Computer scientists in our team, Paul Groth, Xue Li and Madelon Hulsebos, developed tools to analyze standard settings at scale, allowing for new questions to be asked. Finally, legal scholars Adamantia Rachovistsa and Anna Berti Suman helped examine the legal framework that further legitimised the need for participatory methods.

KEY FINDINGS

→ Our findings **challenged conventional narratives** about technology governance. Despite widespread concerns about Chinese surveillance in 5G networks, our computational analysis revealed that European and US governments, not Chinese authorities, most actively participate in standardizing surveillance technologies.

→ Meanwhile, our nationally representative survey exposed a **troubling gap between digital knowledge and democratic agency**: while 70 percent of Dutch citizens feel comfortable using digital technologies, 60 percent don't know where to express concerns about them.

→ Looking ahead, **standards research faces critical challenges** as increasing corporate consolidation narrows public participation, geopolitical tensions threaten global interoperability, and accelerating technological change outpaces governance mechanisms that should protect public values.

→ However, translating these insights into practice ultimately depends on broader civil society engagement. While developing methods to make standard-setting practices more accessible is an important step, their success requires that journalists, advocacy organizations and researchers **begin to see standardization processes as a valuable area of inquiry**, one that aligns with their public values and agendas.

***Figure 1**: The launch of the first Dutch survey on public values in technological standards at Spui25, February 2024.*

A framework for understanding power

Traditional standardization theories combine perspectives from law and economics to understand firm strategies and market dynamics, but these approaches provide relatively little insight into societal impact and participation outside of industry. A comprehensive theory of standardization needs not only to account for technology and institutional configurations, it also fundamentally needs to be a theory of power. Drawing from science and technology studies (STS), media studies, and infrastructure studies, we identified three types of power that shape how standards are created.

Economic power shapes standards through control over capital and markets; companies with deep pockets send teams of engineers to standards meetings for years, steering technical decisions toward solutions that favor their business models. Patent holders wield particular influence: if your technology becomes essential to a standard this can be highly profitable since every company implementing it must pay licensing fees.

This economic leverage intersects with political power, which operates through control over practices and governance structures. Governments don't merely regulate standards; they actively participate in their development, often prioritizing national security over user rights. Law enforcement agencies, for instance, embed surveillance capabilities directly into communication standards through specialized working groups like the Lawful Interception Working Group in 3GPP (3rd Generation Partnership Project).

Yet the most subtle and perhaps most profound influence comes through ideological power, control over the fundamental rationalities and assumptions about what technology should do. When standards bodies prioritize certain values over others, they exercise this power through what we call "sociotechnical imaginaries": shared visions of the future that guide technical development. The internet originally emphasized decentralization and user empowerment, but newer standards increasingly embed assumptions about surveillance, centralized control, and commercial exploitation.

These ideological choices, reinforced by economic interests (surveillance capitalism profits from data collection) and political pressures (governments want monitoring capabilities), work together to literally build certain interests, assumptions and values into our digital infrastructure, making them seem natural and inevitable rather than contentious choices.

For the more extensive historical analysis of early communication standards, see ten Oever and Milan (2022)[1]. Our paper provides a comprehensive overview starting with the various communication problems that lead to the standardization of the early telegraph and later internet and wireless telecommunication technologies, demonstrating how economic, political, and ideological forms of power shaping communication standards governance is nothing new.

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1. ten Oever, Niels, and Stefania Milan. (2022) The Making of International Communication Standards: Towards a Theory of Power in Standardization. *Journal of Standardisation,* 1. TU Delft. DOI: (https://doi.org/10.18757/jos.2022.6205)

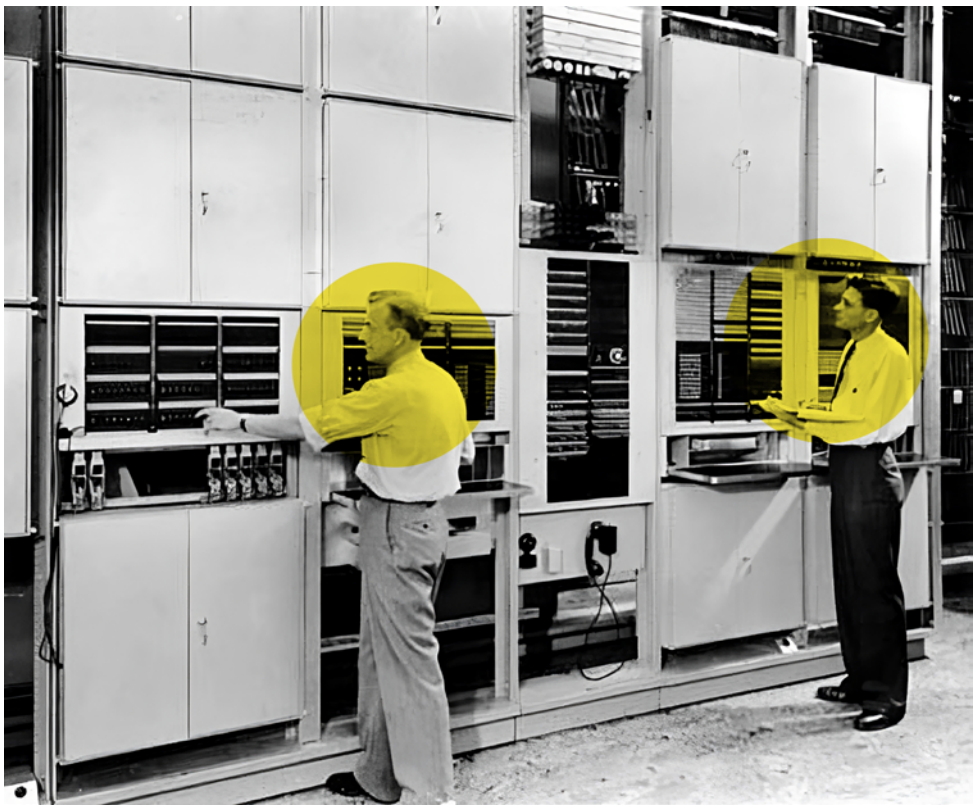

***Figure 2**: Testing a crossbar switch at Bell laboratories (1943, HiddenCity)*

Computational approaches to open the "black box"

A central goal of IN-SIGHT has been to make standards-making practices visible and accessible to a wider audience of researchers, civil society organizations, policymakers, and citizens. Our computational team, led by Paul Groth and Xue Li (Effy), in collaboration with Niels ten Oever, developed empirical computer science-based research tools to open the "black box" of standardization. This included analyzing public mailing lists, mapping conversations through knowledge graphs, and applying entity recognition to trace how standards evolve and who shapes them.

Standards development by telecommunication standard setting bodies like IETF, 3GPP and W3C, as well as ITU-T and ETSI[2] often happens through lengthy email conversations among technical communities, generating thousands of messages that are theoretically public but practically inaccessible due to their volume and technical complexity.

The evolution of BigBang, an open-source research toolkit for analyzing mailing list archives from standards organizations, represented a major advancement in this field. Originally developed in 2015 at UC Berkeley, it was further developed by Niels ten Oever and researchers from New York University under the DATACTIVE project, with BigBang continued its development under IN-SIGHT (available at https://github.com/datactive/bigbang). The toolkit has become increasingly specialized in scientific analysis of standards-setting organizational communications. By integrating natural

2. Standard-setting consortia live by various acronyms: the ITU-T (International Telecommunication Union - Telecommunication Standardization Sector) sets telecommunication performance requirements, the 3GPP (3rd Generation Partnership Project) sets mobile telephony standards, the IETF (Internet Engineering Task Force) for Internet protocols, the W3C (World Wide Web Consortium) for web standards, and ETSI (European Telecommunications Standards Institute) for European ICT standards.

language processing with network analysis methods, our research has enabled large-scale analysis of these previously opaque conversations, making the complex dynamics of standards development accessible to systematic study.

This work led to innovations in cross-document coreference resolution, which is the ability to track entities across separate documents or emails, and addressed unique challenges in the standards domain. As Xue Li's research demonstrated (Li et al. 2021), existing computational approaches struggled with the specialized language and complex reference patterns in technical discussions. The knowledge graph technology we employed builds on top of the existing open-source mailing list analysis tools (like BigBang), with entity recognition capacities that allow mapping the relationships between people, organizations, and technical choices across standards bodies.

When applied to the 3GPP, our analysis of the development of the 5G standard revealed patterns of corporate influence that challenge conventional narratives about standards development. Despite geopolitical tensions and widespread concerns about surveillance, we found little evidence of Chinese government involvement in surveillance standardization. European and US governments actively standardize surveillance technologies, while the Chinese government shows limited engagement in these specific processes. This contradicted common narratives about Chinese surveillance ambitions in 5G and has significant implications for policymakers and telecommunications regulators working on security frameworks.

Adapting LLMs for standards analysis

Standards documents contain complex webs of relationships that are impossible to analyze manually. Building on our computational analysis framework, we've explored how large language models can enhance our ability to extract structured information from standards documents at scale. Xue Li's[3,4] investigation examined whether instruction-tuned LLMs could improve relation extraction performance, a critical capability for automatically identifying relationships between entities, organizations, and technical concepts within standards texts.
We developed AI tools[5] to automatically identify connections between organizations, technical concepts, and governance structures. Our analysis achieved strong accuracy rates and revealed patterns that would otherwise remain undiscovered.

Computational tools represent significant academic contributions to understanding

standards processes. We are developing open research methodologies and analytical techniques that can help illuminate power dynamics in technical standard-setting. Organizations like the Internet Society Netherlands and IETF have already drawn on our research insights to inform their policy advocacy on telecommunications standards and digital rights.

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3. Li, Xue., Magliacane, Sara., and Groth, Paul. (2021) The Challenges of Cross-Document Coreference Resolution for Email in: *Proceedings of the 11th on Knowledge Capture Conference 2021*. DOI: (DOI:10.1145/3460210.3493573).

4. Li, Xue, Polat, Fina, and Groth, Paul. (2023) Do Instruction-tuned Large Language Models Help with Relation Extraction? *KBC-LM'23: Knowledge Base Construction from Pre-trained Language Models workshop at ISWC 2023*.

5. We developed an instruction-tuned Dolly-v2-3B model using LoRA parameter-efficient techniques on the REBEL dataset containing 1,079 relation types. The model achieved 28.5 micro-F1 and 27.3 macro-F1 scores, with manual evaluation showing 66.5 percent accuracy and 0.760 inter-evaluator agreement. Notably, the model generated semantically correct triples extending beyond immediate input text, with 8.5 percent classified as out-of-scope triples, suggesting retention of pre-training knowledge valuable for understanding implicit relationships within technical documents (Li et al. 2023).

Figure 3. *Standard development leaves digital traces, excerpts of documents and public email communication (2025, Paul Groth)*

Critical Infrastructure Lab

The 'Waves of Interference' 5G lab, was an internal working group in IN-SIGHT that allowed for more cutting-edge research involving Niels ten Oever, Maxigas and Jeroen de Vos. Research included analyzing social media platforms and websites to identify interpretative frames of 5G, as well as constructing experimental open source 5G networks to explore different network designs and affordances enabled by 5G standards. The lab collaborated with diverse partners across Amsterdam and beyond. Between 2022 and 2023 we worked with the Amsterdam Municipality on exploring local deployments of 5G technology, engaged with hacker spaces on alternative network implementations, partnered with the Berlin artist collective Weise7 on creative interventions, collaborated with the OBA public library on infrastructure education, and contributed to the Global Digital Cultures Research Priority Area of the University of Amsterdam. This work is highlighted in the next chapter.

Out of the work of the 'Waves of Interference' lab emerged a separate academic spin-off: The Critical Infrastructure Lab. The lab started in 2024 as an independent research group, founded by Niels ten Oever, Maxigas, and Fieke Jansen and focuses on examining alternative futures in communication infrastructures. It investigates various aspects of these infrastructures like geopolitics, the standards and the environment. See: https://www.criticalinfralab.net/

Figure 4. *The Critical Infrastructure Lab's website*

Participatory approaches to standards-making

At the heart of IN-SIGHT's mission is the belief that, if we want to discuss which values should guide technical standards, we must invite people in all their diversity, backgrounds, and lived experiences into the process. Standards shape everyday life and should thus be shaped by the breadth of society, not just by experts behind closed doors. But how do we do this in a meaningful way? To explore this, we started with a representative survey of the Dutch population to indicate how public values in technology and a sense of agency are being perceived. We subsequently experimented with multiple methods of public engagement, ranging from artistic interventions to co-design practices, aimed at making the abstract world of standards-making tangible and contestable.

The agency gap

Our statistically representative survey of 2.154 Dutch citizens reveals unexpected patterns in digital agency and democratic participation. Groups one might expect to feel most empowered, young adults (18-24) and people with higher education, are actually among those with the lowest sense of agency concerning digital technologies. For example, 68 percent of highly educated respondents indicated they do not know where to express concerns about digital technologies, compared with 57 percent for those with secondary education and 50 percent for those with senior secondary education. Despite being frequent users and often possessing more knowledge about technology, these "advantaged" groups feel less able to influence or take action regarding digital developments.

The survey - the first of its kind - also highlights a pronounced gap between values and concrete actions. Dutch citizens are

most concerned about privacy and security risks related to digital technologies: 71 percent report cyberattacks and cybercrime as principal worries, while 57 percent are troubled by the use of their personal data by companies. Yet these concerns are only weakly reflected in actual purchasing decisions. When selecting a new smartphone, 54 percent prioritised price and 50 percent prioritised user-friendliness, with only 13 percent considering digital security and a minor 2 percent considering the environmental impact. Even among those who stated sustainability is important for technology design, just 7 percent reported factoring environmental criteria into their most recent purchase. This mismatch underscores a persistent gap between what people say is important in digital technology and the consumer choices they make, underlining the urgency to find alternative strategies to purchase behaviour alone as a way to improve people's sense of agency. Find the full report at: https://in-sight.it/

What is your biggest concern when it comes to the role that digital technologies play in our society?

Maximum 4 answers possible. Basis: has (some concerns about the role of digital technologies (n = 2,101).

Figure 5. *Cybercrime has consistently been raised as a major concern as well as privacy, environmental impact is most on the radar.*

To what extent do you agree or disagree with the following statements?

Basis: whole sample (n = 2,154).

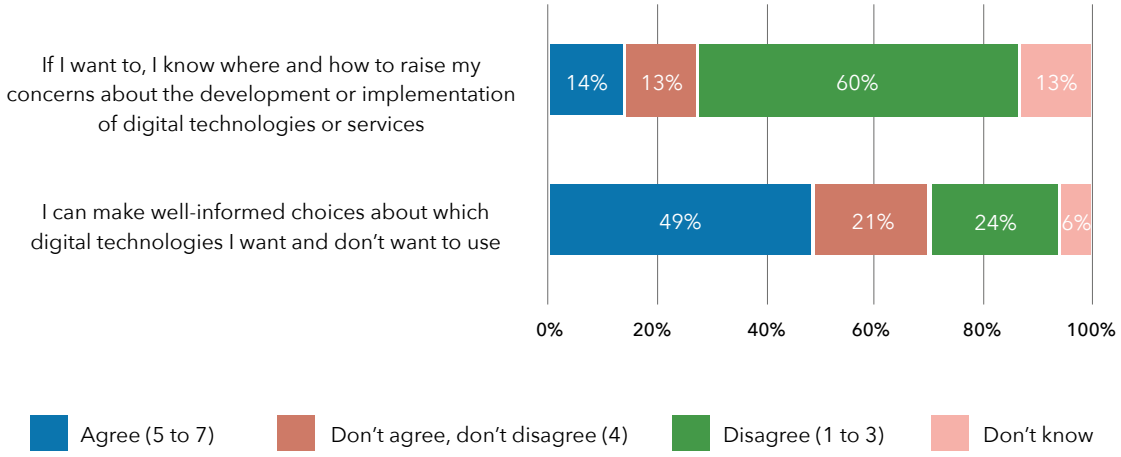


Figure 6. *60 percent of respondents do not know how to raise concerns.*

According to you, who has the biggest influence on how 5G technology works?

Select maximum of 3 answers. Basis: split-run for 5G (n = 1,062).

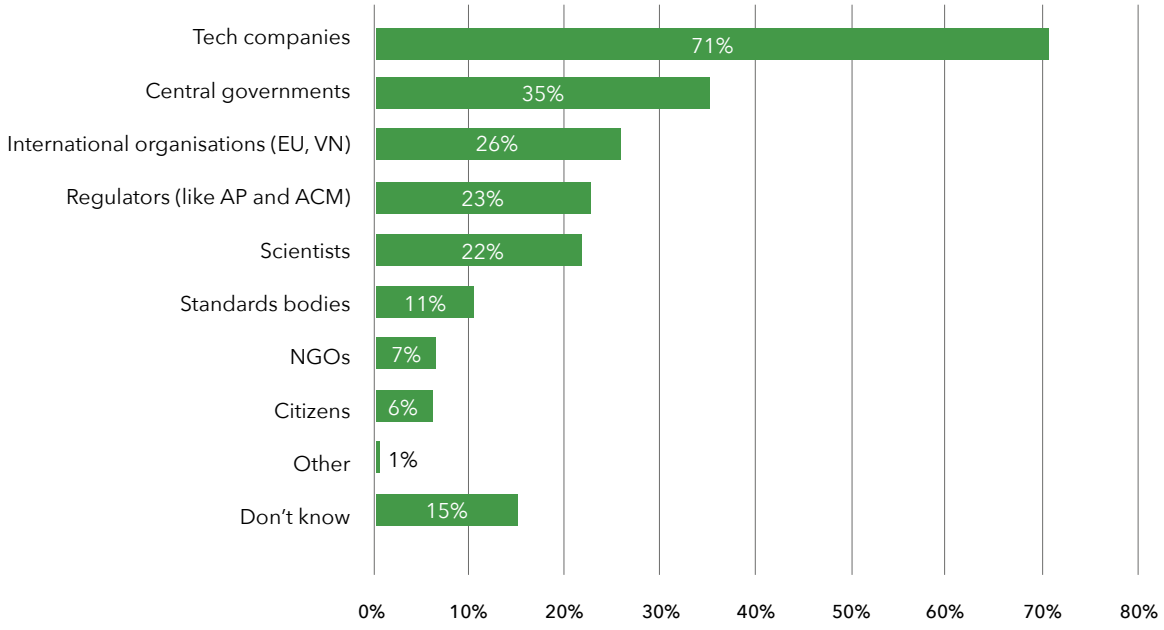


Figure 7. *Predominant influence of tech companies in 5G development, in public perception (Driessen et al, 2024 I&O research)*

Building on legal frameworks supporting participation

Our participatory work builds on a growing body of legal frameworks that recognizes the democratic imperative of public engagement in technical governance. The OECD (Organisation for Economic Co-operation and Development) Guidelines for Citizen Participation Processes (2022) provide a comprehensive framework with ten steps for designing, planning, implementing and evaluating citizen participation. At the European level, the European Commission Recommendation (EU) 2023/2836 explicitly promotes "the engagement and effective participation of citizens and civil society organisations in public policy-making processes."

More specifically for standardization, Regulation 1025/2012 on European Standardization mandates the involvement of concerned stakeholders including consumers' associations, interest groups, and small and medium enterprises in standardization processes. These frameworks recognize what our research demonstrates empirically: technical standards are not neutral specifications but policy instruments that shape social life.

Three complementary methods

To put these democratic principles into practice, we tested three ways to connect standards development with people's everyday experiences. Each method addressed different barriers to participation identified in our broader literature review (ten Oever and Milan 2022)[6]:

Our **artistic interventions** address the distance and visibility barriers between standards processes and public understanding. We discovered that artistic interventions created particularly effective entry points for public engagement with technical standards. Working with the Berlin-based artist collective Weise7 and the Amsterdam municipality, we developed "Crabby," a 5G artwork displayed at the Amsterdam public library (OBA). This interactive installation used visual and sensorial elements to make 5G infrastructure tangible for visitors, revealing how artistic

6. ten Oever, Niels, and Stefania Milan. (2022) The Making of International Communication Standards: Towards a Theory of Power in Standardization. *Journal of Standardisation,* 1. TU Delft. DOI: (https://doi.org/10.18757/jos.2022.6205)

Figure 8. *The 5G artwork 'Crabby' at work at the central hall of the main public library in Amsterdam (OBA Oosterdok), the exposition was live for over 3 months and reached over 250,000 visitors.*

representations could shift people's understanding of abstract technical systems, from distant engineering concepts to immediate concerns about urban life and digital rights.

Visitor interactions with Crabby showed that artistic representation succeeded where technical explanations failed: people began asking questions about data collection, network control, and corporate power that directly connected to standards governance. The installation demonstrated that making infrastructure visible through art creates openings for participatory engagement that technical communication alone cannot achieve.

Our **infrastructure walks** address the accessibility and knowledge barriers to understanding technical systems. We conducted three "infrastructure walks" that physically traced digital infrastructure through urban spaces, making abstract technical systems tangible for participants. The first walk around the Johan Cruyff Arena revealed the complex layering of telecommunications protocols, including 4G, 5G, WiFi, DECT, Bluetooth, and C2000 emergency services networks. The infrastructure walk shows how infrastructure tends to "fade into the woodwork," but that careful and persistent visual observation, frequency spectrum analysis, field interviews and desktop research can make it visible, and lead to questions about accountability, transparency and consent in public space.

Most significantly, our second infrastructure walk was conducted

specifically with policy makers from the Amsterdam municipality, revealing how differently the municipality treats digital infrastructure compared to physical infrastructure. While the city has detailed policies for roads, water systems, and electrical infrastructure, digital infrastructure governance remains fragmented and reactive. This engagement directly influenced municipal thinking about digital infrastructure governance and transparency.

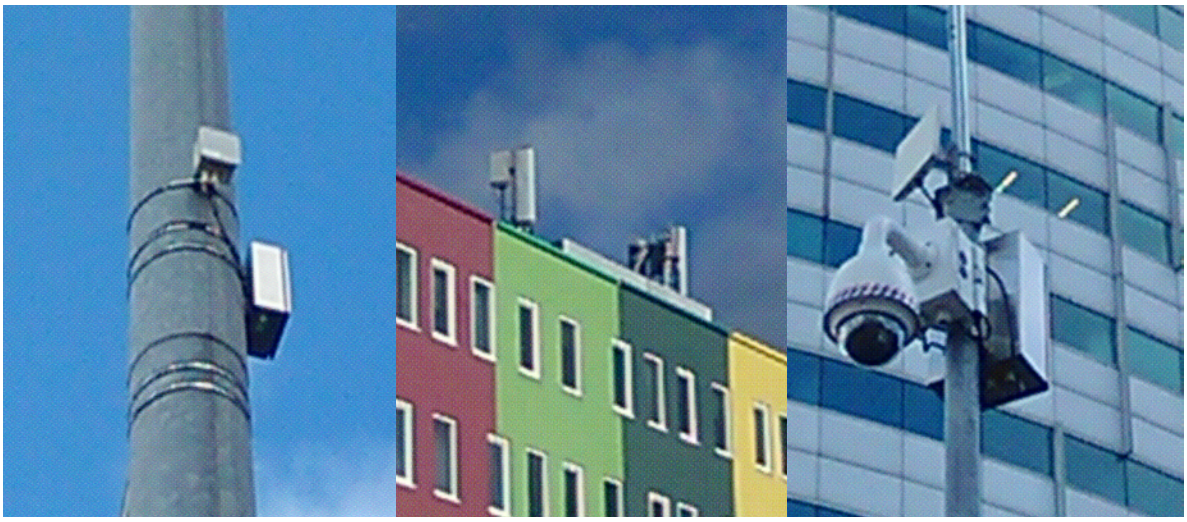


***Figure 9**. Various devices 4G and 5G cell towers, small cells antennas, police surveillance cameras discovered at the infrastructure walk at Amsterdam Bijlmer Arena, one of the Dutch test beds for extended surveillance technologies.*

Our **co-design workshops** address the expertise, resource, and legitimacy barriers that exclude non-technical participants from standards development. In early 2025, we conducted three co-design workshops. These sessions moved beyond traditional consultation toward genuine co-creation, with participants working alongside the live illustrator Maryjet (https://maryjet.nl/) to visualize their ideas and collectively draft design principles for more democratic standards development.

The workshop process revealed that when given appropriate tools and contexts, non-experts could engage meaningfully with complex technical governance questions. Participants developed sophisticated frameworks for balancing efficiency with participation, technical excellence with democratic legitimacy, and global interoperability with local values.

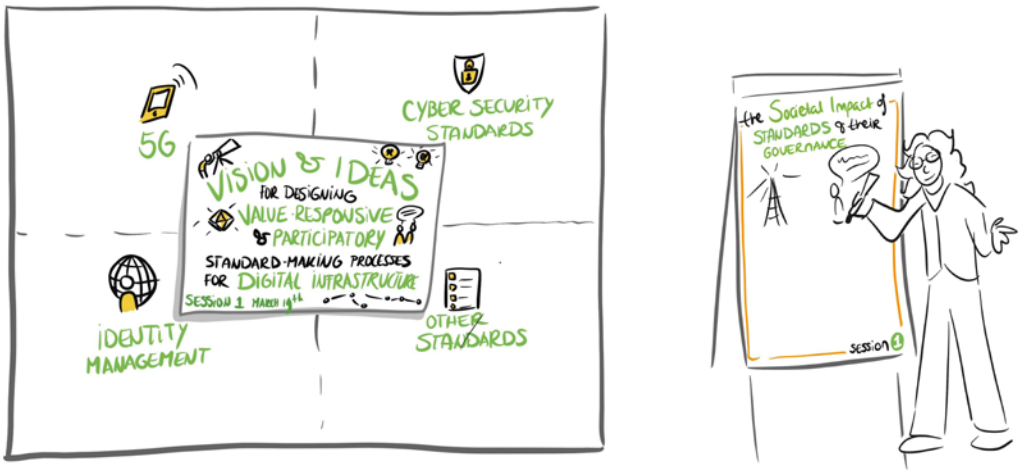


Figure 10. *Drawing to help organise thoughts during the co-design workshop, MaryJet Illustrator 2025.*

Challenges

Our co-design workshops revealed fundamental tensions around democratizing technical governance. The most prominent concern was the speed-democracy dilemma: participants worried about balancing rapid technological development needed for European Union competitiveness with meaningful, but slow, public participation. Technical committee members emphasized that standards already represent consensus among experts, expressing concern that broader participation could make approval procedures more complex.

However, workshop discussions revealed more nuanced realities beyond simple trade-offs. Participants began exploring how participatory processes could potentially enhance rather than compromise technical quality by bringing in different forms of expertise, identifying unexamined assumptions, and ensuring standards work for diverse user communities. The key insight emerging was institutional rather than conceptual: the need to design participation mechanisms that could serve both technical excellence and democratic legitimacy, rather than viewing these as inherently competing values.

The workshops also revealed limitations in current approaches. While our methods successfully engaged motivated participants, they required significant time and resources that might limit scalability. We discovered that meaningful participation requires ongoing relationships rather than one-off consultations, and that different forms of expertise need different engagement mechanisms.

IN-SIGHT in numbers

Over the project's five-year duration, we:

15

Published 15 **academic publications** across multiple disciplines

3

Generated over 3 **policy recommendations** for standards bodies and regulators

400+

Engaged with 400+ **stakeholders** from industry, government, and civil society

2

Developed 2 **computational tools** for standards analysis

250.000

Had over 250.000 **visitors** encountering our 5G expo at the central Amsterdam Public library (OBA)

10

Organized 10 **workshops** and public events

Established the **Critical Infrastructure Lab** (now a team of 6) as a project spin-off

2.154

Conducted the **first nationally representative survey** of 2.154 Dutch citizens on public perceptions of values in digital technologies

Looking forward: future of standards research

After five years of research, IN-SIGHT has demonstrated both that democratizing standards development is possible and that much work remains to be done. We've created tools to make standards processes transparent, shown how citizens can meaningfully participate in technical governance, and established frameworks for future research. As AI systems, smart devices, and 5G networks become increasingly integrated into our lives, the standards that govern them become more consequential. Through IN-SIGHT, we demonstrated both the necessity and urgency of establishing standards research as a recognized interdisciplinary field.

Technical standards are not just neutral specifications but represent sites where values, power, and technological trajectories are negotiated. The hidden nature of these negotiations poses a fundamental challenge for democratic societies: how can we meaningfully govern technologies whose foundational rules are developed in technical forums, open by definition yet obscured by practice?

Three critical challenges for the future of standards research

First, the growing consolidation in the tech industry threatens to further limit the diversity of voices in standards processes. Our computational analysis shows that participation in key standards bodies has become increasingly dominated by a handful of powerful corporations. This concentration of standardization power needs to be counterbalanced with more diverse participation, to be encouraged through education, appropriate resources and engagement strategies.

Second, increasing **geopolitical tensions.** Particularly between China, the US, and Europe there is a risk of fragmentation of the standards landscape along political lines. As our 5G surveillance standardization research shows, the reality of standards politics is more complex than popular narratives suggest. Rather than a straightforward competition between national interests, we found intricate collaborations and conflicts that cut across geographic boundaries. Standards research can provide evidence-based alternatives to simplistic geopolitical framings, helping to maintain the global interoperability that has been central to the internet's success.

Finally, the **pace of technological change** continues to outstrip governance mechanisms, creating regulatory gaps that powerful actors can exploit. Standards-making processes designed for slower technological cycles struggle to address rapidly evolving technologies like AI and IoT. Our research on values in standards suggests that when processes move too quickly, public values like accessibility, privacy, and sustainability are often sacrificed for speed and commercial interests. Developing agile yet inclusive standards processes remains a central challenge.

While developing methods to make standard-setting practices more accessible is an important step, their success ultimately depends on the involvement of civil society. It is essential that people with a bridge function, like journalists, civil society organizations, and researchers begin to see standardization processes as a valuable area of inquiry, one that aligns with their public values and agendas.

In this way, the developed methods can truly have an impact and bear fruit in practice. Without active engagement from these critical stakeholders, even the most sophisticated analytical tools or participatory frameworks will fall short of their potential to democratize standards development.

For **researchers** continuing this work, we recommend:

- Developing methodologies that bridge quantitative and qualitative approaches to standards analysis. Our experience shows that computational methods can identify patterns at scale, while qualitative approaches illuminate the meanings and contexts of those patterns.

- Investigating how inclusive standardisation can counter digital sovereignty-driven fragmentation and help build geopolitical trust. The research reveals a fundamental tension: while digital sovereignty initiatives promote national control and technological fragmentation, broader stakeholder participation in standardisation processes, particularly in sensitive areas like surveillance technologies, can serve as confidence-building measures that promote transparency and reduce suspicions between nations.

- Creating longitudinal datasets that track participation patterns and value shifts in standards over time. Many of the most important dynamics in standards-making only become visible through sustained observation over years or decades, as

demonstrated by the multi-decade evolution from three competing 3G standards to unified 4G standards and continued 3GPP dominance in 5G.

For **standards bodies and policymakers**, our research points to specific reforms:

- Implementing transparent impact assessment frameworks that evaluate standards against defined public values.
- Creating dedicated funding mechanisms for civil society participation in standards processes. Our experiments with participatory standards-making demonstrate that meaningful inclusion requires not just invitation but material support.
- Developing intelligent systems that help standards developers integrate societal considerations. Our research created AI-powered tools for accessibility and analytics to ensure diverse participation, addressing the gap where technical experts lack frameworks for analyzing broader impacts.

Our work has laid the foundation for a new interdisciplinary field examining the values and assumptions written into the ways technology works - or doesn't work. This research reveals both the necessity and urgency for continued academic and applied research agendas in this area. By showcasing our interdisciplinary collaborations and methodological approaches, we hope this report provides valuable insights for standard-setting bodies, civil society organizations, and fellow researchers seeking to build more democratic, inclusive technological futures.

The path forward is clear: standards research must become an established field that combines rigorous analysis with practical engagement. The IN-SIGHT project has demonstrated that this research is not just academically interesting, it is essential for ensuring that the invisible infrastructure of our digital world reflects democratic values and serves the public interest. Technical standards should not have to remain hidden infrastructure, they need to become sites of democratic participation and value expression.

Acknowledgments

Core and extended IN-SIGHT Team: Stefania Milan (Project Leader), Paul Groth, Niels ten Oever, Xue Li (Effy), Martin Trans, Jeroen de Vos, Adamantia (Mando) Rachovitsa, Madelon Hulsebos, Meg Kitamura, Anna Berti Suman, Mariette Amsing (MaryJet).

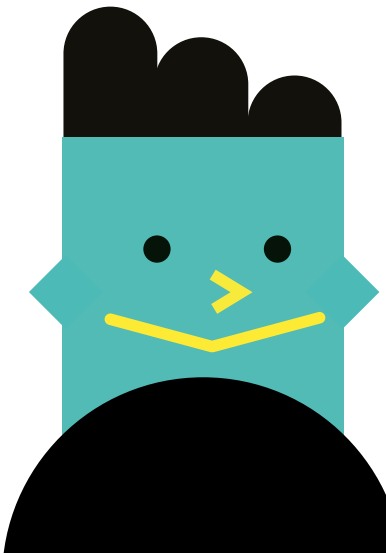
This research was made possible by the vision, dedication, and collaboration of our extended IN-SIGHT community. We extend our deepest gratitude to all who shared their expertise, opened their doors, and imagined better futures with us.

The Critical Infrastructure Lab (besides Niels ten Oever: Maxigas, and Fieke Jansen, Sarah Vorndran) have contributed to the project with independent research.

The University of Amsterdam, the Department of Media Studies and particularly the Amsterdam School of Cultural Analysis (ASCA) and the Uva Data Science Center who have provided the interdisciplinary environment that made this collaboration possible.

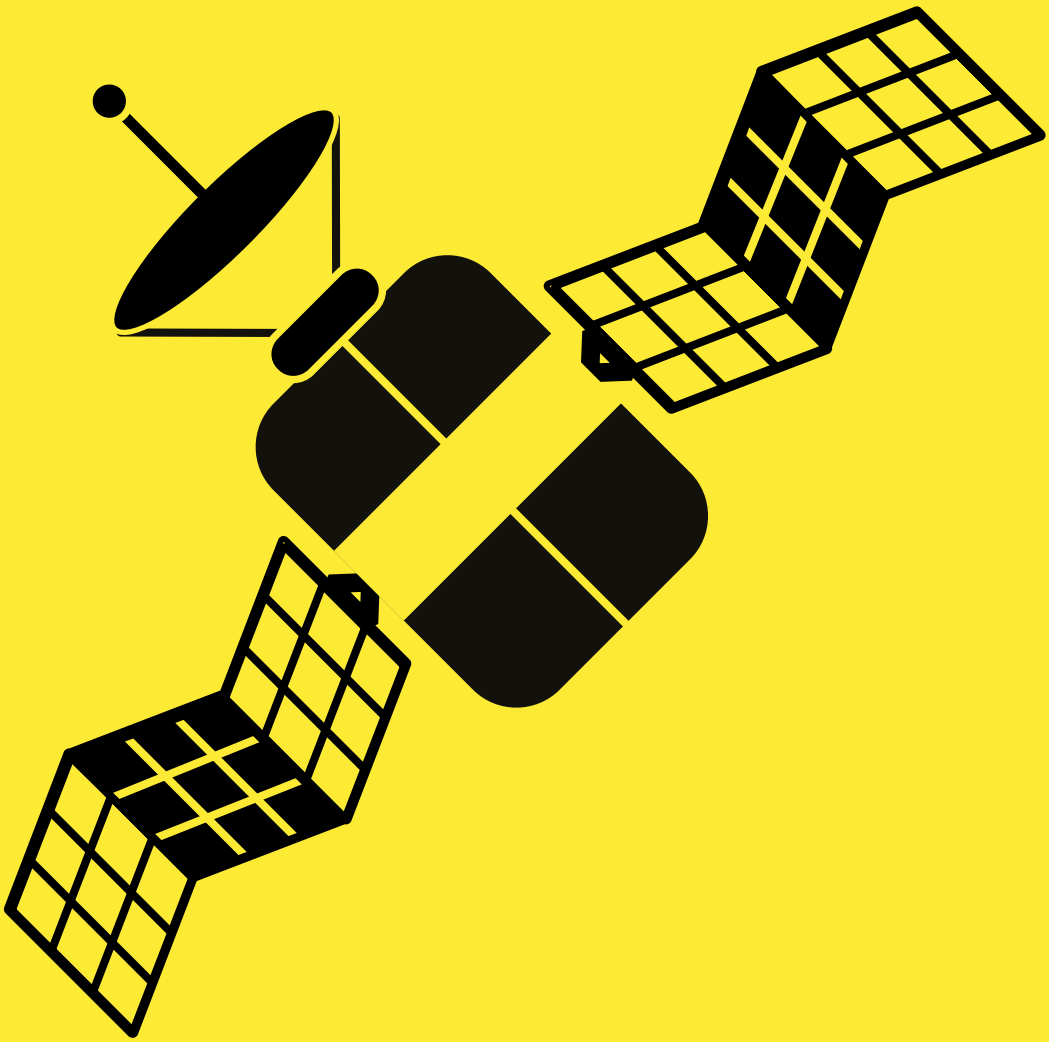
Academic Board and Valorization Partners: Mallory Knodel (ARTICLE 19), Arpad Gerecsey (Stichting A Lab Foundation), Ger Baron (Municipality of Amsterdam), Martin Lopatka (Mozilla NL), and Denis Rojo (dyne.org). Critical Infrastructure Lab: Niels ten Oever, Maxigas, and Fieke Jansen, Sarah Vorndran and others for continuing the mission through independent research.

Institutional and community partners: Daan Groenink & Rudolf Roeleven (Amsterdam Municipality), Bengt Sjölén and Danja Vasiliev (Berlin artist collective Weise7), Amsterdam public library (OBA), Global Digital Cultures Research Priority Area (UvA), René Gouwens, Jo Collins and Frank Kortstee of the Nederlands Normalisatie-instituut (NEN), and the many standards bodies, civil society organizations, and research institutions that opened their doors to our research. Municipality of The Hague, Ministry of Foreign Affairs, Ministry of Interior Affairs and Kingdom Relations, Ministry of Justice and Security. Milan Driessen, Maartje van de Koppel, and Dewi Hollander from Ipsos I&O for our nationally representative survey research.



Our gratitude extends to all 400+ stakeholders from industry, government, civil society, and academia who shared their expertise across 10 workshops and public events.

FUNDING: The Dutch Research Council (NWO) for supporting this work through grant MVI.19.032 as part of the Responsible Innovation program.



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Title: **Standards in the Spotlight: Making Governance Work for All**
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Version: 1.0
Publication date: October 2025
Publisher: University of Amsterdam

Technical Note: AI-assisted technologies were used responsibly to support elements of the editorial process. All final responsibility for the content rests with the authors and editors.

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STANDARDS IN THE SPOTLIGHT

Making Governance Work for All