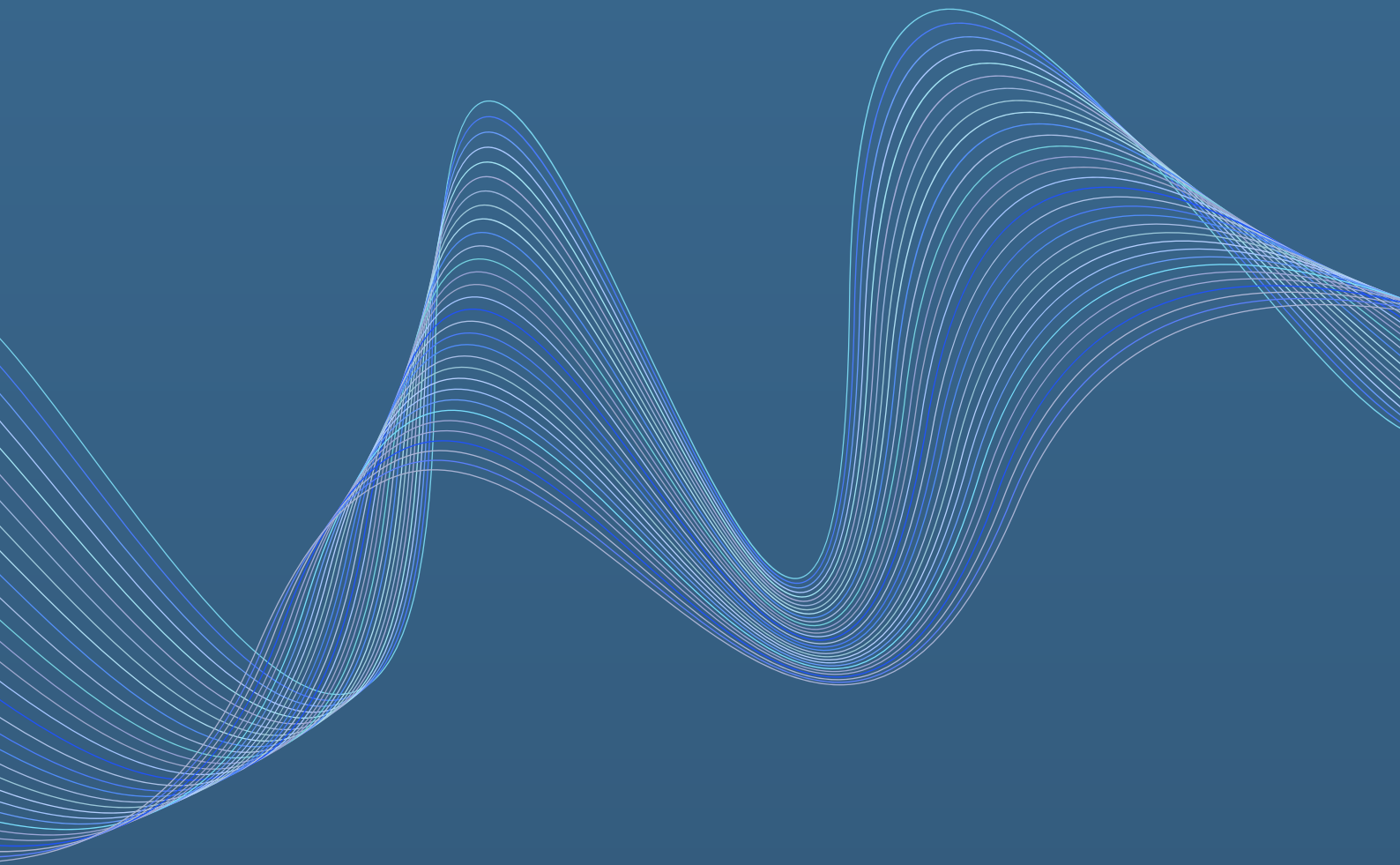
OBSERVATORY ON INFORMATION AND DEMOCRACY

EXECUTIVE SUMMARY

INFORMATION ECOSYSTEMS AND TROUBLED DEMOCRACY

A Global Synthesis of the State of Knowledge on News Media, AI and Data Governance



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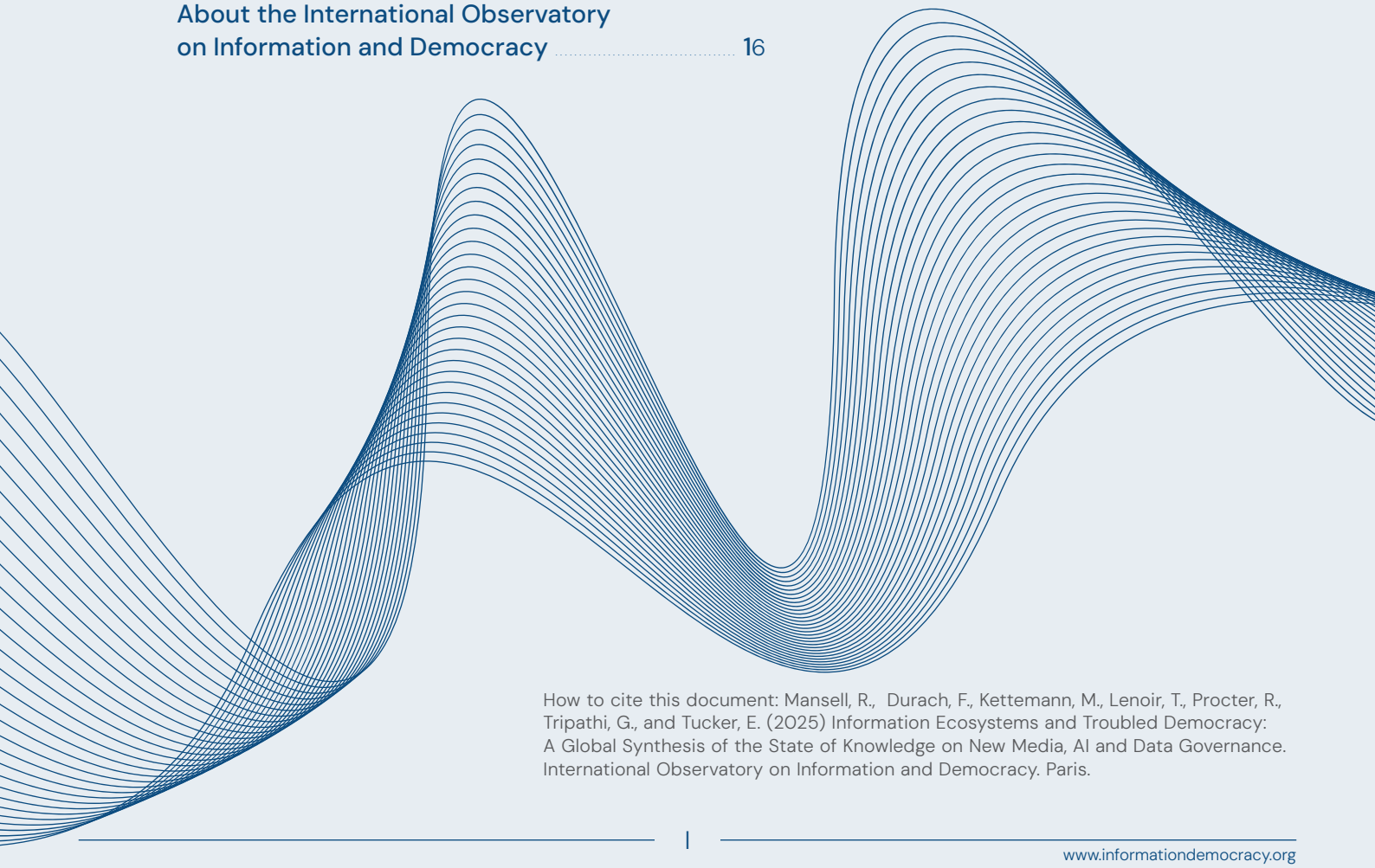

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1 Introduction

Democracy is troubled. There is no dispute about this. What is controversial is the role of information ecosystems in contributing to the fragility of democracy and to the viral spread of mis- and disinformation. The V-Dem Institute reports that the level of democracy enjoyed by the average person globally in 2023 had declined to 1985 levels – 5.7 billion people living in autocracies.[1] Distrust in online information is widely seen as an 'information crisis'. Research on digital news, covering six continents, found that people's concerns about what is real and what is 'fake' news had risen on average to 59% of those sampled, and to as high as 72% in the United States and 81% in South Africa.[2] When the World Economic Forum interviewed experts in 2024, they placed AI-generated mis- and disinformation produced by domestic and foreign actors at the very top of a list of global risks.

Big tech company business models entice children and adults online to allow the extraction of data, which they then monetize for profit. This is facilitating the viral spread of mis- and disinformation and hate speech. While mis- and disinformation have always been an issue, information manipulation and distribution are now supported by artificial intelligence (AI) tools and algorithms. At the same time, there is uncertainty about how to ensure that international human rights commitments are met, and that information ecosystems foster democratic debate in the public sphere. The tensions between efforts to address mis- and disinformation and measures to address human rights commitments are troubling to democracy, and solutions seem elusive.

This report is a critical review of state-of-the-art research in three areas, with a cross-cutting theme of mis- and disinformation: **media, politics and trust; artificial intelligence, information ecosystems and democracy; and data governance and democracy**. The role of information ecosystems in both the Global North and the Global Majority World is assessed, with a focus on their relationship with information integrity (the quality of public discourse), the fairness of political processes, the protection of media freedoms and the resilience of public institutions.

The end of the International Observatory on Information and Democracy's first year-long critical review of state-of-the-art research coincided with the publication of the United Nations' *Global Digital Compact* in September 2024. This commits member states to 'promote diverse and resilient information ecosystems'. Our analysis is based mainly on academic publications supplemented by reports and other material from different disciplines and regions (1,664 citations selected from our bibliographic database, with more than 3,095 entries screened before inclusion). This report focuses on questions set by the Observatory's Steering Committee (see Appendix: Methodology). It is not intended to prescribe specific actions for policy makers; rather, it showcases what we can learn from landmark research on the often intractable challenges posed by rapid changes in information and communication spaces. These spaces can be viewed as 'information ecosystems'.

We understand 'information ecosystems' as systems of people, practices, values and technologies configured in social, cultural, political and economic contexts. The interdependencies of these components are complex and they involve structural and power relations among multiple actors. How these operate in a specific context is what conditions the integrity of information and the possibilities for informed participation in the public sphere. information integrity is understood as 'access to relevant, reliable and accurate information and knowledge' following the United Nations *Global Digital Compact* definition. Democratic participation requires information integrity and the existence of inclusive, open, safe and secure digital spaces, where there is tolerance and respect.

Shortcomings in either information integrity or the safety, security and inclusiveness of digital spaces are understood to undermine the vitality

[1] V-Dem Institute. (2024). *Democracy Report 2024: Democracy Winning and Losing at the Ballot*. Varieties of Democracy Institute.
[2] Newman, N., et al., (2024). *Digital News Report 2024*. Reuters Institute for the Study of Journalism, University of Oxford.

of the public sphere and, in some cases, even its existence. In this report, research on the reality of asymmetrical power relations between big tech companies, states and publics receives particular attention with a view to revealing the agency of both individual actors and institutions to address these asymmetries. It is acknowledged that there are definitions of information ecosystems that place greater emphasis theoretically on the indeterminacy of the evolutionary dynamics of ecosystems and therefore on the uncertainty of outcomes of interventions aimed at reducing power asymmetries.

> **In this report, we do not assume that the design, deployment, beneficial and harmful uses of digital technologies are dictated by technological change; rather, information ecosystems are understood to be a result of human decisions and actions. Our interest is in what research reveals about the interdependence of changing information ecosystems with the public sphere and democracy. Harms associated with mis- and disinformation are treated as both symptoms of complex changes in society and as important amplifiers of these changes.**

2 Structure of the Report

Our critical review of research begins in Chapter 1 with a discussion on the core themes and definitions of the key concepts. The rest of the report critically introduces readers to existing research with a focus, first, on each of our three core themes on media, AI systems and data governance (Chapters 2-4). We then turn to research that cuts across these themes to focus on public understanding of mis- and disinformation and literacy training, governance of information ecosystems, practices aimed at combating mis- and disinformation, and strategies for achieving data justice (Chapters 5-8). Finally, Chapter 9 concludes with a synthesis of the key research insights, future research directions and guidance for policy makers and big tech companies.

The main issues and principal questions addressed in each chapter are now summarized.

News Media, Information Integrity and the Public Sphere (Chapter 2). Here we look at what research tells us about changes in legacy and online news media, and what can be done to promote information integrity and a democratic public sphere. What are the salient changes in news media industry market structures and power relations between news media organizations and digital platforms? What is the relationship between news media, a healthy public sphere and democracy? How is trust in news media associated with political polarization? What strategies are available to the journalism profession and other actors to build trust in the news?

Artificial Intelligence, Information Ecosystems and Democracy (Chapter 3). This chapter focuses on the properties of AI systems (machine learning algorithms) and the consequences of their being embedded in content governance systems. How does 'AI' operate in ways that affect information integrity? What is the relationship between AI systems and internationally protected human rights? What are the interdependencies between AI systems, the use of automated tools and democratic processes?

Big Tech Power and Governing Uses of Data (Chapter 4). Here attention turns to the power of big tech companies, and approaches to governing data extraction and use (processes of datafication). What is the appropriate

role of data and digital infrastructures within political communities? How are data aggregation and AI systems changing the way people build, share and receive information? How do these big tech strategies and practices influence political deliberation?

Awareness of Mis- and Disinformation and the Literacy Challenge (Chapter 5). This chapter examines research on people's knowledge about mis- and disinformation, as well as literacy training initiatives aimed at enabling people to protect themselves from online harms and to distinguish inaccurate from accurate information. How aware are the public and policy makers of the risks and harms of mis- and disinformation? What are the approaches to media and information literacy (MIL) and AI literacy, and are they effective?

Governing Information Ecosystems: Legislation and Regulation (Chapter 6). Here we examine selected legislative and regulatory tools that aim to mitigate the harms of mis- and disinformation and to govern how big tech companies operate. What governance approaches are available? What approaches are being promoted at the global level? What insight can we draw from the variety of legislative, regulatory and judicial approaches at national and regional levels?

Combating Mis- and Disinformation in Practice (Chapter 7). This chapter turns to specific measures to combat mis- and disinformation by civil society organizations and governments. What content governance approaches are used to combat mis- and disinformation? What are the challenges in defining and implementing these approaches? In what ways is human rights protection jeopardized by efforts to curtail mis- and disinformation? What do we know about the public's appetite for interventions to moderate online mis- and disinformation?

Towards Data Justice in Information Ecosystems (Chapter 8). Research indicates that the monopolistic power of big tech companies in data extraction and monetization leads to harmful discrimination and exclusions. Why do corporate strategies and practices lead to epistemic injustice? What strategies and tactics are individuals and communities developing to resist the extractive features of the data economy?

Conclusion: Information Ecosystems and Troubled Democracy (Chapter 9). In this chapter themes that emerged from our analysis across the report (issues relating to human rights, contesting data monetization, exclusion and inequitable inclusion and transparency and accountability) are discussed. Prominent characteristics of the research we reviewed are presented (a Eurocentric/Western bias, inconsistent conceptual framings and a wide variety of research designs and methods, limited access to research data and the challenges of securing research independence). This concluding chapter highlights future directions for research, provides a summary of findings by chapter, and distills guidance for policy makers and big tech companies (no specific recommendations are made as this was not the purpose of our review).

3 What Can We Learn from a Critical Review of State-of-the-Art Research?

We found broad agreement that states have a duty to protect **human rights and fundamental freedoms**. A consistent emphasis is the need to differentiate between normative goals and principles articulated at a global level, and how these are translated into practice in different contexts. There is a tension between research favoring incremental risk mitigation strategies and research concluding that human rights protections are incompatible with big tech data extraction practices.

> **The need for research on how international human rights law is interpreted and applied at regional and country levels was emphasized repeatedly.**

Data monetization for profit is a prominent topic. Big tech business models are shown to drive developments on the infrastructure layer of information ecosystems – for example, network neutrality policies and 'zero-rating' contracts – and on the service applications layer – for example, destabilizing news organizations' finances and facilitating the weaponization of information. A common theme is that policies favoring the data dependency of private and public organizations, as well as individuals, pre-empt meaningful political deliberation on issues such as rights to data ownership, what role data should have in the private and public sectors, and what contexts require the minimization or prohibition of data production.

> **Strategies that aim to counter harmful exercises of power would benefit from research aimed at exposing how big tech business models make them attractive targets for mis- and disinformation campaigns. Research is also needed on the new competencies and enforcement mechanisms required for combating harms to a diverse public sphere.**

Research on **exclusions from and inequitable inclusions in information ecosystems** at local, national and regional levels is not as prominent in the literature we reviewed as the first two themes. Many studies conducted in the Global North do not acknowledge that (meaningful) internet connectivity is absent for many in the Global Majority World.

There were 5.4 billion internet users in 2024, and 2.6 billion people with no access; in low-income countries 20.9% of people use the internet; in high-income countries the figure is 90.5%.[3]

Such studies, for example, do not sufficiently recognize that globally news media systems are subject to a variety of ownership and regulatory regimes; that content governance measures often suppress debate that is critical of authorities; or that AI systems impact communities of color, women, religious minorities and LGBTQ+ people in harmful ways. When these inadequacies are highlighted, it is found that big tech companies are involved in replicating and exacerbating inequalities and injustices. The *Global Digital Compact's* ambition is to tackle exclusions and inequitable inclusions. In the academic literature reviewed in this report, evidence of practical steps to ensure the Global Majority World is not treated as a passive recipient of Eurocentric/Western ideas is lacking.

> **People in the Global Majority World need to be heard, and barriers to their participation in decisions need to be reduced, so that elite Global North knowledge is not the unquestioned guide to governing information ecosystems and the public sphere.**

[3] ITU. (2024). Statistics ITU; ITU (2024). *The ICT Development Index 2024: Measuring Digital Development.*

Transparency and accountability issues are discussed, but there is a tension between research claiming that governance of information ecosystems is too permissive or that it is not permissive enough. Where governance is found to be too permissive, this is because economic self-interest is given priority without sufficient attention to rights protection. When governance is found to be not permissive enough, it is most often because states are unduly suppressing speech. The governance of those harvesting and selling data needs reinforcing. However, in the Global Majority World, there are concerns about the feasibility of holding distant actors to account, with little clarity about the interventions that would be most effective in mitigating the harms of mis- and disinformation. There is a strong emphasis on the need to promote the transparency of AI systems and independent audits.

> **To hold big tech companies and governments accountable, accurate information needs to reach a wide range of stakeholders. Actors who question mis- and disinformation governance practices should be neither criminalized nor marginalized.**

Research has addressed **media and information literacy (MIL) and AI literacy training** as a means to help children and adults keep themselves safe from harmful information. This work focuses on curricula, training and funding, but literacy issues also appear in connection with debates about transparency and accountability. A public that is better informed about factors that facilitate illegal and harmful information is more likely to demand that big tech companies and states are held to account, to insist on transparency (as far as possible) of algorithmic systems, and to argue for human oversight of algorithmic decisions.

> **Literacy initiatives should not, however, be a stand-alone answer to mis- and disinformation problems. There is little systematic evidence of experience of literacy initiatives globally, and over time, and there is less research on children's literacy than on those of adults.**

Our analysis revealed several key characteristics of state-of-the-art research on information ecosystems and the challenges of mis- and disinformation.

There is a clear **Eurocentric/Western bias** towards research in and on the Global North, with the problems of mis- and disinformation and approaches to mitigating harms studied disproportionately in the United States and other Western countries. Research on companies – small and large – that produce discriminatory outcomes as the result of datafication focuses on relatively few large companies. There are few in-depth assessments of experience around the world, apart from some comparative survey studies.

> **This research bias must be addressed if the views of individuals and organizations in the Global Majority World working on mis- and disinformation are to inform policy, in both the Global Majority World and at the international level.**

The **conceptual framing** of issues in research cited in our report relies on multiple definitions. Even if there is some consistency in defining concepts in policy documents, meanings differ across disciplines and in different regions/countries. There are tensions between whether the object of interest is an information ecosystem or the public sphere. 'Information integrity' is criticized as being too open to interpretations of what is good or 'polluting' information, and for neglecting the history of research on propaganda and the public sphere.

> **Building bridges between the humanities, social sciences and sciences could help to resolve inconsistencies, but it is important to recognize that variety is inevitable given diverse information ecosystems. Conceptual framings would benefit from joined-up research on the public sphere and democracy, including work on securitization and the socio-economics of online labor markets.**

There is also a tension in **research design and methods**. For example, some research aims to detect causal links between mis- and disinformation and algorithmic personalization systems. Other research aims to reveal power asymmetries that underpin commercial datafication systems. Both offer an insight into mis- and disinformation, echo chambers and political polarization. However, fewer studies examine the interdependent relationships between components of information ecosystems that sustain asymmetrical power relationships, including the monopolistic power of big tech companies.

Research on mis- and disinformation relies extensively on quantitative experimental or quasi-experimental designs or is based on surveys. Qualitative methods can help to reveal how power disparities influence choices about the design and deployment of digital technologies and the agency of individuals and groups – why, for example, people value online echo chambers, how AI systems are understood to operate, or why trust in news media and perceptions of the trustworthiness of news media organizations varies as much as it does across countries.

> **Multidimensional (holistic) research is needed on factors that enable the creation and circulation of mis- and disinformation. This research should pursue research designs and methods that provide an insight into the affordances of technology and the practices of states, companies and other actors.**

Researcher access to data is discussed as a problem throughout the literature, indicating an urgent need for safe harbors for researchers, as well as clear data disclosure policies. The importance of securing the independence of researchers and their institutions in the face of efforts to suppress research that is deemed politically sensitive, or that questions the claims of companies, is emphasized. While clearly needed in relation to research on the role of mis- and disinformation in elections, independent research is also needed in areas such as the responsible development of AI systems.

> **Monitoring the independence of researchers and their institutions, as well as the impacts of corporate and government funding, is essential.**

4 Detailed Insights and Future Directions for Research

This section highlights insights from our analysis of research on each of the core themes, and points to additional future directions for research.

4.1. NEWS MEDIA, POLITICS AND TRUST

We focused on changes in the legacy and online news media industry, and how these are associated with the structure of markets, political processes and trust in news media and political institutions (Chapter 2).

The rise of monopolistic digital platforms owned by big tech companies was shown to be threatening the viability of news production as well as influencing news consumption. The extent of news media dependence on the platforms and pressures on legacy news finances was shown to vary by country, type of organization, print/broadcast versus online organization, and by news organizations' strategies to address their audiences. The news media industry is in crisis in many countries, but the reasons and outcomes differ. In some countries news media concentration is reducing the diversity and plurality of news content; in others, financial instability is leading to news deserts. A lack of sustainable financing is putting pressure on journalists and their editorial processes, and influencing public perceptions of the trustworthiness of news organizations.

The platformization of news has led to a power asymmetry between news media organizations and digital platforms that must be addressed.

> **Measures are needed to tackle the monopolistic power of big tech companies when it leads to harm to individuals and unhealthy information ecosystems. Measures are needed specifically to require disclosure of revenue and online traffic, so that the value of news hosted by platforms can be established. Smaller news organizations need support to achieve greater bargaining power in their dealings with platforms.**

We reviewed research on who consumes the news, whether they trust it, and how news exposure influences attitudes and behaviors. News media trust was shown to depend on variables such as age, gender, education, ideology and partisanship and socio-economic status, with trust varying significantly across countries.

A total of 40% of respondents self-reported trust in news most of the time: Finland had the highest overall trust, at 69%; United States, 32%; France, 31%; Argentina, 30%; Greece, 23%; Hungary, 23%; there was little evidence that upcoming elections at the time of the survey impacted on indicators of trust.[4] However, 87% of survey respondents in 16 countries reported being worried about the impact of disinformation in upcoming elections in 2023.[5]

In both democratic and autocratic countries, interest in and knowledge about politics was shown to influence trust in news and in the trustworthiness of news media organizations. The relationship between political interest and news media trust was shown to be becoming stronger over time (in some countries). Variations in self-reports of survey respondents across countries are striking and, where trust is declining, this seems set to continue. Trust in news media and in political institutions is declining in some countries in the Global North, and in some countries in the Global Majority World it remains high. As social media use increases, news exposure also grows, and evidence shows that people access news even if they do not trust it. Evidence indicates declining overall regular engagement with news and that people often choose not to engage at all. This complicates interpretations of the implications for the public sphere.

> **Research on the effects of mis- and disinformation on media trust focuses principally on individual effects. Research is needed on the agency of online participants/audiences and their capacity to engage in critical thinking about information and news specifically.**

A total of 22% of people across 46 countries in 2023 were active participants with online news; 47% were not participating at all. 39% report avoiding news, up 3% on the previous year's average, with the biggest increases in Brazil, Finland, Germany and Spain.[6]

News avoidance is shown to be increasing, although this is uneven across countries. Together with resilience to mis- and disinformation, use or avoidance of news is shown to be influenced by similar factors that influence news media trust. Studies aiming to identify the effects of news media exposure on attitudes, and behavior generally, acknowledge that the effects they detect are likely to vary with context. Research highlights that mistrust in information may lead to more informed public debate, but that where mistrust leads to news avoidance, this isolates people from public life. Research confirms a perceived rise in exposure to 'fake' online news, and that cognitive biases can lead to overconfidence in abilities to detect mis- or disinformation.

[4] Newman, N., et al., (2024). *Digital News Report 2024*. Reuters Institute for the Study of Journalism, University of Oxford.
[5] Ipsos & UNESCO. (2023). *Survey on the impact of online disinformation and hate speech*. Ipsos and UNESCO.
[6] Newman, N., et al., (2023 and 2024). *Digital News Reports 2023 and 2024*. Reuters Institute for the Study of Journalism, University of Oxford.

Research on whether viral mis- and disinformation are principal causes of political polarization is challenging to interpret. Online echo chambers do not appear to be solely attributable to online personalization systems, and some studies emphasize that a minority of people consume mis- and disinformation. Some research finds no evidence of direct effects of mis- and disinformation on political polarization or voting behavior. Others show increases in the likelihood of believing stories that favor preferred candidates, amplification of negative emotions or perverse effects of efforts to raise awareness about mis- and disinformation if this leads to distrust in legitimate information.

> **There is a strong bias towards evidence in the Global North. Studies often rely on short time periods, typically use experimental methodologies and examine a limited number of digital platforms (partly due to difficulties in accessing platform data).**

Evidence on the effects of mis- and disinformation on attitude polarization and voting behavior leaves unanswered questions about the effects of different types of information, for example conspiracy theories or lies propagated by politicians. Although exposure to like-minded political content can be associated with political polarization, partisan online echo chambers were found in some research to be smaller than typically assumed in policy debates. Evidence also shows that filter bubbles and echo chambers can have positive effects if they provide a safe space for marginalized groups. The weaponization of information is facilitated by AI systems, including algorithmic personalization systems, and the potential for misuse is likely to increase. Personalization tools enable election campaigns to target voters and disseminate false information with the aim of manipulating attitudes and voting behavior. These systems are used to produce and curate content to favor emotionalizing content, increase online engagement or reward certain social and political groups.

Although information is wielded as a weapon by foreign and domestic actors, there is a bias towards researching far-right groups that do the bidding of foreign powers, rather than domestic actors. Comparative work is also scarce, despite the Global Majority World experience displaying evidence of weaponization of information related to internal politics. Overall, it seems that automated personalization does not provide a complete explanation for the emergence of echo chambers, and some research emphasizes that who generates mis- and disinformation and why is as important as its effects on political outcomes.

> **Research is needed on *actors* (state/private and foreign/domestic) who generate and share mis- and disinformation and their motivations. Also needed are deeper investigations of the contexts in which news is produced (liberal democratic/autocratic), media ownership and market structures, presence or absence (and investment in) of public service media and harms experienced by journalists who try to report accurate news.**

4.2. ARTIFICIAL INTELLIGENCE, INFORMATION ECOSYSTEMS AND DEMOCRACY

AI systems, including large language models (LLMs), raise issues for human rights protection and for content governance and democracy (see Chapter 3). Definitions of 'AI' are now being agreed internationally in policy contexts, but in popular discourse, AI is often referred to misleadingly. There is also a variety of definitions in the research literature. There is not an AI, but different machine learning (ML) technologies involved in processes related to information creation, retrieval, synthesis, presentation and governance. It is important to be specific about what AI tools are being discussed in research. In this report we refer to AI systems or to specific types, such as LLMs or generative AI (GenAI).

Internationally protected human rights and fundamental freedoms, including media freedom and freedom of expression, are fully applicable to the production and use of AI systems, but it is important to note that not all countries are

fulfilling their obligations. Some studies insist that AI systems are neutral or can be made neutral, but the weight of evidence is that biased outputs of AI systems are the inevitable consequence of biases in the data on which they are trained. It is clear that algorithmic fairness requires comprehensive strategies to improve data diversity, enforce transparency and ensure that regular algorithmic audits are conducted. It also requires that commitments to responsible and ethical AI use are fulfilled.

> **Research is needed to identify known biases and to scan for potential biases, and to mitigate them as far as possible by changing AI systems operation and by ensuring that a human is involved in the uses to which outputs are put. Research must focus on whether human rights commitments are being upheld in the wake of global promotion of trustworthy AI for sustainable development.**

If AI systems are to meet expectations for fairness and to be consistent with internationally recognized human rights law, research must focus on AI systems explainability and best practices for achieving accountability of automated content governance. Research reveals a lack of accountability of these systems, and weak evidence on the transparency of the training and deployment of automated content governance tools. These systems need to be evaluated using real-world data as well as field research (not only experiments) using quantitative and qualitative methods. It is also clear that no single content moderation technique will be acceptable to every online participant. In addition, safeguards are needed to prevent the platforms using these systems to intensify societal inequalities, contributing to the declining quality of information.

> **Discussion about the contribution of AI systems to the benefit or detriment of information ecosystems and the public sphere must be as inclusive as possible. The growing 'AI divide' requires thorough investigation, along with the obstacles that prevent people in the Global Majority World from participating in decisions related to developing and implementing AI systems.**

There is an urgent need to deepen understanding of how the organizational principles – norms and rules – of private information and communication systems, along with their algorithmic designs, affect society. This knowledge must be leveraged to hold those who deploy AI systems accountable for their decisions. AI systems are only one factor in societal transformation, but decisions taken in their design and operation can diminish or enhance societal resilience and cohesion. LLMs also demand vast amounts of data and energy-intensive training processes.

> **Research encompassing the whole life cycle of AI systems development, including environmentally responsible innovation, in diverse use and country contexts is urgently needed. This requires access to corporate data and the mechanisms of interlinked personalization systems that are rarely shared with researchers.**

4.3. BIG TECH POWER AND GOVERNING USES OF DATA

Research on data governance and datafication (turning offline action into online quantified data for tracking and predictive analysis) provides an insight into the strategies and practices of big tech companies and the structure of power relations in commercial markets (Chapter 4).

Two main types of monopolistic activity are of concern: the monopolization of user data (i.e., all the data produced about us), which makes money for companies by converting information seekers into 'information products' offered for sale to advertisers; and the monopolization of knowledge (i.e., data organized as usable insights), which occurs when data resources (including public data resources) are converted into private assets. Big tech companies do not limit their data collection to

the data they extract, but also develop symbiotic or parasitic relations with other less well-known companies that amass, analyze and sell data. This leads to the dependency of individuals, economic sectors and multiple spheres of public and private life that are mediated by the choices of these companies.

Data-intensive algorithmic products, marketed as 'AI', are shown to pose significant threats to information ecosystems and to democracy because data and information are structured in ways that few understand or have control over. This affects their ability to resist manipulation and to deliberate with others about the common good.

> **These forms of datafication give rise to numerous forms of digital dependency. Data infrastructures are shown to be pervasive and largely invisible, yet also determinative.**

Many factors are helping to create conditions in which the data-related features of digital infrastructures are proliferating. Digital infrastructures are being imposed because of under- or unregulated corporate activity alongside opaque government procurement processes. In the face of a GenAI 'arms race', discussion around data governance is at an all-time high. Research demonstrates how legislation and frameworks that govern uses of data foster the amplification of mis- and disinformation, and that companies are creating *de facto* data governance frameworks for data use that ignore the amplification of mis- and disinformation. The lack of robust, and robustly enforced, rules about which public and private actors can do what with respect to data is a primary reason for these negative consequences.

Data governance is being addressed in relation to the privacy, security and integrity of data, but there is strong political pressure from within civil society to think about the role of data governance as a lever for restructuring markets to protect people against human rights infringements and concentrations of power and wealth that are inconsistent with democracy. The roles of data, data-dependent digital infrastructures, data markets and companies in the data business are being questioned. This must be part of any democratic digital policy-making project.

> **This questioning must seek to preserve and promote the capacity of diverse communities to take up such questioning *outside* formal policy-making spaces. This questioning is necessary not only for democracy, but as democracy.**

Common approaches to data governance (including AI governance) focus on protecting security (individual and/or state), property and dignity/autonomy, and more robust enforcement might improve outcomes for individuals and communities. However, these frameworks are shown in the critical literature to be failing to provide a basis for contesting datafication itself. Existing data governance frameworks devised by national regulators, multilateral bodies, companies and multistakeholder organizations are not sufficient to protect most kinds of data from being acquired by large companies to generate revenues and amass political and economic power. Research also shows that individual and collective dependencies and inequities resulting from datafication are experienced differently around the world.

> **Research must go beyond analysis of the impacts of datafication and AI systems on individuals. A broader range of impacts of datafication in people's lives needs to be documented if meaningful political deliberation about fundamental human rights is to be possible. Developing new data governance frameworks must be a collective effort, involving governments, big tech companies, civil society and political actors.**

4.4. MIS- AND DISINFORMATION AWARENESS AND LITERACY CHALLENGES

Chapter 5 examined evidence on the actual scale of mis- and disinformation and public awareness of risks and the severity of its harms, as well as media and information literacy (MIL) and AI literacy initiatives aimed at enabling adults and children to keep themselves safe online.

It is impossible to provide a single or even very meaningful quantitative measure of the scale of mis- and disinformation because of difficulties in collecting and analyzing data that reflects people's online experiences. Evidence on the scale and severity of harms associated with mis- and disinformation comes mostly from surveys and experimental research. Large-scale studies are limited to a few platforms and largely centered on the United States. Privacy protection, ethical issues and big tech company restrictions on access to data create measurement challenges. The data access situation is changing, but the problems are greater for researchers in the Global Majority World than for those in Global North where there are moves to secure better data access for research.

> **Investment in public data infrastructures for research is essential to enable research that can guide policy and offer insights into the best measures to combat mis- and disinformation.**

'The sheer vastness and diversity of online experiences makes meaningful measurement a challenge requiring investment and innovation. The scale and variety of online platforms, and algorithmic personalisation of content, means that there is essentially an infinite number of possible user journeys, making it hard to arrive at both meaningful summary insights as well as fine-grained assessments of particular issues'.[7]

Our analysis confirms a substantial variability in the public's and policy makers' understanding of the threats and impacts of mis- and disinformation, and the role of algorithms and digital platforms in rights protection and democracy. The public's awareness of mis- and disinformation in their daily lives varies, and research confirms that awareness is not the same as an ability to spot inaccurate information. People who are active online may or may not believe they have agency or control over what they do online, and their beliefs may or may not be justified in practice.

Research also indicates that public awareness of the presence of AI systems in their lives and whether they should trust it to make decisions varies across countries. There is too little systematic research on public awareness of differences in people's abilities to avoid mis- and disinformation. Research focusing on differences in this area does not focus enough on connectivity issues, finance, social networks in the offline world or the wider political environment, although there is research on individual characteristics.

A total of 66% of people surveyed thought AI would dramatically affect their lives in the next 3-5 years; 67% reported a good understanding of what AI is.[8]

The promotion of **media and information literacy (MIL) and AI literacy** aims to enable people to protect themselves from online harms linked to online mis- and disinformation. Evidence indicates that literacy training is commanding greater attention now that it is being coupled with AI literacy. MIL and AI literacy appear to be effective means of tackling risks and harms when training is audience- or user-centered. The evidence shows that adults and children with critical literacy skills are likely to be better able to differentiate between legitimate and other sources of information, although sophisticated tools for creating 'deep fakes' are making this harder.

[7] Faculty. (2021, p. 2). *Automated approaches to measuring online experiences: Executive Summary*. Faculty plc Report for Ofcom.
[8] HAI. (2024). AI Index Report 2024 – *Artificial Intelligence Index*. Stanford University Human Centered Artificial Intelligence, based on a 2023 Ipsos survey.

It is also clear that AI literacy training for policy makers and digital service designers must include knowledge about the fundamental AI principles of how these systems operate at all stages of AI systems development and deployment. Although some evaluations of literacy training show improvements in how people engage with online information, the duration of effects is unclear, and funding and capabilities for training are not consistently available across countries. Standardized MIL and AI literacy conceptual frameworks and methodologies are needed to advance the evaluation of literacy initiatives. These may benefit from government, private sector or civil society partnerships to promote training.

> **Research is needed on the efficacy of literacy initiatives for children and adults to assess whether they are better able to discern the accuracy of information over time and to keep themselves safe from harm after training. It is also clear that these initiatives must be complemented by measures that address societal interests in healthy information ecosystems, the value of the public sphere and the usefulness of governance measures.**

4.5. GOVERNING INFORMATION ECOSYSTEMS

Research on legislative and regulatory measures (Chapter 6) and on strategies and practices intended to combat mis- and disinformation (Chapter 7) was examined.

Between 2016 and 2022, 91 laws were enacted or amended to deal with misleading information; from 2011 to 2022, a total of 105 new laws or reinforcement of older laws were put in place to combat mis- or disinformation. In the case of AI policy specifically, since 2016 an estimated 800 AI policy initiatives have aimed to tailor AI governance to country conditions in a way that respects human rights and results in transparency and accountability.[9]

Approaches to governing information ecosystems include corporate self-regulation, state–industry co-regulation and direct state intervention. Research shows that countries are at different stages of implementing legislation and enforcing regulations, and that evidence of their effectiveness is uneven. This applies to rules and norms for corporate data extraction practices, data storage and privacy protection, as well as regulation of digital platforms, AI systems and news media.

> **Legislation and regulation clearly do not translate automatically into effective enforcement of measures for preventing or mitigating mis- and disinformation harms.**

Measures specifically aimed at countering mis- and disinformation are shown to rely on AI-based tools and methodologies, but these are not yet adequate for meeting the challenges of the scale and variety in online platform and user experience. It is apparent that the capabilities of AI systems to tackle mis- and disinformation lag behind AI system capabilities to create these kinds of content. Technical solutions to detect mis- and disinformation are not widely tested beyond laboratory experiments.

> **The need for investment in real-world testing of the effectiveness of measures to counter mis- and disinformation is urgent.**

Comparative studies indicate that the effects of mis- and disinformation countermeasures depend on the type of intervention and information. Research also documents that some measures are used to silence legitimate criticism of the state. Democracies with higher levels of press freedom tend to take a

[9] Lim, G., & Bradshaw, S. (2023). *Chilling Legislation: Tracking the Impact of "Fake News" Laws on Press Freedom Internationally*. Center for International Media Assistance and Roberts, T., & Bosch, T. (Eds.). (2023). *Digital Citizenship in Africa: Technologies of Agency and Repression*. Zed Books.

holistic approach that focuses on the integrity of the election process, news media diversity and education. Authoritarian regimes, by contrast, are shown to prefer vague responses, allowing them to repress criticism. AI systems and automated tools for combating mis- and disinformation in many instances, either lack regulation or are being used in ways that violate human rights, since big tech companies have the power to decide whether to suppress or amplify information.

> **Combating mis- and disinformation, including fact-checking methods, needs to be anchored in human rights principles and the rule of law. Requiring 'meaningful transparency' and 'interoperable transparency' are potential ways to achieve this.**

A robust public sphere depends on media freedom, but few countries are achieving 'good' press freedom status.

> Only 4.4% of countries (eight countries) in the World Press Freedom Index 2023 were ranked as a 'good' environment for journalism, down from 14.4% in 2013. Since 1993, 1,701 journalists have been killed, with 50% of these deaths occurring outside conflict zones.[10]

Evidence shows that combating mis- and disinformation by regulating the news media can backfire if used as a pretext to consolidate state power and control over information flows. Treating news media as a 'public good' can help to maintain news media independence, but research needs to focus on structural inequalities, political alignments and social transformation.

> **Much more detailed research is needed on the roles of AI systems and news media regulation in encouraging big tech companies, states and other actors to produce and circulate mis- and disinformation.**

Little is known about the public's view of interventions to moderate online mis- and disinformation. There is a slight preference in some studies for individual control over content as compared to platform content moderation or state regulation, but this evidence comes mostly from the United States. Acceptance of strategies to combat mis- and disinformation varies by country, socio-political context, culture and histories of experience with autocratic governments and colonialization.

> **This area deserves investigation since public acceptance of different methods of moderating mis- and disinformation is likely to influence both their online practices and their trust in news and public institutions.**

4.6. TOWARDS DATA JUSTICE IN INFORMATION ECOSYSTEMS

Corporate incentives, strategies and practices involved in controlling data within information ecosystems can lead to epistemic injustice – the privileging of corporate views about how data extractions and monetization should operate, and justifications for the exercise of their monopolistic power (Chapter 8).

The monopolistic power of big tech companies is shown to create harmful discrimination and exclusions in data economies that thrive on data extraction and monetization. The privileging of corporate perspectives can be resisted when an effort is made to reimagine what data justice could be, and to empower individuals and communities to devise proportionate and sustainable uses of data that avoid known biases of business models and of AI systems. The need to design information ecosystems to enable people to express their ideas and identities without experiencing harm is crucial. Research in this area shows that modifying algorithms cannot be expected to address underlying causes of social discord and distrust in society.

[10] RSF. (2024). 2024 *World Press Freedom Index – journalism threatened by fake content industry*. Reporters Without Borders and UNESCO. (2024, August 14). Statistics on Killed Journalists. UNESCO.

Research is needed on population-level, data-related injustices to reveal how the burdens of datafication are borne disproportionately by certain groups, and how big tech business models lead to biases and exclusions that marginalize populations.

A rights-respecting information ecosystem depends on the capacity for thinking critically about how to govern data, and on recognizing the agency of individuals and groups to resist the power of big tech companies. Data justice initiatives aim to build alternatives to 'algorithmic injustice'. These enable communities to contest the design of technology systems and the mechanisms for controlling data. Initiatives include digital self-defense tactics, public interest alternative news media, and experiments with community collaborative strategies and municipal efforts to resist 'smart city' developments with discriminatory outcomes. They also include the development of community-controlled technologies, proposals for national decentralized data governance frameworks, and work by civil society organizations, researchers and philanthropic organizations aimed at protecting people's rights.

These initiatives need to be evaluated as there is little systematic research on the efforts underway internationally. A better understanding of these practices is essential to monitor their resource requirements, scalability and capacity to contribute to individuals' and communities' sovereignty over the data they provide. Improved insight would help to enable knowledge from diverse sources to inform the future development of information ecosystems, contributing to a paradigm shift that positions the Global Majority World as an equal stakeholder in dialogue about the governance of information ecosystems.

Decolonizing research on data governance and the other issues addressed in this report is essential for Global Majority World experience to inform policy and practice, both within the Global Majority world as well as the Global North.

5 Limitations of this Report

This assessment of research is limited in several important ways (see Chapter 1, Section 5). Our critical review of research was not designed to make specific recommendations to policy makers. An analysis of studies of material socio-economic inequalities in people's lives is discussed only to the extent that socio-economic conditions are mentioned in research that is cited on other issues; these conditions were not a primary theme. Our principal focus was on the upper service applications layer of information ecosystems, although our discussion of network neutrality issues and zero-rating contracts does touch on issues at the lower infrastructure layer.

We have emphasized the imbalance in Global North and Global Majority World research, and how this favors viewpoints and conclusions of Global North experience throughout this report. Several additional salient fields of research were outside the focus of our work: 'digital divides', cybersecurity, securitization, geopolitics and 'digital sovereignty', the economic geography of digital labor markets and the (micro)economics of digital markets.

The focus in this report is mainly on country-level experiences and institutions, not on micro-level or sectoral experience. We have not included technology 'use cases' or technology application case studies. Finally, our analysis is inevitably limited insofar as all research is guided by the research questions that are posed by research communities, available funding and researchers' access to data.

6 A Final Word on What Should Be Done

A high concentration of research and research funding in the Global North was confirmed by our critical analysis of state-of-the-art research. This does not help to counter the view that the future of information ecosystems and democracy is one where the Global Majority World emulates best practice in the Global North. Questioning this view is essential, and as above we emphasize the need for work to decolonize research in all fields that inform policy, strategy and practice.

Our analysis has highlighted a major tension. Some research welcomes rapid changes in digital technologies (including AI systems), expecting that harms will, in time, be mitigated. Other research acknowledges the many benefits of new technologies, but emphasizes that their design and use is a result of unequal power relationships that need to be addressed. In this context, the dominant logics of big tech business models, and rules and norms governing information ecosystems, are seen in some of the literature as perpetuating inequalities and injustice. This tension helps to explain why some research emphasizes concepts and responses aimed at risk mitigation as new technologies, such as GenAI, come on the market, while other research emphasizes broader responses to unequal distributions of power, the monopolization of data markets and evidence that this leads to a privileging of economic value over human rights protection.

> **This report calls attention to the strengths and weaknesses of both research traditions. We emphasize that achieving the *Global Digital Compact's* goal to address technology-facilitated violence, hate speech and mis- and disinformation requires research on the impacts on individuals and on the broader implications of digital technologies, data monetization and monopolistic market structures for democracy.**

The 'so what' question was put to us many times during this project – so what can be done now?

Key areas for future research are identified in Sections 3 and 4 above.

This report is based mainly on academic research, but it also benefits from research conducted by other organizations. In particular, research is frequently undertaken or commissioned by **civil society organizations**. These organizations include research think tanks, fact-checking organizations and other non-governmental independent non-profit organizations (in this report, we cite 118 of these organizations – 27% Global Majority, 26% Global coverage).

These organizations are playing a vital role – working with academic researchers – in calling attention to big tech exploitative business practices and proposing remedies such as devising data governance practices for data justice. They are building alternative data governance frameworks aligned with human rights commitments. Their work on local, community and municipal data governance frameworks, and on proposals to introduce decentralized data governance at the national level, is essential to the future health of information ecosystems and to whether democracy flourishes in the future. In addition, civil society organizations are working on monitoring and/or countering the manipulation of information and on media literacy programs.

These activities need improved support in all regions of the world.

Our analysis also points clearly to actions that should inform government policy and private sector practice. We do not make specific recommendations, but offer guidance to public sector and corporate actors (see Chapter 9, Section 6, for an extended list).

Policy makers must take steps to tackle power asymmetries, independently monitor human rights infringements, combat mis- and disinformation, strengthen the transparency and accountability of big tech company strategies and practices, ensure that media and information literacy (MIL) and AI literacy initiatives are supported and influence research priorities.

Big tech companies must take action to ensure that the public commitments they make to promote safe and democratic online spaces are delivered. This includes changing business strategies to reduce or eliminate the harms associated with data monetization and ensure their practices are aligned with international human rights commitments. Other actions include increasing transparency, and engaging in meaningful consultation with service and technology users and ensuring that content moderation processes are well resourced and accountable.

About the International Observatory on Information and Democracy

The International Observatory on Information and Democracy is a core project of the Forum on Information and Democracy, the implementing civil society-led body of the intergovernmental partnership of the same name, gathering representatives of 53 democratic states.

Following a prefiguration process co-chaired by Ángel Gurría, former Secretary-General of the OECD, and Shoshana Zuboff, author of *The Age of Surveillance Capitalism*, it officially launched its first research cycle in October 2023.

The Observatory aims to provide a common and shared understanding of information ecosystems and their impact on democracy by aggregating and synthesizing existing research and available data through a robust and inclusive critical review process. In the form of biennial reports, it provides civil society leaders, researchers, academics and, importantly, policy makers, with a periodic global assessment of the information and communication space and its impact on democracy.

By acting as a global research-to-policy interface in the field of information and democracy, the Observatory strives to become the equivalent of the IPCC (Intergovernmental Panel on Climate Change) for the communication space, and to foster a more evidence-based roadmap towards both governmental and corporate accountability, ultimately to emulate appropriate civic action in the field of safeguarding democracy.

Its work aims to inform the international community's efforts to foster the adoption of effective and proportionate regulatory and non-regulatory measures for the protection of human rights – including the right to reliable information – and democracy in the digital space.

The Observatory's first global assessment was carried out under the aegis of a 19-member Steering Committee of prominent leaders in policy, research and academia representing diverse geographies and disciplines, co-chaired by Courtney C. Radsch and Gustavo Cardoso. Robin Mansell, Professor Emeritus at the London School of Economics and Political Science, is the Scientific Director, and this report was co-developed by a team of six rapporteurs from different backgrounds and regions, and based on contributions from over 60 regular participants to thematic Research Assessment Panels (RAPs).

The report also benefits from input from the Observatory's Stakeholder Advisory Group, comprised of representatives of states and regulatory bodies, research and advocacy organizations and private tech companies, and from the work of a large number of contributors (see the Acknowledgments and Appendix: Methodology for details).

This robust and inclusive governance framework collectively contributed to establish the themes and questions addressed in this report, and the Steering Committee in particular acted as a sounding board to shape the content and presentation of its findings.