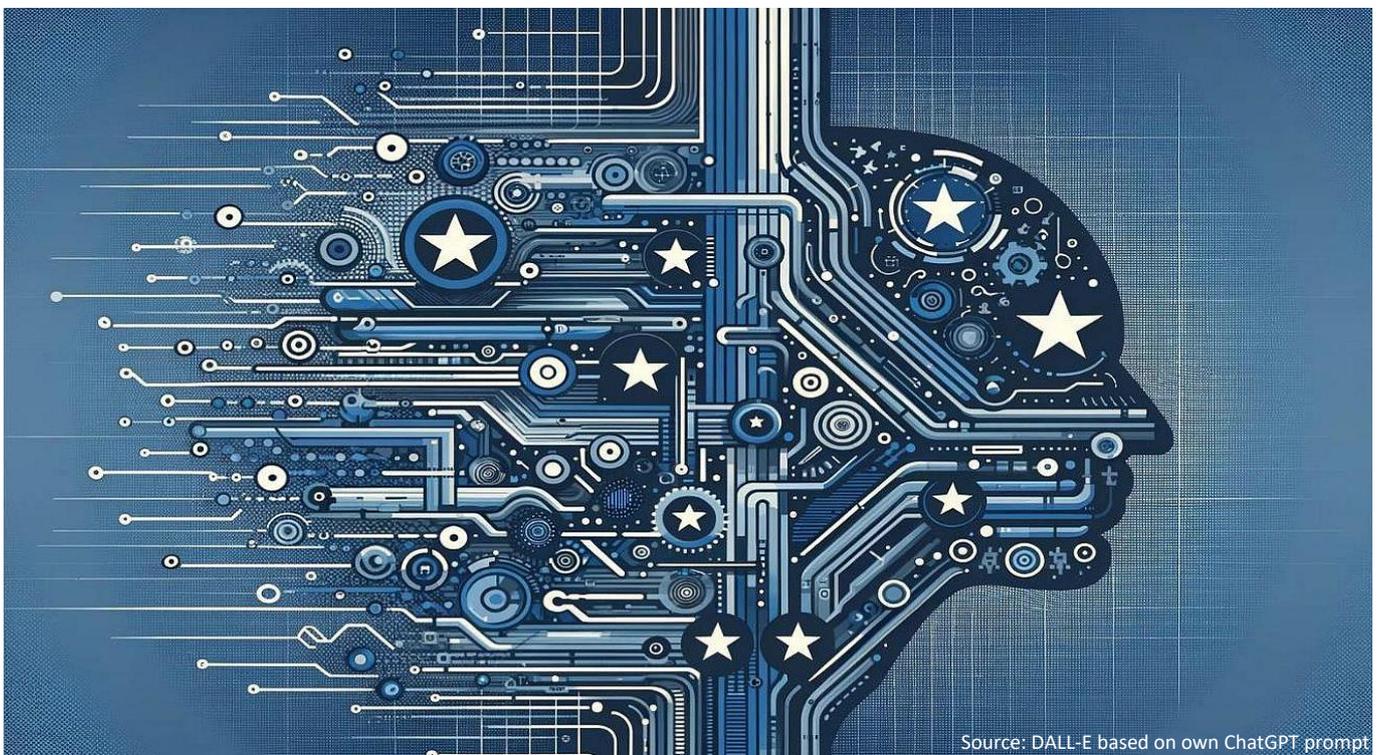


### Anticipating AI Instead of Preventing It

#### Six Innovation Pathways for Agile EU Digital Governance 2024-29

Anselm Küsters



**How can the European Union adapt to the exponential development of Artificial Intelligence? The next Commission’s mandate should not only be about how to regulate or subsidise AI in Europe, but also about preparing the European institutions for an environment in which the pace of change and uncertainty will continue to increase. To remain globally competitive, EU governance must reflect the characteristics of digital technology itself: efficient, networked, cooperative, transparent, decentralised, and iterative.**

- ▶ The EU should move from AI scepticism to embracing its potential by integrating it into public services, which would improve efficiency and decision-making. Investment in AI research and open data, supported by open-source requirements in EU public procurement, is essential to enhance digital sovereignty and cybersecurity.
- ▶ The governance model needs to shift from top-down to networked, facilitating collaboration across departments and national borders through digital platforms and citizen engagement. This makes legislation more relevant and democratic and fosters collaboration through design thinking and generative AI technologies.
- ▶ Finally, the EU must move from detailed, static regulation to an iterative, technology-driven implementation process through, partly automated, Policy Product Trial programmes. Supporting decentralised digital infrastructure and technologies such as 3D printing, blockchain, and 5G connectivity will enable a diverse, resilient digital economy, while prioritising algorithmic transparency will strengthen public trust and accountability.

## Preamble

*Europe is facing a time of historical upheaval, a time of internal and external threats to peace and freedom, with great opportunities as well as risks from new technologies, and a time beset by the consequences of climate change and its impact on prosperity and justice. Today's Europe is the result of its eventful history, its experiences and the lessons it has learned from its scientific and cultural achievements, from its civilisational accomplishments, as well as from war, suffering and crisis. The legacy of the past has also given us a promise for the future: human dignity and freedom are inviolable. Today - in the face of major upheavals that will decide the fate and future of Europe - the question once again arises as to what solutions Europe can find to the troubles of the present and the challenges of the future. Can it preserve peace and freedom, defend its sovereignty and security, and increase prosperity and justice?*

*With this series of articles, the cep Network would like to draw attention to pressing issues and developments which go beyond day-to-day politics and regulation and will be of crucial importance for the EU in the run-up to a significant and game-changing European election. We aim to ask the key questions, shed light on their strategic context and provide some political answers.*

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## 1 Challenge: Digital transformation as a megatrend for Europe

**How can the European Union adapt to the exponential development of Artificial Intelligence and the global technology race? The next Commission's mandate should not only be about how to regulate or subsidise AI in Europe, but also about preparing the European institutions for an environment in which the pace of change and uncertainty will continue to increase. Conceptually, this means anticipating technological change rather than preventing it. To avoid becoming bogged down in bureaucracy and to remain globally competitive, European governance must reflect the characteristics of digital technology itself: efficient, networked, cooperative, transparent, decentralised, and iterative.**

The limitless potential of Artificial Intelligence (AI) has recently captured the imagination. Sociologists predict an increasingly close interplay between algorithmic mechanisms, social frameworks, and individual identities.<sup>1</sup> At a time when the underlying technological progress in large language models is advancing at an exponential rate and promises to fundamentally change the economy, social life, and our understanding of reality,<sup>2</sup> the European Union (EU) must set the course for the future of its digital agenda. For all the justified dramatisation of the unfolding “polycrisis”, in which the rise of AI is embedded in a larger set of societal crises, it is often forgotten that such a turning point also offers a great opportunity – **an opportunity to overcome outdated institutional structures or economic policy paradigms and create more sustainable and decentralised growth.** In essence, AI should be seen not just as a tool, but as a central pillar of a comprehensive internal strategy that will enable the EU to protect its citizens, make its economy more resilient, and play a leading role in a geopolitically changing world.<sup>3</sup>

However, **the EU faces strong obstacles in realising this ambitious vision in its Digital Agenda.** First, there is a serious lack of domestic capabilities, which limits the Europe's ability to compete on the global playing field of AI development. Despite a growing awareness of the need to keep pace with an increasingly complex world of tech-geopolitics and the global AI race,<sup>4</sup> key resources are lacking: there is not sufficient in-house expertise in the Commission and the new agencies such as the AI Office; the number of significant AI models, AI patents, and AI publications in Europe lags behind other regions;<sup>5</sup> there are critical vulnerabilities in connecting to deep-sea data cables or foreign-owned 5G infrastructure; and there is a lack of essential inputs such as rare earths, domestic servers, and free-flowing data, hampered by legal uncertainty. As has become clear over the past years, these shortcomings prevent the EU from maintaining its digital sovereignty and playing a leading role in the development of AI.

Second, the EU faces the challenge that current digital technologies on the Internet favour a centralised power structure that mainly benefits a few large companies, mainly from the US and China. In the age of informational capitalism, super-dominant, algorithm-driven platforms can lawfully extract massive amounts of data and impose new modalities of behavioural control.<sup>6</sup> This is in stark contrast to

<sup>1</sup> Jenna Burrell and Marion Fourcade, 'The Society of Algorithms' (2021) Annual Review of Sociology.

<sup>2</sup> In general, see: [\[2305.07961\] Leveraging Large Language Models in Conversational Recommender Systems \(arxiv.org\)](https://arxiv.org/abs/2305.07961). On the impact of this trend, see: [The Era of Abstraction & New Creative Tensions \(implications.com\)](https://www.implications.com/).

<sup>3</sup> In what follows, AI is typically used as a popular shorthand for any form of machine learning process in which a computer system's statistical model is automatically trained so that it can identify patterns in large data sets and infer information.

<sup>4</sup> Lazard (2023), [The Geopolitics of Artificial Intelligence](https://www.lazard.com/press-releases/the-geopolitics-of-artificial-intelligence/).

<sup>5</sup> [Gutachten zu Forschung, Innovation und Technologischer Leistungsfähigkeit Deutschlands 2024 \(e-fi.de\)](https://www.e-fi.de/Gutachten-zu-Forschung-Innovation-und-Technologischer-Leistungsfahigkeit-Deutschlands-2024), pp. 116ff. In 2023, 61 notable AI models originated from the US, far outpacing the EU's 21. See: AI Index Steering Committee (2024), “The AI Index 2024 Annual Report,” Stanford University, [HAI AI-Index-Report-2024.pdf \(stanford.edu\)](https://stanford.edu/HAI-AI-Index-Report-2024.pdf).

<sup>6</sup> See: Zuboff (2019), *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, New York; Cohen (2019), *Between Truth and Power: The Legal Constructions of Informational Capitalism*, New York.

Tim Berners-Lee's earlier vision of a decentralised internet and the EU's liberal values and interests. Instead of a democratisation of information and digital tools that enables the economic participation of a large number of small and medium-sized enterprises as well as citizens, we now face a handful of digital giants that seamlessly transfer their market power from platform to platform, from market to market. These companies, which have already monopolised areas such as social media and search engines, are now increasingly focusing on generative AI and language models, which will further widen the digital divide.<sup>7</sup> In fact, this extreme concentration of economic power and control has "caused or aggravated nearly every crisis Europe now faces".<sup>8</sup> Although the EU has launched numerous regulatory initiatives and reforms in recent years, such as the Digital Market Act and the AI Act, there is an acute risk that Big Tech will only follow the letter but not the spirit of these laws. Examples already abound: Several gatekeepers appear to be planning to ignore the DMA and consumer rights by using "dark patterns",<sup>9</sup> while Mistral AI's deal with Microsoft shortly after the AI Act was passed made a mockery of the idea of European tech sovereignty, suggesting that the law may have been misguided.<sup>10</sup>

Third, there is a significant legitimacy gap in the way technology regulation is negotiated, although the latter is changing societal processes and firmly-held beliefs and norms. As the UN advisory body on AI recently noted, digital technologies "are impacting the 'software' of societies challenging governance writ large".<sup>11</sup> Although these technologies are increasingly shaping how citizens access information and perceive reality, the general public lacks "digital and AI literacy"<sup>12</sup> as well as a voice in negotiating how to embed digital technology. So far, the negotiation of rules and standards takes place in expert circles, leading to the alienation of the public, which is a particular threat for a supranational regime. Citizens' panels – such as those organised in the context of the European metaverse strategy – and other forms of participation degenerate into a farce if they are conducted without real opportunities to participate and influence the decision-making process. This gap between technological elites and the general public not only undermines trust in digital policy-making, but also threatens the democratic legitimacy of the EU and the acceptance of necessary regulation in a fragile age. As the pace of AI continues to accelerate, there is the potential for significant, structural change in the way Europeans live, work, and interact – accordingly, European societies should have a say in how this happens.

These three key hurdles – the lack of AI resources, the dominance of a few external companies, and the legitimacy and knowledge gaps in the design of technological rules – pose major challenges for the EU if it is to successfully reshape its digital policy agenda in the coming years. How can these challenges be addressed in policy terms to create a more resilient, prosperous, and inclusive digital Europe?

## 2 Problem: What is the key conceptual issue facing the EU?

According to the American sociobiologist Edward Wilson, "the real problem facing humanity today is that we have Palaeolithic emotions, medieval institutions and god-like technology".<sup>13</sup> Even if the EU – at least historically speaking – cannot necessarily be described as a "medieval institution", it is now at

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<sup>7</sup> [Are EU regulators ready for concentration in the AI market? - Euractiv](#); [EU does not need to wait for the AI Act - Euractiv](#).

<sup>8</sup> [Rebalancing Europe: A new economic agenda for tackling monopoly power](#), p. 2.

<sup>9</sup> [Is big tech trying to thwart new Digital Markets Act rules? \(beuc.eu\)](#).

<sup>10</sup> [Microsoft-Mistral partnership and the EU AI Act \(kaizenner.eu\)](#).

<sup>11</sup> UN AI Advisory Body, Interim Report: Governing AI for Humanity, December 2023, [ai\\_advisory\\_body\\_interim\\_report.pdf \(un.org\)](#), p. 12.

<sup>12</sup> Küsters (2023), ChatGPT erfordert mehr digitale Mündigkeit (cepAdhoc), [cep - Centrum für europäische Politik](#).

<sup>13</sup> [What Is Human Nature? Paleolithic Emotions, Medieval Institutions, God-Like Technology - Big Think](#).

a turning point in its internal history due to the rapid development of AI and the global technology race. The clash between autonomous, self-learning, and fast-spreading digital technologies and a rigid institutional apparatus poses an organisational problem that needs to be solved anew: As the context changes, the regulatory framework (*Ordnungsrahmen*) needs to be redefined.<sup>14</sup>

**The original conception of the EU, characterised by a top-down approach, managerial planning fantasies, and the academic theory of institutionalism, is no longer viable in a world of hyper-connectivity and exponential technological progress.** As the legal scholar Julie Cohen notes, the difficulty is that “the information-era problems now requiring institutional solutions are profoundly unfamiliar to institutional actors whose established modes of both action and self-legitimation are backward-looking”.<sup>15</sup> Indeed, the static structures that once held Europe together as a peace project between large nation states and their powerful coal and steel cartels, overseen by extensive bureaucracies and politicians of strong character, are now reaching their limits. This is particularly evident in the EU’s digital policy, which is too often based on a simple input-output logic: Providing key hardware through subsidies (e.g. the EU’s own semiconductor production financed through the EU Chips Act), developing AI expertise and retraining the workforce (e.g. the announced “AI factories” and the education initiatives of the metaverse strategy), and formulating new rules in international fora (e.g. the efforts for international AI standards, e.g. in the G7 and G20).

Given the challenges described above, this approach is no longer sufficient to achieve technological sovereignty and social stability. There is a **lack of critical “soft inputs” that are difficult to quantify or impose from above and that take time to develop.** These include society-wide digital literacy, a change in risk culture, greater citizen participation, a digital literate mindset, and more agile governance structures. The challenge for future EU digital policy in 2024-29 is therefore not only to regulate AI or attract it through subsidies, but also to prepare European governance institutions for a rapidly changing environment increasingly characterised by epistemic uncertainty and political fragility.<sup>16</sup> In particular, the spread of algorithmic capabilities and autonomous, self-learning agents necessitate new governance modalities and new institutional arrangements capable of deploying them effectively.<sup>17</sup>

As it becomes increasingly difficult to predict the future in the short term in the age of AI, the EU must quickly move beyond rigid input-output thinking and ten-year plans based on it, such as the “Digital Decade 2030”. Ultimately, any top-down planning approach for an autonomous EU digital policy will fail because it will not be possible to reduce quickly enough all strategic dependencies on technological expertise, digital and physical resources (such as training data and rare metals), data-carrying submarine cables, and other elements of AI leadership. The rapid adoption of AI technologies will also lead to unforeseen problems and unpredictable spill-over effects, which can suddenly derail any long-term planning. The emergence of hybrid warfare and low-cost drones has revolutionised previous strategic thinking in the military domain, while increasingly complex cyber-attacks pose entirely new challenges to European businesses and infrastructure. As a result, a forward-looking reorganisation of the EU’s digital governance is required. **In contrast to the idea of *prevention*, which has pushed the risk-averse**

<sup>14</sup> Walter Eucken (1952), *Grundsätze der Wirtschaftspolitik*, Freiburg: Mohr Siebeck (7th edition, 2004).

<sup>15</sup> Julie E Cohen, ‘Internet Utopianism and the Practical Inevitability of Law’ (2019) *Duke Law & Technology Review*, p. 12.

<sup>16</sup> This is also the preliminary conclusion of the UN advisory body on AI: “AI governance must therefore reflect qualities of the technology itself and its rapidly evolving uses [...], for the benefit of all humanity”, in: UN AI Advisory Body, Interim Report: Governing AI for Humanity, December 2023, [ai advisory body interim report.pdf \(un.org\)](#), p. 4.

<sup>17</sup> Julie E Cohen, ‘Internet Utopianism and the Practical Inevitability of Law’ (2019) *Duke Law & Technology Review*, p. 12.

Commission towards costly “resilience measures”, the concept of *anticipation* recognises that while crises cannot be prevented, they can be even seen as an opportunity through timely preparation.

### 3 Solutions: Six priorities for the next Commission

To make the necessary shift from passivity to activity, **the next EU Commission should adapt its policy processes and governance structures to the characteristics of digital technology itself.** These are **efficient, networked, collaborative, transparent, decentralised, and flexible.** Accordingly, six institutional paradigm shifts should be promoted at the European level: from AI scepticism to AI application; from formal to networked governance; from rivalry to cooperation; from secrecy to open data and algorithmic transparency; from specialisation to decentralisation; and from detailed regulation to iterative, technology-driven implementation. These six pillars of a reformed EU digital policy for the next Commission’s strategic agenda (2024-29) are outlined below.

#### 3.1 From AI scepticism to AI application

Given the foreseeable immense role of AI in shaping future economic and social models in Europe, it is imperative that the Commission reconsiders its sceptical and over-cautious attitude towards new technologies and takes a more active role in promoting and implementing open AI solutions. Throughout the world, algorithmic decision-making systems are already being deployed for numerous reasons, including fraud detection, healthcare, child welfare, social services, and policing.<sup>18</sup> In the EU, **AI applications could greatly improve the efficiency and effectiveness of the management and delivery of public services, for example by automating simple routine tasks, improving forecasting and data-driven decisions, or supporting user-centric services.**<sup>19</sup> They could also provide a systematic means of identifying areas of legislation that need to be updated to keep pace with technology.<sup>20</sup> Such use cases are particularly important in the context of a supranational institution that needs to harmonise the different preferences, IT systems, and languages of diverse member states. For example, a recent analysis of the potential of AI for interoperability in the European public sector showed that AI is able to standardise, cleanse, structure, and make better use of large amounts of data.<sup>21</sup>

Although the Commission has already explicitly proposed in 2021 to transform the public sector into an “enabler”<sup>22</sup> for the use of AI, **the uptake of AI in Europe remains uneven, with numerous barriers standing in the way of greater AI adoption.**<sup>23</sup> Especially officials and public authorities are still reluctant to embrace generative AI, with less than a quarter planning to use ChatGPT and other such services by 2027.<sup>24</sup> While there is increasing academic interest in practices of data-driven innovation in

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<sup>18</sup> For a comprehensive case study on the UK, see: Lina Dencik, Arne Hintz, Joanna Redden, and Harry Warne, 'Data Scores as Governance: Investigating Uses of Citizen Scoring' (2018) Data Justice Lab.

<sup>19</sup> Manzoni, M., Medaglia, R., Tangi, L., Van Noordt, C., Vaccari, L. and Gattwinkel, D. (2022), [JRC Publications Repository - AI Watch Road to the adoption of Artificial Intelligence by the Public Sector: A Handbook for Policymakers, Public Administrations and Relevant Stakeholders \(europa.eu\)](#), p. 14f.

<sup>20</sup> See: Moses (2011), 'Agents of change: how the law “copes” with technological change', Griffith Law Review, p. 788.

<sup>21</sup> Tangi, L., Combetto, M., Martin Bosch, J. and Rodriguez Müller, P. (2023), [JRC Publications Repository - Artificial Intelligence for Interoperability in the European Public Sector \(europa.eu\)](#).

<sup>22</sup> [Coordinated Plan on Artificial Intelligence 2021 Review](#), COM(2021) 205 final, p. 56.

<sup>23</sup> Tangi, L., Van Noordt, C., Combetto, M., Gattwinkel, D. and Pignatelli, F. (2022), [JRC Publications Repository - AI Watch. European landscape on the use of Artificial Intelligence by the Public Sector \(europa.eu\)](#).

<sup>24</sup> [Behörden zögern noch beim Einsatz von Generativer KI - IT-Business - derStandard.de > Web.](#)

the European public sector, including by the European Commission Joint Research Centre,<sup>25</sup> the EU already lags behind other leading regions. For example, the US Congress has been particularly astute in its response to generative AI, driving AI research across all relevant government departments – including the establishment of an AI advisory committee and the testing of machine learning capabilities to support access to information.<sup>26</sup> There is also an intense debate in the US about whether language models and AI agents should be used in foreign and security policy decisions, for example in scenario planning.<sup>27</sup> Similarly, the UK is spending £110 million to bring AI R&D in-house and build tools to help with bureaucratic tasks, including tools to analyse and summarise public comments on policy papers, a “civil service AI assistant” and a chatbot for the official national website.<sup>28</sup> The pandemic underscored the potential of efficient digital systems, as demonstrated by the processing of nearly one million claims by the UK Department for Work and Pensions through an automated credit system.<sup>29</sup>

The EU’s cautious approach to AI is problematic, as the integration of this promising technology into different areas of society requires not only strong industry efforts, but also strong government support. Public investment and strategic policies are needed to foster collaboration between innovators, the private sector, and public authorities to realise the full potential of AI. Current AI policy discussions at EU level focus too much on risk mitigation and neglect proactive steps for positive uses of AI in areas such as health, education, and transport. An important example is the debate on the release of generative AI models. Here, the EU should push for open basic models where possible, as they help to distribute decision-making power, reduce market concentration, increase innovation, accelerate science, and enable transparency.<sup>30</sup> By not only financially supporting but also actively promoting the development of AI, the Commission can not only strengthen Europe’s competitiveness and technological sovereignty, but also help anchor European values in the design of AI applications worldwide.

**Open source, in particular, can make a significant contribution to digital sovereignty** by reducing costs for firms, increasing development speed, driving de facto standardisation through the widespread use of common components and interfaces, and lowering the risk for cyber breaches.<sup>31</sup> However, apart from geo-information systems and IT infrastructure, open source software has been used rather cautiously in European municipalities.<sup>32</sup> Many companies and administrations are not yet prepared to share results from software development. EU digital policy can counteract this, as public procurement is an essential element of the EU single market.<sup>33</sup> In particular, common service catalogues for public tenders, the clarification of legal and technical issues, and the widespread adoption of interoperable software components<sup>34</sup> could provide a quick remedy. It would also be helpful to promote innovation indicators to assess companies and to create tax incentives at Member State level for the

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<sup>25</sup> For a good overview, see this recent special collection of articles: [Practices of Data-Driven Innovation \(cambridge.org\)](#) in Data & Policy, edited by Danny Lämmerhirt, Marina Micheli and Sven Schade.

<sup>26</sup> See the overview: [The US Congress Moves to Take Advantage of AI | TechPolicy.Press.](#)

<sup>27</sup> Juan-Pablo Rivera, Gabriel Mukobi, Anka Reuel, Max Lamparth, Chandler Smith, Jacquelyn Schneider (2024), Escalation Risks from Language Models in Military and Diplomatic Decision-Making, [2401.03408.pdf \(arxiv.org\)](#).

<sup>28</sup> [The United Kingdom’s government is going all-in on AI. - POLITICO.](#)

<sup>29</sup> Child Poverty Action Group, 'Universal Credit and Access to Justice: Applying the Law Automatically'. However, this reports also describes several problems that appear to be caused by the digitalisation and automation of the UC system.

<sup>30</sup> [On the Societal Impact of Open Foundation Models \(stanford.edu\)](#).

<sup>31</sup> [Die Zeit der Alleingänge ist vorbei - Tagesspiegel Background.](#)

<sup>32</sup> Open-Source-Software in Kommunen, Einsatz und Schnittstellen in der kommunalen Planungspraxis, [Open-Source-Software in Kommunen \(fraunhofer.de\)](#).

<sup>33</sup> [Special Report 28/2023: Public Procurement in the EU | European Court of Auditors \(europa.eu\)](#).

<sup>34</sup> I.e. solutions that are compatible and can be used together.

development and provision of open source. By pooling institutional demand and supporting open source solutions, the EU would drive the deployment of secure AI technologies as well as support European businesses, as around 96% of all commercial code contains open source components, and without them, businesses would have to spend on average 3.5 times more on their software.<sup>35</sup> A good example is the Open Logistics Foundation established by major logistics companies, which aims to standardize logistics processes across the industry through an open-source community.<sup>36</sup> All in all, an open source requirement should be enshrined in the EU's public procurement directives, which have so far been based primarily on the principle of equal treatment and non-discrimination.<sup>37</sup>

### 3.2 From formal to networked governance

In addition to the pure application of AI, it is essential to evolve the general governance models of EU digital policy and adapt them to the dynamic needs of an ever-changing technology and society. **Reducing the barriers to European legislation can increase the pace and relevance of reform, helping digital policy to keep pace with technological change while ensuring greater democratic legitimacy for the EU.**<sup>38</sup> The transition from formal governance, strongly characterised by institutionalisation and technical expertise, to an approach that places more emphasis on informal networks, self-organisation of citizens and businesses, is an innovative way to increase the effectiveness and inclusiveness of policy processes. The anthropological literature has thoroughly dispelled the prejudice of the economic “stage theory” that progress is historically associated with increasing complexity, centralisation, and the emergence of bureaucracies and mega-states.<sup>39</sup> On the contrary, there have always been successful periods of decentralised organisation in which people have worked together successfully and on an equal footing. Such an approach would increase the potential of European society to exploit the opportunities of digitalisation by making better use of decentralised knowledge (Hayek).<sup>40</sup>

The recent testing and implementation of European Citizens' Forums (e.g. for the communication on virtual worlds) has already shown that direct forms of participation can make a valuable contribution, while surveys suggest that policymakers are open to this idea.<sup>41</sup> For example, an “online forum could be used to enhance dialogue among those familiar with the law, those working at the technological frontier and broader publics”, thereby identifying suggestions for large-scale projects as well as more minor amendments to existing regulations and ensuring that structured information is automatically fed back to relevant decision-makers.<sup>42</sup> To deepen this approach, it is essential not only to increase the number of such participatory opportunities, but to strengthen their effectiveness. To this end, it is important to make greater use of recent advances in language modelling through dedicated chatbots, which have proven to be suitable for a wider range of citizen interactions with a higher degree of

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<sup>35</sup> Manuel Hoffmann, Frank Nagle, Yanuo Zhou (2024), The Value of Open Source Software, Working Paper 24-03, [24-038\\_51f8444f-502c-4139-8bf2-56eb4b65c58a.pdf \(hbs.edu\)](https://hbs.edu/24-038_51f8444f-502c-4139-8bf2-56eb4b65c58a.pdf).

<sup>36</sup> See: [Open source | Open Logistics Foundation](#).

<sup>37</sup> See also: [Expert opinion on prioritising the procurement and development of open source software in the federal administration \(osb-alliance.de\)](#).

<sup>38</sup> For a similar argument with respect to US policy, see: [Experimenting with experimentation: 4 model bills for tech policy trials | Brookings](#).

<sup>39</sup> David Graeber, David Wengrow (translated by Andreas Thomsen, Helmut Dierlamm, Henning Dedekind), *Anfänge. A New History of Humanity*, Klett-Cotta, Stuttgart 2022.

<sup>40</sup> [The Use of Knowledge in Society - Foundation for Economic Education \(fee.org\)](#).

<sup>41</sup> In the face of current challenges, policymakers even expect companies and their managers to become more involved in economic policy and technical debates. FGS Global & IfD Allensbach (2024): Survey of political decision-makers.

<sup>42</sup> Moses (2011), ‘Agents of change: how the law “copes” with technological change’, *Griffith Law Review*, p. 788.

complexity, ambiguity, and uncertainty.<sup>43</sup> In areas where direct citizen participation does not seem feasible, more use should be made of the knowledge of representatives of civil society and consumer organisations, as well as start-ups, alongside traditional expert consultation, in order to bring in a wide range of perspectives and expertise and to make governance structures more democratic and flexible.

Once again, the US can lead by example. In 2020, the Federation of American Scientists (FAS) launched a collaborative initiative called the “Day One Project” to deliver 100 actionable science, technology, and innovation policy proposals to the next US president upon taking office. This initiative not only generated a large number of remarkable ideas, but also demonstrated how the path from conceptual proposals to concrete policy changes can be significantly shortened in the digital age. The movement quickly spawned a growing network of actors whose innovative policy proposals were translated into practical applications and backed by more than \$2.6 billion in government investment.<sup>44</sup> A similar list with proposals for “Day One” of the next EU Digital Commissioner could be likewise constructed with the help of crowd wisdom.

The most important examples for supporting networked digital governance at EU level concerns European competition policy towards Big Tech. For instance, the Commission could make it easier for representatives of civil society and consumer organisations to obtain “interested third party” status in digital competition proceedings, quite justified given the societal influence of today’s digital giants, or enable collective legal action against violations of EU competition law through the Collective Redress Directive.<sup>45</sup> More generally, strengthening a comprehensive private right of action could enable the public, including individuals and class actions, to enforce better, faster, and more widely the rules that have been tightened in recent years.<sup>46</sup> By promoting a more comprehensive and enforceable private right of action, EU digital governance would become more enforceable, which would ultimately directly support and legitimise the legislative mandate of the European Parliament – a not insignificant factor in times of great social unrest and dissatisfaction with EU elites. Ultimately, such a form of **networked enforcement is also becoming a practical necessity, as the current focus on centralised enforcement by the Directorate-General for Competition will increasingly reach critical limits and lead to incomplete solutions in the exponentially growing age of AI.**

### 3.3 From rivalry to collaboration through design thinking

In the wake of increasing digitalisation in all spheres of life and the growing speed of AI-driven developments, creative problem-solving is critical to success for policymakers. In this context, the next Commission must rethink and optimise its internal structures and cooperation mechanisms. Past disputes, such as those between the Competition Directorate led by Margrethe Vestager and the Industry Directorate led by Thierry Breton, have shown that **isolated approaches, distributed among different directorates, and adherence to exclusive competencies for certain digital policy areas is not only inefficient but also counterproductive.** More generally, EU digital policy is hampered by struggles between three different constellations of actors, namely “market correctors”, such as Nordic companies and governments, who lobby for subtle changes in digital market governance; “market busters”, such as Vestager or Maximilian Schrems, who aim to strengthen policy steering through rigorous

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<sup>43</sup> [Transforming the communication between citizens and government through AI-guided chatbots - ScienceDirect.](#)

<sup>44</sup> [Day One Project - Federation of American Scientists \(fas.org\).](#)

<sup>45</sup> [Rebalancing Europe: A new economic agenda for tackling monopoly power](#), p. 14.

<sup>46</sup> [Hanley+-+Writing+Law+\(Indicators+of+a+Favourable+Statute\)+-+FINAL.pdf \(squarespace.com\).](#)

application of antitrust and consumer protection rules; and “market directors”, such as French political leaders, who call for European champions and digital sovereignty, an ill-defined and ambiguous concept.<sup>47</sup>

In order to meet the complex demands of digital transformation and improve the Commission’s potential for creative problem-solving in fast-paced environments, it is necessary to go beyond internal rivalry and move towards increased cooperation across directorates and the inclusion of collective intelligence from civil society, market participants, and political groups. Such a cross-Commission mandate to tackle concentrated economic power should foster greater coherence of competition, trade, industrial, data protection, labour, consumer protection, and tax policies as well as enforcement.<sup>48</sup> In other words, an effective digital policy should take a holistic perspective that is also reflected in its institutional underpinnings, especially when it comes to curbing the economic power of Big Tech. This is essential, because “[j]ust as there is no single law that constructs private power in the digital age, there will be no single law to democratize it”.<sup>49</sup> However, such a holistic perspective, integrating both a strong competition policy and a well-designed industrial policy,<sup>50</sup> requires a new level of cooperation to strengthen Europe’s technological sovereignty without getting lost in internal power games.

How might such a shift from creative, collaborative thinking be encouraged and institutionalised? **Inspiration comes from “design thinking” research**, such as that of the MIT Centre for Collective Intelligence, which coined the term “supermind” for forms of institutional intelligence.<sup>51</sup> The latter is created whenever individuals in a group – for example in companies, in scientific communities, or even in supranational organisations such as the EU – work synergistically together to produce a collective result that exceeds the capabilities of the individual members or departments. Supermind design is a methodological approach that focuses on the conscious design of such superminds, using structured activities to stimulate creative and unconventional thinking. This includes techniques like brainstorming, mind-mapping, and crowdsourcing to stimulate creative ideas, software tools to capture and share these ideas, and, more recently, generative AI technologies, which take descriptions of a problem as input and produce as output natural language ideas about how to reframe or solve the problem.<sup>52</sup> Recent studies have found that the average quality of AI ideas is quite high, and that the diversity of AI-generated ideas can be significantly improved through prompt engineering, approaching that achieved by larger groups of humans.<sup>53</sup> Supermind design, by definition, involves a systemic approach that is well suited to disruptive situations, such as the current digitalisation, which require innovative solutions to complex problems with dynamic interactions between people and digital systems. A longer-term study with consultants found that “supermind techniques” were particularly useful when the teams realised, midway through a project, that the originally conceived (and agreed) path was no longer the best approach.<sup>54</sup> Structured design thinking helped the teams to recognise such situations and to move more quickly to alternative approaches – an analogous competence at the level of EU

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<sup>47</sup> Catherine Hoeffler & Frédéric Mérand (22 Dec 2023): Digital sovereignty, economic ideas, and the struggle over the digital markets act: a political-cultural approach, *Journal of European Public Policy*, DOI: 10.1080/13501763.2023.2294144.

<sup>48</sup> [Rebalancing Europe: A new economic agenda for tackling monopoly power](#), pp. 4, 11f.

<sup>49</sup> Amy Kapczynski, ‘The Law of Informational Capitalism’ (2020) *Yale Law Journal*, p. 1515.

<sup>50</sup> Küsters et al. (2023), [Input United We Transform Divided We Fall .pdf \(cep.eu\)](#).

<sup>51</sup> [Supermind-Design-Primer-v2.pdf \(mit.edu\)](#).

<sup>52</sup> [\[2311.01937\] Supermind Ideator: Exploring generative AI to support creative problem-solving \(arxiv.org\)](#).

<sup>53</sup> Meincke et al. (2024), [Prompting Diverse Ideas: Increasing AI Idea Variance, SSRN](#).

<sup>54</sup> Laubacher, Robert and Bachmann, Annalyn and Kennedy, Kathleen and Malone, Thomas W., Supermind Design for inventing smarter organisations: Applying a new organizational design approach in a professional services setting (December 10, 2023). MIT Sloan Research Paper No. 6961-23, [delivery.php \(ssrn.com\)](#), p. 25.

digital governance would certainly be very valuable, as it often follows well-trodden paths that are difficult – or costly – to change later (due to sunk cost fallacies and negative reputational effects).

As the example of supermind thinking shows, adapting the Commission for the age of AI is not just about digitising and modernising the administration (see points 1 and 2 above). It is also about **structured and institutionalised learning processes that enable Commission staff to make better decisions together and to learn from the results of those decisions**. Such monitoring of decision-making processes and impact measurement in the area of digital policy can be illustrated by the “E-Valuate” project, which provides a structured framework for measuring the impact of digital policy measures in Germany.<sup>55</sup> Particular emphasis has been placed on the formulation and measurability of impact goals that go beyond mere output targets. For example, the project uses data and AI-supported analytics to determine how to add value to impact orientation. In contrast to traditional impact measurement, the focus is on the development of practical concepts, such as the use of evaluation checklists and the work with “Objectives and Key Results” (OKRs) familiar from start-ups, which are used in an ongoing process to repeatedly adjust the process based on surveys and data.<sup>56</sup> Overall, the sensible integration of AI techniques to facilitate a creative, collaborative approach to digital policy can increase the likelihood that Commission officials will find better solutions faster than they would otherwise.

### 3.4 From secrecy to open data and algorithmic transparency

**Greater transparency would make knowledge of digital policies and rules more accessible, contribute to efficient governance, and strengthen trust in legitimate democratic processes.**<sup>57</sup> For a long time, experts have been warning of a “democratic deficit” in the EU. As digitalisation continues and big tech companies expand, there is a growing need to critically question the traditional confidentiality and discretion of EU policies. In essence, the new AI era requires a paradigm shift towards radical transparency. The Qatar corruption scandal at the European Parliament, which has still not been adequately investigated, is a good example of how current practices only scratch the surface of a deep-rooted problem.<sup>58</sup> A recent audit by the European Court of Auditors has criticised the EU’s current transparency rules, warning that a range of lobbying interactions can be hidden from public scrutiny.<sup>59</sup> The dominant position of large tech firms and their often hard-to-track influence through funded research institutes underlines the urgency of promoting an open and transparent culture of internal debate.<sup>60</sup> Only recently, during the negotiations on the AI Act, did this distortion of EU digital policy formulation by Big Tech interests and lobbying become apparent again.<sup>61</sup> The large pockets of digital giants require more rules for greater transparency in relation to the hiring and firing of relevant EU staff and more traceable data on meetings and submissions involving businesses and their advisers.<sup>62</sup>

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<sup>55</sup> Agora Digitale Transformation (2023), Understanding and implementing impact orientation in ministerial administration. An application-orientated guide for effective projects, [Microsoft Word - 23-12-18 Leitfaden V1 final \(agoradigital.de\)](#).

<sup>56</sup> [How will Germany become a digital state? - AufRuhr Magazine \(aufrohr-magazin.de\)](#).

<sup>57</sup> For the German case, this argument is made by: Jünemann (2024), [Öffentliches Geld – Öffentliches Gut!: Die Demokratie vorwärtsverteidigen durch ein Transparenzgesetz \(netzpolitik.org\)](#).

<sup>58</sup> [The EU’s Democracy Challenge – and Opportunity | Chicago Policy Review](#).

<sup>59</sup> [Lobby-Einfluss auf EU-Gesetzgebung: Prüfer stellen einen Mangel an Transparenz fest | Presseportal](#).

<sup>60</sup> Küsters, A. (2022), Shaping EU competition law in the digital age. A quantitative and qualitative comparison of consultation procedures, expert reports and recent reform projects. Peter Lang, Berlin. See also: [The lobby network - Big Tech's web of influence in the EU.pdf \(corporateeurope.org\)](#).

<sup>61</sup> [Big Tech lobbying is derailing the AI Act \(socialeurope.eu\)](#).

<sup>62</sup> [Rebalancing Europe: A new economic agenda for tackling monopoly power](#), p. 14.

**The necessary paradigm shift towards greater transparency must be driven by a greater role, and better measurement, of open data.** Open data is the freely accessible information collected, created, or funded by public authorities. This includes a wide range of information, from public budget details to transport timetables, which not only stimulates research and innovation, but can also increase resilience, for example by supporting faster responses in times of disruption caused by earthquakes, supply-side shocks, or even war. The expected economic value of open data is estimated at €194 billion for EU countries and the UK by 2030.<sup>63</sup> To support this area, the Commission has introduced the Open Data Maturity (ODM) ranking, which assesses the quality, policies, online portals, and overall impact of open data in 35 European countries on an annual basis.<sup>64</sup> However, analysis by CEPS has shown that the current ODM ranking system does not accurately reflect real progress in open data implementation.<sup>65</sup> In particular, it often fails to guide countries towards real improvement, and can mislead citizens about their country's progress, hindering further opportunities for innovation. Therefore, the current ODM methodology needs to be reformed to include more cross-checking and external validation to foster an environment where open data can deliver its full range of benefits.

In addition, **the deployment of algorithmic decision-making could help speed up policy implementation and unbiased enforcement**, as machine learning systems can assist in consistently applying policy. However, the debate on algorithmic regulation in the literature is broad and often polarised, ranging from the idea that it would improve access to justice to an emphasis on the risks of discrimination and the need to secure "algorithmic accountability".<sup>66</sup> On the one hand, there are significant benefits to delegating decision-making tasks to algorithms, which are often seen as free from the inherent biases that impair human judgement.<sup>67</sup> Giving some decision-making power to AI could reduce factors such as corruption and personal bias. For example, blockchain technology has been described as the "killer app for corruption".<sup>68</sup> On the other hand, it is important to consider that AI systems themselves may also transmit biases derived from their training data, perpetuate stereotyping of particular groups, or contribute to escalating behaviour through their non-empathic functioning.<sup>69</sup> Even the most advanced AI models, such as the large language model underpinning ChatGPT, suffer from these prejudices.<sup>70</sup> In addition, China's use of data-driven scores, which combine data to categorise citizens and allocate services, has raised alarm bells in the West.<sup>71</sup>

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<sup>63</sup> [Open data | Shaping Europe's digital future \(europa.eu\)](#).

<sup>64</sup> [Open Data in Europe 2023 | data.europa.eu](#).

<sup>65</sup> Grabova (2024), [The Open Data Maturity Ranking is shoddy – it badly needs to be re-thought – CEPS](#).

<sup>66</sup> Pars pro toto: Jenna Burrell and Marion Fourcade, 'The Society of Algorithms' (2021) Annual Review of Sociology; Frank Pasquale, 'The Second Wave of Algorithmic Accountability' (2019) LPE Blog; Child Poverty Action Group, 'Universal Credit and Access to Justice: Applying the Law Automatically'; Reuben Binns, Max Van Kleek, Michael Veale, Ulrik Lyngs, Jun Zhao, and Nigel Shadbolt, 'It's Reducing a Human Being to a Percentage'; Perceptions of Justice in Algorithmic Decisions' (2018) ACM Conference on Human Factors in Computing Systems (ACM CHI 18).

<sup>67</sup> Manzoni, M., Medaglia, R., Tangi, L., Van Noordt, C., Vaccari, L. and Gattwinkel, D. (2022), [JRC Publications Repository - AI Watch Road to the adoption of Artificial Intelligence by the Public Sector: A Handbook for Policymakers, Public Administrations and Relevant Stakeholders \(europa.eu\)](#), p. 15.

<sup>68</sup> Quoted in: [New Initiative Aims To Eliminate Corruption With Blockchain Technology \(forbes.com\)](#).

<sup>69</sup> Jeremias Adams-Prassl, Reuben Binns, and Aislinn Kelly-Lyth, 'Directly Discriminatory Algorithms' (2022) Modern Law Review. See also: Juan-Pablo Rivera, Gabriel Mukobi, Anka Reuel, Max Lamparth, Chandler Smith, Jacquelyn Schneider (2024), Escalation Risks from Language Models in Military and Diplomatic Decision-Making, [2401.03408.pdf \(arxiv.org\)](#).

<sup>70</sup> [\[2403.00742\] Dialect prejudice predicts AI decisions about people's character, employability, and criminality \(arxiv.org\)](#).

<sup>71</sup> Martin Chorzempa (2022), The Cashless Revolution. China's Reinvention of Money and the End of America's Domination of Finance and Technology, PublicAffairs.

In order to move beyond a dichotomous acceptance or rejection, policymakers should consider that there are, in fact, different types of “algorithmic regulation”, e.g. at the level of information gathering and monitoring (historical data vs. predictions based on inferred data), and at the level of intended behaviour change (automatic execution vs. recommender systems).<sup>72</sup> Nuanced case studies suggest that **well-designed digital systems can better ensure the consistent application of the law, improve the accountability of electoral processes, and enable citizens to be treated equally when laws are enforced, but they often fall short of their promises and are certainly not a silver bullet.**<sup>73</sup> To prevent existing prejudices from being institutionalised and to avoid shifting from human secrecy to new forms of “algorithmic opacity”,<sup>74</sup> strict safeguards, regulations, and “institutional control”<sup>75</sup> would be needed, especially when it comes to automatic execution. This should include tools for non-technical reviewers. EU law already sets certain limits: The principle of reservation of human decision-making (Article 22 GDPR) states that decisions having a significant impact on individuals may not be based solely on automated processing.<sup>76</sup> Moreover, the GDPR grants individuals limited rights to “meaningful information about the logic” behind significant, autonomous decisions such as loan approvals or CV filtering. These legal norms are part of a broader liberal commitment of EU law to treat individuals according to the principles of due process and the rule of law. In the future, EU administrative law may therefore need to develop new principles and standards for automated decision making.<sup>77</sup>

Ultimately, any implementation of algorithmic systems should be based on the prerequisite of algorithmic transparency, i.e. established guidelines for the disclosure of information to the public on the use and functioning of data analytics. In this way, risks are minimised, while the EU policy processes themselves can gain more legitimacy and accountability. By mapping the potential for data analytics and algorithmic transparency in public services, the EU could contribute to a more nuanced debate on how to make policies more accountable and how to use citizen data productively, including avenues for citizen participation and possibilities for refusal or non-data solutions where appropriate.

### 3.5 From specialisation at the centre to decentralised economic and digital policy

**Inspired by forms of decentralised collective behaviour on the web, politicians, EU officials, member state societies, and European industry should adopt a position of curiosity and experimentation to learn more about the interplay between digital policy and new technology services such as generative AI.**<sup>78</sup> Cultivating such an entrepreneurial culture, similar to that of Silicon Valley, would also help

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<sup>72</sup> Karen Yeung, 'Algorithmic Regulation: A Critical Interrogation' (2017) King's College London Law School Research Paper No. 2017-27.

<sup>73</sup> Monika Zalnieriute, Lyria Bennett Moses, and George Williams, 'The Rule of Law “By Design”?' (2021) 95 Tulane Law Review, p.

<sup>74</sup> Pasquale (2015), *The Black Box Society: The Secret Algorithms That Control Money and Information* (Cambridge, Mass: Harvard University Press).

<sup>75</sup> In contrast to mere human control, institutional control requires organisations to demonstrate the appropriateness of using an algorithm for decision-making, and requires democratic evaluation and approval before the organisation implements the algorithm. For this distinction and argument, see: Ben Green, 'The Flaws of Policies Requiring Human Oversight of Government Algorithms' (2022) 45 Computer Law & Security Review.

<sup>76</sup> See the discussion in: Bitkom (2024), *Generative KI im Unternehmen. Rechtliche Fragen zum Einsatz generativer Künstlicher Intelligenz im Unternehmen*, p. 28.

<sup>77</sup> Analogous to the problems in UK administrative law, see: Jennifer Cobbe, 'Administrative law and the machines of government: judicial review of automated public-sector decision-making' (2019) 39 Legal Studies 636-655. For the problematic distinction between direct and indirect discrimination in EU law, see: Jeremias Adams-Prassl, Reuben Binns, and Aislinn Kelly-Lyth, 'Directly Discriminatory Algorithms' (2022) *Modern Law Review*.

<sup>78</sup> For the US, see also: [Experimenting with experimentation: 4 model bills for tech policy trials | Brookings](#).

Europe's expected and urgent shift towards resilient economic and digital policies. However, such a shift does not follow from top-down subsidies and picking winners but would require the targeted development of digital infrastructures that enable the society-wide implementation of decentralised solutions, as well as more digital literacy to enable people to use these infrastructures productively.

The list of technologies that could enable a competitive yet more decentralised economy in Europe includes 3D printing for manufacturing, which will allow critical supply chains to be “homeshored”;<sup>79</sup> AI applications based on small but equally powerful language models,<sup>80</sup> which will support Europe's SMEs; and blockchain technology, which will help decentralise finance and promote economic integration. Another promising example is solar energy, which is decentralising in both a technical and a political sense: technically, it makes much more sense to build solar systems in a disaggregated, widely distributed way; politically, solar energy accommodates the attempts of individuals and local communities to manage their affairs effectively,<sup>81</sup> in line with the ordoliberal idea of European “subsidiarity”. By investing in these and similar technologies, while avoiding a subsidy race with the US and China, the EU can secure economic sovereignty and promote a more robust market landscape.<sup>82</sup>

Consider, for example, the case of digitalisation and changed work patterns. Driven by digital services such as Microsoft Teams or Zoom, and further fuelled by the pandemic, there is an ongoing structural shift in working habits, with a growing number of people working remotely.<sup>83</sup> From a traditional economic perspective that emphasises urban agglomeration and spill-over effects, especially in the knowledge-intensive industries of the future, this significant increase in distance between workers and their employers could lead to reduced innovation. However, evidence shows how digital policies that focus on **enabling decentralisation through better connectivity can help to maintain or even improve innovation** in this environment that Europe will face in the coming decades. A study that mapped communication, human mobility, and scientific collaboration intercity networks in the US and China found that cities with high connectivity tend to outperform similar-sized cities with lower connectivity.<sup>84</sup> By creating 5G and 6G infrastructure, edge computing, digital platforms for knowledge exchange, and metaverse technologies,<sup>85</sup> the EU's digital policy can thus help create a more distributed but also more connected workforce, where even those far from urban centres can contribute to and benefit from the innovation ecosystem. In this way, by promoting decentralisation through technology, EU digital policy might turn into a forward-looking strategy that not only reacts to emerging trends in work but also harnesses them to boost innovation across the continent.

**Once again, AI can be a catalysator in bringing about this type of decentralised creativity and innovation. By integrating data, incorporating lessons learned, and being able to draw entirely new conclusions, AI enables a wider range of people with different expertise to take on critical decision-making roles traditionally reserved for specialised professionals.**<sup>86</sup> This will enable productivity gains and advances beyond the Big Tech companies, further decentralising economic power. In a controlled

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<sup>79</sup> Foroohar (2022), *Homecoming: The Path to Prosperity in a Post-Global World*, Penguin Random House.

<sup>80</sup> See for example: [Phi-2: The surprising power of small language models - Microsoft Research](#).

<sup>81</sup> Langdon Winner, ‘Do Artifacts Have Politics?’ (1980) 109 *Daedalus* 1, pp. 121-136, here: p. 130.

<sup>82</sup> For this argument, see: [Rethinking Competition and Concentration in Time of Crisis \(commongroundeurope.eu\)](#).

<sup>83</sup> For US data, see: [Americans Now Live Farther From Their Employers | Hoover Institution Americans Now Live Farther From Their Employers](#).

<sup>84</sup> Liang et al. (2024), [Intercity connectivity and urban innovation \(xiaofanliang.com\)](#).

<sup>85</sup> Küsters et al. (2023), *EU-Metaverse Strategy*, [cepAnalyse](#).

<sup>86</sup> Author (2024), [Applying AI to Rebuild Middle Class Jobs | NBER](#).

experiment, software developers who had access to an AI tool completed tasks 55.8% faster than the control group of developers without AI support.<sup>87</sup> Whereas in the past, high upfront investment and venture capital were required to build a strong AI start-up, the barriers are now lower. Employees across the skills spectrum benefit significantly from AI support.<sup>88</sup> At the same time, inequality between workers is decreasing as AI language models compress the productivity distribution by benefiting low-skilled workers more.<sup>89</sup> In addition, there is evidence that the AI model spreads the potentially tacit knowledge of more skilled workers and helps newer workers move down the experience curve, ultimately improving customer satisfaction and employee retention.<sup>90</sup> AI, if rapidly integrated into business processes across Europe, can therefore help revitalise the middle class that has been hollowed out by automation and globalisation,<sup>91</sup> while addressing Europe's skills shortage.

The decentralisation approach to digital and economic policy presented in this section not only broadens the scope of participation in the innovation process, catering to a more diverse group of contributors, but also ensures that the benefits of innovation are more evenly distributed, leading to **increased societal welfare and resilience**. In fact, moving towards a more decentralised economic and digital policy is particularly important in the context of the current geopolitical tensions and the need to reduce European dependencies on external actors. To protect itself from geopolitical blackmail, the EU should strengthen competition and reduce monopolistic tendencies, especially in the digital sector.<sup>92</sup> Again, a resilient economy requires openness to new technologies such as AI.<sup>93</sup> By empowering local innovators and entrepreneurs to be part of this movement, Europe can not only create new opportunities for growth and profit but also strengthen its economic resilience.

### 3.6 From detailed regulation to iterative, technology-driven implementation

**Just as good software development is based on the principle of iteration, i.e. repeated cycles of testing, failing, correcting and repeating, EU digital policy should refine its regulatory approaches by testing, over a short, defined period of time, the costs and benefits of certain types of digital regulation and their form of implementation.** In this context, the recent introduction of extensive digital rulebooks, including the Digital Markets Act (DMA), the Digital Services Act (DSA), the Data Act and the AI Act, highlights the need not only to create legal frameworks for the AI age, but also to develop effective mechanisms for their implementation. The challenge is to bridge the gap between the adoption of laws and their practical application, to ensure that these regulations have a positive impact on the daily lives of millions of people. For example, in contrast to the EU's top-down approach, the UK government is advocating "agile", pro-innovation regulation of AI, giving existing sector-specific regulators greater responsibility for overseeing the development of AI.<sup>94</sup> In principle, the DSA allows for a similarly agile, iterative, and decentralised model of governance, as enforcement powers to regulate

<sup>87</sup> Sida Peng, Eirini Kalliamvakou, Peter Cihon, Mert Demirer (2023), The Impact of AI on Developer Productivity: Evidence from GitHub Copilot, [2302.06590.pdf \(arxiv.org\)](https://arxiv.org/abs/2302.06590).

<sup>88</sup> Dell'Acqua, Fabrizio and McFowland, Edward and Mollick, Ethan R. and Lifshitz-Assaf, Hila and Kellogg, Katherine and Rajendran, Saran and Krayer, Lisa and Candelon, François and Lakhani, Karim R., Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality (September 15, 2023). Harvard Business School Technology & Operations Mgt. Unit Working Paper No. 24-013.

<sup>89</sup> Noy and Zhang (2023), Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence, [Noy Zhang 1 0.pdf \(mit.edu\)](https://mit.edu/~noy/papers/20230901.pdf).

<sup>90</sup> Erik Brynjolfsson, Danielle Li, Lindsey Raymond (2023), [Generative AI at Work \(arxiv.org\)](https://arxiv.org/abs/2302.06590).

<sup>91</sup> Author (2024), [Applying AI to Rebuild Middle Class Jobs | NBER](https://www.nber.org/papers/w30842).

<sup>92</sup> [Decoupling? Competition is better | The Pragmaticus](https://www.pragmaticus.com/insights/decoupling-competition-is-better).

<sup>93</sup> Hüther et al. (2023), [RHI Studie 37 Wie resilient ist die SoMaWi.pdf \(romanherzoginstitut.de\)](https://www.rhi-studie.de/37).

<sup>94</sup> [The UK's Agile, Sector-Specific Approach to AI Regulation Is Promising - Centre for Data Innovation](https://www.cdi.ac.uk/insights/the-uk-agile-sector-specific-approach-to-ai-regulation-is-promising).

the content of social media giants have been divided between Brussels and national capitals. In theory, this allows authorities to regularly share information and data and achieve both local granularity in terms of cultural and linguistic contexts and global reach through their influence on the tech giants in applying the rules. In practice, however, jurisdictional disputes, differing interpretations of the new rules, and different national regulatory philosophies will likely lead to legal uncertainty.

In this context, the use of modern technologies and decentralised approaches offers a promising opportunity to increase the efficiency and effectiveness of implementation. By integrating technology-enabled solutions into the implementation process, governments can not only improve compliance, but also ensure a more dynamic and iterative adaptation to rapidly changing digital landscapes. For instance, so-called **Policy Product Trial (PPT) programmes** can be particularly effective in testing new rules for generative AI models or other technological breakthroughs, as PPT embraces the idea that regulators and technology companies can discover better forms of digital policy implementation by testing them together.<sup>95</sup> To use a concrete example, modern AI tools can help to scan the world's environmental laws to see what works best and which norms are ineffective, thereby helping to guide future iteration of regulations.<sup>96</sup> Another potential use case stems from the Canadian province of British Columbia, which is using low-code platforms and open source software to speed up permitting processes.<sup>97</sup> Online applications are automatically updated to reflect the latest legal requirements and integrated with back-end processes to simplify the approval process and reduce errors.

However, such a technology-driven approach of iterative testing policies requires careful planning, adequate resource allocation, and the development of expertise. Given the staffing challenges of setting up the new EU digital agencies, these resources do not appear to be sufficiently available at present: Tellingly, the EU AI Office will have an initial budget of €46.5 million, less than half of what the UK will spend on its AI officials.<sup>98</sup> With the EU's AI office offering salaries far below industry pay, experts expect a continued brain drain to the detriment of public regulators,<sup>99</sup> which is particularly problematic in the age of powerful AI. Similarly, the EU initially allocated around 80 people to enforce the DMA, which is tasked with supervising key platforms. Both cases illustrate that the enforcement of European digital policy faces significant resource and staffing hurdles – hurdles that are difficult to overcome given competing policy demands for public funds, such as those related to greening the economy or security.

Again, **AI might help to reduce at least some of the burden on costs and staff.** A good example of this is the significant cybersecurity challenges currently facing the EU. Many Member States suffer from an acute shortage of skilled and adequately trained personnel to deal effectively with the growing number and complexity of digital threats. This problem is exacerbated by the increasing use of AI in various areas, such as the role of deep fakes in election campaigns<sup>100</sup> or the instrumentalisation of social media narratives by bots.<sup>101</sup> AI technologies have the potential to increase efficiency, particularly for less skilled workers,<sup>102</sup> by performing routine cybersecurity tasks such as scanning code, searching for vulnerabilities, monitoring network traffic, and detecting anomalies, thereby reducing bottlenecks in

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<sup>95</sup> [Experimenting with experimentation: 4 model bills for tech policy trials | Brookings](#).

<sup>96</sup> Armstrong (2024), [Good Climate Solutions Need Good Policy—and AI Can Help With That | WIRED](#).

<sup>97</sup> [Automating Permit Applications \(govtech.com\)](#).

<sup>98</sup> Data taken from: [The future stays out of the 2024 spotlight - POLITICO](#).

<sup>99</sup> [Regulators Need AI Expertise. They Can't Afford It | WIRED](#).

<sup>100</sup> CFR (2018), [Disinformation on Steroids: The Threat of Deep Fakes](#).

<sup>101</sup> [cepStudy The Threat of Digital Populism to European Democracy.pdf](#).

<sup>102</sup> Erik Brynjolfsson, Danielle Li, Lindsey Raymond (2023), [Generative AI at Work \(arxiv.org\)](#).

staffing. A meta-analysis of research on the labour market impact of large language models shows that generative AI tools, such as ChatGPT, will significantly complement and partially replace many jobs related to coding, offering huge potential for relatively cheaply improving cybersecurity at scale.<sup>103</sup>

Ultimately, however, the ability of AI to automate and routinise certain tasks should not obscure the fact that human expertise and critical thinking skills are essential to identify and combat complex cybersecurity threats. Here, the EU must recognise that the technical capabilities to combat hybrid warfare are primarily found in the private sector – as the war in Ukraine demonstrates.<sup>104</sup> While existing EU initiatives for the education and training of IT specialists, such as the Cybersecurity Skills Academy, should therefore be even intensified, ever-closer cooperation between European and national security authorities and companies is essential to keep pace with the dynamic requirements.

#### 4 Conclusion: Anticipating AI rather than preventing it

In the context of the transformative, exponential potential of Artificial Intelligence (AI), the European Union (EU) faces resource constraints, dominant external tech giants, and a widening legitimacy gap in technology regulation. The core conceptual hurdle facing the EU is the **mismatch between its current institutional framework, which is increasingly perceived as rigid and outdated, and the agile, autonomous nature of advancing digital technologies**. This mismatch underlines the need for a fundamental rethink of EU governance structures and policy processes to ensure they are fit for the digital age. The next Commission therefore has a mandate that goes beyond simply regulating or financially supporting AI; it must prepare the EU institutions themselves for a future of rapid change and uncertainty. This requires a proactive approach that embraces the dynamic and decentralised nature of digital technologies and promotes efficiency, cooperation, transparency, and iterative development.

To address these challenges, this paper proposed six strategic shifts for the next Commission to reshape the EU's digital strategy. These measures are designed to adapt the EU's governance and policy-making processes to the dynamic nature of digital technologies and ensure that the EU remains agile:

**1. From AI scepticism to AI application:** Moving beyond caution, the Commission should embrace the potential of AI by integrating it into public services to improve efficiency, decision-making, and personalisation. This shift should focus on automating routine tasks, improving forecasting and data-driven decisions, and enhancing user-centred services. Significant investment is needed in AI research and open data initiatives, with an emphasis on open-source algorithms to promote digital sovereignty, reduce costs, and standardise interfaces, thereby improving cybersecurity.

**2. From formal to networked governance:** The EU's traditional top-down model should evolve into a fluid, networked approach to foster collaboration across Commission departments and national borders. Breaking down barriers to legislation through mechanisms such as European Citizens' Forums and dedicated chatbots can help keep pace with technological change. Engaging citizens and the private sector in policy development and using digital platforms to ensure more democratic and responsive governance will increase the relevance of reforms and ensure greater democratic legitimacy.

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<sup>103</sup> Küsters and Poli (2024), [cep.eu/fileadmin/user\\_upload/cep.eu/Studien/cepStudie\\_Rise\\_of\\_the\\_Robots/cepStudy\\_Resisting\\_or\\_Rebooting\\_the\\_Rise\\_of\\_the\\_Robots.pdf](https://cep.eu/fileadmin/user_upload/cep.eu/Studien/cepStudie_Rise_of_the_Robots/cepStudy_Resisting_or_Rebooting_the_Rise_of_the_Robots.pdf).

<sup>104</sup> [cepAdhoc\\_Vorteil\\_Ukraine\\_Wie\\_KI\\_die\\_Kraefteverhaeltnisse\\_im\\_Krieg\\_veraendert.pdf](#).

**3. From rivalry to collaboration through design thinking:** The Commission needs to break down siloed departments and foster a culture of collaboration. The use of design thinking and tools such as mind-mapping and crowdsourcing, together with new generative AI technologies, can foster a creative, collaborative approach to digital policy. This will help solve complex problems from a holistic perspective, promoting innovative policies and leveraging European expertise.

**4. From secrecy to open data and algorithmic transparency:** As algorithms increasingly influence decision-making, the EU must prioritise transparency to maintain public trust and accountability. This includes opening up algorithms to public scrutiny and ensuring that AI systems are fair and in line with European values. Measures should also be taken to improve transparency in interactions between EU staff and digital giants, and to increase the measurable impact of open data through more robust methods that include cross-checking and external validation.

**5. From centralised specialisation to decentralised economic and digital policies:** Given the decentralised nature of digital technologies, the EU should support infrastructures such as 3D printing, blockchain and next-generation connectivity solutions (5G, 6G). This also includes promoting digital literacy and fostering local technology ecosystems, thereby promoting a resilient and diverse economy. Such an approach can create a more dispersed yet connected workforce, enabling people even in remote areas to contribute to and benefit from the innovation ecosystem.

**6. From detailed regulation to iterative, technology-driven implementation:** The rapidly evolving digital landscape requires a flexible regulatory approach that can adapt quickly. Moving away from prescriptive, detailed regulation, the EU should embrace iterative processes, such as Policy Product Trial (PPT) programmes, to test, evaluate, and refine policies. This approach uses technology to streamline compliance, enforce rules effectively, and ensure that EU rules remain relevant in the face of technological advances, assuming an appropriate allocation of resources.

Taken together, these actions provide a roadmap for the EU to build a digital future in Europe that is inclusive, welfare enhancing, and resilient. Looking to the future, however, the implications of these proposed solutions extend far beyond the immediate domestic sphere. As the EU navigates the geopolitical AI race, its ability to adapt and innovate will determine its global standing and influence. Integrating open AI solutions and open data into governance and the economy offers a way not only to boost competitiveness, but also to embed European values in the digital landscape. The coming years will undoubtedly be transformative, as the EU seeks to balance the need for technological progress with the imperative of maintaining democratic legitimacy and social cohesion. In this context, the EU's approach to digital policy will be a litmus test of its adaptability – and this should be reflected in its internal organisation and policy-making structure. In short, the EU's digital governance urgently needs to update its operating system.

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