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Towards a European AI & Society Ecosystem

Executive Summary

Artificial Intelligence (AI) has emerged as a key technology that has gripped the attention of governments around the globe. The European Commission has made AI leadership a top priority. While seeking to strengthen research and commercial deployment of AI, Europe has also embraced the role of a global regulator of technology, and is currently the only region where a regulatory agenda on AI rooted in democratic values – as opposed than purely market or strategic terms – can be credibly formulated. And given the size of the EU's internal market, this can be done with a reasonable potential for global impact. However, there is a gap between Europe's lofty ambitions and its actual institutional capacity for research, analysis and policy development to define and shape the European way on AI guided by societal values and the public interest. Currently the debate is mostly driven by industry, where most resources and capacity for technical research are located. European civil society organizations that study and address the social, political and ethical challenges of AI are not sufficiently consulted and struggle to have an impact on the policy debate. Thus, the EU's regulatory ambition faces a serious problem: If Europe puts societal interests and values at the center of its approach towards AI, it requires robust engagement and relationships between governments and many diverse actors from civil society. Otherwise any claims regarding human-centric and trustworthy AI would come to nothing.

Therefore, EU policy-making capacity must be supported by a broader ecosystem of stakeholders and experts especially from civil society. This AI & Society Ecosystem, a subset of a broader AI Ecosystem that also includes industry actors, is essential in informing policy-making on AI, as well as holding the government to its self-proclaimed standard of promoting AI in the interest of society at large. We propose the ecosystem perspective, originating from biology and already applied in management and innovation studies (also with regard to AI). It captures the need for diversity of actors and expertise, directs the attention to synergies and connections, and puts the focus on the capacity to produce good outcomes over time. We argue that such a holistic perspective is urgently needed if the EU wants to fulfil its ambitions regarding trustworthy AI. The report aims to draw attention to the role of government actors and foundations in strengthening the AI & Society Ecosystem.

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The report identifies ten core functions, or areas of expertise, that an AI & Society Ecosystem needs to be able to perform – ten areas of expertise where the ecosystem can contribute meaningfully to the policy debate: Policy, technology, investigation, and watchdog expertise; Expertise in strategic litigation, and in building public interest use cases of AI; Campaign and outreach, and research expertise; Expertise in promoting AI literacy and education; and sector-specific expertise. In a fully flourishing ecosystem these functions need to be connected in order to complement each other and benefit from each other.

The core ingredients needed for a strong AI & Society Ecosystem already exist: Europe can build on strengths like a strong tradition of civil society expertise and advocacy, and has a diverse field of digital rights organizations that are building AI expertise. It has strong public research institutions and academia, and a diverse media system that can engage a wider public in a debate around AI. Furthermore, policy-makers have started to acknowledge the role of civil society for the development of AI, and we see new funding opportunities from foundations and governments that prioritize the intersection of AI and society.

There are also clear weaknesses and challenges that the Ecosystem has to overcome: Many organizations lack the resources to build the necessary capacity, and there is little access to independent funding. Fragmentation across Europe lowers the visibility and impact of individual actors. We see a lack of coordination between civil society organizations weakening the the AI & Society Ecosystem as a whole. In policy-making there is a lack of real multi-stakeholder engagement and civil society actors often do not have sufficient access to the relevant processes. Furthermore, the lack of transparency on where and how AI systems are being used put additional burden on civil society actors engaging in independent research, policy and advocacy work.

Governments and foundations play a strong role for the development of a strong and impactful AI & Society Ecosystem in Europe. They provide not only important sources of funding on which AI & Society organizations depend. They are also themselves important actors within that ecosystem, and hence have other types of non-monetary support to offer. Policy-makers can, for example, lower barriers to participation and engagement for civil society. They can also create new resources for civil society, e.g. by encouraging NGOs to participate in government funded research or by designing grants especially with small organizations in mind. Foundations shape the ecosystem through broader support including aspects such as providing training and professional development. Furthermore, foundations are in the position

to act as convener and to build bridges between different actors that are necessary in a healthy ecosystem. They are also needed to fill funding gaps for functions within the ecosystem, especially where government funding is hard or impossible to obtain. Overall, in order to strengthen the ecosystem, two approaches come into focus: managing relationships and managing resources.

lacks resources, capacity, space for collaboration, and access to decision-making processes. Both governments and foundations, however, are well placed to address these challenges as we argue further below.

The Role of Governments and Foundations

Both governments and foundations play a strong role for the development, strength, and impact of the AI & Society Ecosystem in Europe. Governments and foundations provide important sources of funding on which AI & Society organizations depend. But besides providing funding, both governments and foundations are also themselves important actors within the AI & Society Ecosystem, and hence have other types of non-monetary support to offer.

Governments shape the development, deployment, and regulation of AI on many different levels ranging from publicly funded research programs to the drafting and enforcement of regulatory frameworks. Thus the impact and influence of the AI & Society Ecosystem on how we use AI greatly depends on its relationship with government.

Foundations are especially needed to fill funding gaps for functions within the ecosystem, especially where government funding is hard or impossible to obtain, such as strategic litigation. However, foundations shape the ecosystem not only through their financial investments but also through broader support and non-financial resources they can provide to their grantees. One crucial role for foundations is to build connections between different actors in the ecosystem that they might fund, and to lend additional legitimacy to their grantees' work.

Below, we discuss the role of governments and foundations in the AI & Society Ecosystem in more detail. As identified above, ecosystems are characterized by collaboration and coordination between a diverse set of actors. An ecosystem's effectiveness is therefore closely linked to the quality of those interactions and the capacities of the actors involved. Thus, in order to strengthen the ecosystem, two approaches come into focus: managing relationships and managing resources. To summarize the analysis, we organize our recommendations for governments and foundations aiming to support the AI & Society Ecosystem into these two broad categories.

Role of Governments

In many ways governments are central to the AI & Society Ecosystem. Only governments can make enforceable rules regarding the implementation and the limitations of deployment of AI technologies. Governments also provide significant sources for funding – especially related to research on AI. The German government alone has committed to spending 3,5 billion Euro on AI in the next five years.

The technical expertise function within the ecosystem is largely funded by public resources through general support for public universities and academic research programs. In addition, governments also provide funding for specific research projects with large grant programs. The Horizon 2020 program of the EU Commission has a volume of about 80 billion Euro to support research and science in the EU.[37] Regarding AI the EU Commission has announced that it plans to spend at least 7 billion Euro on AI related research and innovation programs for the period of 2021 to 2027.[38]

A significant amount of funding for policy expertise also comes from government sources, for example through research support for academic work on legal, regulatory or policy implications linked to AI, or funding for specific reports on these questions commissioned by ministries or public agencies.

Governments shape the research agenda and the development of new initiatives and priorities through general financial support. Government research programs and funding policies can have a huge impact on the AI & Society Ecosystem – but relevance for commercial and industrial applications is usually the top priority.

Governments play an important role in supporting general education and public awareness building around AI. Governments have the ability to reach people at a large scale, especially through the public education system. But the development of new curricula, whether in schools or at universities, tends to require immense effort and often takes lots of time to catch up. This leaves a lot of space for organizations that can act more quickly. Small initiatives by NGOs or foundations can be very useful to test educational ma-

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37 European Commission, 'Factsheet: Horizon 2020 budget', 25 November 2013, https://ec.europa.eu/research/horizon2020/pdf/press/fact_sheet_on_horizon2020_budget.pdf.

38 European Commission, 'Artificial Intelligence', 7 December 2018, https://ec.europa.eu/commission/news/artificial-intelligence-2018-dec-07_en.

terials and to develop new innovative approaches on how to promote deeper understanding of AI among the broader public.[39]

Finally, governments shape the development and deployment of AI through their own use of the technology. Governments are among the largest and most important customers for AI driven solutions. They can set standards and promote technological innovation through their procurement policies. And the use of AI by governments raises important social and ethical questions. This makes procurement another important area of engagement between governments and the AI & Society Ecosystem.

In the following section we explore more deeply the relationship between government and the AI & Society Ecosystem in these three areas:

- research funding and strategic investment;
- policy making and regulation;
- public procurement.

We organize the discussion around these three domains for analytical clarity, but in practice they are, and should be considered, closely linked and should follow an overarching agenda. As we argued above, this agenda needs to include investments into the strengthening of the AI & Society Ecosystem in order to build the capacity necessary for the development of trustworthy and human-centric AI. It is this overarching goal that guides our analysis of these three areas of government activities regarding AI.

Research funding and strategic investments

Government has always played a central role in the development and deployment of new technologies. Acknowledging the important role of governments in driving technological innovation, economist Mariana Mazzucato has drafted recommendations on mission-oriented research and innovation for the EU Commission.[40] Mazzucato argues that such missions should be guided by societal relevance and she emphasizes the importance of engaging with civil society in the process of designing and executing missions. Implementation of Mazzucato's recommendations in the field of AI would highlight the relevance of a strong AI & Society Ecosystem. Mazzucato's mission-oriented research and innovation approach both depends on such an

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39 For example the free online course Elements of AI, developed by the University of Helsinki, https://course.elementsofai.com/.

40 European Commission, Mazzucato, Mariana, 'Mission-Oriented Research & Innovation in the European Union', 2018, https://ec.europa.eu/info/sites/info/files/mazzucato_report_2018.pdf.

ecosystem and – through opening the development of the research agenda beyond government agencies – puts in place the conditions for the further development and growth of such an ecosystem. Thus, it could serve as a catalyst to better integrate the AI & Society Ecosystem with the development and implementation of the EU's research agenda.

Many NGOs engage in research. For instance, they identify and analyze problematic AI projects. They study the broad risks and challenges associated with the technology as well as question how AI could be used to serve the public good. A great deal of this research is directly relevant to policy making. Many NGOs have developed capacity to analyze regulatory frameworks for AI and to develop solutions for regulatory gaps or shortcomings. In many cases NGOs collaborate with academics on their research. However, formal criteria make it often very difficult for NGOs to apply. Thus governments should think about opening up their research programs for non-academic applicants or design specific grant programs for collaborations between academic researchers and NGOs. This would also foster the transfer of expertise from academia into organizations more engaged in public awareness and policy functions within the ecosystem.

Another way for governments to support the important research done by NGOs would be to set up specific research grants designed for NGOs. Such research grants need to be designed in a way that makes it possible for small organizations with few administrative resources to apply for and manage such grants.[41]

Another way to provide funding opportunities to develop and grow the expertise in the AI & Society Ecosystem is through the establishment of an organization with this exact purpose. Some governments have established social innovation funds or organizations tasked with identifying and supporting social innovation such as Sitra in Finland or Nesta in the UK. Such funds could develop programs designed to tap the expertise of organizations within the AI & Society Ecosystem and to provide them with funding for innovative projects.

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41 An example from the adjacent field of civic tech is Prototype Fund, a funding program of the Federal Ministry of Education and Research (BMBF) managed by Open Knowledge Foundation Germany.

Policy Making and Regulation

Policy making and regulatory processes are often arcane to outsiders. This is especially the case if there is little fluctuation of personnel between government and outside organizations that seek to lobby or engage governments: While there is quite some crossover between senior government positions and industry, policy expertise is much harder to obtain for NGOs as they usually cannot compete with private sector salaries.[42]

At the same time, many government officials have little experience engaging NGOs and often do not fully understand and appreciate the resource constraints under which NGOs have to operate. Thus, productive engagement with the AI & Society Ecosystem can only occur if government officials do not only see general value in engaging with a broader and more diverse set of stakeholders and experts beyond industry, but also lower barriers to participation and engagement. This ranges from proactively seeking out input from different stakeholders of the AI & Society Ecosystem to accommodating their resource constraints, for example with support to cover travel costs for participation in workshops or stakeholder consultations.

A bolder approach would be to make grants available for civil society organizations to participate in policy consultations and other forms of stakeholder engagements organized by government actors. As an example of a promising framework to lower the barriers for participation, consider the regulation governing standardization practices at the EU level[43], which includes articles allowing civil society organizations to receive financing to take part, specifically to avoid the process being too industry dominated. While it is far from perfect (it does too little, and still works best for bigger, well-established groups), it is an example of an effort by government to better involve civil society.

There needs to be more awareness inside and outside government regarding the discrepancy in access to and engagement in policy-making processes

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42 The recent ACM FAT 2020 conference offered a tutorial: Adams, Stan, and Natasha Duarte, 'Policy 101: An Introduction to Participating in the Policymaking Process', 20 December 2019, https://grailnetwork.org/2019/12/20/fat-2020-policymaking-tutorial/.

43 European Parliament, Council of the European Union, 'Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision No 1673/2006/EC of the European Parliament and of the Council Text with EEA relevance', 25 October 2012, Annex III, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32012R1025.

between industry as compared to civil society. Requiring more transparency around lobbying activities such as meetings with government officials can help to track the (un)balanced levels of input from different stakeholders. Public scrutiny may create incentives for government officials to seek more balance in the first place. A lobbying register will also serve as a useful tool for the watchdog function within the ecosystem, providing information on what kind of organizations and companies are seeking to influence government policies.

Effectively integrating perspectives of experts from the NGO/non-profit sector into the policy making process requires that government officials make an extra effort. Given the workload of government officials and the pressure to quickly get things done, it requires serious efforts to address this problem. Political leadership can provide the resources that such an effort requires and also communicate priorities to effectively integrate diverse perspectives from the AI & Society Ecosystem into their staff. Specifically for so-called "high-risk applications" of AI as defined in the European Commission's White Paper on AI, establishing a structured process to systematically involve civil society seems an obvious step.

There should be internal guidelines and policies that require more diverse and broad consultations, and successful records to meet such requirements should play an important role in internal evaluations and considerations for promotion. Government officials should also be trained on AI issues so they can communicate with the larger ecosystem more effectively, and are better placed to translate insights into policy. Building up this capacity to supplement and exchange ideas with civil society allows for more productive engagement and will increase the quality of policies.

Many governments and the EU require evaluations (backward looking) and/or impact assessments (forward looking) of laws and regulations.[44] Both are important, and for both the European Commission, for example, frequently relies on external expertise.The AI & Society Ecosystem should become more involved in conducting these evaluations and impact assessments concerning AI since many organizations in the ecosystem have highly relevant expertise.

Authorities often have funding available to bring in outside expertise to carry out (parts) of the evaluations and impact analysis, so they can also serve as

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44 European Commission, 'Impact assessments', 7 December 2018, https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/impact-assessments_en.

a source of funding and help build capacity within the AI & Society Ecosystem. The impact assessments could be at the core of a much broader effort to develop projects that connect the AI & Society Ecosystem with regulators.

Public Procurement

There are many use cases for AI technology in the public sector. When governments decide to adopt AI for their own work, they have to address important strategic questions. What kind of use cases will governments identify for AI implementation? What kind of benchmarks will governments use to assess the effectiveness and quality of AI-driven applications? How will governments internally regulate the use of AI, and how transparent will governments make their work with AI technologies? The way governments answer these fundamental questions will have ramifications far beyond the public sector. Just on the basis of its purchasing power, governments define important standards for industry. And AI adoption within governments also has a strong impact on the regulatory debate.

The AI & Society Ecosystem can play an important role in shaping government use of AI so that it serves the public interest and puts societal interests first. AI companies have a tendency to oversell the capabilities of their products and to downplay shortcomings and risks. Since most actors in the AI & Society Ecosystem do not have any commercial interests related to AI deployment, they can serve as important counterweights in the debate over government adoption of AI. Government officials can seek the ecosystem's expertise to help separate fact from fiction and to develop effective policy and regulatory frameworks that make sure that government uses of AI actually deliver on their promises.

The ecosystem should not have to entirely rely on government officials to reach out and integrate its perspectives and expertise into the development, implementation and evaluation of public sector AI projects. The AI & Society Ecosystem can only effectively fulfill its independent watchdog function if information about AI public sector projects is publicly available. Thus governments should publish a procurement transparency register which lists all public sector AI projects in a comprehensive database. This will provide the ecosystem with an up-to-date overview of all AI public sector uses cases that are being developed or deployed. This makes it possible for actors within the ecosystem to proactively identify potential risks and problems, raise public awareness around them and reach out to government officials to address them.

We need better guidelines and frameworks to help governments think about using AI in the public sector. The AI & Society Ecosystem should be invited to participate in the development, implementation and evaluation of such guidelines. Many organizations within the AI & Society Ecosystem represent or have particular expertise about groups that could be harmed by poorly designed and implemented deployments of AI use cases, which can make the policy-making process even more representative. Integrating this perspective from the beginning of the process can help prevent problematic designs before the technology actually gets deployed.

More generally, the public procurement process should be opened up. There needs to be a robust public debate about government adoption of AI driven technologies. Governments should proactively reach out to the AI & Society Ecosystem to discuss good practices and use cases for AI deployments in the public sector, and to ensure that those best practices guide the development of procurement guidelines. Procurement agencies could also commission studies and impact assessments of public sector AI usages to organization within the AI & Society Ecosystem.

Recommendations for Governments – Summary

There are three important areas of engagement between governments and the AI & Society Ecosystem, all of them particularly relevant when governments want to strengthen the AI & Society Ecosystem: research funding and strategic investments, policy-making and public procurement.

Across these domains, the options for governments to support civil society and the ecosystem can be broken down into the two categories resources and relationships as summarized in the chart below:

Table 1

RESOURCES	Opening up research programs for non-academic applicants.
	Designing grants specifically with small organizations in mind (e.g. easy to apply for, and with light-weight grant reporting structures).
	Providing broader funding across different ecosystem functions.
	Providing resources for civil society to take part in policy making processes (e.g. travel grants).
	Establishing organizations specifically for the purpose of funding the AI & Society Ecosystem similar to social innovation funds such as Sitra in Finland or Nesta in the UK.
	Involving civil society organizations in conducting impact assessments, and provide more funding to support this.
RELATIONSHIPS	Develop a deeper understanding of how civil society adds value, and explore the different ways civil society actors can realistically contribute.
	Lower barriers to participation and engagement of civil society by proactively reaching out and seeking input from different stakeholders (e.g. develop specific guidelines requiring broad consultations).
	Enabling civil society actors to keep up with the demanding working methods of traditional policy-making.
	Increasing transparency regarding the use of AI in society, public procurement and lobbying to create a level playing field for non-governmental watchdogs and to better track balance between input from different stakeholders.
	Train officials on AI issues so they can better interact with the ecosystem and translate insights into policy.

Role of Foundations

Given the impact and relevance AI already has for our society, philanthropy has a crucial role to play when it comes to fostering the AI & Society Ecosystem in Europe and to overcome its multifaceted challenges – both in terms of funding and also in terms of nonfinancial resources such as professional development, development of networks, and amplification of innovators. In the following section we discuss the role of foundations in the AI & Society Ecosystem and analyze different avenues for funding organizations to support the ecosystem. Our analysis is organized in three broader themes:
- Funding strategies and processes;
- Convening and bridge-building
- Reflection on funders' roles and responsibilities.

Conclusions

AI is seen as a key technology for the 21st century. The EU and its member states have made the development and deployment of AI a top priority. But unlike the US or China, the EU has built its AI strategy around an ethical approach that seeks to make AI trustworthy and human-centric. For the EU, AI is not only about research and investment but also about balanced regulation that allows for innovation while protecting citizens from harm. That is why those who believe that ethical AI requires an appropriate regulatory framework currently look to Europe for guidance and leadership.

We argue that the EU can only fulfill its ambitions and assume global leadership on AI governance if it has the capacity and networks in place to help it turn lofty goals into effective policy.

The ecosystem perspective helps us frame this debate. Currently we focus too much on individual policies and proposals. Instead, we need to make sure that the right conditions are in place so that policy making on AI can succeed in the long run.

With this report we aim to initiate a discussion on how European AI policy-making should be anchored within a greater ecosystem. We believe that if the EU is serious about its ethical ambitions, this ecosystem needs to include strong civil society and non-governmental organizations: What we call an AI & Society Ecosystem.

With this report we hope to make two contributions that spur further debate. First, we presented our thinking and analysis of how to conceptualize an AI & Society Ecosystem and what we see as core functions that it must be able to perform. Second, we have developed recommendations for what governments and foundations could and should do to productively engage with such an ecosystem and support its growth.

We hope that this report can help to spark further debate and shift some attention on long-term capabilities. Only if we succeed in building a strong AI & Society Ecosystem can the EU become the global leader on AI governance it aspires to be.

Acknowledgements

About Stiftung Neue Verantwortung

SNV is an independent, non-profit think tank working at the intersection of technology and society. The core method of SNV is collaborative policy development, involving experts from government, tech companies, civil society and academia to test and develop analyses with the aim of generating ideas on how governments can positively shape the technological transformation. In order to guarantee the independence of its work, the organization adopted a concept of mixed funding sources that include foundations, public funds and corporate donations.

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