

WORKING PAPER

EUROPEAN ARTIFICIAL INTELLIGENCE POLICY: MAPPING THE INSTITUTIONAL LANDSCAPE

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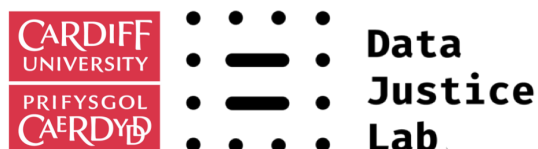


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INTRODUCTION

In the last few years, Artificial Intelligence (AI) has gained prominence across consumer, business, scientific and government sectors, often as a ‘buzzword’ propelling new forms of policies and governance. Some countries, such as the United Kingdom, have set up a number of different bodies that form and discuss public policies largely focused on AI and other data-intensive technologies¹ and there have been widespread calls across government and industry for innovation in regulation.² At the same time different companies, business associations, civil society, think tanks etc. have developed numerous initiatives that focus on ethical principles and toolkits to address value tensions associated with the deployment of AI.³ All these different institutional, legal and industry efforts together constitute what Ryan Calo (2017) refers to as ‘AI policy’:⁴ a separate and distinctive area of policymaking that addresses different challenges tied to AI and similar technologies, including justice and equity, safety and certification, privacy and power dynamics, taxation and displacement of labour.⁵ In that sense AI policy needs to be understood as a horizontal area of policy that stretches across different domains and sectors, with all the challenges that come with that.

A key player in this debate is the European Union (EU) that for the last few years has been trying to create political strategies, financial policies and regulatory regimes that focus on AI and data-driven technologies. In this Working Paper we take stock of some of those efforts, mapping the debate and outlining key institutional arrangements and funding strategies. We see this as a useful exercise for getting to grips with the composition, accountability and power dynamics in the EU policy debate surrounding AI. As such, this is a starting point for further research into policy responses to the transformative aspects of AI as they pertain to social justice concerns.

The Working Paper outlines the positions of relevant actors in the EU policy landscape. For this paper, we focus on the European Commission and other European institutions such as the European Parliament, consultative committees or executive agencies and their efforts to define a common strategy in relation to AI. In order to do this, we bring together the dual aspects of liberal state interventions in technology and innovation that cover both principles of public funding of research on the one hand, and regulatory interventions for industry on the other.⁶ Across these areas, a myriad of instruments and bureaucratic mechanisms shape the nature of contemporary EU policy debates on AI. We start by outlining some of the historical context, before mapping key features of the main policy documents published by the European Commission pertaining to AI. We then go on to discuss strategies for funding and investment, and outline contributions from so-called ‘expert groups’ and resolutions and debates held by European Parliament and other consultative bodies, before ending with a brief mapping of key policy challenges intersecting with digital policies as documented by the Commission.

¹ Among them are for example: the Centre for Data Ethics and Innovation, the Alan Turing Institute, the National Data Guardian, the AI Council; the Office for AI; the House of Lords Select Committee on AI; the House of Commons Inquiry on Algorithms in Decision-Making. More in M. Veale, A Critical Take on the Policy Recommendations of the EU High-Level Expert Group on Artificial Intelligence, *European Journal of Risk Regulation*, 2020.

² Sundar Pichai, Why Google thinks we need to regulate AI, *Financial Times*, 2020 <https://www.ft.com/content/3467659a-386d-11ea-ac3c-f68c10993b04>

³ Look at: Algorithm Watch, AI Ethics Guidelines Global Inventory, <https://inventory.algorithmwatch.org/>

⁴ Ryan Calo, Artificial Intelligence Policy: A Primer and Roadmap, 51 U.C.D. L. Rev. 399 (2017).

⁵ Ibidem.

⁶ Sheila Jasanoff, Governing innovation, KNOWLEDGE IN QUESTION a symposium on interrogating knowledge and questioning science, 2007.

HISTORICAL DEVELOPMENTS

While the popular interest in AI is a relatively new phenomenon, this particular technology has been present in the European policy debate for quite some time. EU's policy and legal documents (archived in the Eurolex system⁷) indicate that AI drew some attention from politicians in the 1970s and 80s, mostly in the context of science and innovations projects (chart 1)⁸. However, since 2017 we can see an explosion of such interest. In 2018 more than 240 and in the following year almost 170 different policy documents mentioned AI. The increase in AI interest and its prevalence in policy is associated with very different areas such as security, data policy, mobility and job markets, the Space Programme, language equality, digital policy or climate change. This diversity illustrates the horizontal and cross-cutting nature of AI policy.

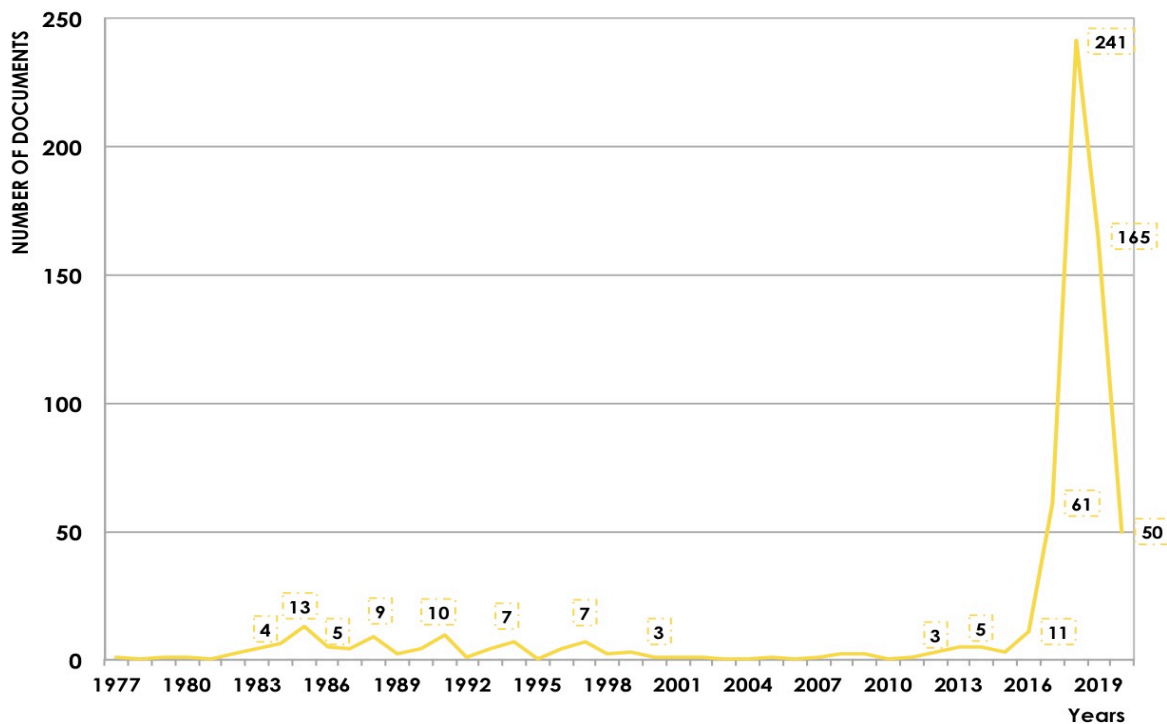


Chart 1
Mentions of AI in the EU legal and policy documents

Although AI as a separate policy area is relatively new, it has emerged out of long-standing decisions and activities in science policy⁹ and the regulation of technologies and market practices. The beginnings of modern science policy in Europe are closely related to the transformations associated with the Cold War that led to the consolidation of a close alliance between nation-states and scientific institutions. For a long time science was a domain of nation-states and transnational cooperation was treated suspiciously. That is why for the first decades of its existence the European Community struggled to establish direct competence in any research activities, other than the nuclear energy sector (via Euroatom community).¹⁰ This situation has changed with the adoption of the European Single Act in 1986, which established formal

⁷ The repository contains European legal acts, communications, proposals, opinions etc. formed in the legislative process.

⁸ Query [generated in the Eurolex database](#)

⁹ Known also as technology, innovation, or research policy.

¹⁰ George M. Korres, Institutional Development and the Harmonisation of Technological Policy in the European Union, in G. M. Korres and G. C. Bitros (ed.) *Economic Integration: Limits and Prospects*, 2002.

competences in the area of research, and the creation of Framework Programmes that channelled financial resources into this area.¹¹ In subsequent years, the re-composition of funds changed, and more resources were allocated to research and investments in ICT than for example energy or industry.¹² From early on, research and technological policies were also dominated by the philosophy of building a single market, advancing economic cooperation, internationalisation and developing industrial capacities. Technology and innovation have also been key for securing political legitimation and advancing narratives of political futures and economic prosperity as laid out in the Lisbon Strategy that planned for the EU to ‘*become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion*’.¹³ While the strategy was seen as an economic and political failure, this way of thinking about technology and innovation has dominated the EU until now.

Within such institutional frameworks early mentions portrayed AI as a promising technology for the future that Europe should invest in with strong support for public intervention and financial schemes.¹⁴ It was mostly the European Commission and executive branches of Communities (R&D agencies and programmes) that wrote about AI although the European Parliament was also active. For example, in a resolution concerning arms sales in November 1983 it called for the European Commission ‘*to develop a programme concerning computer-aided design and manufacturing systems and artificial intelligence*’.¹⁵

Interestingly, those early documents also shared very similar anxieties related to technology that are raised today: global competition (then with the US and Japan), fears of job market transformations, restructuration of social policies, and negative impacts on rights and freedoms.¹⁶ Development of those early policies shows some compromise between different political visions that prioritised market competition and protection of rights and freedoms (more liberal vision) and social-democratic concerns about labour and employment. These have continued to be prevalent as regulation has stretched across competition, markets and rights; from intellectual property, consumer protection, privacy to competition. For example, between the 1980s and 1990s the European Commission acted on the deregulation on the ICT market aimed at removing national monopolies (especially in telecommunication) and empowering consumers. Over the decades European institutions have also developed policies on fundamental rights, which have gained particular status with the adoption of the Charter of Fundamental Rights. Among those efforts was the adoption of an EU directive on data protection, which emerged from data protection movements in the 1970s and 80s. However, interestingly, many of these earlier policies including the motivation for data protection legislation were tied to the construction of common European markets (‘*bringing together users to establish markets*’¹⁷) rather than traditional human rights principles.¹⁸

¹¹ Susana Borrás, *The Innovation Policy of the European Union: From Government to Governance*, 2003; George M. Korres, Institutional Development and the Harmonisation of Technological Policy in the European Union, in G. M. Korres and G. C. Bitros (ed.) *Economic Integration: Limits and Prospects*, 2002.

¹² Ibidem

¹³ https://ec.europa.eu/archives/growthandjobs_2009/

¹⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1591290773909&uri=CELEX:51982DC0287>

¹⁵ <https://op.europa.eu/en/publication-detail/-/publication/35459d30-56a3-48dc-ba34-964fe42ca122/language-en>

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1591290607169&uri=CELEX:51979DC0650>

¹⁷ Ibidem

¹⁸ Vasiliki Kost, *Fundamental Rights in EU Internal Market Legislation*, 2015, p. 98.

FIRST STEPS OF THE AI POLICY

AI became a separate area of public policy during the Jean Claude Juncker presidency (2014-2019). This change was strictly related to broader political and legal developments that emerged during those years. Under the strategy of the Digital Single Market (DSM)¹⁹, the European Commission proposed different initiatives related to data governance, innovation policy and the digital economy. It is estimated that the Commission proposed over 30 legislative proposals to implement DSM. Many of those initiatives paved a way for more concrete activities that focus specifically on AI systems. All those policies fit into a broader vision of economic integration, promotion of political values and European mission for technological regulation, as Jean Claude Juncker summarised: *'It is because of our single market - the largest in the world - that we can set standards for big data, artificial intelligence, and automation. And that we are able to uphold Europeans' values, rights and identities in doing so'*.²⁰

DIGITAL SINGLE MARKET

The Digital Single Market (DSM) is a set of policies announced as a strategy by the Juncker Commission in May 2015 and tied to the idea of a European Single Market with the goal to make Europe a leader in the global digital economy. One of the key elements of DSM is harmonisation of various rules in such areas like e-commerce, telecommunication, data protection, platform economy, access to digital content, geoblocking, cybersecurity. DSM is supposed to be a driver for innovative economic growth for the digital economy.

Regarding data governance, a number of new mechanisms have been adopted or come into force. Among them was a landmark General Data Protection Regulation (GDPR) that was finally adopted in 2016 and fully applicable in 2018.²¹ Other examples included Regulation on the free flow of non-personal data²² (adopted in 2018), or so-called third data package²³ (which included a proposal on sharing private sector data, revision of the directive on the re-use of public sector information and guidelines on genomic and health data). Those different proposals and legislation play an important role as a mechanism to provide access and framing for governance of high-quality data, a necessary condition for the development of AI.

In 2018 Regulation establishing the European High-Performance Computing Joint Undertaking was also adopted.²⁴ The project aimed to pool European resources to develop supercomputer infrastructure for processing big data and support research and innovation activities. The Joint undertaking is composed of both public and private members (among them are the European Technology Platform for High Performance Computing and the Big Data Value associations).

¹⁹ https://ec.europa.eu/commission/sites/beta-political/files/a_digital_single_market_benefit_all_europeans_en_20190319_1230.pdf

²⁰ https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-speech_en_0.pdf

²¹ <https://eur-lex.europa.eu/eli/reg/2016/679/oj>

²² <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32018R1807>

²³ https://ec.europa.eu/commission/presscorner/detail/en/IP_18_3364

²⁴ <https://ec.europa.eu/digital-single-market/en/eurohpc-joint-undertaking>

Between 2018 and 2019, the EU's executive arm published the first documents that focused exclusively on AI.

Recent European AI initiatives:

- 25 April 2018: Communication Artificial Intelligence for Europe
- 25 April 2018: Communication Towards a common European data space
- 15 May 2018: Completing a trusted Digital Single Market for all
- 7 December 2018: Coordinated Plan on Artificial Intelligence
- 8 April 2019: Ethics Guidelines for Trustworthy Artificial Intelligence (report by HLEG)
- 9 April 2019: Communication on Building Trust in Human-Centric Artificial Intelligence
- 19 February 2020: White Paper on Artificial Intelligence: a European approach to excellence and trust
- 19 February 2020: Communication European strategy for data

Among those first documents was a Communication on “Artificial Intelligence for Europe”.²⁵ Under the motto “AI for good for all”, the Commission announced concrete funding initiatives and defined their socio-economic purpose. As a response to emerging national AI strategies, the Commission called for legal solutions and technological standards that *‘will prevent a fragmentation of the single market and therefore fuel the emergence of AI startups.’*

The document has three main goals:

- Boost technological capacity and AI uptake: invest in research and innovation, strengthen research excellence centres, provide a toolbox for potential users (AI on demand platform, Digital Innovation Hubs and industrial data platforms), and update governance mechanism of non-personal data.
- Prepare for socio-economic changes: set up dedicated training schemes, gather information about changes on the labour market, support business-education partnerships, support workers whose jobs will be transformed and adaptation of social protection systems (in line with European Pillar of Social Rights).
- Ensure adequate ethical and legal frameworks: publication of ethical guidelines, changes in product liability rules, detailed analysis of emerging challenges.

Also in 2018, 24 EU countries and Norway signed a Declaration of cooperation on AI.²⁶ The countries agreed to *‘work towards a comprehensive and integrated European approach on AI to increase the EU’s competitiveness, attractiveness and excellence in R&D in AI.’* The Declaration calls for a modernization of national policies and organized compressive public discussion about AI. The document also presents a number of activities in research and innovations: increasing investment, supporting research centres and exchanging information about scientific initiatives and ethical and legal approaches.

As a continuation of those plans, by the end of 2018 the Commission published another document called a “Coordinated Action Plan on the development of AI in the EU”.²⁷ This plan proposes joint actions for closer and more efficient cooperation between EU, Norway, and

²⁵ <https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe>

²⁶ <https://ec.europa.eu/jrc/communities/en/community/digitranscope/document/eu-declaration-cooperation-artificial-intelligence>

²⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:795:FIN>

Switzerland in four key areas: increasing investment, making more data available, fostering talent and ensuring trust. This document also encourages the Member States to develop their national AI strategies according to a common framework. The plan also announced the creation of AI Watch, the '*Commission Knowledge Service to Monitor the Development, Uptake and Impact of Artificial Intelligence for Europe*'.²⁸

AI Watch

AI Watch is a special unit developed by the Joint Research Centre and DG CONNECT. It monitors AI-related development and provides analyses necessary to support the implementation of the European AI initiatives. The unit is also developing a methodology to identify risks and opportunities, drivers and barriers of the use AI in public service provision.

NEW COMMISSION: FROM DIGITAL STRATEGY TO WHITE PAPER

The new European Commission led by Ursula von der Leyen has plans to continue and further develop interest in policy making around AI. In her "Political Guidelines" manifesto, von der Leyen presented a range of priorities including a European Green Deal, social fairness and prosperity, economic development and strengthening democratic institutions²⁹. The new president of the Commission also called for a Europe fit for the digital age, outlining a vision of 'technological sovereignty', in which Europe can rely on its own resources, experience and know-how. Von der Leyen stressed the need for AI projects to be financed directly through the new EU budget and increased use of public-private partnerships in order for data and AI to play a crucial role in finding solutions to societal challenges, from health to farming, from security to manufacturing. Alongside this, she announced legal and policy initiatives that will directly address implications of AI.³⁰

The broad political programme of the new president of the Commission was transformed into 43 more specific political objectives.³¹ In the current term of the Commission those responsible for the development of AI policy are Margrethe Vestager³² (one of the executive vice-presidents of the Commission, responsible for political priority "Europe Fit for the Digital Age" and Commerce) and Thierry Breton³³ (Commissioner for Internal Market and Services). Both are supported by European liberal parties.

²⁸ https://ec.europa.eu/knowledge4policy/ai-watch/about_en

²⁹ Among priorities are: a) A European Green Deal; b) An economy that works for people; c) A Europe fit for the digital age; d) Protecting our European way of life; e) A stronger Europe in the world; f) A new push for European democracy.

³⁰ https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf

³¹ https://ec.europa.eu/info/publications/2020-commission-work-programme-key-documents_en

³² https://ec.europa.eu/commission/commissioners/2019-2024/vestager_en

³³ https://ec.europa.eu/commission/commissioners/2019-2024/breton_en

As outlined below, the updated work plan for the Commission includes various specific actions, legislative proposals, and new forms of cooperation that have some specific implications for AI³⁴:

Initiatives	Timeframe
Follow-up to AI White Paper that include possible legislative proposals on safety, liability, fundamental rights and data	Q1 2021
European Strategies on Quantum and blockchain, revision of EuroHPC Regulation on supercomputing	Q2 2020
Updated Action Plan on 5G and 6G	2021
A European cybersecurity strategy, including the establishment of a joint Cybersecurity Unit.	-
A Digital Education Action Plan and reinforcement of Skills Agenda to boost digital literacy and competences at all levels of education	Q3 and 4 2020
Initiative to improve labour conditions of platform workers	2021
A reinforced EU governments interoperability strategy to ensure - borderless public sector data flows and services.	2021
Data Act implementing European Data Strategy	2021
Revision of Digital Services Act package	Q4 2020
Propose an Industrial Strategy Package	-
Communication on Business Taxation for the 21st century, to address tax challenges arising from the digitisation	Q4 2020
Delivering a new Consumer Agenda	Q4 2020
European Democracy Action Plan to support media pluralism and address the threats of external intervention in European elections	Q4 2020
A strategy for standardisation, which will allow for the deployment of interoperable technologies respecting Europe's rules, and promote Europe's approach and interests on the global stage	Q3 2020
Creating EU self-regulatory cloud rulebook	Q2 2022

Shaping Europe's digital future

In February 2020 the European Commission published “Shaping Europe's Digital Future”.³⁵ The document consists of a five-year plan for digital policy. The European data strategy and the White Paper on Artificial Intelligence are the first pillars of the new digital strategy (both described below).

The plan has three objectives:

- Technology that works for people: investment in digital competences, protection from cyber threats, development of AI that respect rights and earn trust, ultra-fast broadband form homes, schools and hospitals, expansions of supercomputing for medicine, transport and environment.

³⁴ https://eur-lex.europa.eu/resource.html?uri=cellar%3Af1ebd6bf-a0d3-11ea-9d2d-01aa75ed71a1.0006.02/DOC_2&format=PDF

³⁵ https://ec.europa.eu/info/sites/info/files/communication-shaping-europes-digital-future-feb2020_en_4.pdf

- A fair and competitive economy: provide assistance to innovative start-ups and SMEs, propose Digital Services Act, laws that are fit for purpose in the digital economy, ensure fair competence, increase access to high-quality of data and ensure data protection.
- An open, democratic and sustainable society: use technology for climate neutrality, reduce carbon emission of the digital sector, empower citizens to better control their data, create data spaces, fight disinformation.

Among the key principles of the new European digital strategy is ‘technological sovereignty’. The document says that Europe should be a *‘strong, independent and purposeful digital player in its own right’*. This notion of technological sovereignty has various dimensions. It involves control and ownership of data infrastructure, adequate capacities to invest and develop and reduce dependencies from other countries. It also says that sovereignty is *‘not defined against anyone else, but by focusing on the needs of Europeans and of the European social model.’* Also mentioning ‘European values’ this sets the grounds for future politics and digital transformations framed around individual rights and economic growth. In an attempt to define some of those values, the document notes *‘people must have the opportunity to develop personally, to choose freely and safely, to engage in society, regardless of their age, gender or professional background. Businesses need a framework that allows them to start up, scale up, pool and use data, to innovate and compete or cooperate on fair terms.’* Furthermore, the plan outlines the EU’s goal to co-create international policy in digital affairs that involves standardization, financial assistance and different models of cooperation and partnerships. This includes the Global Digital Cooperation Strategy that would entail a *‘European approach to the digital transformation that builds on our long and successful history of technology, innovation and ingenuity, vested in European values.’*

European Data Strategy

Together with the new digital strategy, the Commission published the “European strategy for data” which outlines a strategy enabling a European data economy and to *‘make sure the EU becomes a role model and a leader for a society empowered by data’*.³⁶ The document outlines the place of data in society according to European values and laws in line with its vision for shaping Europe’s digital future. Data is called *‘lifeblood of economic development’* and seen as a key resource for social progress and green transformations (e.g. the European Green Deal).

As in other documentation discussed above, ‘sovereignty’ emerges as an important theme, especially with respect to regulation: creating mechanisms to store data in EU, allow better enforcement of EU laws and make sure that European companies will comply with EU legislation without compromise with other laws. The document also positions Europe in contrast to the US (monopoly of big tech) and China (government surveillance, strong control of companies and lack of individual rights). In this context the Commission defines a ‘European way’, which allows for *‘balancing the flow and wide use of data, while preserving high privacy, security and ethical standards.’* One general goal of the strategy is establishing a *‘single market for data’*, unlocking unused data and allowing it to flow freely across sectors to support the development of AI. To do that the EU needs to address various issues, including connectivity, storage, cybersecurity, and digital skills and education. The Commission also predicts changes in infrastructures and business models that affect the data ecology and market, currently dominated by a few actors. One issue is access to data and the lack of mechanisms (both technical and organisational) that allow for the sharing of information between different sectors. The Commission wants to develop

³⁶ <https://ec.europa.eu/info/strategy/priorities-2019-2024/europe-fit-digital-age/european-data-strategy#documents>

common standards for public procurement of data processing services and proposes building a marketplace for European cloud services and to promote cloud services within the public sector. Another challenge is interoperability and quality, which is addressed predominantly in terms of standardisation and quality. According to the document the increased *'availability and standardisation of data should also facilitate real-time and cross-border compliance, leading to reductions in administrative burdens and barriers to the Single Market.'*

In promoting Europe to *'become a global hub for data'* the strategy includes a proposal to create European data spaces for strategic sectors and public domains that will enable the availability of high quality data. In total, the Commission proposes nine common European data spaces, for:

- Industrial (manufacturing) data;
- Green Deal data;
- Mobility data;
- Health data;
- Financial data;
- Energy data;
- Agriculture data
- Public administration;
- Skills data.

These data spaces will provide various organisations (especially SMEs) access to high quality data, technical measures and infrastructure and will encourage sharing and disclosing of data held by public and private companies. These data spaces will share a legislative framework for governance that will be proposed in the Data Act expected to be published in 2021 and will seek to *'foster business-to-government data sharing for the public interest, support business-to-business data sharing'* and make access to data compulsory in specific circumstances. Ultimately data spaces should help European companies, especially the development of AI systems that require large sets of data for training. The EU expects that the High Impact Project on European data spaces and federated cloud infrastructures will cost between €4-6 billion.

In combination with these data spaces, one of the goals of the European data strategy is to empower individuals with respect to their data and data rights. These rights are framed in terms of privacy and data protection. The document points to a range of technical mechanisms to enhance enforcement and *'give individuals the tools and means to decide at a granular level what is done with their data'*. Among such solutions are: *'consent management tools, personal information management apps, including fully decentralised solutions building on blockchain, as well as personal data cooperatives or trusts acting as novel neutral intermediaries in the personal data economy.'* The strategy also explains activities in funding educational programmes, advancing skills and data literacy with the goal to *'halve the current gap of 1 million digital specialists, including by putting a focus on increasing the participation of women.'*

The strategy is also focused on EU's role in global affairs and its *'strong interest in leading and supporting international cooperation with regard to data, shaping global standards'*. It is expected that African countries will be key partners in those efforts. This also includes a wish *'to attract the storage and processing of data from other countries and regions. In doing so companies from around the world will be welcome to avail of the European data space, subject to compliance with applicable standards, including those developed relative to data sharing.'* The EU will also try to promote its own model for data protection and fight against *'disproportionate access of governments to data, for example access to personal data that is not in line with the EU's data protection rules.'* By 2021 the EU wants to create an analytical framework for measuring international data flows that will allow for an *'analysis of data flows and the economic*

development of the EU's data processing sector, including a robust methodology, economic valuation and data flows collection mechanisms.'

White Paper on AI

The Commission also published a White Paper, which outlines the main European policies in the field of AI that are framed around the binary of societal and economic progress (funding programmes) vs. risks (ethical guidelines and regulation).³⁷ This includes a view of AI as potentially improving public and private services, supporting democratic processes, advancing social rights and achieving Sustainable Development Goals. It is also presented as a potential answer to the risk of national fragmentation that could harm principles of the single market.

The White Paper calls for '*capitalising on strengths in industrial and professional markets*' in the context of the global competition of AI. For example, it notes that the EU has high quality research centres, start-ups and high-tech manufacturing, especially in such sectors like healthcare, logistics, energy and agriculture. It also mentions that another strength is the harmonization of scientific activities, and existing funding programmes that help eliminate duplication of efforts and allows for better management of resources. However, it notes that challenges exist with regards to insufficient investment in AI (compared to other parts of the world) and disadvantage in data access caused by monopolies. As a way to tackle those problems, the Commission has two goals promoting the uptake of AI whilst addressing risks that those technologies pose. This binary is reflected in two building blocks for the White Paper:

- **ecosystem of excellence:** mobilisation of money, support research and innovation, create incentives for adopting AI systems
- **ecosystem of trust:** related to compliance with EU rules, providing citizens confidence to use AI applications, promoting ethical and human-centric approach to technologies

As for the first block, 'the ecosystem of excellence', the European Commission proposes to increase funding for AI projects with the ambition to make €20 billion per year available through stimulating private investments and public funds. It is particularly focused on Small-Medium-Enterprises (SMEs) and their ability to acquire and use AI services, involving further development of Digital Innovation Hubs and AI-on-demand platforms. The public sector is also encouraged to adopt AI systems through the 'Adopt AI' programme that supports public procurement of AI systems and helps to transform public procurement processes. Furthermore, the White Paper addresses problems of access to data, with a broad plan to become '*a world leader in a data-agile economy*'. Here it mentions already existing regulatory frames like GDPR, Regulation on Free Flow of Data, and the Open Data directive, but outlines that a new approach will be needed, such as the proposal of 'European data spaces' (described above).

Another goal is to coordinate research efforts, create excellence and testing centres, and focus on areas Europe is seen to champion including health, transport, finance, agriculture, forestry or earth observation. The White Paper also proposes support and coordination of university networks to boost education and skills in the field of AI. There is an expectation that the EU could be a forum to create global standards for AI that includes '*supporting upward regulatory convergence, accessing key resources including data, creating a level playing field*' and promotes '*respect of fundamental rights, including human dignity, pluralism, inclusion, non-discrimination and protection of privacy and personal data.*' The paper calls for achieving technological

³⁷ https://ec.europa.eu/info/sites/info/files/commission-white-paper-artificial-intelligence-feb2020_en.pdf

sovereignty in *'key enabling technologies and infrastructures for the data economy'* with the EU promoting its own approach around the world through such international fora as the UN, G20, OECD, and Council of Europe or ITU. The document also explains that the EU will monitor data policies in other countries and when necessary *'address undue restrictions in bilateral trade negotiations and through action in the context of the World Trade Organization.'*

For the second building block 'the ecosystem of trust', the White Paper addresses risks that AI may pose to fundamental rights, product safety and liability. Among them is a lack of power to defend rights, information asymmetries, unintended effects, and opacity. Although the White Paper emphasises the relevance of existing regulation covering areas of fundamental rights, consumer protection, privacy and product safety, it also notes the need to examine their effectiveness and possible changes and if there is a need for new regulatory intervention in light of AI and the risks it carries. One of the main areas of concern is discrimination, which the White Paper identifies in a number of different ways (flawed design, learning or quality of data), as well as issues with enforcement in part due to opacity and lack of knowledge amongst public agencies about how AI systems work, problems with definitions of AI, attribution of responsibility (e.g. in the supply chain), and types of obligations (temporal aspect: ex ante and ex post). The White Paper is quite clear that further actions here are required to protect rights but also to avoid fragmentation of the single market.

To address those challenges the White Paper proposes a risk-based approach to regulate AI and to make adjustments to existing legislation to cover technological developments. The Commission notes a wish to avoid excessive prescription and putting a disproportionate burden on SMEs. Only high-risk AI applications will be considered for regulatory intervention. High risk is defined by two cumulative criteria:

- Critical sectors (where it is used): application in sectors which *'given the characteristics of the activities typically undertaken, significant risks can be expected to occur.'* Such sectors are, for example, healthcare, transport, energy, and other parts of the public sector. It is worth noting that there are examples where an application of AI is of high risk regardless of sector, for example AI systems for recruitment processes, or remote biometric identification.
- Critical use (how it is used): AI systems are used in such a manner that significant risks are likely to arise, such as the risk of injury, death or significant material or immaterial damage.

Those two criteria will lead to new legal requirements for high-risks AI applications. Among those requirements are:

- Training data: data used for models should be of good quality, without biases and representative, and protected according to data protection rules.
- Data and record keeping: keeping records for data that was used to train systems, documentation of the programme, training methodologies, validation.
- Information provision: providing adequate information about capabilities and limitation of the systems especially to deployers and authorities, informing citizens that they are interacting with an AI system
- Robustness and accuracy: ensuring that outcomes are reproducible, systems deal with errors and inconsistencies.
- Human oversight: some level of human involvement in revision and validation of outputs, some intervention and redressing erroneous decisions, monitoring operation of AI systems

Special requirements will also be necessary for biometric identification systems such as facial recognition and similar systems. However there are no details about what such additional

safeguards might be as the White Paper states that *'In order to address possible societal concerns relating to the use of AI for such purposes...the Commission will launch a broad European debate on the specific circumstances, if any, which might justify such use, and on common safeguards.'*

For no-high risk systems, the White Paper proposes a voluntary labelling scheme and suggests that there might be a place for a new mechanism for conformity assessment that would check (a priori) a compliance with the requirements. It could include testing, inspection and certification. As for the governance structures, the White Paper proposes cooperation between national authorities and sectorial networks. Each country will have to notify an entrusted independent body for the conformity mechanisms with adequate capacity.

Response to COVID-19 and AI

The crisis caused by Covid-19 epidemics pushed the European Commission to undertake a number of coordination activities.³⁸ At the core of those initiatives is the Recovery plan that is estimated at €2.4 trillion, part of which emphasises the role of digital projects and technologies in the recovery and direct responses to epidemics.³⁹

In those plans, data driven-technologies and AI systems are portrayed as powerful tools that can detect patterns of virus, and offer critical support in diagnosis and treatment. For those reasons the EU is investing in AI that would assist medical staff in analysing pulmonary infections in 10 hospitals around Europe.⁴⁰ €3 million from emergency funding is invested in supercomputing (with 8 European pharmaceutical companies) for research over potential treatment.⁴¹ In March 2020 the Commission also launched an initiative to collect ideas about AI and robotic systems that could address the COVID-19 crisis. The goal of this initiative is to create a repository that is accessible to citizens and policymakers and become part of the common European response to the outbreak of COVID-19.⁴² Together with member states the Commission also developed a toolbox for the contact tracing applications that includes issues of data protection and privacy, cooperation with public health authorities and interoperability.⁴³ There is also a plan to support robotic and AI solutions that increase capability to the response to epidemics (for example a €56 million call directly from the EU Commission).

³⁸ https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response_en

³⁹ https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response/digital_en

⁴⁰ <https://ec.europa.eu/digital-single-market/en/news/using-ai-fast-and-effectively-diagnose-covid-19-hospitals>

⁴¹ <https://ec.europa.eu/digital-single-market/en/news/fighting-coronavirus-european-supercomputers-join-pharmaceutical-companies-hunt-new-drugs>

⁴² <https://ec.europa.eu/digital-single-market/en/news/join-ai-robotics-vs-covid-19-initiative-european-ai-alliance>

⁴³ https://ec.europa.eu/commission/presscorner/detail/en/ip_20_670

FUNDING AND INVESTMENTS

Among the crucial components of emerging policy toward AI are large-scale financial and investment plans. According to the White Paper, in the last three years EU funds on research and innovation in AI have reached €1.5 billion. Now the Commission has noted it wants to increase public and private investments in AI up to €20 billions per year in a decade.

AI has been supported for several years by EU institutions predominantly via research and innovations financial schemes and programmes. During 2014-2020 the total investments in AI and robotics increased by €700 million. This was complemented by €2.1 billion of private investments as part of a public-private partnership on robotics. The EU funding initiatives are quite comprehensive⁴⁴ and include a variety of initiatives. Among them are:

- Funding for AI research centres (€50 million through Horizon 2020)
- €390 million for developing platforms and large-scale pilots + €200 million from member states and €550 million from private sector during 2019-2020.
- European Structural and Investment Fund: Five regions have AI related priorities in their smart specialisation strategies in regions Lower Saxony (Germany), Pohjois-Savo (Finland), Łódzkie (Poland), North-West and North-East (Romania).
- Resources for start-ups in AI: €100 million mobilised in 2020
- European Innovation Council: support for cutting-edge technologies (including human-centric AI). In 2018 alone, 74 innovative SME-projects and start-ups have been funded to develop AI related innovations
- New forms of private-public partnerships: Robotics (SPARC) and Big Data Value: €1.2 billion in public investment plus €3.2 billion in private investment for 2014-2020, giving €4.4 billion in total.

Currently (as of June 2020) EU institutions are negotiating the next seven-year EU budget, called the multiannual financial framework (MFF) for 2021-2027⁴⁵ of €1.134 trillion, details of which are yet to be finalised.

⁴⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2018:795:FIN>

⁴⁵ https://ec.europa.eu/info/strategy/eu-budget/documents/multiannual-financial-framework/2021-2027_en

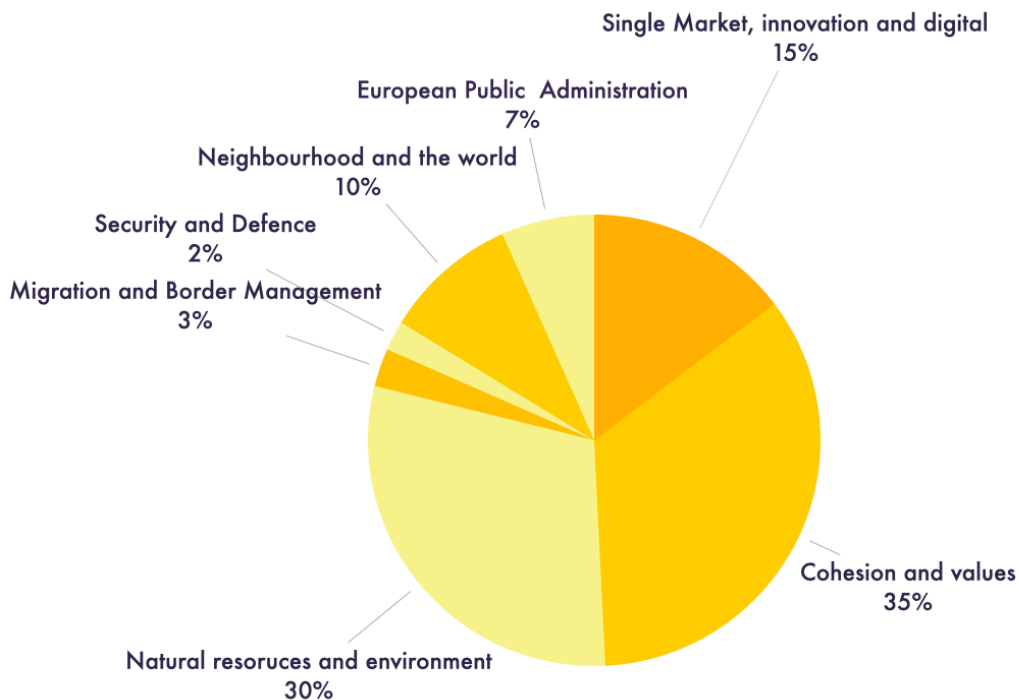


Chart 2
2021-2027 MFF
Commission proposal

The new MFF has been divided into seven headings (chart 2), which represents EU's long-term priorities.⁴⁶ They include spending programmes and funds that are the basis for the implementation of the EU budget. Funding for AI projects and other digital technologies are mostly part of the heading called "Single Market, Innovation and digital" that consists of almost 15% of the total budget for MFF and includes projects such as Digital Europe, Horizon Europe, Connecting Europe, the European Space programme and InvestEU Fund. Other relevant funds are included elsewhere, such as funding for information systems that are part of "Migration and Border Management", where resources are foreseen for designing, maintaining and updating IT systems such as the Schengen Information System (SIS II).⁴⁷

Spurred on by the Covid-19 crisis, the Commission has also proposed a Next Generation EU that includes a commitment to borrow €750 billion from financial institutions.⁴⁸ Those resources will be channelled through different programmes to finance immediate needs to protect lives, get the economy back on track and foster sustainable growth. The Next Generation EU will have three pillars: a) Support to Members States with investments and reforms worth €670 billion (including investments for a green new deal and digital transformations, addressing socio-economic impact of the crisis), b) Kick-starting the EU economy by incentivising private investments worth €196 billion (including support for the most affected regions and sectors, mobilisation of private investments, boost resilience in sectors linked to digital transitions), c) Addressing the lessons of the crisis worth €122 billion (including funds for health security, Union's Civil Protection Mechanism, research in green and digital technologies).⁴⁹

Below we detail a number of key funding programmes that underpin the EU policy agenda on AI.

⁴⁶ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/646131/EPRS_BRI\(2020\)646131_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/646131/EPRS_BRI(2020)646131_EN.pdf)

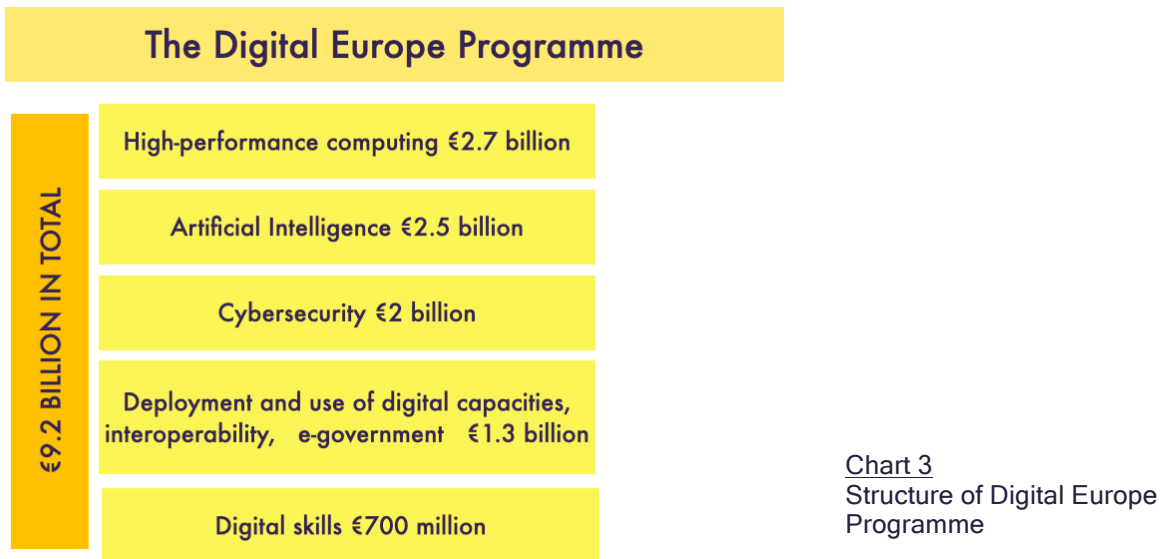
⁴⁷ [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/646135/EPRS_BRI\(2020\)646135_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/646135/EPRS_BRI(2020)646135_EN.pdf)

⁴⁸ https://ec.europa.eu/info/sites/info/files/factsheet_3_en.pdf

⁴⁹ https://ec.europa.eu/info/sites/info/files/factsheet_1_en.pdf

Digital Europe Programme

Digital Europe (DE) is a new programme that will make €9.2 billion available to build digital capacity and infrastructure and support a Digital Single Market.⁵⁰ The programme will mostly operate as a coordinated and strategic investment with Member States (joint public procurement). Structurally DE is important because it will be the first ever funding programme that is only dedicated to digital innovations and changes.



Within DE significant support (€2.5 billion, chart 3) is dedicated specifically to AI initiatives. It includes data resources (creation of European Data spaces), repositories of algorithms (European library of algorithms) and their up-take by private and public sectors. €2.7 billion will be dedicated to supporting high-performance computing, coordinated via a European high-performance computing joint undertaking.⁵¹ DE will also boost cybersecurity efforts by €1.3 billion, mostly dedicated to cybersecurity equipment, infrastructures and knowledge, scaling-up and networking. The programme also dedicates €700 million to support advanced digital skills (training, courses in advanced digital technologies, and short-term certified, professional training courses) and €1.3 billion to the development of digital technologies within public sectors, including enabling access to health data and improving cross-border information communication in the area of civil and criminal justice, and supporting large-scale digital applications in smart cities.

⁵⁰ <https://ec.europa.eu/digital-single-market/en/news/digital-europe-programme-proposed-eu92-billion-funding-2021-2027>

⁵¹ [https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI\(2018\)614694](https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2018)614694)

Horizon Europe

Horizon Europe (HE) is EU's 9th funding programme for research and innovation (R&I) planned for the period 2021-2027. Under the current proposal it has a budget of €94.1 billion (which consists of almost 8% of the total MFF), €80 billion of which is dedicated to different research and science projects conducted by research institutions all over Europe (and beyond).



Chart 4
Structure of Horizon
Europe Programme

It is expected that within the HE, AI projects receive a significant amount of funding. HE will be divided into three pillars (see figure 3). AI projects are mostly covered by the second pillar, with €15 billion dedicated to “Digital and industry” that also includes high-performance computing, next generation Internet or low carbon industry.⁵² HE activities (the II pillar) will be structured by so-called ‘missions’, which are defined as a ‘*portfolio of actions intended to achieve a bold and inspirational as well as measurable goal within a set timeframe, with impact for science and technology, society and citizens that goes beyond individual actions*’.⁵³ The concept of missions was introduced in EU policy following reports conducted by Marianna Mazzucatto, and is partly inspired by the Apollo 11 mission to put a man on the moon.⁵⁴ The main goal of missions is to deliver solutions to the greatest challenges that the world is facing. Specific missions will be designed in the process that includes Member States, different stakeholders and citizens.⁵⁵ Each mission has its own governance structure with a board (experts, politicians and academics), assembly, secretariat and consultation mechanisms. Each mission board will produce a report proposing concrete targets and timelines and it is expected that through formal consultations,

⁵² https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme_en

⁵³ https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/missions-horizon-europe_en

⁵⁴ https://ec.europa.eu/info/sites/info/files/mazzucatto_report_2018.pdf

⁵⁵ https://ec.europa.eu/info/sites/info/files/research_and_innovation/contact/documents/ec_rtd_mazzucatto-report-issue2_072019.pdf

focus groups and other interactions with citizens, missions will be formulated in a more participatory way.⁵⁶ Currently, there are five areas within which the missions will be formulated:

- cancer
- adaptation to climate change including societal transformation
- healthy oceans, seas coastal and inland waters
- climate-neutral and smart cities
- soil health and food

Interestingly, apart from funding technological developments the EU Commission is also planning to use new technological advancements to govern the grant-making process. For example, there are plans to include text and data mining and human-led AI modules (e.g. a self-service tool to test if a proposal idea is within the scope of a call) and grant agreements and expert contracts will be '*automated which will continue to reduce the burden on both the beneficiaries and experts as well as the Commission services*'.⁵⁷

Funding programmes play a very important role in EU policymaking, though their governance and decision-making process is complex. For example, the implementation of Horizon 2020 was divided between nine different directorates-general (DGs) of the European Commission. The budget has been implemented by 22 different bodies, some of which channel resources from other funding bodies (other EU, national, regional, and/or private funds) and so act as a secondary source of funds.⁵⁸ According to an interim evaluation, the most (60% of the budget) of Horizon 2020's grant management was delegated to four agencies: Executive Agency for Small and Medium-sized Enterprises, European Research Council Executive Agency, Innovation and Networks Executive Agency and the Research Executive Agency.⁵⁹

Horizon 2020 funds have supported a range of different AI projects. For example, in the last three years (2018-2020) there have been seven calls for grants that were directly dedicated to AI.⁶⁰ The size of those calls varies between €1.5 to €48million. Among them were calls dedicated to health care and well-being (€32 and €35 million), manufacturing (€48 million), law enforcement (€1.5 and €17 million), and development of "A European AI On Demand Platform and Ecosystem" - a space that links researchers, business and users and finance AI pilot projects (€20 million).

There are mixed opinions about Horizon 2020 and previous funding programmes. While efficiency and socio-economic impact are praised, official evaluations highlight problems with addressing some areas (like sustainable development) or limited outcomes in terms of patents.⁶¹ Another issue is the inequality between grant receivers. Generally poorer, mostly post-communist countries receive less compared to Western countries like Germany or France.⁶² Additionally, some experts have emphasised different ethical, social and legal concerns. For example, reports from Statewatch concluded that some of the EU research programmes have been shaped by the 'homeland security' industry and in the process is constructing an ever more militarised and security-focused Europe⁶³ while a study from Martins and Kusters (2019) noted a lack of political

⁵⁶ https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/missions-horizon-europe_en

⁵⁷ https://ec.europa.eu/info/sites/info/files/research_and_innovation/strategy_on_research_and_innovation/documents/ec_rtd_implementation_strategy_he.pdf

⁵⁸ <https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>

⁵⁹ https://ec.europa.eu/info/publications/interim-evaluation-horizon-2020-book_en

⁶⁰ Data generated via <https://www.ideal-ist.eu/topic-tree>

⁶¹ https://ec.europa.eu/info/publications/interim-evaluation-horizon-2020-book_en

⁶² Alison Abbot, How European scientists will spend €100 billion, *Nature*, 2019 <https://www.nature.com/articles/d41586-019-01566-z>

⁶³ <http://statewatch.org/marketforces/>

accountability in funding programmes and a problematic hybridity of Horizon 2020 public-private consortia in the defence sector.⁶⁴

Digital Innovation Hubs

In all strategic documents relating to AI, Digital Innovation Hubs (DIH) play an important role in terms of local innovation activities. These hubs are organisations (or a group of organisations) that support companies and public administration in using digital technologies.⁶⁵ In the EU there is already a wide network of such hubs (biggest number in Germany) and thus far, they have been supported via various funding channels, most notably Horizon 2020 with around €100 million per year.⁶⁶ DIHs function as one-stop-shops and provide access to different services. For example, hubs are offering technical expertise and opportunity to experiment; provide opportunity to advance digital skills of organisations by offering training, boot camps, traineeships or job placements; provide business and financial support such as access to financial institutions and investors or support use for EU funding mechanisms. DIHs also link different entities and allow cooperation between companies, universities, incubators, or government agencies and play a *'brokering role and bring e.g. end-users and potential suppliers of technological solutions.'*

Overall, DIHs act as regional centres for innovation. In the latest strategies, DIHs are intended to stimulate the broad uptake of AI with funding from the Horizon Europe and Digital Europe programmes. Funded hubs are selected through a two-step process that includes member states designating potential hubs followed by a restricted call for proposals from the EU Commission. It is foreseen that MFF will support between 130 and 260 hubs in the EU (at least one hub per country) and that each hub will receive €0,5-€1 million per year from the DE programme.

EXPERT GROUPS

The European Commission can establish expert groups for the areas that require additional specialist external expertise.⁶⁷ These groups should reflect a wide spectrum of stakeholders and are subject to rules established by the Commission. Each group has its own procedures. In the context of AI policy, at least two expert groups are significant that we outline below.

High-Level Expert Group on Artificial Intelligence

In 2018, the Commission established a High-Level Expert Group on Artificial Intelligence (HLEG)⁶⁸ with the goal to support the implementation of the European initiative on AI, including the elaboration of recommendations on ethical, legal and societal issues related to AI. Specifically, it has four tasks: a) to advise the Commission on next steps addressing AI-related mid- to long-term challenges and opportunities; b) to support the Commission in the interactions with broader set of stakeholders through AI Alliance, c) to propose draft AI Ethics Guidelines and d) to assist in the preparation of legislative proposals.⁶⁹ The group is currently composed of 50 experts appointed by the Commission from representatives of business, national governments,

⁶⁴ Bruno Oliviera Martins and Christian Küsters, Hidden Security: EU Public Research Funds and the Development of European Drones: Hidden Security: EU Public Research Funds and the Development of European Drones, *JCMS: Journal of Common Market Studies*, 2019.

⁶⁵ <https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs>

⁶⁶ <https://s3platform.jrc.ec.europa.eu/dihs-per-country>

⁶⁷ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=faq.faq&aide=2>

⁶⁸ <https://ec.europa.eu/digital-single-market/en/high-level-expert-group-artificial-intelligence>

⁶⁹ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3591>

civil society and academia all of which are voluntary without remuneration (apart from expenses).⁷⁰ Members of the group act in four different capacities: a) Type A: individuals acting in their own personal capacity, 2) Type B: individuals representing common interests shared by stakeholders, 3) Type C: organisations including trade associations, trade unions, universities, NGOs 4) Type 4: Member state authorities 5) Type E: other public authorities, UE bodies.⁷¹ The composition of members is outlined in figure 4 and the number and type of members are listed below.

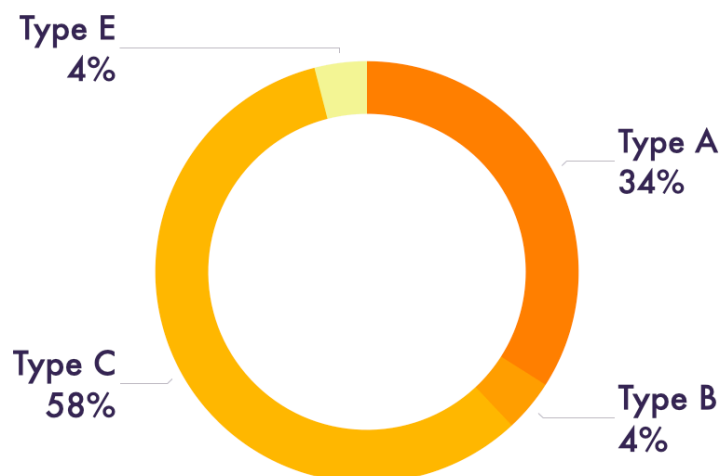


Chart 4
Composition of members
of HLEG

TYPE OF MEMBERS IN GROUP C	NUMBER OF MEMBERS
Companies and Groups	13
Trade and business representatives	5
Academia, Research Institute and Think Tanks	4
NGOs	3
Other organizations	2
Professional Associations	1
Law firms	1

In 2018, the HLEG proposed a draft version of AI Ethics Guidelines (the final version was published in April 2019)⁷² which set out the first steps of the AI strategy, outlining requirements for trustworthy AI such as oversight, transparency, and accountability. The HLEG was explicit that Guidelines are based on fundamental rights proclaimed by the EU Charter of Fundamental Rights. The HLEG defines trustworthy AI in the context of three key components: i) lawful, respecting all applicable laws and regulations; ii) ethical, respecting ethical principles and values; and; iii) robust, both from a technical perspective and while taking into account its social environment. The document focuses mostly on the second and third requirements: fostering and securing ethical and robust AI.

The guidelines offer four major abstract ethical principles that should be respected throughout the life cycles of AI systems: i) respect for human autonomy, ii) prevention of harm, iii) fairness and

⁷⁰ Originally group was composed of 52 experts, some of them left their appointment.

⁷¹ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3591>

⁷² <https://ec.europa.eu/futurium/en/ai-alliance-consultation/guidelines#Top>

iv) explicability. They also mention that there should be a special requirement to pay attention to *‘vulnerable groups such as children, persons with disabilities and others that have historically been disadvantaged or are at risk of exclusion, and to situations which are characterised by asymmetries of power or information, such as between employers and workers, or between businesses and consumers.’* Drawing on these principles, the guidelines propose seven requirements for trustworthy AI: i) Human agency and oversight, ii) Technical robustness and safety, iii) Privacy and data governance, iv) Transparency; v) Diversity, non-discrimination and fairness, vi) Societal and environmental well-being and vii) Accountability. The implementation of these requirements include both technical and non-technical methods with a special emphasis on the participation of different stakeholders throughout AI systems’ life cycle, communication, transparency and auditability of such systems. It is also noted that implementation of requirements may lead to difficult trade-offs, that should be identified, evaluated and documented. Finally, the guidelines offer more concrete assessment tools to operationalize principles and requirements, including different questions that developers, producers or users of AI systems should reflect on relating to topics such as accountability, data governance, non-discrimination, respect for privacy, robustness, transparency and safety. For example, with regards to issues of ‘bias’ the guidelines propose an assessment of *‘possible limitations stemming from the composition of the used data sets’* and *‘diversity and representativeness of users in the data.’* The assessment list was tested under the Piloting Process that ran until December 2019 in which different actors were encouraged to use the checklist and provide feedback. In the same year, the HLEG published “Policy and investment recommendations for trustworthy Artificial Intelligence”, putting forward 33 recommendations addressed to EU institutions and Member States.⁷³

The outcomes of the HLEG have gained mixed reviews with some praising European leadership on ethical deliberation for AI and the promotion of ‘European values’ on a global scale whilst others have expressed concerns about the limitations of recommendations as enforcements, or the use of the HLEG for ‘ethics-washing’ and advancing Trustworthy AI as a marketing narrative.⁷⁴ Veale (2020) has argued that the guidelines produced by the HLEG exaggerate the role of technology, while avoiding the question of when not to use AI and paying insufficient attention to infrastructure issues (like access to data) and operations of power.⁷⁵

Expert Group on Liability and New Technologies

The Expert Group on Liability and New Technologies established by the Commission was tasked with examining existing rules and frameworks of liability in relation to emerging digital technologies such as AI, the internet of things (IoT), distributed ledger technology (DLT), advanced robotics and autonomous systems.⁷⁶ The Group is helping the European Commission in developing guidelines for the adaptation of applicable laws. While liability frameworks are in the dominium of Member States, areas like product liability are harmonized at the EU level. The group therefore analysed both EU and Member States rules. Members of the group were selected by the Commission via a call for applications in 2018 and are divided into two subgroups: New Technologies Formation and Product Liability Directive Formation.

⁷³ <https://ec.europa.eu/digital-single-market/en/news/policy-and-investment-recommendations-trustworthy-artificial-intelligence>

⁷⁴ <https://www.tagesspiegel.de/politik/eu-guidelines-ethics-washing-made-in-europe/24195496.html>;

<https://www.accessnow.org/european-union-more-big-words-on-ai-but-where-are-the-actions/>

⁷⁵ Michael Veale, A Critical Take on the Policy Recommendations of the EU High-Level Expert Group on Artificial Intelligence, *European Journal of Risk Regulation*, 2020.

⁷⁶ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3592&NewSearch=1&NewSearch=1>

The group published its report “Liability for Artificial Intelligence and other Emerging Digital Technologies” in November 2019.⁷⁷ A key conclusion of this report is that existing liability regimes provide “at least basic protection” against harms caused by digital technologies. However, some features of such technologies, like complexity, opacity or limited predictability can make it harder to raise successful claims: *‘victims of harm caused by the operation of emerging digital technologies receive less or no compensation compared to victims in a functionally equivalent situation involving human conduct and conventional technology.’* Those problems lead to conclusions that existing liability frameworks should be adjusted (amended or adapted) to determine what losses are recoverable and to what extent, in light of the challenges posed by such technologies.

In more specific recommendations the group suggests that persons operating digital technologies of high risk of harm to others (autonomous cars, robots used in public spaces) should be subject to strict liability. Operators of technology (even if of lower risk) should also have additional duties of care to properly select, monitor and maintain those technologies. The report also addresses the issue of responsibility between producers, service providers and operators and recommends that producers should be (at least to some extent) liable for the defects of technologies, also those in circulation if they are in control via updates or upgrades. Producers should also provide logging features (logging by design) that record how the technologies are operated which should be connected to additional duties (to log and provide access to logged data). Furthermore, the report states that operators should be liable for harms caused by the autonomous technologies on the same terms as if they were caused by a human employee and recommends to reverse the burden of proof when technologies cause harms in light of a disproportionate and unreasonable difficulty (e.g. due to asymmetry of information) or costs for victims to provide proof. The report also explained that the destruction of a victim’s data should result in compensation. Finally, the group observed that there are instances when obligatory insurance would be necessary, such as in situations when there is more frequent or severe potential harm or operators are not able to identify individual victims. The group opposed giving AI systems any legal personality in the context of liability.

The report is not the final outcome of the group. It is expected that in 2020 the group will provide more specific guidelines that would directly address the Product Liability Directive and its potential changes.

EUROPEAN PARLIAMENT

The European Parliament is one of the key political institutions of the European Union.⁷⁸ Together with the European Council, Parliament is responsible for adopting and amending legislative proposals and deciding on the EU budget. It also oversees the work of EU institutions, notably the European Commission. Below we outline the activities that have been devoted to AI.

Resolutions

One of the key activities of the parliament is drafting resolutions. While they are not legally binding they help to express political opinions of the parliament about particular issues, defining

⁷⁷ <https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupMeetingDoc&docid=36608>

⁷⁸ <https://www.europarl.europa.eu/about-parliament/en>

some early phase agendas and even pave new ways for legislative proposals. In recent years at least three resolutions address AI issues comprehensively:

- Resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics⁷⁹

Civil Law Rules on Robotics is a resolution initiated by the Legal Commission of the Parliament (JURI) and lays out the ethical and legal problems related to robotics and AI: ‘*use of robotics is nuanced by a set of tensions or risks and should be seriously assessed from the point of view of human safety, health and security; freedom, privacy, integrity and dignity; self-determination and non-discrimination, and personal data protection*’. The document contains two draft codes of conducts: Code of Ethical Conduct for Robotics Engineers, a Code for Research Ethics Committees, a License for Designers, and a License for Users. Among key ideas mentioned in the resolution are rules of liability, with a strict liability (no fault required) or risk management approach (liability of a person who was able to minimise the risks). The resolution proposes to establish a European Agency for Robotics and AI that could be responsible for e.g. registering advanced robots and provide technical, ethical and regulatory expertise. It also proposes to use a common definition of robotics and similar systems and to establish categories, and strengthen research and science investments. It also refers to a number of infrastructural issues such as connectivity, access to broadband, 5G, net neutrality, and interoperability, and calls for international efforts to create harmonized technical standards. The resolution also calls for exploring a definition of an ‘electronic person’, a ‘*specific legal status for robots*’, so that most sophisticated systems are ‘*responsible for... any damage they may cause, and possibly applying electronic personality to cases where robots make autonomous decisions or otherwise interact with third parties independently.*’

- Resolution of 12 February 2019 on a comprehensive European industrial policy on artificial intelligence and robotics⁸⁰

This resolution concerns the impact of AI on industrial policy⁸¹ and was initiated by the Committee on Industry, Research and Energy (ITRE), which calls to ‘*maximise the benefits and minimise the risks for society and ensure a safe, equitable development of AI.*’ The resolution highlights some typical AI concerns (like trust, ethics, impact on fundamental rights) but also links them with the needs for industrial policies that cover different sectors (from public, energy, to agriculture and transportation). The resolution calls for the creation of particular legal frameworks that address issues such as building an internal market for AI, personal data processing, liability, consumer protection, and intellectual property rights. The resolution does not advocate for introduction of new laws, but instead to focus on the review of existing ones. It also advocates for ‘*a human centric technology*’ and AI model deployed within an ‘*ethics by design approach.*’

- Resolution of 12 February 2020 on automated decision-making processes: ensuring consumer protection and free movement of goods and services⁸²

This resolution was adopted in 2020 and focuses on automated decision making in the context of consumer protection. It calls for a review of existing laws such as consumer law, product safety legislation and market surveillance. The document advocates for a ‘*risk-based approach to regulation*’, that reflects different contexts and types of technology and expresses the need for additional legal safeguards. The resolution highlights the need for proper information about systems for consumers, who should ‘*be properly informed about how it functions, about how to*

⁷⁹ https://www.europarl.europa.eu/doceo/document/TA-8-2017-0051_EN.html

⁸⁰ https://www.europarl.europa.eu/doceo/document/TA-8-2019-0081_EN.html

⁸¹ https://www.europarl.europa.eu/doceo/document/TA-8-2019-0081_EN.html

⁸² https://www.europarl.europa.eu/doceo/document/TA-9-2020-0032_EN.html

reach a human with decision-making powers, and about how the system's decisions can be checked and corrected'. The resolution also calls for additional human oversight: 'humans must always be ultimately responsible for, and able to overrule, decisions that are taken in the context of professional services' and the use of high-quality of data and 'explainable and unbiased algorithms.'

Different committees in the Parliament (especially JURI, EMPL and LIBE) have also started internal debates and Working Groups that cover different aspects of using AI. The most extensive work was initiated within the JURI Committee, which is currently working on four different reports concerning this topic:

- Framework of ethical aspects of artificial intelligence, robotics and related technologies, led by Iban García del Blanco (S&D)⁸³
- Civil liability regime for artificial intelligence, led by MEP Axel Voss (EPP)⁸⁴
- Intellectual property rights for the development of artificial intelligence technologies, led by MEP Stéphane Séjourné (Renew)⁸⁵
- Artificial intelligence: questions of interpretation and application of international law in so far as the EU is affected in the areas of civil and military uses and of state authority outside the scope of criminal justice, led by Gilles Lebreton (ID).⁸⁶

CONSULTATIVE COMMITTEES

The institutional map of the European Union also includes consultative bodies. Among them are European Economic and Social Committee and European Committee of the Regions. Those committees provide opinions to the European Parliament, the Commission and the Council during the legislative process. Each of them involves actors that represent a different level of local authorities as well as social and economic organisations.

European Economic and Social Committee

Established in 1958, the European Economic and Social Committee (EESC) is an advisory assembly composed of different social partners: trade unions, employers organisations and social, occupational, economic and cultural organisations.⁸⁷ Throughout last year, mostly as a response to the processes initiated by the European Commission, EESC issued several statements that focused on AI particularly in the areas of employment, participation and social policies. EESC has stressed that '*workers must be involved in developing these kinds of complementary AI systems, in order to ensure that the systems are useable and that the worker still has sufficient autonomy and control (human-in-command), fulfilment and job satisfaction*'.⁸⁸

More elaborate positions were presented in the document titled "Artificial intelligence: anticipating its impact on jobs to ensure a fair transition", which was initiated by EESC itself. In this document the EESC notes that a focus on education, re-skilling and training in the context of

⁸³ [https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?lang=en&reference=2020/2012\(INL\)](https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?lang=en&reference=2020/2012(INL))

⁸⁴ [https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2020/2014\(INL\)&l=en](https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2020/2014(INL)&l=en)

⁸⁵ [https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2020/2015\(INI\)&l=en](https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2020/2015(INI)&l=en)

⁸⁶ [https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2020/2013\(INI\)&l=en](https://oeil.secure.europarl.europa.eu/oeil/popups/ficheprocedure.do?reference=2020/2013(INI)&l=en)

⁸⁷ <https://www.eesc.europa.eu/en/about>

⁸⁸ <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/artificial-intelligence-consequences-artificial-intelligence-digital-single-market-production-consumption-employment-and>

transformations that AI brings to jobs as presented by the European Commission is not enough.⁸⁹ There needs to be a debate on taxation, the financing of public budgets and social protection that should also touch on the redistribution of the benefits of digitalisation. In this context, the EESC has called for the establishment of a *'fully-fledged European transition fund that would help anticipate and manage the digital transformation and the restructuring it will bring about in a socially responsible way.'* The EESC therefore provides a new approach based on three additional pathways that we outline below: 'inclusive' AI, anticipating change, and socially responsible and managed restructuring.

- Inclusive AI refers to different organizational and legal recommendations such as: involvement of workers in the process of introduction of AI; transparency and intelligibility of parameters and criteria used to make decisions about recruitment, professional evaluation, and working condition, with human oversight and right to appeal; clear definition of tasks and responsibilities that can be automated (workers should retain some form of work ownership), clear legal responsibility rules in the context of accidents, errors caused by AI systems and provisions covering health and safety of workers exposed; a principle of fairness which protects workers from alienating them from their work, and safeguarding that AI is not leading to deskilling.
- Anticipating change focuses mostly on the participatory and democratic discussion between workers, employers and other social actors about the impact of AI on jobs, skills and the production process: *'Social dialogue is the most effective tool for coping with social challenges of digitalisation, best guarantee of peaceful society and reduced inequality'*.
- Socially responsible restructuring involves such measures as consultation with workers, making work organisation more flexible while maintaining security, training and re-skilling. Here EESC calls for a guarantee that everyone (regardless of the form of work) has access to social protection in accordance with the European Pillar of Social Rights.

The EESC has also focused on the role of AI in managerial contexts saying that there should be a *'priority to avoid new forms of digital Taylorism shaped by the developers of intelligent machines'* arguing that AI should not give direct orders regarding which, how and when tasks should be performed. The EESC has also expressed problems with disproportionate oversight and monitoring of workers, proposing that *'reasonable and proportionate nature of monitoring'* could be outlined in a social dialogue and have argued for the need for better data protection rules that cover not only employees but also subcontractors or platform workers.

In a recent draft statement on the White Paper on AI, the EESC has criticised the risk based approach, and especially the sectorial criteria to define AI high-risk applications arguing that such a solution may bypass *'AI applications that are intrinsically high-risks'*.⁹⁰ Instead, it calls for a common characteristic of high-risks applications irrespective of sector. The high-risk category of AI applications, in the context of work, should also be expanded by adding systems used in firing, workers assessment and evaluation process. AI applications that have no scientific basis, such as emotion detection through biometric recognition, should not be allowed in workplace environments. The statement also includes some remarks on data governance: *'access to and governance of worker data should be guided by principles and regulations negotiated by the social partners'* and expressed concerns about using AI in the context of epidemics. Here it states that such systems should *'be robust, effective, transparent and explainable. They should also uphold human rights, ethical principles and existing legislation, and be fair, inclusive and voluntary.'*

⁸⁹ <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/artificial-intelligence-anticipating-its-impact-jobs-ensure-fair-transition-own-initiative-opinion>

⁹⁰ <https://www.eesc.europa.eu/en/our-work/opinions-information-reports/opinions/white-paper-artificial-intelligence>

European Committee of the Regions

The European Committee of the Regions (CoR) was established in 1994 and brings together 329 representatives from local authorities (regions, cities, counties, provinces).⁹¹ The main role of CoR is to provide opinions on new laws that have impact on regions and local authorities. Similarly to EESC, CoR issued several statements that concern AI, mostly as a response to the Commission's initiatives.

In the document "Artificial Intelligence for Europe", the CoR stressed that local authorities should be involved in *'setting the conditions and favourable environment for an increase in investment in AI.'*⁹² CoR also emphasised the need for pilot programmes that use AI *'in the living environment of the future (including demand-led transport, social services and smart cities)'* and highlighted that different policies and funding programmes (like Horizon Europe, Digital Europe or Erasmus) must be better linked with the needs of AI-focused projects. It also underlined the role of digital innovation hubs in all EU regions and highlighted interregional cooperation through smart specialisation strategies and raised some concerns over data protection and other rights of individuals.

In other statements, the CoR has highlighted the *'risk of inequalities growing between cities and regions that benefit hugely from the framework programme for research and innovation'*⁹³ and expressed the need to recognise *'territorial roots of scientific excellence, the contribution of regional ecosystems and innovation hubs to the EU's dynamic.'* In the statement on the Digital Europe programme, the CoR emphasised that the programme should facilitate new data governance structures, while calling for a proper integration of several on-going data economy and data driven society measures into the DEP. Access to high quality data is seen as crucial in developing AI, and cities and regions play an important role in *'data harmonisation, collection, quality, access and use, as well as in ensuring a secure and interoperable digital infrastructure for cross-border data flows in the digital economy.'* Similarly, the statement on Smart cities stressed that open data standards are a key tool in developing smart technologies and called for boosting the ability of local communities to *'collect and analyse data to use it to improve the decision making process.'*⁹⁴ It also stated that digitalization should not lead to segregation and exclusion and that outermost regions and islands, due to their distance and geographical conditions, may serve as *'living laboratories'* - an ideal location for testing alternative technologies.

In the working documents on the White Paper on AI, the CoR asserted that the EU needs to define a role for local authorities in legislation, because such authorities *'will in the future collect a lot of data, which will be interesting for science and the private sector'*⁹⁵ and calls for a serious debate about the *'principles of data circulation in the light of the challenges of protection and sovereignty of data of general interest vis-à-vis transnational digital giants.'*

⁹¹ <https://cor.europa.eu/en/about/Pages/default.aspx>

⁹² <https://webapi2016.COR.europa.eu/v1/documents/cor-2018-03953-00-00-ac-tra-en.docx/content>

⁹³ <https://webapi2016.COR.europa.eu/v1/documents/cor-2018-03891-00-00-ac-tra-en.docx/content>

⁹⁴ <https://webapi2016.COR.europa.eu/v1/documents/cor-2019-02974-00-01-ac-tra-en.docx/content>

⁹⁵ <https://webapi2016.COR.europa.eu/v1/documents/cor-2020-01802-00-00-tcd-tra-en.docx/content>

AGENCIES AND INDEPENDENT AUTHORITIES

The EU also has a number (around 40) of decentralised agencies and independent bodies, which provide expertise, build know-how in certain areas, facilitate social dialogue or provide independent oversight. Most of them are also active in the discussion about AI policy.

Fundamental Rights Agency

The Fundamental Rights Agency (FRA) is one of the decentralised agencies of the EU that provides European institutions with independent and evidence-based expertise on fundamental rights.⁹⁶ FRA's work has a wide scope and affects the entire spectrum of fundamental rights across non-discrimination, freedom of assembly, social rights, privacy, etc. The agency has repeatedly undertaken topics related to the use of new technologies (e.g. in the context of border management). In recent years, it has also focused on the subject of AI.

In 2019 it published the paper “Facial recognition technology and fundamental rights considerations in the context of law enforcement”.⁹⁷ The paper sets out a number of recommendations for the use and deployment of facial recognition, including:

- Clear and sufficiently detailed legal framework the regulate deployment and use of technology
- Some types of technology ('live facial recognition technologies') or situations (demonstrations or strikes) raise greater fears for power imbalances and risks for fundamental rights
- Minimization of risks, errors leading to people being wrongly flagged
- Inclusion of fundamental rights considerations in public procurements rules
- Fundamental rights impact assessment as an essential tool
- Close monitoring by independent supervisory body such as data protection agencies.

The same year, FRA published another paper that focused on data quality⁹⁸, which notes that algorithms ‘*used in machine learning systems and artificial intelligence (AI) can only be as good as the data used for their development*’ and highlights that data quality is a key concern in policy discussions on AI. The paper also provides a set of questions that could help in the assessment of data quality assessment, such as the origins of data, allocation of responsibilities in data collection, the adequacy of the data in relation to the algorithm's purpose or time and geographic coverage.

In 2019 FRA also launched an assessment project called “Artificial Intelligence, Big Data and Fundamental Rights”⁹⁹ that seeks to identify examples of fundamental rights challenges arising from the use of algorithms for decision-making (i.e. machine learning and AI). It aims to establish fundamental rights guidelines and recommendations for using AI and big data in public administrations and business. The first results are expected in 2020.

⁹⁶ <https://fra.europa.eu/en/about-fra>

⁹⁷ https://fra.europa.eu/sites/default/files/fra_uploads/fra-2019-facial-recognition-technology-focus-paper-1_en.pdf

⁹⁸ https://fra.europa.eu/sites/default/files/fra_uploads/fra-2019-data-quality-and-ai_en.pdf

⁹⁹ <https://fra.europa.eu/en/project/2018/artificial-intelligence-big-data-and-fundamental-rights>

European Data Protection Supervisor

The European Data Protection Supervisor (EDPS) is an independent data protection authority of the EU¹⁰⁰ that monitors EU institutions to ensure an adequate level of protection of privacy and personal data. EDPS also provides opinions on new legislative proposals, provides expertise to the Court of Justice of the EU and cooperates with national supervisory authorities. Due to its broad and horizontal nature, many of EDPS' activities apply to AI and other data-driven technologies. Below we present only recent activities that directly mention AI systems.

The 2015-2019 EDPS report highlights AI as one of the emerging technologies EDPS monitors and outlines some concerns raised from a data protection perspective (problems of transparency over the use of personal data, lack of human oversight, limited possibilities to provide meaningful consent). AI was also the subject of various EDPS speeches and other communication through its webpage, including an article on "AI and Facial Recognition" that highlights the importance of the precautionary principle in deployment and use of AI systems *which may even justify a ban or temporary freeze on some uses of the technology where its impact on society and the rights and freedoms of individuals is uncertain*".¹⁰¹

In a recent statement on the European Data Strategy, EDPS criticises existing business models, which rely on *'pervasive tracking and unprecedented concentration of data in a handful of powerful players'* and notes the need for a strategy that can *'prove the viability and sustainability of an alternative data economy model – open, fair and democratic.'* It calls for European data spaces that appropriately safeguard the data stored and access to such information is *'made on the basis of various factors, including but not limited to the actor requesting access; the purpose of the processing and its risk level; the existence of accountability frameworks and safeguards.'* EDPS also stressed that personal data stored in data spaces must comply *'with data protection legislation, including in particular with the principles of lawfulness, purpose limitation and data minimisation.'* The statement further recommends that data sharing for 'public good' must be compatible with the principles of necessity and proportionality and *'should not create or reinforce situations of data oligopoly.'* Future legislation (Data Act) should also outline clear requirements for products, services and applications including data protection by design.

Other agencies

Other EU agencies have also taken part in the discussion around AI, published reports, papers or organised research projects highlighting different areas of concern. Among them are:

- European Institute for Gender Equality launched a study on opportunities and challenges for gender equality in labour markets transformed by artificial intelligence (AI) and platform work.¹⁰² It also published several reports on women in the ITC sector¹⁰³ and use of digital technologies to promote gender equality.¹⁰⁴
- European Foundation for the Improvement of Living and Working Conditions published the report "Impact of digitalisation on social services" that describes ways that digital technologies are already being used to improve the planning and delivery of social

¹⁰⁰ https://edps.europa.eu/about-edps_en

¹⁰¹ https://edps.europa.eu/press-publications/press-news/blog/ai-and-facial-recognition-challenges-and-opportunities_en

¹⁰² <https://eige.europa.eu/about/projects/gender-equality-prospects-labour-markets-transformed-artificial-intelligence-and-platform-work>

¹⁰³ <https://eige.europa.eu/publications/supporting-work-life-balance-get-more-women-ict>

¹⁰⁴ <https://eige.europa.eu/about/projects/gender-equality-and-youth-opportunities-and-risks-digitalisation>

services.¹⁰⁵ This report explains that AI is used in the planning of resource allocation and applications for benefits. It also highlights such issues as the fragmentation of social services and resistance from staff.

- European Insurance and Occupational Pensions Authority published a report on Big Data Analytics in motor and health insurance, calling for the need to address issues of fairness in the use of Big Data Analytics and accuracy and explainability of ‘black-box’ algorithms.¹⁰⁶ Another report maps current authorising and licencing approaches to financial innovation, including an assessment of how the principle of proportionality is applied in practice.¹⁰⁷ It is also launching a Consultative Expert Group on Digital Ethics in Insurance.¹⁰⁸
- European Agency for Safety and Health at Work published a report that analyses the use of big data and AI to select targets for health and safety inspections effectively.¹⁰⁹ Other reports discuss the occupational safety and health implications of AI and robotics¹¹⁰ and potential consequences of poor implementation of AI systems and the conditions for its good implementation.¹¹¹
- European Institute of Innovation and Technology has a rich agenda on AI that involves funding, research and training.¹¹² Recently it also produced a policy paper that provides an overview of policy motivations, trends, instruments and the roles of various actors in defining the perception of and perspectives for Europe’s digital sovereignty.¹¹³
- European Centre for the Development of Vocational Training has launched a project on “Digitalisation, AI and the future of work” which analyses the impact and drivers of automation, robotics, artificial intelligence and other digital technologies on employment and changing skill needs of jobs. It is also examining the implications of new forms of digital labour.¹¹⁴ As part of this project it published a report that concluded that automation and AI do not necessarily destroy, but rather transform jobs.¹¹⁵ Other papers analyse job factors most likely to be impacted by social distancing measures introduced due to COVID-19¹¹⁶ or policies that help in tackling skill mismatch.¹¹⁷
- European Union Agency for Railways published a report that outlines the future evolution of the target railway system that relies on uses of data analytics and AI.¹¹⁸ Another technical report focused on risk profiling (including use of Big Data and data-driven technologies) that would help the Agency assist the railway sector operating in the EU single market in improving its safety performance.¹¹⁹
- Europol has set up a new unit called “Innovation Laboratory” that will help address challenges and opportunities of new technologies such as 5G, AI, IoT, drones and 3D

¹⁰⁵ <https://www.eurofound.europa.eu/publications/report/2020/impact-of-digitalisation-on-social-services>

¹⁰⁶

https://www.eiopa.europa.eu/sites/default/files/publications/eiopa_bigdataanalytics_thematicreview_april2019.pdf?source=search

¹⁰⁷ https://www.eiopa.europa.eu/content/eiopa-analyses-licencing-approaches-insurtech_en?source=search

¹⁰⁸ https://www.eiopa.europa.eu/content/eiopa-establishes-consultative-expert-group-digital-ethics-insurance_en?source=search

¹⁰⁹ <https://osha.europa.eu/en/publications/future-role-big-data-and-machine-learning-health-and-safety-inspection-efficiency/view>

<https://osha.europa.eu/en/publications/future-role-big-data-and-machine-learning-health-and-safety-inspection-efficiency/view>

¹¹⁰ <https://osha.europa.eu/en/publications/future-work-robotics/view>

¹¹¹ <https://osha.europa.eu/en/publications/osh-and-future-work-benefits-and-risks-artificial-intelligence-tools-workplaces/view>

¹¹² <https://eit.europa.eu/news-events/news/2019-eit-ai-report-here>

¹¹³ <https://eit.europa.eu/news-events/news/new-report-european-digital-infrastructure-and-data-sovereignty>

¹¹⁴ <https://www.cedefop.europa.eu/en/events-and-projects/projects/digitalisation-and-future-work>

¹¹⁵ <https://www.cedefop.europa.eu/en/publications-and-resources/publications/9140>

¹¹⁶ <https://www.cedefop.europa.eu/en/publications-and-resources/publications/6201>

¹¹⁷ <https://www.cedefop.europa.eu/en/publications-and-resources/publications/3075>

¹¹⁸ https://www.era.europa.eu/sites/default/files/agency/docs/target_railway_system_en.pdf

¹¹⁹ https://www.era.europa.eu/sites/default/files/activities/docs/cor_paper_on_risk_profiling_en.pdf

printing.¹²⁰ In 2019 it also published a report that identifies security threats associated with new disruptive technologies such as AI and points to ways for law enforcement to use the opportunities brought by these technologies to combat crime and terrorism.¹²¹

KEY CHALLENGES AND DIGITAL POLICIES

As noted above, AI (and broader digital) policy is horizontal in nature and goes across different sectors and areas of society and economy. However, digital components and references to AI are strongly present in various other large EU policy areas as well. Here we briefly present two that are key priorities for the current European Commission: climate change and social policy.

Data-driven technologies and the European Green Deal

The European Green Deal is a set of EU policies with the main goal to make Europe climate neutral in 2050.¹²² It notes that the *'twin challenge of a green and digital transformation has to go hand-in-hand.'*¹²³ Therefore, digital policies have strong 'green' components and vice versa. As part of this, the Commission is exploring how new emerging technologies (like AI or 5G) can accelerate and maximise the impact of policies to deal with climate change and to protect the environment, noting that such technologies present new opportunities to monitor air and water pollution, optimise use of energy and natural resources, and can facilitate evidence-based decisions and expand the capacity to understand and tackle environmental challenges.

Among actions that connect the digital with green transformation, the Commission proposes:

- A new EU industrial strategy to support the green and digital transformation of the EU economy
- "Destination Earth" that will develop a high precision digital model of the Earth and will boost the EU's ability to predict and manage environmental disasters
- The introduction of 'product passports' to tell consumers and industry about the origin, composition (including hazardous and rare materials), end-of-life handling and recycling of products
- Launch a circular electronics initiative that will (amongst other features) extend the lifetime of all smartphones in the EU by one year
- Make data centres and ICT infrastructures climate-neutral by 2030
- Ensure that EU rules on green public procurement cover all ICT products and services
- Launch a GreenData4All initiative

Among the common data spaces proposed in the European Data Strategy is the Green Deal data space. For this, the Commission will roll out a data-service on a large scale to assist in collecting, sharing, processing and analysing large volumes of data relevant for environmental policies, facilitate the harvesting potential of data-rich policy domains with data on chemicals, air, water and soil. The White Paper on AI also points to ecological implications of AI and notes that *'given the increasing importance of AI, the environmental impact of AI systems needs to be duly considered throughout their lifecycle and across the entire supply chain.'*

¹²⁰ <https://www.europarl.europa.eu/cmsdata/208046/Europol%20Contribution%20for%20Electronic%20exchange%20-%20Europol%20Innovation%20Lab.pdf>

¹²¹ <https://www.europol.europa.eu/publications-documents/do-criminals-dream-of-electric-sheep-how-technology-shapes-future-of-crime-and-law-enforcement>

¹²² https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

¹²³ <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1588580774040&uri=CELEX:52019DC0640>

Digital Policy and Social Rights in Europe

Another important priority of the new Commission that has a prominent digital competent is social policy. In her inaugural speech, Ursula von der Leyen committed to the full realisation of the European Pillar of Social Rights but also admitted challenges that digitalisation brings to workplaces and social security systems. In the report “Strong Social Europe for Just Transitions”¹²⁴ some of these issues were outlined, noting that AI and other disruptive technologies will generate changes on the job market (new jobs will be created, some will disappear, more flexible work arrangements will emerge). The document also indicates strong connections between different areas of policies: *‘It is our social strategy to make sure that the transitions of climate-neutrality, digitalisation and demographic change are socially fair and just.’*

Addressing those challenges the Commission will support the advancement of digital skills, development and reinforcement of digital capabilities of education providers and will update the Digital Europe Programme. The document is also planning to close the gender pay gap (also in digital technologies sectors), use binding pay-transparency tools and increase the number of women in senior positions. Another problem is changes in work patterns through *‘constant connectivity, increased online and mobile work, human-machine interfaces, workers’ monitoring, recruitment and management by algorithms’* and a commitment to the development of digital technologies to avoid *‘new patterns of discrimination or exclusion or new risks to workers’ physical and mental health.’* To address some of those challenges the revision of occupational safety and health strategy is planned.

With regards to the increase in precarity brought about by digital transformations, the report notes a need for rules to prevent abuses, maintain high standards for health and safety and ensure better social protection coverage. The Commission also outlines a commitment to improve working conditions of platform workers by hosting a Platform Work Summit to discuss employment status, working conditions and access to social protection of platform workers, access to collective representation and bargaining, as well as cross-border aspects of platform work. They have recently announced the right for collective representation and bargaining amongst platform workers as part of the consultations on the Digital Service Act.¹²⁵

European Pillar of Social Rights

The European Pillar of Social Rights sets out 20 key high-profile principles and social rights (e.g. fair wages, right to adequate social protection, adequate minimum income)¹²⁶. It serves as a guide for the renewed process of convergence towards better working and living conditions in Europe. The 20 principles and rights enshrined in the Pillar are structured around three categories: Equal opportunities and access to the labour market; Fair working conditions; Social protection and inclusion. It was proclaimed by all EU institutions in 2017.

¹²⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0014&qid=1580400520904>

¹²⁵ https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1237

¹²⁶ https://ec.europa.eu/commission/sites/beta-political/files/social-summit-european-pillar-social-rights-booklet_en.pdf

CONCLUSIONS

In this working paper, we have mapped the existing efforts in the European Union to shape the coherent and separate policy in the area of AI. We focused on the activities initiated by the European Commission, as it has a dominant position in creating and implementing common policies. The Commission has launched a range of initiatives that predominantly concentrate on AI through various policy documents. We then also analysed statements and responses presented by other bodies and institutions such as the European Parliament, consultative committees and European agencies.

The EU's engagement with AI follows historical patterns and on-going geopolitical concerns, such as competition with the US and China. This is clear, for example, with its emphasis on notions of 'technological sovereignty' and 'European values' that underpin several of its policy proposals. The horizontal nature of AI policy means that it stretches across different sectors (climate change, data policy, international cooperation, policing amongst many others) and engages with broad issues (e.g. regulation, deployment, ethical concerns, liability). At the same time, the EU's efforts on AI predominantly follow traditional ways of making technological policy and involve two streams of decision-making: investments and support for science and innovations and regulating risks. The first area is organised around widespread funding programmes, financial assistance and grants for research entities and start-ups, and creating networks for cooperation that indicate a significant spending plan on AI and the digital. The second area involves regulation and the creation of standards through not just GDPR, but ethical codes and principles and the proposition of a risk-based approach as set out in the White Paper on AI that the EU sees as central to strengthening its position in the global debate on AI.

Importantly, the resolutions and statements from various bodies and groups highlight that the EU's engagement with AI is continuously being shaped by different interests and concerns pertaining to such actors. Altogether those institutional dynamics, legislative initiatives, statements, flows of money and international policies create a specific space for a discussion about rights and democratic decision-making that focus on data-driven technology. In mapping this complex landscape, this working paper provides an outline of the composition of contemporary AI policy within the European Union that will inform further analysis as we progress with our project.

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www.datajusticeproject.net

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Data Justice Lab

The Data Justice Lab is a space for research and collaboration at Cardiff University's School of Journalism, Media and Culture (JOMEC). It seeks to advance a research agenda that examines the intricate relationship between datafication and social justice, highlighting the politics and impacts of data-driven processes and big data.

www.datajusticelab.org

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