EXPLANATORY MEMORANDUM FOR EUROPEAN UNION LEGISLATION AND DOCUMENTS

15641/18
COM(2018) 795 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS Coordinated Plan on Artificial Intelligence

Submitted by the Department for Digital, Culture, Media and Sport (Office for Artificial Intelligence) 22 January 2019

SUBJECT MATTER

1. The main document (15641/18) is a Communication from the Commission that provides an overview of the key objectives of the COORDINATED ACTION PLAN ON ARTIFICIAL INTELLIGENCE ('Plan'). The Plan is viewed as a means of realising the Commission's Strategy on AI for Europe and the Declaration of Cooperation on AI, both of which were published in April 2018.

2. According to the Communication, the Plan's ambition is to:
   a. Ensure that the EU as a whole can compete globally.
   b. Maximise the impact of investments at EU and national levels, encourage synergies and cooperation across the EU, including on ethics, and foster the exchange of best practices and collectively define the way forward.
   c. Improve productivity and economic growth across all economic sectors.[1]

2.1 Common objectives and complementary efforts

3. The Communication explains that the Plan, focusing on key enablers of AI development and deployment, provides a strategic framework for the development of national AI strategies. All Member States are encouraged to develop their national AI strategies by mid-2019 if they have not done so already.

4. Noting the lack of private investments in AI within Europe compared to Asia and North America and the negative impacts this shortfall will have on the AI sector in Europe, the Communication notes that private investment will be

---

[1] This point is clearly articulated in the Plan itself, but not the Communication.

used to leverage public investment. The ultimate ambition is to reach EUR 20bn per year over the next decade through public and private investment. To achieve this, the Commission has proposed increasing investment under Horizon 2020 to EUR 1.5bn between 2018-2020 and investing at least EUR 1bn per year during the next programming period from 2021-2027. Reaching EUR 20bn per year will require that Member States and the private sector make 'similar efforts'.

5. Another means of facilitating private investment is for regulators to eliminate obstacles created by fragmented markets. By ensuring that there is a real Single Market, the objective is to make it easier for businesses to scale up and trade across borders, boosting investments.

2.2 Towards a European AI public-private partnership and more financing for start-ups and innovative small and medium-sized enterprises

6. The Communication proposes that the Commission and Member States work closely with the private sector to develop a common strategic research agenda on AI which will define priorities that reflect market needs and will encourage exchange between sectors. By creating a new research and innovation partnership on AI, the ambition is to foster collaboration between academia and industry in Europe. The nature of this partnership is such that the private sector is expected to commit to specific and high investments in AI.

7. To encourage and enable start-ups and innovators in AI and blockchain to grow, EUR 100m will be made available in 2020 which could be further complemented by domestic investment and finance to strengthen access to finance for AI under the INvest EU programme from 2021 onwards.

8. The Commission is setting up the European Innovation Council, which will function to support 'the most innovative start-ups' and a new pilot will be launched in early 2019 to support next generation human-centric AI. The Innovation Council has been tasked, under the next Multiannual Financial Framework, to identify and scale up breakthrough and disruptive innovation.[2]

2.3 Strengthening excellence in trustworthy AI technologies and broad diffusion

---

[2] European Council conclusions, 28 June 2018 (421/18). https://www.consilium.europa.eu/en/press/press-releases/2018/06/29/20180628-euco-conclusions-final/

9. To foster cooperation across the best research teams in Europe and advance Europe's research in AI, a tighter network of European AI research excellence centres will be created.

10. Taking AI technologies from research to commercialisation is also a priority area. Learning from pilots being delivered under the Digitising European Industry Strategy will be used to support commercialisation.

11. Additionally, several large-scale reference test sites are proposed. These will be open to all actors across Europe, will be developed using up to EUR 1.5bn from the AI strand of the proposed Digital Europe programme, and will contribute to the optimisation of investment so that existing centres of excellence avoid duplicative efforts.

12. To support and reduce barriers to the diffusion of AI technologies' uptake in the economy, in particular amongst start-ups and SMEs, the Communication notes the necessity of raising public awareness and sharing scientific advances as well as state-of-the-art existing technologies developed in Europe. The proposed new Digital Europe programme provides for co-investment by Member States and the Commission in digital innovation hubs across Europe.[3] These will serve to facilitate the diffusion of AI capacity in each Member State and will link to an 'AI on-demand-platform.'[4]

2.4 Adapting our learning and training programmes and systems to better prepare our society for AI

13. The Communication notes that Member States are encouraged to integrate Skills considerations into their respective national AI Strategies. It also highlights some key challenges and next steps for the Commission in this area.

14. Three key challenges to the workforce are highlighted in the Communication. First, recognising the implications of technology on transforming the world of work and the skills required of workers, upskilling existing workers is viewed as essential. To this end, life-long learning is posed as a key solution.

---

[3] Digital innovation hubs, according to the Plan, will help act as 'one-stop-shops where companies and the public sector can get access to technology, testing and technical support, financing advice, market intelligence and networking opportunities. [In the area of AI], DIH can help SMEs and public administrations identify necessary datasets, develop algorithms, train AI and they can link to computing facilities building on the AI-on-demand platform. They can help training professionals from SMEs in the use of AI solutions and advise on existing financial support. They link both to the research excellence centres and to available testing facilities.' Annex to Com(2018) 795 final

[4] AI4EU 'is a collaborative H2020 Project that aims to mobilise the entire European AI community to make AI promises real for the European Society and Economy [and] create a leading collaborative AI European platform to nurture economic growth.' http://ai4eu.org/

Second, the Communication recognises that there is a shortage of ICT professionals across Europe, or workers who design, deploy, and monitor or operate AI technologies. And third, talented researchers are seen as too easily lured abroad by promising pay packages. Addressing this, Member States are encouraged to exchange best practice on reinforcing excellence and retaining talented workers. They are also encouraged to exploit current legal migration acquis, including the blue card, to attract talent.

15. The Commission will support Masters and PhDs in AI by exploiting the improved cooperation between AI research excellence centres and the EU's research and innovation programmes more broadly. The Communication notes the importance of integrating AI into multi-disciplinary coursework across education levels to facilitate greater understanding on the development and use of AI.

16. In 2019 an established High-Level Expert Group on the impact of digital transformation on EU labour markets will report on the impacts of technological advances, including AI, on the labour market.

2.5 Building up the European data space essential for AI in Europe, including for the public sector

17. The Communication notes the importance of data to developing AI technologies. Building on the General Data Protection Regulation, the Commission encourages the European Data Protection Board to develop guidelines on the issue of processing of personal data for research purposes with a view to facilitating the development of large cross-country research datasets useful to AI development.

18. The proposal to create common European data space in select areas, for example, manufacturing or energy, is viewed as a major asset for European innovators and businesses. By aggregating and preparing data so that it is AI-ready, the data will be on a scale that enables the development of new products and services across public and private sectors.

19. Aligned with the UK's Early Diagnosis Mission, the Communication highlights the development of a common database of health images that will, initially, be focused on the most common forms of cancer. These images can then be used with AI to improve diagnosis and treatment.

20. With respect to public administrations, Member States and the Commission will work together on peer learning and discuss areas for joint procurement of AI solutions, including cybersecurity.

21. Finally, a key enabling technology to the European ecosystem, computing capacity is addressed by reference to the European High-Performance Computing Initiative.[5] The Initiative is pooling resource to develop the next generation of supercomputers to process big data and train AI. HPC is complemented by the ongoing partnerships with Member States and industry on microelectronic components and systems as well as the European Processor Initiative, which aims to create low-power processor technology for HPC, data-centres and autonomous vehicles.

2.6 Developing ethics guidelines with a global perspective and ensuring an innovation-friendly legal framework

22. Ensuring that AI is trusted and that outcomes of its application remain intended and desirable, the Communication raises the necessity of making the technology predictable, responsible, verifiable, respectful of fundamental rights and follow ethical rules. A key aspect of this is understanding AI decision-making. Altogether, these objectives will support Europe to become a global leader in developing and using AI for good and promoting a human-centric approach and ethics-by-design approach.

23. A mechanism for ensuring these outcomes is the AI High-level Expert Group[6], which is drafting AI ethics guidelines. The final version will be presented in March 2019.

24. Finally, a flexible regulatory framework that enables innovation while ensuring high levels of protection and safety is recognised as essential. The Commission will publish by mid-2019 a report on the potential gaps in and orientations for the safety and liability frameworks for AI.

---

[5] The European High-Performance Computing Joint Undertaking will pool public and private funds of EUR 1bn. It is a 'legal and funding entity which will enable pooling of EU and national resources in HPC' with a view to to develop top-of-the-range exascale supercomputers.' The narrower aims of the initiative are to develop a pan-European supercomputing infrastructure by buying and deploying two supercomputers in the EU that will be among the top five in the world and at least two others that would rank in the top 25 of today's technology. The hardware will be available to private and public users for scientific and industrial uses. The expected outcome of the initiative is to create a European supercomputing ecosystem in order to stimulate a tech supply industry and make supercomputing resources more widely available. https://ec.europa.eu/digital-single-market/en/eurohpc-joint-undertaking

[6] The European Commission appointed 52 experts to the AI High-Level Expert Group, representing academia, civil society and industry. The Group's general objective is to support the implementation of the European Strategy on AI. The Group issued their draft 'Ethics Guidelines for Trustworthy AI' in December 2018 and we will respond in due course policy officials are currently drafting a response (due 18th January). While the final guidelines are due to be issued in March by the Commission, more concrete implications are expected in May when the Group will issue their second deliverable 'Policy and Investment Recommendations.' The High Level Expert Group's membership can be found here: https://ec.europa.eu/digital-single-market/en/high-level-expert-group-artificial-intelligence.

2.7 Security-related aspects of AI applications and infrastructure, and international security agenda

25. The Communication notes the need to better understand how to use AI to enhance the objectives of the security sector; protect AI technologies from attack; and address potential abuse of AI for malicious purposes.

26. AI's application to weapon systems is also raised as fundamentally changing armed conflicts. This application is identified as raising serious concerns and questions and the Communication notes the Union's support of International Humanitarian Law and Human Rights Law's application to all weapon systems and its position that human control must be retained on the use of lethal force.

3. Conclusions

27. Stressing the need for Europe to become a leading player in AI, the Commission invites: the European Council to endorse the coordinated plan; Members States to implement the coordinated plan; and co-legislators to swiftly adopt the remaining legislative initiatives which are essential for the success of the European AI strategy.

SCRUTINY HISTORY

28. AI is part of the Commission's strategy to digitise industry (8100/16, COM(2016) 180 final) and a renewed EU Industrial Policy Strategy (12202/17, COM(2017) 479 final).

29. In May 2017, the Commission published its mid-term review of the Digital Single Market Strategy (8998/17, COM(17) 228). It highlighted the importance of building on Europe's scientific and industrial strengths, as well as on its innovative start-ups, to be in a leading position in the development of AI technologies, platforms, and applications.

30. In April 2018, European Member States and Norway signed a Declaration of Cooperation on Artificial Intelligence and the Commission published its AI Strategy (COM(2018) 237 final).

MINISTERIAL RESPONSIBILITY

31. The Secretary of State for Digital, Culture, Media and Sport (SoS, DCMS) is jointly responsible for policy on Artificial Intelligence with the Secretary of State for Business, Energy and Industrial Strategy (SoS, BEIS). In particular,

the SoS DCMS is responsible for data and its use, including for AI systems and for digital skills training provision, critical to helping the UK workforce adapt to AI and automation. The SoS BEIS is responsible for policy for the adoption and uptake of AI in industry sectors and on wider skills training, including PhDs. SoS BEIS is also responsible for policy in relation to regulating product safety issues.

32. Because DCMS is responsible for the EM, the Minister for Digital has been requested to sign off and the Minister for Universities, Science, Research and Innovation and Secretaries of State for DCMS and BEIS will be informed of the EM.

INTEREST OF THE DEVOLVED ADMINISTRATIONS

32. The Devolved Administrations have been consulted in the preparation of the EM.

LEGAL AND PROCEDURAL ISSUES

33. There are no legal or procedural issues. This is not a proposal for legislation.

APPLICATION TO THE EUROPEAN ECONOMIC AREA

34. The Communication does not clarify application to the EEA. Switzerland and Norway were involved in the preparation of the Plan. It is not yet clarified whether these states will adopt the Plan or the terms of their participation.

SUBSIDIARITY

35. This is not a legislative act and, as such, the principle of subsidiarity does not apply. The Government will be examining carefully the subsidiarity implications of any more detailed proposals which may arise from the Communication.

36. According to the Communication and the Plan itself, ensuring coordination on AI within Europe is necessary to remain competitive and a compelling investment opportunity at the global level. Without EU intervention, there is no guarantee that Member States' individual approaches to developing AI technologies and capabilities would align and produce a compelling, optimised outcome.

POLICY IMPLICATIONS (including Exit implications where appropriate)

37. On 23 June 2016, the UK voted to leave the EU. On 29 March 2017, the Government triggered Article 50 of the TEU to begin the process of exit. Until 29 March 2019, the UK remains a full member of the EU and all the rights and obligations of EU membership remain in force. During this period, the Government will also continue to negotiate, implement, and apply EU legislation.

38. This EM is not directly related to Brexit. However, the future of the UK's participation in EU regulatory regimes, policies and programmes that will impact the development and adoption of AI (such as in relation to funding, accessing data, and safety and liability frameworks) will be a matter for Brexit negotiations.

39. Overall, the terms of participating in the Coordinated Action Plan on AI are not set out in the Communication. The Policy Implications for full participation as compared to partial participation will necessarily diverge. Therefore, the Policy Implications below remain tentative and relevant only to the highest priority areas that are currently being considered across policy teams within Office for AI, DCMS, and BEIS.

Possible policy implications include:

40. **Declaration of Cooperation on AI**: The UK signed up to the Declaration of Cooperation on AI referred to in the Communication to influence EU AI and ethics policy in a way consistent with our emerging thinking. Regulatory compatibility on AI, as it is for data through the GDPR, will be beneficial for trade. It should be noted that the Declaration has no formal status, and that any outputs would have no binding or legal status, with no expectation or requirement that we sign up to them.

41. **Investment:** Published in April 2018, the UK's AI Sector Deal outlines a package of up to £0.95bn of support for the AI sector. It includes government, industry and academic contributions up to £603m in newly allocated funding, and up to £342m from within existing budgets, alongside £250m for Connected and Autonomous vehicles.

42. **High Performance Computing**: Access to computing is a growth constraint to UK start-ups with HPC providers noting that demand that outstrips supply.[7] UKRI holds the coordinating role for High Performance Computing (HPC) amongst UK Research Councils but DCMS plays an active role in shaping the direction of how this field is developed and supported. The Government as a whole recognises HPC's role as a key enabler to business, research and innovation.

---

[7] https://www.digicatapult.org.uk/news-and-views/publication/machines-machine-intelligence-report/

43. **Research:** The European ambition to build stronger networks across centres of excellence, better relationships between academia and business, and to attract foreign talent aligns with the UK's commitments within the AI Sector Deal. In particular, the AI Sector Deal's commitment to review AI's application to sectors in the UK and building up a new Turing AI Fellowship programme; working towards developing and delivering the AI Industrial Masters programme and expanding the number of PhDs in the field; and our changes to the immigration system through doubling Tier 1 visas and enabling world-leading scientists and researchers to arriving under the Tier 1 route to more quickly apply for settlement after three years.

44. **Skills:** The Communication's outline of work around skills aligns with the UK's approach as articulated in the UK Sector Deal. This includes the development of a new industry funded AI Masters programme, beginning with at least 200 new taught AI Masters students in 2019 with expansion of this talent pipeline continuing year-on-year. In addition to the Masters, we are working to attract, recruit and retain world-leading talent by creating a fellowship programme that is globally respected and attractive for researchers around the world to congregate in the UK. We are also supporting work towards an additional 200 doctoral studentships in AI and related disciplines a year by 2020 to 2021. By 2025, we will have at least 1,000 Government supported PhD places at any one time.

45. **European Data Spaces**: The European ambition to create a common data space in discrete sectors or areas recognises the need for large amounts of high quality data to develop AI technologies. This was also recognised in the UK Government's AI Sector Deal[8]. The Office for AI is currently working with the Open Data Institute (ODI) to explore the concept of data trusts and their potential to enable organisations to share data in a safe, fair, legal and ethical way. The data available through such European Data Spaces could benefit our academic, business, and public services sectors. The terms of participation in such Spaces are not fully clarified in the Communication, however.

46. **Regulation and Ethics**: The Communication's ambition is assess the implementation and adoption of possible European-wide voluntary guidelines, encourage Member States to reflect whether existing legislation is fit for purpose, and to discuss the creation of regulatory sandboxes. The UK's Centre for Data Ethics and Innovation is a major new advisory body that will investigate and advise on how we govern the use of data and data-enabled technologies, including Artificial Intelligence. The core functions of the Centre are to analyse and anticipate gaps in governance and regulation that could impede the ethical

---

[8] https://www.gov.uk/government/publications/artificial-intelligence-sector-deal/ai-sector-deal

and innovative deployment of data and AI; agree and articulate best practice, codes of conduct and standards that can guide ethical and innovative uses of AI; and advise government on the specific policy or regulatory actions required to address or prevent barriers to innovative and ethical uses of data.

47. **Cyber Security:** The European ambition to better understand the impacts of AI on security aligns closely with Government's work on Cyber Security Science and Technology.

CONSULTATION

45. There has been no formal public consultation with outside bodies in relation to this Communication as it is not a proposal for legislation.

46. To develop public policy on AI, we continue to engage widely with bodies in the UK AI and data landscape across sectors, including businesses across multiple sectors, Digital Innovation Hubs, the Catapults, universities, the Alan Turing Institute, UKRI, industry bodies like Tech Nation on AI workforce and visas, the British Computer Society and Institute of Coding on Masters, and Open Data Institute on access to data and Data Trusts.

IMPACT ASSESSMENT

47. This is not a legislative proposal, however it does make reference to existing and prospective legislation. For example, Horizon 2020 and beyond (Horizon Europe and Digital Europe).
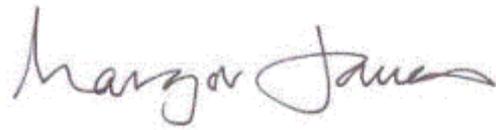
FINANCIAL IMPLICATIONS

48. The financial implications of the Communication and Plan will vary depending on what policy areas the UK decides to pursue.

TIMETABLE

49. There is no action required as a result of this communication.

MINISTERIAL NAME AND SIGNATURE

MARGOT JAMES MP
MINISTER FOR DIGITAL AND CREATIVE INDUSTRIES