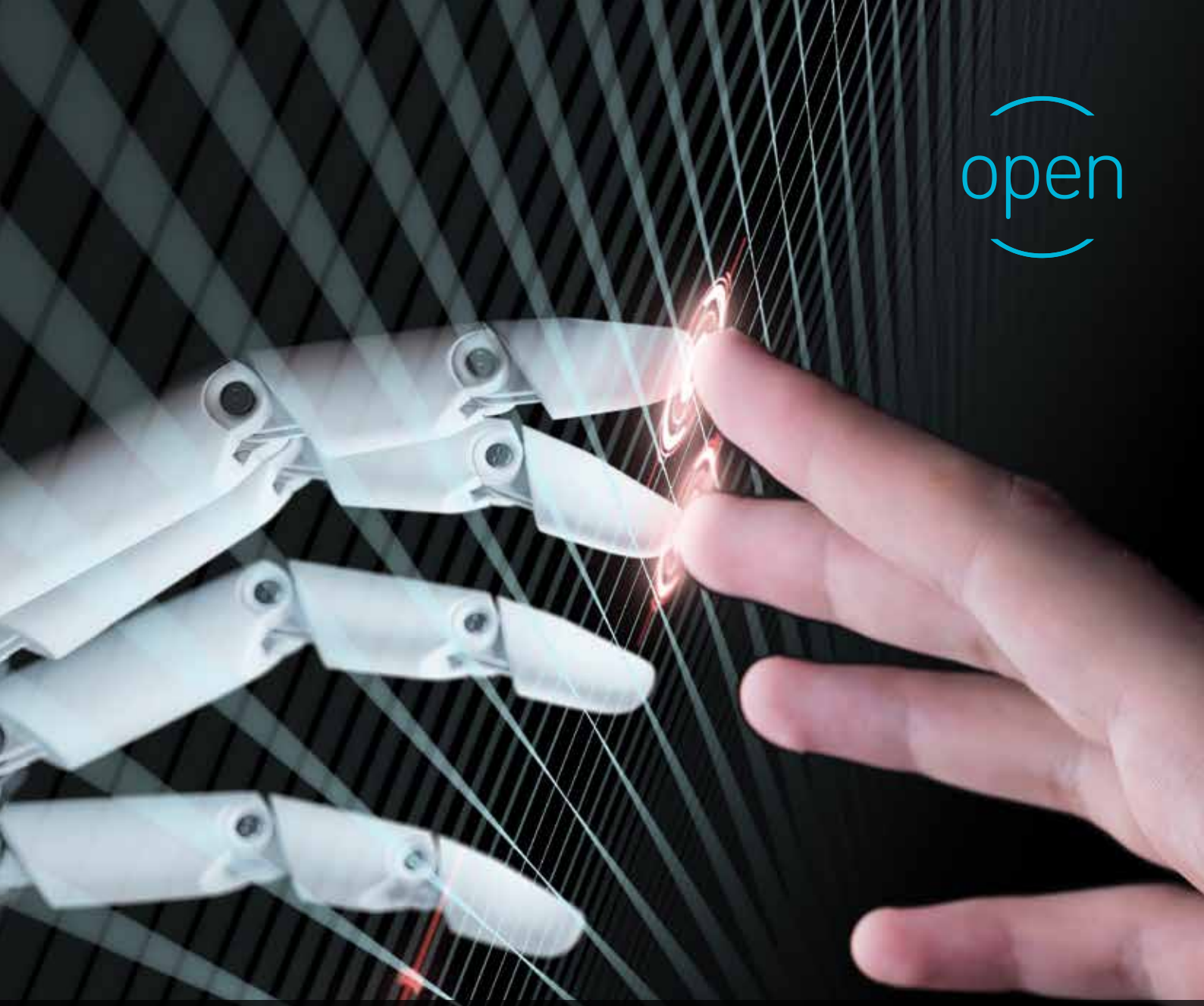

Ever Cleverer Union

How AI could help EU institutions become more capable, competent, cost-effective and closer to citizens

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December 2019

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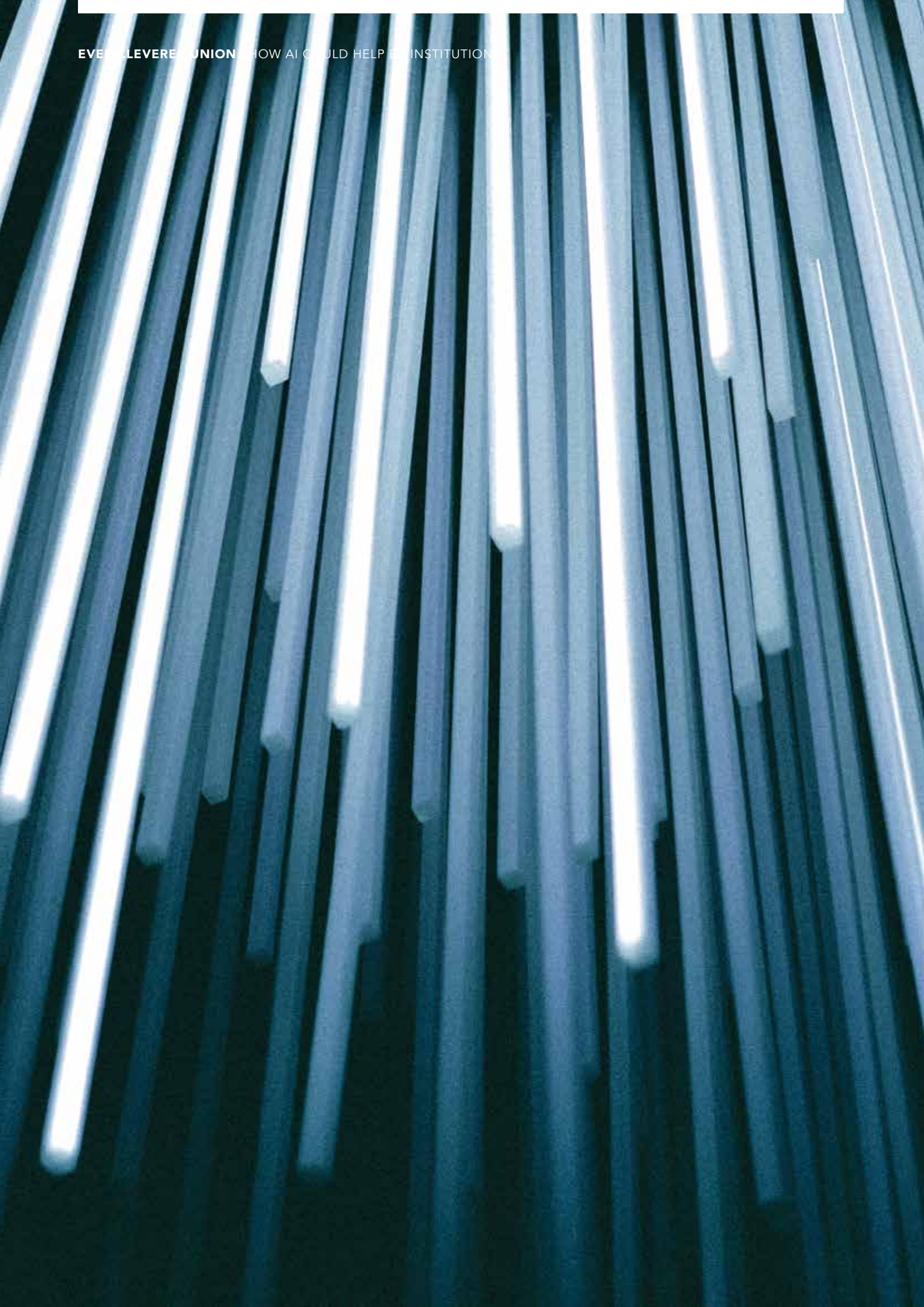

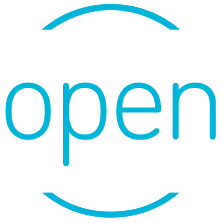

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Executive Summary

Europe's productivity performance is woefully inadequate. But the development and deployment across the economy of artificial intelligence (AI) tools could provide a big boost, benefiting citizens, businesses and public administrations – not least the EU institutions, the focus of this report.

One big obstacle to Europe making the most of AI is exaggerated fears about its economic and ethical impacts. While AI will displace some jobs, it will also create new ones while freeing many workers from drudgery and making them more productive. And while the use – or abuse – of AI may also pose thorny ethical issues, these can be dealt with through appropriate regulation as and when necessary.

It would be a mistake to deny Europe the huge opportunities of AI by focusing solely on its potential downsides; far better to try to seize the benefits of innovation while managing the risks. All the more so because the EU now faces a new world of geopolitical rivalry between the United States and China in which technology is a key battleground and Europe is often a laggard.

Governments around the world are just starting to make use of AI, but their investments in it are growing fast. As a complex, confederal and cosmopolitan union, the EU has a particularly large potential to benefit from AI. AI could help create an ever-cleverer Union that is more capable, more competent, more cost-effective and closer to its citizens.

The EU institutions lack the human resources to interact directly with most of the 500 million Europeans. This distance between the institutions and citizens fosters concerns about a democratic deficit and makes the institutions unhealthily reliant on member-state governments and intermediaries as go-betweens. While AI cannot solve such political problems, it can attenuate them. For example, chatbots could allow EU citizens to communicate with the institutions, with more challenging queries passed on to human operators.

Both chatbots and better data collection and analysis could also help make EU institutions more responsive to European citizens' needs. The institutions could extract more information about public opinion from social media, for instance, while also consulting the public more widely on legislative proposals, instead of relying on intermediaries and lobby groups. President Emmanuel Macron used AI tools to synthesise the contributions of many thousands of French citizens on how to respond to the gilets jaunes (yellow vest) protests.

As well as bringing EU institutions closer to citizens, AI could improve the competence of their decision-making. The Commission is increasingly overloaded with licensing and certification decisions. To avoid delays and focus resources more effectively, AI tools such as natural-language processing could be used to scan huge volumes of data more promptly and effectively about, for instance, new vehicles' emissions. More comprehensive and better analysed data could also aid with bigger-picture policy decisions, such as how best to achieve the EU's climate-change objectives. AI could help make the EU's Green New Deal a success.

In addition, AI could make the EU institutions more capable and cost-effective. AI tools could boost the speed, reduce the cost and expand the comprehensiveness of translations and interpreting, thus improving the transparency and accountability of EU decision-making. They could also improve the timeliness and accuracy of Eurostat statistics. And AI tools such as predictive analytics could be used to facilitate planning and improve forecasting – not least of EU budgeting and how best to allocate resources in preparation for wherever a crisis may next arise.

Cognitive processing could help ensure the better use of EU funds, not least in public tenders. Cognitive and natural language processing could also allow better monitoring of national and subnational laws and business decisions to ensure better compliance with, for instance, Single Market regulations.

In all these areas, AI could free EU officials of repetitive tasks, making their jobs more rewarding.

The new von der Leyen Commission plans to prioritise legislative action on the "human and ethical impacts of AI". This is an important and legitimate topic. At the same time, the new Commission should prioritise the use of AI in the EU institutions.

This would not just help create an ever-cleverer Union that is more capable, more competent, more cost-effective and closer to its citizens. It would give policymakers and officials first-hand experience of the capabilities and pitfalls of AI. That would help them strike the right balance between seizing the huge opportunities of AI for European citizens, businesses and public administrations and addressing any ethical concerns that are not properly addressed by existing regulations.

Introduction

The development and deployment in Europe of artificial intelligence (AI) tools have huge potential to benefit citizens, businesses, governments – and the EU itself.

This report focuses on how AI could benefit the EU institutions. In particular, it highlights how AI could help create an ever-cleverer Union that is more capable, more competent, more cost-effective and closer to its citizens.

The report is structured as follows. First, the study examines the fears about the potential economic and ethical impacts of AI which are the backdrop to the debate about AI in Brussels, highlights its potential to improve the EU's poor productivity performance and dispels fears that it is going to cause mass unemployment. Next, the report looks at how governments are starting to make use of AI and how this could help address the many challenges that the EU faces. The study then highlights in greater detail how AI could benefit the EU institutions, notably to bring them closer to citizens, improve the competence of their decisions and make them more capable and cost-effective. It concludes by discussing the need for EU regulation of AI and how the use of AI could help make the EU institutions better regulators.

1 Background and Context

1.1. FACT AND FICTION: SHOULD EUROPEANS FEAR OR FAVOUR AI?

Fears that superhuman computers are set to steal our jobs, take over the world and ultimately kill off humanity are commonplace in contemporary culture. As far back as 1968, HAL, "the most reliable computer ever made", set about killing the crew in the classic film 2001: A Space Odyssey. In The Matrix (1999), intelligent machines had enslaved humans in a virtual reality, while harvesting their bioelectric power. And in recent years, dystopias about super-powerful rogue forms of artificial intelligence (AI) have proliferated: think of Person of Interest, Black Mirror and Ex Machina, to name but three.

But while scary science fiction may be entertaining, the reality of AI is rather more prosaic – and positive. AI is an umbrella term for various digital technologies that enable computers to mimic human cognitive functions – "read" text and numbers, "see" and "recognise" people and objects, "hear" and "understand" sounds and speech, and reply – and perform tasks that previously only human brains could do, such as "learn", spot patterns, solve problems and make predictions, without being explicitly programmed to do so. AI's huge potential derives from the explosive growth in the collection of data and the computer power to process it, together with improvements in the algorithms for interpreting it. AI is increasingly able to learn from its mistakes and improve its performance, enabling it to match and in some cases surpass human capabilities.

While science-fiction films portray popular fears, AI's real-world potential is displayed by its success at mastering human games and activities. In 1997, IBM's Deep Blue supercomputer won at chess against the reigning world champion, Garry Kasparov. In 2011, IBM's Watson beat the two greatest champions of the American quiz show Jeopardy. In 2017, Deep Mind's AlphaGo bested the world number one at the Japanese game of Go – not by copying successful human strategies, but by devising its own better ones. And in 2018, IBM's Debater engaged in debate with two human champions on the topics "We should subsidise space exploration" and "Should we increase the use of telemedicine", highlighting its ability to digest and encapsulate knowledge, develop clear, cogent and even humorous arguments, and identify and respond to claims buried in spoken language.[1]

More broadly, AI promises huge possibilities for progress. It is helping to discover new life-saving medicines. It could drive safe, convenient, eco-friendly, time-freeing autonomous vehicles. It can generate faster, cheaper and more productive research in every field. It can improve business decisions and operations. It offers opportunities for better government that is more responsive to citizens. And much else besides. Indeed, the McKinsey Global Institute (MGI) estimates that the adoption of AI could boost the global economy by $13 trillion (€11.8 trillion) by 2030 – a 16% increase.[2]

1. https://en.wikipedia.org/wiki/Project_Debater
2. McKinsey Global Institute, "Notes from the AI Frontier: Modeling the Impact of AI on the World Economy", September 2018 https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy

But despite the huge potential of AI, public debate often focuses on exaggerated perceptions of its risks. Not least in Europe, the conversation plays on citizens' fear of change and science, arguing that AI threatens people's livelihoods and freedom. While it is reasonable to be cautious about the unintended consequences of change, in some quarters this contributes to a broader technophobia that narrows minds, hampers Europe's scientific and business performance and holds back human progress. Whereas the European project is meant to be optimistic and forward-looking, such a Luddite perspective is deeply pessimistic and reactionary. Indeed, AI is sometimes depicted in Brussels in ways that more closely resemble Hollywood dystopias than real-life practice.

For sure, the use of AI, like that of any technology, can pose thorny ethical issues; if an accident is imminent, whose safety should a self-driving car prioritise? The introduction of any productivity-enhancing new technology can also be economically disruptive, while the costs and benefits of change may not be equally shared; think of taxi drivers and passengers.

But overall – and even more so with appropriate government policies and sensible regulation – AI has the potential to make Europeans richer, freer, safer and better governed.

1.2. SLUGGISH: EUROPE'S PRODUCTIVITY CHALLENGE

Europe's biggest economic challenge is its sluggish productivity growth. The value of what workers in the EU produce each hour increased by only 8.7% between 2010 and mid-2019 – and by a mere 6.7% in the EU-15, the countries that joined the Union before 2000.[3] That meagre long-term labour productivity growth of less than 0.9% a year – less than 0.7% in the EU-15 – determines the rate at which wages and living standards can rise, the scope for social spending and government investment in education, research and infrastructure, and ultimately the ability to sustain the societies and way of life that Europeans cherish (see Figure 1).

More broadly, Europe's poor productivity performance shapes the political context at both national and EU level. When wages and social spending stagnate, discontent rises and distributional divides sharpen, both within and between EU countries. Populist politicians may also successfully direct Europeans' disenchantment at the EU. And when the EU economy underperforms, its weight in the world ebbs and with it the influence to shape global issues that Europeans care about, from climate change to trade and development. Moreover, the EU now faces a new world of geopolitical rivalry between the US and China in which technology is a key battleground and Europe is often a laggard.

AI can be a substantial part of the solution. A big reason why EU productivity levels often fall short of those in the US is the slower adoption of new digital technologies by businesses and workers.[4] Like previous technological advances, AI has the potential to give Europe's poor productivity performance a big boost – and even enable the EU to become a technological leader.

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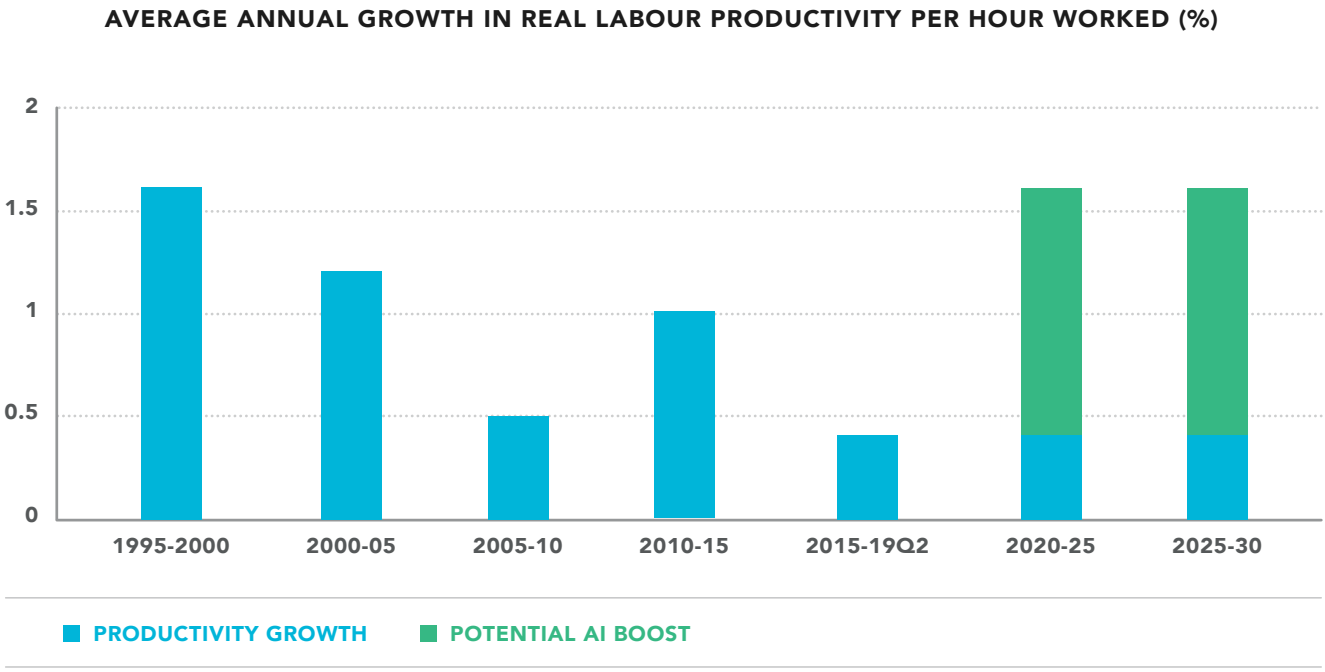
3. Eurostat, real labour productivity per hour worked, seasonally and calendar adjusted, index 2010=100, compared to Q2 2019. Code: namq_10_lp_ulc

4. Bart van Ark, "The Productivity Paradox of the New Digital Economy", International Productivity Monitor, Centre for the Study of Living Standards, 2018, Vol. 31, pages 3-18.

FIGURE 1. EU PRODUCTIVITY PERFORMANCE AND POTENTIAL



Source: Eurostat

Between 1990 and 2016, the diffusion of digital technologies contributed 0.4-0.6% a year to GDP growth – around a third of the total – in nine European countries that McKinsey dubs "digital front-runners."[5] Better still, AI has the potential to boost their GDP growth by 1.2% a year until 2030. More broadly, five types of AI – computer vision, natural language, virtual assistants, robotic process automation and advanced machine learning – could raise global productivity by 1.2% a year in the 2020s, according to the MGI.[6]

The positive economic and political impact of AI could be transformational for Europe and its citizens. Yet disruptive change also entails costs and risks. The challenge for policymakers is how to maximise the opportunities of AI while minimising and managing its costs and risks.

1.3. DISRUPTED: THE FUTURE OF WORK

Employment is at record highs in Germany, the UK and the US and unemployment continues to fall in most European economies. Yet many people fear that AI will ultimately cause mass joblessness.

5. The nine countries are Belgium, Denmark, Estonia, Finland, Ireland, Luxembourg, Netherlands, Norway and Sweden. McKinsey, "Digitally-enabled automation and artificial intelligence: Shaping the future of work in Europe's digital front-runners", October 2017 https://www.mckinsey.com/~/media/mckinsey/featured%20insights/europe/shaping%20the%20future%20of%20work%20in%20europes%20nine%20digital%20front%20runner%20countries/shaping-the-future-of-work-in-europes-digital-front-runners.ashx

6. McKinsey Global Institute, "Notes from the AI Frontier: Modeling the Impact of AI on the World Economy", September 2018 https://www.mckinsey.com/featured-insights/artificial-intelligence/notes-from-the-ai-frontier-modeling-the-impact-of-ai-on-the-world-economy

After all, if computers and AI-powered robots could eventually do every job better and more cheaply than humans, the argument goes, the lucky few who owned the robots would be extremely wealthy, while everyone else would be on the scrap heap. But that is not a realistic prospect any time soon.

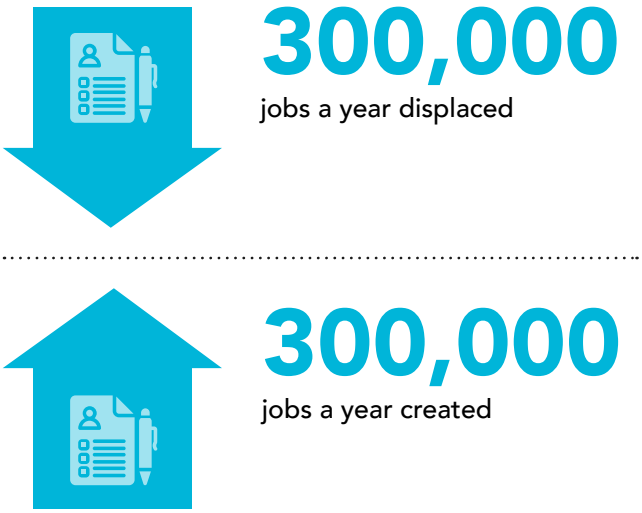
The more pertinent question right now is the likely impact of AI on European labour markets in the coming decade or so. And the good news is that AI is likely to create as many jobs as it displaces, while enhancing the productivity of many existing roles.

Previous waves of innovation – digital or otherwise – have not led to mass unemployment. The high level of joblessness in many European countries earlier in the decade was due primarily to the financial crisis, not technological change.

Yet many fear that this time may be different – that AI has the scope to quickly displace much human labour faster than society is able to adjust. According to one widely quoted study, nearly half of American jobs are at high risk of automation by the mid-2030s.[7] But one of its authors, Carl Frey, insists that the study has been misinterpreted; while the study estimates that as many as 47% of jobs are at risk of automation, this does not mean that they actually will be automated.[8]

More comprehensive studies suggest that far fewer jobs are at risk. The Organisation for Economic Co-operation and Development (OECD), for instance, estimates that only 9% of jobs in 21 OECD countries are automatable.[9]

FIGURE 2.



Source: McKinsey

Whatever the correct figure, earlier adaptation to huge productivity shocks, such as electrification and the popularisation of personal computers (PCs), show that the automation of some tasks need not lead to job losses overall; new and better jobs will also be created.

In practice, jobs tend to consist of a number of tasks, some of which may be readily automatable and others not. Fully autonomous vehicles, for instance, may indeed do away with the need for many human drivers – although airplanes capable of flying on autopilot still have human pilots.

But while AI will in some cases fully substitute for human labour, in many cases AI will complement it. For instance, AI may make it easier and faster to

7. Carl Benedikt Frey and Michael A. Osborne, "The Future of Employment: How Susceptible are Jobs to Computerisation?", September 2013 https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

8. "Will a robot really take your job", The Economist, 27 June 2019 https://www.economist.com/business/2019/06/27/will-a-robot-really-take-your-job

9. Melanie Arntz, Terry Gregory and Ulrich Zierahn, "The risk of automation for jobs in OECD countries: A comparative analysis", OECD Social, Employment and Migration working paper number 189, Organisation for Economic Co-operation and Development, May 2016 https://doi.org/10.1787/5jlz9h56dvq7-en

collect and process data about a business's logistic operations. But far from replacing the managers who oversee those operations, it would enable them to supervise those activities more effectively, make more informative presentations, take better decisions and free up their time to focus on more creative and strategic issues. Freeing businesspeople from burdensome tasks and enabling them to focus on more productive ones would be a huge bonus.

At the same time, AI will help create new products and services, and hence new jobs for those who provide them. PCs may have made typists and corporate graphics teams redundant, but many office workers have transitioned into new management roles or specialist functions. More recently, the explosive growth of social media has created new jobs for digital marketers and content moderators.

The higher productivity – and thus the higher incomes – that AI generates will also increase demand for services that are not readily automatable, such as nursing, personal trainers, creative professionals, consultants and other advisory functions, and much else besides. Personal care and business professionals are two of the categories of fastest employment growth.

In short, some jobs will disappear; others will change; and new ones will appear. Overall, there is unlikely to be a net change in the total number of jobs in the economy. McKinsey estimates that AI will both displace and create around 300,000 jobs a year in the 2020s in Europe's digital front-runners.[10] The bigger risk to employment would be not deploying AI widely; this could make many businesses in Europe globally uncompetitive.

Clearly, transforming the labour market and business organisation entails transition and adjustment costs; replacing old ways of doing things with new and better ones always does. Often, these will be borne by businesses themselves. But there will also be a large role for government in modernising education, upgrading skills and investing in life-long learning – not to mention providing financial support for workers in transition, investing in supportive infrastructure such as 5G networks and regenerating depressed areas. While most of this will be a task for national governments, at EU level this requires a shift of priorities from subsidising inefficient sectors to investing in the future.

In a sense, AI is a victim of its own hype. Its biggest boosters make wild claims about its imminent benefits, in turn provoking exaggerated fears about its possible harms. But in practice, adopting AI is likely to lead neither to utopia nor to dystopia, but rather to a higher rate of productivity growth – and thus a greater need for adjustment – than in the past decade. Every business and public administration that uses AI would benefit, as would every citizen who makes use of business and government services – including those of the EU itself.

10. McKinsey, "Digitally-enabled automation and artificial intelligence: Shaping the future of work in Europe's digital front-runners", October 2017 https://www.mckinsey.com/~/media/mckinsey/featured%20insights/europe/shaping%20the%20future%20of%20work%20in%20europes%20nine%20digital%20front%20runner%20countries/shaping-the-future-of-work-in-europes-digital-front-runners.ashx

2 The Benefits of AI to Governments

2.1. GLOBAL CHALLENGE: HOW GOVERNMENTS ARE INCREASINGLY USING AI

This year marks the 50th anniversary of the first Moon landing. This amazing scientific achievement was motivated in large part by the US government's determination to show that it could outdo its Cold War rival, the Soviet Union. With a new Cold War seemingly now breaking out between the US and China, advances in AI are shaping up to be a key area of both geopolitical and economic rivalry. While other global players shoot for the sky, the EU cannot afford to remain stranded on the ground.

AI has huge potential benefits for governments. It can enable public administrations to better automate tasks, better analyse information and better administer scarce resources and thus improve citizens' welfare – all while adhering to regulatory constraints.

The next few years are likely to see a step change in government use of AI around the world. Many public authorities are piloting projects involving the experimental use of AI and a huge expansion in its application is likely in the near future. But in Europe, EU institutions and member-state governments are primarily focused on the impact that AI may have on society as a whole, rather than on its applications for public administration.

By one estimate, US government investment in cognitive and AI technologies is set to grow by some 54% a year between 2018 and 2021 across almost every level and area of government.[11] The US government is already using AI "to make welfare payments and immigration decisions, detect fraud, plan new infrastructure projects, answer citizen queries, adjudicate bail hearings, triage health care cases, and establish drone paths."[12]

India has also issued a national strategy for AI,[13] with a view to its widespread use across government in areas such as defence, agricultural support, law enforcement and even the establishment of online "e-courts".[14] Given that India is both a developing country with limited resources for public administration and a fragmented society governed by a highly decentralised government and myriad rules, the authorities' interest in AI is understandable. While there are important differences between India and the EU, AI can be of particular use to public authorities seeking to unleash efficiencies in large and diverse entities with complex regulations and governance models.

There is, for sure, huge interest in AI among EU policymakers. Many European governments – including those of Germany, Sweden, the UK, France, Italy, Denmark and Finland – have issued white papers or national strategies on AI. But these are slanted towards industrial policy and the promotion of the information and communications technology (ICT) sector. Aside from envisaging cost savings in public health management, there is typically much less emphasis on AI's potential benefits for the

11. https://www.idc.com/getdoc.jsp?containerId=US43612118

12. Emma Martinho-Truswell, "How AI Could Help the Public Sector", Harvard Business Review, 26 January 2018 https://hbr.org/2018/01/how-ai-could-help-the-public-sector

13. NITI Aayog, "National Strategy for Artificial Intelligence", June 2018 https://niti.gov.in/writereaddata/files/document_publication/NationalStrategy-for-AI-Discussion-Paper.pdf

14. Samaya Dharmaraj, "India plans to use AI for better governance", OpenGov, 19 February 2019 https://www.opengovasia.com/india-plans-to-use-ai-for-better-governance/chosen Irish as its official language and Malta Maltese. https://voxeu.org/article/english-language-eu-after-brexit

government sector and its broad application across sectors such as transport, logistics and agriculture.

At EU level, the European Commission published a Communication on Artificial Intelligence in April 2018.[15] This combines the industrial-policy objective of boosting the EU's technological and industrial capacity in AI with the broader aim of increasing AI uptake by both the private and public sectors, including through investments in research and innovation and better access to data. At the same time, it seeks to prepare the EU for the socio-economic changes AI may bring and to put in place an appropriate ethical and legal framework.

New EU bodies have also been set up, including the European AI Alliance and the High-Level Expert Group on Artificial Intelligence, with the latter acting as the steering group for the former and coordinating work among member states.[16] The High-Level Expert Group has generated useful guidelines for the use of AI. Little thought, however, has yet been given to how AI could benefit the EU institutions themselves.

2.2. GOOD FOR EU: HOW AI COULD HELP THE EU ADDRESS ITS CHALLENGES

AI could be particularly useful for the EU and its institutions. As a union of 28 member states, it must grapple with 24 official languages and many more legal systems. (Brexit will add to these problems since English – the EU's de facto lingua franca – will technically no longer be an official language in any of the remaining member states after the UK leaves the EU.)[17] This poses a huge and costly administrative challenge for the EU, especially given its technical and financial capacity constraints.

In addition to such administrative headaches, the EU continues to face many policy challenges. These include combating climate change, completing the Digital Single Market, channelling funds to research programmes, securing the Schengen Area's borders, cooperating more effectively on defence, supporting farmers and rural development, and addressing regional imbalances, notably in economic opportunities, education and the quality of infrastructure. While the next Multi-Annual Financial Framework – the EU's seven-year budget framework, which will run from 2021 to 2027 – has yet to be finalised, EU policymakers and officials are likely to have to deliver more outputs with fewer resources as budgets stagnate or shrink. AI applications would enable the EU to make better use of its limited resources.

Perhaps the biggest challenges the EU faces are political. The EU is under unprecedented attack on at least four fronts. Anti-EU populists blame the EU for all manner of ills, accusing it of doing too much, badly. Pro-EU reformers criticise the EU institutions for doing too little to address new and growing challenges, such as climate change, defence and geopolitical threats. Many businesses chafe at the burden of EU regulation and the obstacles they believe it poses to the development

15. European Commission, Communication on Artificial Intelligence for Europe, 25 April 2018 https://ec.europa.eu/digital-single-market/en/news/communication-artificial-intelligence-europe

16. IBM was a member of the EU High Level Expert Group, endorses its guidelines, will implement them and will also participate in the piloting phase.

17. Every EU member state is entitled to choose one official native language. While English is an official language in both Ireland and Malta, Ireland has chosen Irish as its official language and Malta Maltese. https://voxeu.org/article/english-language-eu-after-brexit

and deployment of new technologies. And many Europeans from across the political spectrum worry that EU integration entails greater distance between decision-makers in Brussels and local communities, less say in how their society is run and less transparency and democratic accountability – with some favouring greater EU democracy and others a return of powers to the national level. While technology may not be able to solve such political problems, it can attenuate some of them, as we explain below.

The EU institutions have a lot to learn by doing. They are particularly well placed to benefit from advances in governance innovation – technology-enabled improvements in government processes. By adopting AI technologies, the EU administration could showcase them and lead by example – not least on the ethical and regulatory challenges concerning AI. Digitising and augmenting EU working processes would not only enable a more effective use of its resources; it would also help policymakers and regulators to better understand the potential of AI and how to address the obstacles to its use in Europe. Moreover, it would enable EU institutions to develop a deeper understanding of how to strike the right balance between the need for regulation and the need for the flexibility to innovate.

2.3. PUBLIC GOOD: INITIAL LESSONS FROM AI PILOT PROJECTS

AI pilot projects around the world already provide many useful takeaways for EU institutions.

For citizens, AI enables a more personalised and relevant interaction with public administrations. Personalisation is of key importance to EU citizens, as the next section explains, and is essential for a polyglot and diverse Europe.

For public officials, AI can reduce the time spent on basic, repetitive but often still crucial tasks. Decisions that may have a major impact on the individuals affected by them demand diligence and rigour. While the EU does not make decisions on welfare payments or press criminal charges against individuals, it is increasingly imposing fines on businesses for violating EU rules. Such decisions are often based on a set of pre-defined rules that are applied on non-standardised inputs, which makes them ideal for streamlining using AI applications. Final decisions could then be made by an EU desk-officer.

AI is also helping government agencies to redirect human resources to more complex problems, while also being used to solve problems that were previously too complex with the resources available. One common example is how public healthcare providers are experimenting with IBM Watson, which scans thousands of data sources into an iterating algorithm. The application suggests diagnoses and treatments that a human doctor may not have considered or even known about.[18] Similar technologies could be used to decide where authorities should focus audits or investigations –

18. Emma Martinho-Truswell, "How AI Could Help the Public Sector", Harvard Business Review, 26 January 2018 https://hbr.org/2018/01/how-ai-could-help-the-public-sector

into the misuse of funds, for instance – or probes of harmful trade or market practices.

AI is particularly useful in determining causality and relations without resorting to discriminatory identifiers such as nationality, gender or country of origin. For example, the Las Vegas Health Department tested AI on unstructured data from publicly available sources such as social media to determine which restaurants to inspect. Promisingly, there were 9,000 fewer cases of food poisoning and 500 fewer food-poisoning-related hospital admissions over the trial period.[19]

AI chatbots can also be used to handle people's enquiries, with only more complex cases passed on to human operators. US Citizenship and Immigration Services (USCIS), part of the federal government's Department of Homeland Security, has a personal digital assistant called "Emma" that uses voice recognition to assist with simple website enquiries from a pre-defined database.[20] More complex cases are transferred to a human case worker. Emma has already helped millions of English – and Spanish – speakers.[21] The tens of millions of questions asked of Emma also inform the agency about new areas of interest among users, and the assistant is updated accordingly."[22]

AI can enable faster and more accurate data entry by automatically assigning codes to new data. Since 2014, the US Bureau of Labor Statistics (BLS) has been using machine learning and advanced analytics to code an increasing number of its cases. For example, AI tools automatically convert text entries in survey forms about occupational injuries and illnesses into standard BLS codes for the occupation of the employee, the nature of the injury or illness, its source, and so on. As the sophistication of the tools has improved, the BLS's use of AI has hugely increased. Initially, only 5% of codes, solely those for occupation, were assigned by machine learning. By 2018, automatic coding had been expanded to all five primary coding tasks (occupation, nature, part, source and event) with the model assigning approximately 80% of these codes.[23]

Some organisations in Europe are already at the forefront of other applications of AI. Eurocontrol, the pan-European agency for air navigation safety, has created state-of-the-art real-time simulators of air traffic to predict traffic flows and experiment with new ways to increase flight capacity using predictive analytics – an analytical method that involves using AI with current data to make predictions about unknown future events.[24]

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19. Marian Cook, "Artificial Intelligence in Government", WITI https://www.witi.com/articles/1361/Artificial-Intelligence-in-Government:-Current-Examples/

20. US Citizenship and Immigration Services, Meet "Emma", Our Virtual Assistant. https://www.uscis.gov/emma

21. Ryan Johnston, "Citizenship office wants 'Emma' to help you, Fedscoop, 26 May 2017 https://www.fedscoop.com/citizenship-office-wants-emma-help/

22. Steven Meloan, "Hello, I'll Be Your Chatbot Today. How Can I Help You?", FedTech, 27 June 2018 https://fedtechmagazine.com/article/2018/06/hello-ill-be-your-chatbot-today-how-can-i-help-you

23. US Bureau of Labor Statistics, "Automated Coding of Injury and Illness Data". https://www.bls.gov/iif/autocoding.htm

24. Eurocontrol, "New version of ESCAPE ATC simulator will facilitate academic research worldwide", 3 June 2019 https://www.eurocontrol.int/news/new-version-escape-atc-simulator-will-facilitate-academic-research-worldwide

Box 1. AI toolbox

ALGORITHMS are lists of steps to follow in order to solve a problem.

COGNITIVE ANALYSIS uses algorithms to process both structured data – such as spreadsheets – and unstructured data, such as natural language and real-world objects, quickly.

MACHINE LEARNING is an application of AI that enables systems to automatically learn and improve from experience without being explicitly programmed.

NATURAL-LANGUAGE PROCESSING is a branch of AI that helps computers understand, interpret and manipulate human language.

PREDICTIVE ANALYTICS uses data, statistical algorithms and machine-learning techniques to analyse current data and make better predictions of the future.

But the EU institutions and agencies are only scratching the surface of what an ever-cleverer Union could achieve with AI. This report highlights how EU institutions could deploy AI to operate more efficiently, and thus deliver more for citizens with fewer resources. It considers how AI could help the EU make better policy decisions, more transparently. And it suggests how AI could help the EU to bridge the divide between Brussels and EU regions and communicate directly with 500 million Europeans. In essence, it shows how an ever-cleverer Union could be more capable, more competent, more cost-effective and closer to citizens.

3 Closer to EU Citizens

3.1. CONNECTED: CHATBOTS AND INDIVIDUALISED INTERACTION

The EU's many critics accuse it of having a democratic deficit. Officials in Brussels insist that the EU's main problem is that it communicates poorly with citizens, and is therefore misunderstood.[25] Whatever one's viewpoint, a better dialogue between EU institutions and Europeans would help.

Whether or not the perceptions are correct, EU institutions in Brussels can feel remote from distant citizens across its 28 disparate member states. While the European Council consists of elected EU governments, their leaders and ministers often take legislative decisions in secret in Brussels, seemingly with less scrutiny than they receive for decisions taken at a national level. While the European Parliament – which must also approve most EU legislation, as well as some EU appointments, notably the President of the European Commission – is directly elected and the recent European elections engaged voters more than previously, its debates can feel detached from those back home. As for the European Commission – the quasi-executive branch of the EU that proposes, monitors and enforces EU legislation – the commissioners who direct the technical staff are appointed, and Commission officials lack the means to engage in a direct dialogue with most citizens.

While the EU institutions' websites provide more information about EU activities than their national equivalents often do, and social media provides a channel for direct communication between officials and some followers, EU institutions are logistically unable to engage in one-to-one dialogue with large numbers of citizens. For instance, they lack the time and resources to answer questions on the rights and obligations of individuals such as "Is my local council right in denying my benefit claims while I am looking for a job in another EU country?" or "My team is stuck with an engineering problem, and we could really benefit from the input of a public official to explain the EU standards we are dealing with."

The Commission is divided into departments known as directorates-general (DGs), roughly equivalent to ministries. Each covers a specific policy area or service – such as trade, energy or public health. In total, all DGs employ just 32,000 people.[26] By comparison, UK government departments have 415,320 full-time employees,[27] while the French ministry of economy and finance alone consists of 140,000 full-time staff.[28]

With its limited human resources, the Commission is unable to talk to all stakeholders and to receive and respond to citizen feedback. In the case of the Single Market, for instance, the dossier for a particular product – such as life insurance, veal or headphones – is typically handled by just one or two people, with each person handling perhaps a dozen dossiers. Clearly that person has the capacity to engage with only a few interlocutors. The Commission therefore generally interacts with the public via intermediaries – such as pan-European lobby groups, labour

25. European Commission, "Euromyths A–Z index". https://blogs.ec.europa.eu/ECintheUK/euromyths-a-z-index/

26. European Union, "EU administration – staff, languages and location". https://europa.eu/european-union/about-eu/figures/administration_en

27. Institute for Government, "Civil service staff numbers", 12 September 2019. https://www.instituteforgovernment.org.uk/explainers/civil-service-staff-numbers

28. CheckNews, "Does Paris city council have more civil servants than the European Commission?", 22 March 2019. https://factcheckeu.info/en/article/y-a-t-il-plus-de-fonctionnaires-à-la-mairie-de-paris-quà-la-commission-européenne1

groups, NGOs and national governments – who may not fully reflect the views of EU citizens.

Likewise, each MEP has hundreds of thousands or even millions of constituents, and cannot possibly interact with most of them.

AI could change that – to the immense benefit of EU institutions, the wider public and the European project. By making use of intelligent chatbots, the process of interacting with citizens and stakeholders could be automated and made manageable without scaling up resources. Chatbots can answer routine questions, provide information and receive and report information. They can also guide citizens through processes, such as submitting an application or a complaint, or requesting data or answers to queries.

Chatbots both process and generate natural language. Their algorithms are trained with messages involving various common questions and are then able to learn and adapt over time. They can also be trained to be fully fledged assistants that can ask follow-up questions, know when to search for an answer from a knowledge base, when to ask for greater clarity and when to hand over the dialogue to a human by assessing the urgency of the inquiry.[29]

The latest generation of chatbots can be personalised to receive and deliver highly individualised information. For instance, EU chatbots could provide the appropriate answer in the correct language on which biopesticides are permitted in Europe, tailored to whether they are interacting with a Chinese student doing research for her school assignment, a German chemicals-industry lobbyist or a Hungarian farmer.

Chatbots could likewise provide personalised information on a parliamentarian's position on a particular political issue. As well as providing improved interaction and accountability for existing MEPs, these could facilitate the creation of transnational MEPs and indeed transnational political lists – a reform that has been recently proposed and debated in EU circles. Thanks to AI, Portuguese voters would be able to communicate with a Finnish MEP and read her positions on a highly technical dossier such as fisheries, for instance.

3.2. CONSULTED: GREATER RESPONSIVENESS TO CITIZENS' WISHES

Individualised interaction through chatbots together with more extensive data collection and analysis could also help the Commission become more responsive to Europeans' needs in setting its political and legislative priorities. This would enhance its accountability and even its legitimacy.

Since the Commission does not engage directly with most EU citizens, it has little first-hand data on what Europeans want or need. As a result, it relies primarily on second-hand sources or political intermediaries to decide what to prioritise and how to weigh up or balance policy options, such as whether single-use plastic items should be taxed, banned or left alone. Greater input from citizens could help the Commission make better – and more popular – legislative proposals.

29. IBM, "Watson Assistant". https://www.ibm.com/cloud/watson-assistant/

While Eurobarometer and other opinion surveys provide some sense of Europeans' views, the costs and statistical challenges of conducting EU-wide polls are such that the information they provide is highly incomplete and often misleading. As a result, the Commission tends to rely primarily on data from member-state governments, private-sector lobbies and interest groups, which often provide selective evidence to justify their policy preferences.

AI could help tap the massive amounts of publicly available information from social media and other sources. This could help reveal trends and patterns on which issues citizens and businesses would like to see addressed – and how. This could also provide foresight into upcoming issues, uncover common misconceptions and myths, and provide insights on how to better explain EU regulations and directives.

AI could be particularly useful in improving public consultations, which the Commission undertakes before each major legislative proposal. Stakeholder consultations and impact assessments rely heavily on indirect representatives who tend to overemphasise the interests of a few industrial players and member states.

Using AI and cognitive analysis could provide a voice in EU decision-making to groups that may be overlooked in public consultations and lack effective lobbying power in Brussels. For example, it is a considerable logistical challenge for European and national business confederations to properly take account of the views of 23 million small and medium-sized enterprises (SMEs) and entrepreneurs in Europe. The difficulty in coordinating and consulting such groups often leads to European national champions with the means to engage in Brussels lobbying having disproportionate representation in EU industry associations that claim to speak on behalf of an entire industrial sector. Similarly, consumer and social organisations that represent consumers or employees may represent their own views rather than the diversity of views of their members.

This indirect interaction can make decision-making in Brussels feel distant and unresponsive to Europeans' needs and concerns. It also makes it easier for proxies and national governments to blame the Commission for decisions that they were consulted on and helped make. Direct interaction with citizens and AI-driven processing of submissions could considerably improve the stakeholder consultation process. It could enable legislators to extract better insights and a wider range of stakeholders to provide useful inputs. The French government recently successfully used AI tools to synthesise the contributions of many thousands of citizens on how to respond to the gilets jaunes (yellow vest) protests.

In short, AI could not just improve the EU institutions' communication with citizens. It could also improve their decision-making and make them more responsive to public opinion. That, in turn, could help take some of the sting out of anti-EU politics. Europeans would feel closer to EU institutions, which in turn would be more responsive to their needs. They would be better connected and consulted.

4 A More Competent Union

4.1. COMPETENT: PROMPTER AND BETTER-GROUNDED DECISIONS

The EU has a direct impact on the everyday lives of citizens and businesspeople in an increasing number of areas. EU agencies now approve, among many things, the additives and chemicals that are allowed in food; the terms on which financial services are provided; the types, makes and models of motor vehicles that are deemed safe (and their permitted emissions); and which medicines can be sold in the Single Market.

In the next five years, the list of certifications or licences that the EU will issue will grow, not least in the expansive area of digital technologies. For example, the EU is planning a cybersecurity certification of the ever-increasing number of connected devices,[30] while research analysts at Gartner estimate that the number of internet-connected things will soon outnumber humans four to one.[31]

For now, the European Commission is coping relatively well with its role as the Single Market regulatory authority. But more centralised decisions will require more resources in Brussels to handle all the additional applications, or there may soon be a backlog of decisions. Delays in approvals could lead to an "innovation lag" of life-saving treatments. Advanced products and services that could boost European competitiveness could be kept off the market. The EU is also accused of being overly cautious or unscientific in its approach, which has led to protracted trade disputes with least-developing countries.

AI could help. Data-science tools are increasingly used with AI (such as natural language processing) to scan large volumes of data from academic journals, testing outcomes and clinical-trial results. These could help provide prompter and better-grounded decisions on market authorisation.

In addition to more technical issues such as assessing compliance with safety standards, the EU increasingly provides policy direction on big-picture issues, such as how best to allocate the costs for mitigating climate change. In some cases, an absence of data has led to flawed decision-making. For example, when the EU first set up its carbon-emissions trading scheme, too many permits were allocated, causing prices to plunge. This not only nullified any benefit to the climate; it dented the EU's reputation and thus its ability to take the lead on climate policy.

Since AI allows a larger amount of unstructured information to be processed, with more facts (authored in many more languages) taken into account, this should enable planners to draw better lines of causality and craft appropriate responses that are less likely to be subject to politicisation.

4.2. COHESIVE: SMOOTHER INTER-INSTITUTIONAL RELATIONS

EU institutions increasingly suffer from an overload of inputs from both internal and external stakeholders. With increasing citizen participation and transparency, the number of inputs is increasing exponentially, especially on topics that concern the

30. European Commission, "Security certification and labelling in Internet of Things". https://ec.europa.eu/jrc/en/publication/security-certification-and-labelling-internet-things

31. Gartner, "Leading the IoT", 2017. https://www.gartner.com/imagesrv/books/iot/iotEbook_digital.pdf

public. For example, European citizens made over 150,000 submissions on the Transatlantic Trade and Investment Partnership (TTIP) negotiations. Most of the inputs were computer-generated en masse by NGOs that rallied their supporters to express their dissent. Yet even copy-and-pasted submissions must be taken into account.

The information overload is particularly problematic for members of the European Parliament. They are politicians and not typically experts. Their staffers are often not technical experts either, and are typically tasked to track multiple issues and committees. The European Commission, member state governments and the public continuously feed them information, posing an increasing strain on both the recipients and the overworked EU officials tasked with informing and briefing them.

The EU legislative process is based on the assumption that the three principal EU institutions (the Commission, the Council and the Parliament) are well-informed and on a level playing field. Yet the Commission has a natural information advantage since it is the hub of all decision-making, and both the Parliament and the Council often rely on it to provide technical expertise.

The European Parliament often calls for more transparency from the Commission and demands access to more materials, yet its bandwidth to digest a comprehensive dossier with analysis and data is limited. When the Commission supplies the information, it is not in a position to choose and curate what is relevant and important for MEPs without unduly interfering with the democratic process. Thus when the Parliament receives a comprehensive dossier on a piece of legislation – a binder consisting of several thousand pages – the Commission may be accused of drowning the other institutions with information or attempting to hide critical information.

Much of this interaction between EU institutions during the legislative process could be automated without interfering in the democratic process. Natural language understanding (NLU) could help MEPs and member states to collect, sort and extract the relevant information they need from all the material they receive from the other institutions, academia and their constituents. AI tools would help officials to monitor, sift and evaluate the deluge of information.

In short, AI tools could help the Commission make prompter and better-grounded decisions both big – such as how to curb carbon emissions – and small, such as whether to approve a new product. At the same they could streamline the overloaded EU legislative process. In other words, AI could create a more competent Union.

5 More capable and cost-effective

5.1. CAPABLE: BETTER PLANNING AND FORECASTING

All governments and organisations need to plan ahead. The Commission also produces forecasts on everything from economic developments to carbon emissions. Yet as a wise person once observed, forecasting is extremely difficult, especially about the future.

Fortunately, real-time data combined with AI could be used to enhance EU institutions' forecasting models and planning processes. Past records of predictions and actual outcomes could be used to improve predictions, which can be particularly helpful in budget processes. Since EU institutions are not allowed to run a deficit, accurate budget forecasting is crucial. As well as improving forecasting, the use of predictive analytics could reduce the amount of reporting that needs to be done by staff, allowing them to focus on other tasks.

Predictive analytics could also help the EU to prepare for crises and adjust its policies in areas such as international development aid, migration or agricultural support, using data that is already available to the Commission. While data-driven budgets would still be subject to compromises and negotiations, a data-driven benchmark would make any politicisation more apparent. The EU has also developed common capabilities through response teams with shared resources in areas such as natural disaster prevention, border control and cyber security where the ability to predict the next big crisis is essential for a timely response.

Consider climate change. AI could enable more complex modelling of climate change, weather patterns and energy use, all of which are instrumental to disaster planning. It could also help identify the policies, funding needs and standards that would have the biggest efficiency gains in areas such as energy, transport and food consumption. In policy areas that fall under member states' competences, AI could help identify projects and initiatives where the coordination gains are the highest. Moreover, AI could enable remote sensing and automatic monitoring of developments in member states – for instance, to pinpoint deforestation and gather data on buildings' energy use. All of this could help make a success of the EU's proposed Green New Deal that the new von der Leyen Commission is championing.

5.2. COST-EFFECTIVE: FASTER, LOWER-COST TRANSLATIONS

The EU spends nearly €1 billion a year on translation and interpretation.[32] While this amounts to less than 1% of the EU's annual budget and only around €2 a year per European, there is scope for large savings in both the cost and the speed of translations.

At present, all EU legislative texts are translated by people with specialised legal skillsets into all 21 EU working languages, as are some working documents. Inconsistencies are rare, but translations (with verifications and scrubbing) make EU law-making more time-consuming than any other legal system in the world. In addition to providing cost and time savings, AI applications involving natural-language translations could enable more working documents to be translated cost-effectively.

32. European Commission, "How much is spent on translation, and why?". https://ec.europa.eu/info/about-european-commission/eu-budget/how-it-works/fact-check_en#howmuchisspentintranslationandwhy

Take international treaties. Once the EU signs a treaty with another country – such as a trade agreement or a cooperation agreement on environmental and consumer protection – the treaty texts must be translated into all 24 official EU languages and undergo extensive legal scrubbing to be checked against current EU law for consistency. While most of the EU's partners are ready to apply a new treaty within weeks, the EU sometimes needs up to a year to complete the preparatory process. AI could greatly speed up this process.

While AI could potentially reduce operating expenses by 22% for a national government,[33] savings on translations are likely to be much higher. Some vendors of translation services claim savings of up to 50%.[34] If their claims are correct, the existing translation budget could stretch to translating twice as many documents into all EU languages. EU debates could thus be made more participatory by providing more texts at earlier stages in more languages.

Alternatively, the existing number of documents could be translated into twice as many languages, including regional and minority ones. The term "official working languages" could be a thing of the past. The EU could also become more inclusive by translating some documents to third-country migrants' languages. And it could improve outreach by translating into the official languages of candidates for EU membership, or those of third countries with strongly negative views of the EU.

5.3. COST-EFFECTIVE: FASTER, MORE ACCURATE STATISTICS

Like the US Bureau of Labor Statistics, Eurostat could use machine learning and advanced analytics to automatically code data entries from surveys, thereby producing more timely and more accurate statistics more cost-effectively.

5.4. COST-EFFECTIVE: BETTER USE OF EU FUNDS

More than half a million EU tenders are published each year, for everything from office supplies to defence contracts. Ensuring that EU funds are well spent is crucial for both the effectiveness and the legitimacy of EU policies. Allegations of waste or corruption in the allocation of European taxpayers' money corrode their trust in EU institutions and the European project. But while suspicions of discrimination and irregularities are ever-present, they are very hard to root out. Only a limited number of egregious cases can be investigated and their selection may be based on avoidable biases.

As the Las Vegas food-safety example highlighted in section 2.3, AI can be used to focus resources on a particular problem, such as investigating issues more efficiently, without selecting cases on the basis of arbitrary or prejudicial discrimination. AI could flag up suspicious cases without relying on human and political biases. The Commission could use the same AI applications that member states use to identify the best bidder for a tender to find unusual decisions and anomalies that it might want to investigate.

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33. IBM, "Enterprise-ready AI". https://www.ibm.com/watson/about

34. Jane Cassidy, "AI cutting costs of translation services in half", The National, 23 September 2018 https://www.thenational.scot/business/16897690.ai-cutting-costs-of-translation-services-in-half/

5.5. COMPLIANT: MORE EFFECTIVE MONITORING AND ENFORCEMENT

More broadly, AI could be used to take on crucial tasks that the Commission currently does not have the resources to undertake effectively. For instance, it lacks the capacity to review all the laws that EU member states enact in their local languages, not to mention all the decisions taken at other levels of government. These include issues crucial for the proper functioning of the Single Market such as the national implementation of EU directives. Decisions taken by national and local governments may also discriminate against other EU citizens or businesses, impinge on the EU's four freedoms and impair Europeans' fundamental rights.

The Commission also increasingly investigates violations by businesses, notably over competition policy and data-privacy concerns. Since these investigations are ex officio and ad hoc, the selection of cases could be greatly improved. Investigations are often opened as a result of lobbying or political pressure, rather than because of prioritisation based on actual consumer harm or pending market failure.

National laws and decisions are currently reviewed on an ad hoc basis or following complaints that often come from other member states. Single-market complaints from private entities are collected via the "Solvit process" whereby national governments appoint agencies to collect complaints about other EU countries from exporters, but they rarely lead to infringement processes being raised against a member state.

While case-management systems already exist for monitoring compliance and reporting failures, several AI applications could make the work much more efficient. Document translators could help infringement teams in Brussels understand and compare legal texts, without relying on the interpretation of domestic laws provided by their nationals. Cognitive and natural language processing (NLP) learns, analyses and understands legal language through the parsing and semantic interpretation of texts. AI can thus identify and understand relationships in complex legal texts, whether or not exact terms are used. The Commission would thus be able to process an enormous amount of unstructured data – such as highly formal, non-standardised and contextually sensitive legalese written in 23 different languages – to monitor possible member-state inconsistencies in a technique called "compare and comply".

In short, AI could make EU institutions more capable and cost-effective by forecasting and planning better, translating and coding statistics faster and at lower cost, better monitoring the uses of EU funds and enforcing compliance with EU legislation more effectively.

6 Conclusion

6.1. SEIZING THE OPPORTUNITIES OF AI

The EU has a multi-layered and uniquely complex institutional setup with a decision-making process that may seem arcane to both citizens and businesspeople. But AI could greatly improve the EU's efficiency, accountability and effectiveness. Indeed, the EU arguably has more to gain from AI than any national government or international organisation.

AI technologies are today rapidly refining their ability to learn, analyse and understand natural language and large amounts of unstructured data. They can be extraordinary tools to support complex legal analysis in a multilingual environment. They could also free EU officials of repetitive tasks, making their jobs more rewarding.[35]

The EU is founded on strong principles of democracy and non-discrimination. At the same time, EU institutions have limited means and resources to interact with Europeans and engage citizens and businesses directly, and often rely on proxies who are inclined to blame their failings on Brussels. AI could be a game-changer in this regard.

One of the key priorities for the new Commission ought to be the application of AI tools to its own important work, and to that of other EU institutions and agencies. Indeed, it could lead by example in the efficient and ethical use of AI.

As this report has highlighted, AI could help create an ever-cleverer Union that is more capable, more competent, more cost-effective and closer to its citizens. It could also give EU policymakers and officials first-hand knowledge of the benefits and potential ethical implications of AI tools. This could help dispel harmful myths and provide the basis for sound, reality-based regulation as and when the need arises.

6.2. STRIKING THE RIGHT REGULATORY BALANCE

The new Commission led by President Ursula von der Leyen aims to prioritise the drafting of legislation on the "human and ethical implications of AI" within its first one hundred days.[36] This follows on from the Juncker Commission's Communication on AI. The EU has also raised well-founded questions on how to safeguard ethical considerations when decision-making is passed on to algorithms.[37] While this may require new AI-specific legislation, the new Commission also ought to consider whether existing regulation for humans and non-AI software is still sufficient in many areas, or truly obsolete.

Clearly, ethics is a legitimate and important area of concern for EU citizens and policymakers. At the same time, AI is an emerging field and it would be premature to enact overly prescriptive legislation before there is evidence of abuse or market failures that existing rules cannot correct. While public debate is often dominated by exaggerated fears about what AI may (or may not) be used for in the distant future, regulation ought to be based on issues that arise in the real world today. The danger, otherwise, is that well-meaning EU regulators may

35. IBM Center for The Business of Government, "More than Meets AI: part II". http://www.businessofgovernment.org/report/more-meets-ai-part-ii

36. European Commission, "Towards a new Commission (2019–2024)". https://ec.europa.eu/commission/interim_en

37. European Commission, "Ethics guidelines for trustworthy AI", 8 April 2019. https://ec.europa.eu/digital-single-market/en/news/ethics-guidelines-trustworthy-ai

end up stunting the development and deployment of AI in Europe while the US, China, Japan and others leap ahead in developing next-generation applications that will further advance their productivity advantage and geopolitical power.

The question, then, is how best to build and safeguard trust in AI. That lack of trust may be in the technology itself – which may fail in unpredictable ways – as well as in users of technology, including authoritarian governments and abusive corporations.

The dominant view in Brussels holds that this lack of trust can only be addressed through an entirely new "framework" that guides how, when and by whom AI may be used.

But a prior question is the extent to which AI poses distinctly new problems that require specific new regulations. Like steam, electricity or computing, AI is a general-purpose technology with a wide range of applications. Many are likely to be benign, while those that are not may be covered by existing rules that apply to pattern recognition, predictive analytics and decision-making by humans.[38]

Trust in AI can also be enhanced through increased transparency and "explainability", namely a requirement that the results of AI-based decisions be understandable and accepted by human beings. Technology suppliers are already starting to provide such transparency tools for their customers to better meet the expectations of both regulators and customers.[39]

In contrast, all-encompassing regulation designed to enhance trust cannot mitigate unethical bias and may instead whitewash abuse as "compliant" with these rules. A better way forward would be to correct any ethical missteps through "precise" regulations aimed at addressing particular problems, rather than catch-all rules that discourage the use of productivity-enhancing technologies. Recent experience from privacy reforms in various jurisdictions show that horizontal rules often come at a very high societal cost unless the rules and exceptions are crafted correctly, while compliance with the rules may become too costly for authorities to enforce or monitor.

In addition to ethical considerations, governments are increasingly looking for ways to manage risks in implementing AI more generally – including crucial issues such as security and privacy.[40] This too needs consideration at EU level.

To conclude, AI is a set of increasingly powerful digital tools that have plenty of productive uses, and whose potential abuse can typically be addressed by existing regulations. EU institutions could find this out first-hand by deploying them to good use in their own important work. AI could create an ever-cleverer Union that is more capable, more competent, more cost-effective and closer to citizens.

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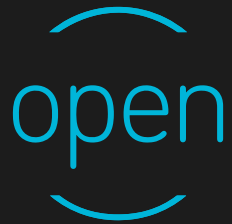
38. Brian Williamson, "In Search of the Good AI society", December 2018 https://www.researchgate.net/publication/329587215_In_search_of_the_'Good_AI_society'

39. IBM Developer, "AI Explainability 360," 8 August 2019. https://developer.ibm.com/open/projects/ai-explainability/

40. IBM Center for The Business of Government, "More than Meets AI". http://www.businessofgovernment.org/report/more-meets-ai

Notes



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