

THE
HUMAN
PROGRAM
**A TRANSATLANTIC
AI AGENDA**
FOR RECLAIMING
OUR DIGITAL
FUTURE

Bertelsmann
FOUNDATION

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ECONOMY



PHILOSOPHY



SOCIETY



GEOPOLITICS

About Bertelsmann
Foundation
1

About CEPI
2

Introduction
6

SECTION I: PHILOSOPHY

Defining and
Understanding AI
by Philip Boucher,
State Representative
Brian Cina, and
Stefan Steinicke
10

Regulating Artificial
Intelligence:
Help or Hindrance
to Innovation?
by Philip Boucher
16

You Can Get There from
Here: Travel Advice
for Policymakers on
the Roads of Artificial
Intelligence
by State Representative
Brian Cina
24

SECTION III: SOCIETY

Untangling
Personalization,
Polarization, Privacy,
and the Filter
Bubble Theory
by Leif-Nissen Lundbaek
60

AI and the New
Civil Rights Movement
by State Delegate
Lashrecse Aird
68

Preserving the Status
Quo Is Not Good Enough:
Why Germany Needs
More Women In AI
by Louisa Well
74

SECTION II: ECONOMY

Takeaways from
Tennessee: Ensuring
Employment for
People of Color in
the Machine Age
by State Senator Raumesh
Akbari and Malick Gaye
36

Civil Liability in an
Autonomous World
by Luca Ravera
42

What if Google Were
Belgian? Europe's
Shortsighted Dream of
Digital Sovereignty
by Johannes Jaenicke
50

SECTION IV: GEOPOLITICS

Developing A
Sustainable EU-U.S.
Privacy and Data-
Sharing Regime: Policy
Recommendations
by Yilmaz Akkoyun,
Leif-Nissen Lundbaek,
and Jana Schneider
82

How the West Can Win:
Developing Transatlantic
Frameworks for AI
by Melanie Meyer
90

The Geopolitics of AI:
Avenues for Renewed
Transatlantic
Cooperation
by Stefan Steinicke
104

It's About Small
Enterprises and
Decentralized
Structures, Goliath!
by Stefan Krabbes
116

Conclusion
Fellow Profiles
122

Disclaimer
130



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AI AGENDA
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OUR DIGITAL
FUTURE

ABOUT BERTELSMANN FOUNDATION

The Bertelsmann Foundation

The Bertelsmann Foundation (North America), Inc., established in 2008, was created to promote and strengthen the transatlantic relationship. Through research, analysis, forums, and audiovisual and multimedia content, we seek to educate and engage our audience on the most pressing economic, political, and social challenges facing the United States and Europe. We are the U.S. arm of the Germany-based Bertelsmann Stiftung.

At a time when many are asking what people from all parts of the U.S. and Europe think about global issues, our aim is to bring our work to audiences outside Washington and Brussels. Through discussion forums, documentary film screenings, and other events, we present our materials to diverse audiences of students, educators, community organizers, journalists, and policymakers. Our goal is learning together how the transatlantic relationship affects us all, and how we can shape it in the future.



ABOUT CEPI

Congressional European Parliamentary Initiative

The Congressional European Parliamentary Initiative (CEPI) is a transatlantic fellowship now in its twelfth year. Each year, the fellowship convenes transatlantic policymakers over a period of two weeks, split between the United States and Europe. Given global circumstances, the 2020 cohort of fellows met virtually from June through November, during which they heard from experts on topics ranging from transnational AI governance to the role of AI in climate change mitigation.

Over the course of several months, CEPI participants engaged with diverse, high-level stakeholders in the federal government, Congress, industry, and civil society to discuss politics and policymaking related to artificial intelligence. Fellows also liaised with representatives of the European Commission and Parliament, the German federal government and Bundestag, and a wide range of European industry and civil society stakeholders.

The goal of these combined experiences was to provide participants with tools to enhance policy formulation, deepen participants' understanding of transatlantic legislative processes, and to build bridges to safeguard the long-standing friendship between the European Union and United States.

The 2020 cohort included four U.S. state legislators, five European Parliament staffers, four German Bundestag staffers, and two members of the private sector. A complete list of fellows and their profiles can be found at the end of the publication.

U.S. State Legislators

Rep. Lashrecse Aird (D-Virginia) has served in the Virginia House of Delegates since 2016. Her career has been focused on education. She recently introduced efforts to establish a commission to address racial bias in facial recognition technology and artificial intelligence.

Sen. Raumesh Akbari (D-Tennessee) is currently a State Senator in Tennessee, a position she has held since 2017. Prior to her election as senator, she served in the State House from 2013- 2017. She is a lawyer by training and was a member of the GMF fellows class of 2019. She is committed to transatlantic affairs and is a surrogate for Joe Biden. She was recently named as a criminal justice reform expert in the Biden-Sanders Unity Task Forces.

Rep. David Bowen (D-Wisconsin) is a State Representative in Wisconsin's State Assembly, where he has served since 2015. Many of his efforts have been directed toward criminal justice reform and workers' rights. In 2016, he attended the Democratic National Convention as a superdelegate.

Rep. Brian Cina (P/D-Vermont) was elected to the Vermont House of Representatives in 2017 as a member of the Progressive Party. He single-handedly convinced the Vermont legislature to establish a state commission on artificial intelligence and has persistently pushed for the digitization of state government.

ABOUT CEPI

European Parliament

Philip Boucher is a policy analyst in the EP Research Service on the Panel for the Future of Science and Technology (STOA). He is an Irish citizen and is an official observer of the high-level group for Artificial Intelligence at the European Commission. While he has a PhD in technology management and innovation, his bachelor's degree focused on artificial neural networks and machine learning algorithms. He is widely published in the field.

Johannes Jaenicke is an assistant to MEP Damian Boeselager and is the policy advisor responsible for the Committee on Industry, Research and Energy. Boeselager is a member of Volt Europa and sits on the U.S. affairs committee in Parliament. Having previously worked as a director at UBS in Hong Kong, Johannes has strong competencies in data analytics.

Stefan Krabbes worked in the Bundestag with the Greens for over five years and currently advises MEP Anna Cavazzini (Green Party), a member of INTA, in the European Parliament. He is a tech blogger interested in artificial intelligence from a philosophical standpoint.

Luca Ravera is an administrator in the European Parliament, where he has spent the last five years in the parliamentary Committee of Transport and Tourism. In the role, he has experienced firsthand the beneficial impacts of AI. He is part of an expert working-group that focuses on future legislative actions relating to AI. His expertise includes intelligent transport systems, autonomous cars, traffic management, drone taxis, and smart cities. Luca holds law degrees from the University of Torino and an LLM in European law from the College of Europe.

Jana Schneider is a policy advisor to MEP Dr. Andreas Schwab (EPP) on the Internal Markets Committee (IMCO) in the European Parliament. She currently works on harmonizing AI policies at the European level.

German Bundestag

Yilmaz Akkoyun is a policy advisor to Steffen Bilger MDB, a member of the Christian Democrats (CDU). Yilmaz has previously worked for the U.N. Capital Development Fund and the German Federal Foreign Office. Yilmaz studied at Hertie School of Governance and Columbia University.

Melanie Meyer has worked in the Bundestag for over ten years and currently works as Peter Beyer's Chief of Staff. Peter Beyer MDB heads the transatlantic task force in the German Bundestag. Melanie's portfolio focuses include foreign policy, digitization, and 5G.

Stefan Steinicke formerly worked in the Federal Foreign Office but currently serves as Chief of Staff to Christoph Matschie MDB, a member of the Social Democrats. Stefan's remit includes digitization and foreign policy. He is currently serving on a committee working to advise the Federal Foreign Office on concrete next steps for "day one" of the next presidency.

Louisa Well is a policy advisor to Dr. Anna Christmann MDB. Christmann is a Green Party member. Christmann currently serves as the Spokesperson on Innovation and Technology Policy, the Chairwoman of the finding committee on AI in the Bundestag, and on the Committee of Digital Affairs. Louisa interned during fall 2019 at the Bertelsmann Stiftung in Berlin.

Private Sector

Tulsee Doshi is the Product Lead for Machine Learning and Responsible AI at Google. Her job is to help Google develop best practices for inclusive and diverse products and to help avoid the inclusion of bias in algorithmic programming and machine learning. In short, she is the "fairness" expert at Google. She received her degree in Symbolic Systems and Computer Science from Stanford University.

Leif-Nissen Lundbaek is the CEO of XAIN AG, a machine learning startup based in Berlin. XAIN has developed machine learning methods that offer capabilities of combing large swaths of data in a way that maintains accuracy but also protects privacy and is GDPR compliant. XAIN recently won first place in the Porsche Innovation Contest. He received his M.Sc. in software engineering from Oxford and a PhD in Computing from Imperial College in London.

INTRODUCTION

The Human Program: A Transatlantic AI Agenda for Reclaiming Our Digital Future

In 2024, a woman looks over her shoulder. A security camera peers down as she scurries through an alley. Her autonomous vehicle unlocks as it senses her approach. She hops in, and it drives away, streaming Spotify. The ding of a notification interrupts the soft synth playing: Her Miele dishwasher needs a new software update. But she can't think about dishwasher software on a day like today — a new deepfake of a political leader is going viral a week ahead of the election. The AV drives off, both plowing through and powered by data. In a world like this, who is really in the driver's seat, algorithms or humans?

Artificial intelligence¹ often conjures up a dystopian future in which machines dominate humans. Indeed, it is not difficult to imagine a future in which heartbeats, messages, and even political thoughts are harvested by data centers in

faraway lands, where algorithms manipulate personal data and blur lines between what is virtual or real. But AI could also solve some of humankind's greatest problems, from mitigating climate change and preventing pandemics to leveling economic inequality. It can create new categories of art and music, solve philosophical problems, and achieve mathematical feats at astonishing speeds. With the right guidance, algorithms can amplify the unique abilities that define our very existence.

From June through November 2020, the Bertelsmann Foundation assembled a group of transatlantic policymakers to assess some of the fundamental questions AI raises. Is data a new resource, to be mined and extracted? How will algorithms speed up the fight against climate change? Will machines achieve artificial general intelligence (AGI), gaining intellectual supremacy over humans?

This publication begins with a section on philosophy, followed by sections on society and the economy. It concludes with a section on geopolitics that reaffirms the importance of the transatlantic relationship for 21st-century considerations of democratic values. While different in nature and opinions, these pieces maintain a common thread: Humans have agency over machines. We are also the ones — at least the policymakers among us — who create the regulations to ensure that humans maintain control over their present and future. Similarly, it is the work of citizens around the world to demand that policymakers, corporations, and fellow citizens fight for policies that protect humankind as artificial intelligence grows smarter. We cannot allow a lack of political will to translate to a lack of human agency over AI. This time we have only one chance to get it right, and taking human agency into account provides a North Star by which to guide technology regulation.

If human agency is a North Star for AI regulation, transatlantic cooperation must be the key vehicle that gets us to comprehensive regulation on emerging technologies like AI. Europeans and Americans have historically relied on a set of shared values to sustain the transatlantic relationship, which itself has created the world we live in today, marked by historic levels of peace and stability. By continuing to advance principles that bind the EU and United States, transatlantic cooperation in the regulation of data markets and AI can also solidify the alliance geopolitically. Yet the EU and United States continue to miss opportunities to collaborate on technology policy.

A unilateral approach to regulating emerging technologies risks plunging the EU and United States into tech policy obsolescence, particularly as larger data markets, such as China, India, and soon Nigeria, continue to grow. Working together, the EU and United States can immediately remedy some problems, such

as the need to develop mutual definitions of AI or to establish baseline frameworks for data sharing. To maintain this stability and build on decades of successes borne out of the transatlantic relationship, the EU and United States must ensure that the next generation of policymaking puts human well-being and democratic values at the forefront of technology policy.

A set of action items for policymakers and citizens emerges from this publication, ranging from banning facial recognition technology to taking a coordinated transatlantic position on China. Overall, three key themes emerge. First, policymakers must ensure human agency is a core consideration in crafting policy. We do not want algorithms to overtake us with rogue weapons systems; we want transparent and ethical algorithms that help improve life on Earth. Second, policymakers must ensure that artificial intelligence has similar values to ours. In geopolitical terms, a good ally is a partner

with similar values and the same core objectives. This is also true for AI. As cosmologist, mathematician, and machine-learning researcher Max Tegmark says, we want to have "friendly AI." Third, the EU and United States must capitalize on their shared set of values to ensure that liberal democratic principles persist in an era facing extreme technological consolidation at the hands of authoritarian regimes.

Overall, this publication urges policymakers, thought-leaders, and fellow citizens to realize that we humans sit in the driver's seat. Working together across the Atlantic to craft the next generation of emerging technology policy, we can build a more peaceful and prosperous future for all. As introductory guidance, we present *The Human Program: A Transatlantic AI Agenda for Reclaiming Our Digital Future*.

¹ This publication uses artificial intelligence and machine learning interchangeably.

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10

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to Innovation?**
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16

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Here: Travel Advice
for Policymakers on
the Roads of Artificial
Intelligence**
by State Representative
Brian Cina
24

PHILOSOPHY

DEFINING AND UNDERSTANDING AI

BY PHILIP BOUCHER, STATE REPRESENTATIVE BRIAN CINA,
AND STEFAN STEINICKE

In the course of the CEPI program, we have had the opportunity to learn about artificial intelligence and the policy questions it raises for the different legislative contexts in which we work: the Vermont General Assembly, European Parliament, and German Bundestag. In this short publication, we reflect upon the search for a usable and accurate definition of AI and to relay some key messages to policymakers working in the field.

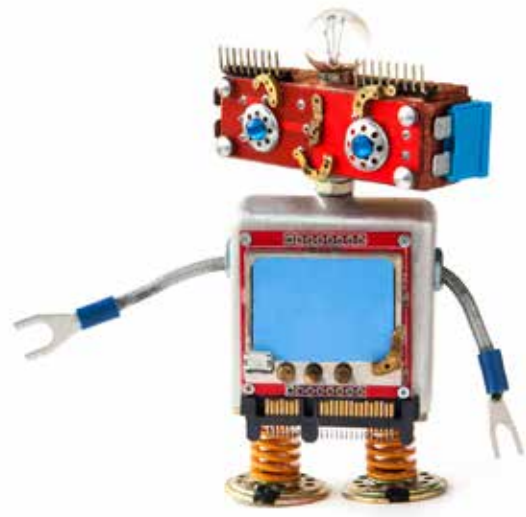
Of the many formal and informal definitions of AI, most revolve around the appearance of intelligence. Famed mathematician Alan Turing, for example, defined machines as intelligent when a human interlocutor could not distinguish whether they were interacting with the machine or a human. These days, definitions often require the ability to act autonomously — e.g., to implement decisions based upon its own advice — or to limit the intelligence to specific narrow domains, so AI can show intelligence in playing chess or knowing which films somebody might like, but the same AI is not expected to be able to do both.

Philip Boucher is a policy analyst in the European Parliamentary Research Service (EPRS), the internal research service and think tank of the European Parliament. He is writing in a personal capacity and any views expressed do not represent an official position of the Parliament.

THE EUROPEAN COMMISSION'S
COMMUNICATION AI FOR EUROPE
DEFINED AI AS "SYSTEMS
THAT DISPLAY INTELLIGENT
BEHAVIOR BY ANALYZING THEIR
ENVIRONMENT AND TAKING
ACTIONS - WITH SOME DEGREE
OF AUTONOMY - TO ACHIEVE
SPECIFIC GOALS."



DEFINING AND UNDERSTANDING AI



Earlier this year, the Vermont General Assembly's Artificial Intelligence Task Force adopted a longer definition of AI systems that was proposed by the European Commission's High-Level Expert Group on AI that is "systems (usually software) capable of perceiving an environment through data acquisition and then processing and interpreting the derived information to take action(s) or imitate intelligent behavior given a specified goal. AI systems can also learn/adapt their behavior by analyzing how the environment is affected by prior actions."

THE GERMAN BUNDESTAG'S COMMITTEE OF INQUIRY IN 2018 DECLARED THAT "AI IS A PARADIGM SHIFT - FROM CALCULATING TO COGNITIVE INFORMATION TECHNOLOGY. AS AI CAN LEARN, IT CAN ALSO APPLY PREVIOUSLY GAINED INSIGHTS TO NEW CONTEXTS. HENCE, AI CAN INDEPENDENTLY PLAN PROCESSES, PROJECT OUTCOMES, AND INTERACT WITH HUMANS."

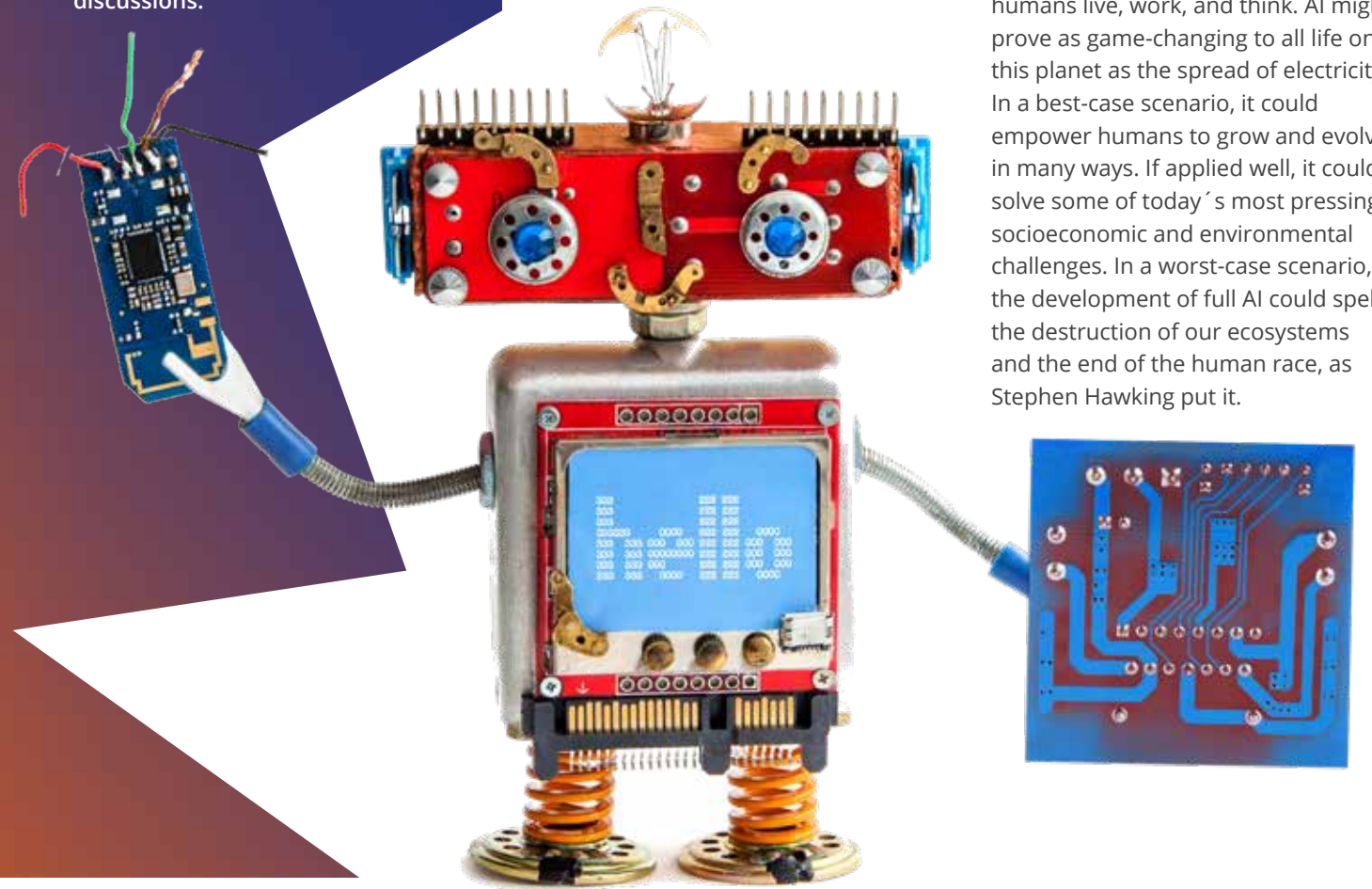
Instead of proposing yet another definition, we should consider why AI is so difficult to define, and why that matters. AI has become an umbrella term that includes a wide range of technologies and an even wider range of application areas. It includes concrete and familiar items such as smart thermostats, as well as imaginary future technologies that might never come to exist, such as self-aware androids. In other words, these can include products that exist or that we might reasonably expect to be developed in the next few years, as well as those that belong in sci-fi movies. All of these technologies are AI, and this inclusivity seems to present a problem for both public debate and policy formulation because, depending on which AI you have in mind, its impacts and desirability can vary enormously. But in order to have a productive debate, do we need a shared understanding of what is being considered?

One approach could be to lock AI into a formal definition, but one single definition that satisfies everyone remains elusive. Many people are likely to continue to talk about "AI" in the same way as before regardless of the use of a common, single definition.

Another approach could be to talk about these technologies with greater specificity. Instead of using the term "AI," we could refer to specific techniques such as machine learning, specific applications such as facial recognition, or specific contexts and purposes such as identification of police suspects in public places. These examples can be combined for even greater specificity, e.g., "facial recognition tools trained by machine learning to identify suspects in public places." This approach depends upon a range of other well-defined technologies and concepts, even if some of these remain subject to debate, such as the boundaries between public and private spaces. It requires a deeper understanding of AI techniques and applications, and the differences between them, but could allow for more precise and productive discussions.

THESE LINGUISTIC POINTS MIGHT APPEAR ABSTRACT BUT, IN POLICY, THEY QUICKLY BECOME QUITE CONCRETE. FOR EXAMPLE, THE EUROPEAN COMMISSION'S WHITE PAPER ON AI SUGGESTS DEFINING HIGH-RISK APPLICATIONS BY A COMBINATION OF TECHNIQUES AND APPLICATIONS. BUT BECAUSE AI PRODUCTS DEEMED HIGH-RISK UNDER THIS APPROACH WILL FACE GREATER BURDENS IN GETTING TO MARKET, THE PRECISE DEFINITIONS OF RISK WILL BE SUBJECT TO SERIOUS DEBATE.

It seems clear that dealing with the risks of AI is more important than the need for a single, formal definition that suits every purpose. Therefore, we set out a few key messages below that emerged from our discussions of AI policy in our different legislative contexts. These messages rest on a fundamental assumption that the advent of AI and its incorporation into all our daily lives has revolutionary potential. The broad application of electricity — from transportation to health care, agriculture to manufacturing — changed the way humans live, work, and think. AI might prove as game-changing to all life on this planet as the spread of electricity. In a best-case scenario, it could empower humans to grow and evolve in many ways. If applied well, it could solve some of today's most pressing socioeconomic and environmental challenges. In a worst-case scenario, the development of full AI could spell the destruction of our ecosystems and the end of the human race, as Stephen Hawking put it.



DEFINING AND UNDERSTANDING AI

1

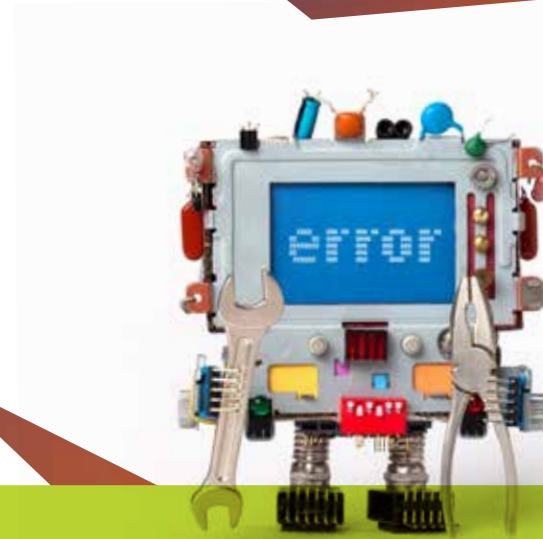
EVERYBODY NEEDS TO GET UP TO SPEED ON AI

AI will impact many sectors that so far have been left relatively untouched by previous waves of technological disruption, and the range of impacts will be of interest to almost any specific legislative committee. For this reason, AI policy debates are not limited to policymakers following industry, technology, and digital affairs, and other niche areas. Given the breadth of the impact of AI, everyone in the legislative community would benefit from getting up to speed on key AI developments and reflecting upon how they can prepare an appropriate response. If we want to empower people, we must educate them. The Vermont Artificial Intelligence Task Force “believes that an educated populous is the best way to prepare the state for the growth of artificial intelligence.” Public education and engagement about the impact of AI is important so that citizens can hold policymakers accountable.



PROTECT HUMAN AGENCY

The structures and systems of our societies increasingly rely on data, and where data flows, AI follows. As AI evolves, it will become more central in decision-making, but also more complex. As Henry Kissinger suggests, “AI may soon be able to optimize situations in ways that are at least marginally different, and probably significantly different, from how humans would optimize them. But at that point, will AI be able to explain, in a way that humans can understand, why its actions are optimal? Or will AI’s decision-making surpass the explanatory powers of human language and reason?” This question is especially pertinent for policymakers who need to help citizens navigate their own decision-making in the age of AI while ensuring that algorithms with decision-making power are held to account.



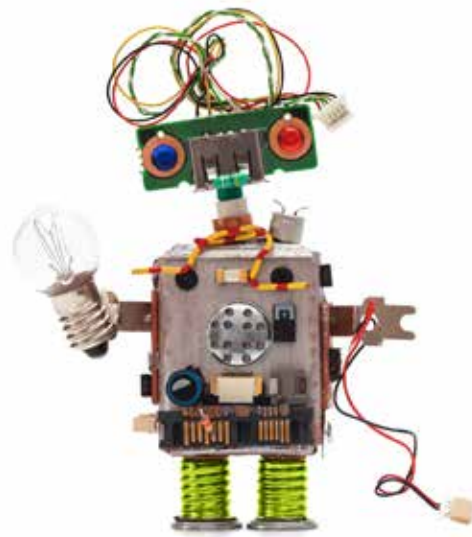
ADDRESS UNEVEN DISTRIBUTION OF KNOWLEDGE

AI can identify patterns that humans do not see and would seldom consider. For example, by analyzing large data banks, algorithms have found a correlation between those who charge their devices overnight and those who pay bills on time. However, while reservoirs of data are collected about individuals, individuals themselves are often unaware of the scale at which this data is collected, combined, and used to make predictions about their behavior and preferences. This significant imbalance — between those who control troves of data about many people and the individual subjects of this data — could present issues for consumer protection, and, given the complexity and opacity of AI systems, abuses may be difficult to identify.

For each of these messages, it is clear that policymakers would benefit from developing a more sophisticated understanding of the functionality and impacts of AI rather than focusing on the development of one common definition.

STAY VIGILANT AND FOCUS ON SUPPORTING THE BEST AI POSSIBLE

We often hear about the grave risks, even existential threats, of AI, as well as calls for optimism and the need to embrace the technology in order to reap the rewards. While it can be interesting to discuss utopian and dystopian AI futures, they may not provide a good context for policy discussions. As discussed above, AI is many things and comes with risks and opportunities. It follows, perhaps, that AI policy should do many things. We do not need to choose between accepting AI as it is or rejecting technological advancement. AI policy can support the very best AI applications that offer genuine social value, such as healthier lives and cleaner environments, while ensuring that citizens are protected — and empowered to protect themselves — from applications that erode consumer choice and protection or compromise democratic processes and social cohesion. This approach would put human agency back at the center of AI development and provide a basis for citizens to trust AI systems and governance.



REGULATING ARTIFICIAL INTELLIGENCE:

As discussed elsewhere in this collection, artificial intelligence (AI) is a somewhat ambiguously defined collection of technologies with the capacity to analyse their environment and respond 'intelligently', with some degree of autonomy. AI straddles the boundary of current and future tech. In the present tense, AI plays a substantial and increasing role in our personal and professional lives. Sometimes, the algorithms are almost visible as they personalise news feeds, recommend products, and provide directions. More often, they inform (and sometimes implement) 'upstream' decisions in industrial, commercial, and public sector processes. We can rarely examine or understand these applications, although

they do have profound impacts, both positive and negative. In the future tense, these impacts are often projected into wild scenarios ranging from the obsolescence of employment with health and wealth for all, to mass surveillance, disempowerment, and unseen depths of inequality. More likely,

we will see less dramatic outcomes featuring moderate elements of both extremes, with impacts distributed unevenly across populations.

Philip Boucher is a policy analyst in the European Parliamentary Research Service (EPRS), the internal research service and think tank of the European Parliament. He is writing in a personal capacity and any views expressed do not represent an official position of the Parliament.

Like AI, innovation is difficult to define and evaluate. While it is instinctively considered to be a good thing, any specific innovation involves the redistribution of costs and benefits in ways that are not always welcomed by everyone, and may only be revealed years later. While there is a great deal more to examine on this subject, this short piece adopts a pragmatic position of designing regulation to promote desirable innovation paths. For AI, this

means engaging with technologies that make important decisions yet defy examination, in the context of high-stakes commercial and geopolitical interests.

For some, regulatory activity in fast-moving technology domains such as AI should be avoided because it could hinder innovation. For others, AI policies are an essential response to the transformative impacts it has on our societies, as well as on the policy process itself. The following sections examine broad understandings of the relationship between regulation and innovation before considering how these insights could apply to AI policy. The piece concludes with reflections on how policymakers can develop the right kind of AI regulation to promote the right kind of AI innovation.



HELP

BY PHILIP BOUCHER

OR HINDRANCE TO INNOVATION?

REGULATING
ARTIFICIAL
INTELLIGENCE:
HELP
OR HINDRANCE
TO INNOVATION?

Regulation and innovation:

a complex history

Regulation has something of a bad reputation when it comes to innovation. Some industrial sectors such as postal services and telecoms that were heavily regulated or centrally controlled were slow to respond to technological opportunities and market appetites for innovation. This may have been due to inexperience with innovative technologies, or reluctance to adopt foreign products and services. There are also examples of regulations aiming to mitigate environmental damage by incentivising the adoption of 'best available techniques' and 'end-of-pipe solutions', which may promote incremental improvements at the expense of more ambitious transformative innovations.

THESE CASES SHOW HOW REGULATION CAN HINDER THE FULL POTENTIAL OF INNOVATION, LEADING SOME TO CONCLUDE THAT INNOVATION IS BEST ACHIEVED BY AVOIDING REGULATION ENTIRELY. HOWEVER, THE EVIDENCE SUGGESTS OTHERWISE. OFTEN, REFORMS ARE A NECESSARY PRECONDITION TO ENABLE MARKET ACCESS FOR INNOVATIONS, TO PROVIDE CERTAINTY TO FIRMS CONSIDERING MAJOR INVESTMENTS, OR TO ARTICULATE MORE AMBITIOUS VISIONS OF WHAT INNOVATION CAN OFFER. REGULATION MAY ALSO BE REQUIRED TO ENSURE THE CONDITIONS AND CONTEXT - SUCH AS LABOUR, CAPITAL, CERTAINTY, AND COMPETITION - ARE CONDUCIVE TO INNOVATION. THERE ARE ALSO CASES WHERE INNOVATION LEADS TO DRAMATIC NEW SOCIAL, ECONOMIC, OR SECURITY IMPACTS THAT DEMAND REGULATORY ACTION.

Specific regulatory decisions can shape the pace and direction of innovation for better or worse, and will be a help or a hindrance to specific outcomes. Making the right decisions about regulatory action (and inaction) is an essential precondition for desirable innovation, and should be subject to careful analysis.

REGULATING
ARTIFICIAL
INTELLIGENCE:
HELP
OR HINDRANCE
TO INNOVATION?

How insights apply to AI policy

This section explores four distinct categories of action that span the broad regulation-innovation relationship in the context of AI. In doing so, it reveals two distinctive regulatory stances, ‘the carrot’ of incentivising specific AI applications to reap their benefits and seize their opportunities, and ‘the stick’ of restraining specific AI applications to mitigate their risks and limit their damage. The approaches are not mutually exclusive, and both are required to promote desirable AI innovation.

1

Regulating AI innovation:

Shaping how algorithms develop, and what they can do

This is a category of regulation which directly shapes innovation. ‘Carrots’ include mission-oriented innovation programmes promoting ‘moonshots’ that deliver benefits at a scale far beyond that which would otherwise occur. For example, we could leapfrog the ‘incremental innovation’ of gradually introducing autonomous features into privately owned vehicles, establishing a more ambitious shared-ownership model whereby fully autonomous vehicles provide mobility as a service. This category also includes ‘sticks’ such as moratoria on controversial development applications such as biometric identification in public spaces or lethal autonomous weapons. While clearly limiting development and adoption that might otherwise occur, sticks of this kind can be considered pro-innovation if they respond effectively to concerns that, left unchecked, would inhibit the adoption of a wider range of AI applications.

2

Shaping the context:

Adjusting the conditions in which AI is developed and adopted

Regulation of this kind influences the pace and direction of innovation by shaping its context and conditions. Recent measures adopting the ‘carrot’ stance include ensuring there is adequate investment capital, skills, data, and SME support to enable AI development, and deployment. Another key example in the EU context is enabling AI to scale-up by completing the digital single market, as market fragmentation causes friction in legal compliance, administrative burdens, and consumer choice. Other approaches in this category may be seen as ‘sticks’, such as digital taxes and penalties for firms that dominate uncompetitive markets. Again, these measures can promote innovation by enhancing competition, which has a demonstrably positive link with innovation.



3

Responding to impacts:

Ensuring the application of AI has desirable outcomes

Measures may also be taken to respond to the outcomes of AI innovation. While they have a weaker influence on the pace and direction of innovation, they can play an important role in ensuring that the path remains desirable. Examples include providing a safety net for workers at risk of displacement and ensuring the continued effectiveness of measures to defend fundamental rights with regards to democratic processes, non-discrimination, and consumer protection. Since the costs and benefits of AI development are unevenly distributed across populations, regulatory measures can be deployed to improve the equality and fairness of the outcomes of AI innovation which can be key conditions for public acceptability.



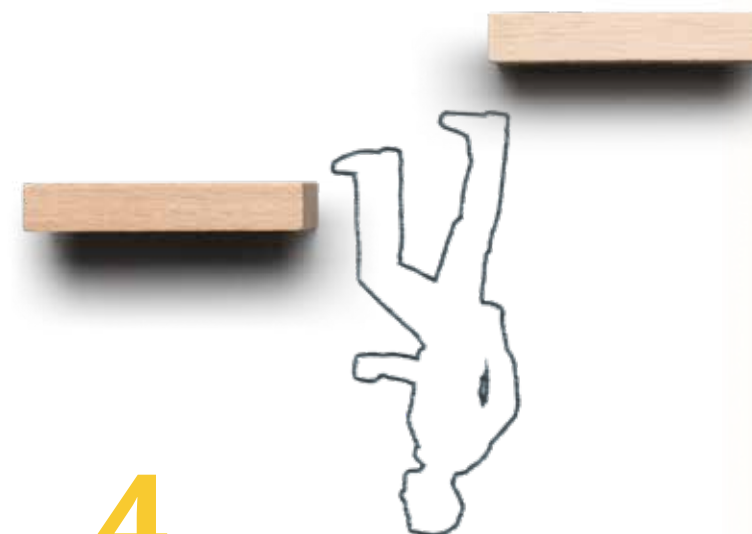
4

New regulatory approaches:

Changing how we regulate to better fit the specificities of AI

Finally, innovation can also provoke changes to how regulations are designed and implemented. Several general principles of governance such as better regulation, the innovation principle, and the precautionary principle have been adopted to optimise innovation outcomes. The complexity of AI makes it difficult to identify regulatory challenges such as algorithmic collusion, let alone to design and implement responses and enforce them effectively. In response, administrations can increase their in-house expertise, or set up new AI agencies or regulatory bodies. However, the pace of regulation will in all likelihood continue to lag behind the pace of innovation. For some, self-regulation approaches are the solution, with firms entrusted with the responsibility to identify and respond to risks. Novel approaches such as ‘regulatory markets’ would

see firms compete to meet demands set by regulators. Temporary spaces or ‘sandboxes’ can liberate regulators and innovators to perform controlled experiments with policies and technologies and observe the results before deciding whether to scale them up. Anticipatory innovation governance also recommends early-stage experiments to establish constant feedback loops between innovation and regulation.



REGULATING
ARTIFICIAL
INTELLIGENCE:
HELP
OR HINDRANCE
TO INNOVATION?

The right AI regulation for the right AI innovation

Poorly designed policies could damage both AI development and public confidence. Meanwhile, carefully deployed carrot and stick regulations are essential preconditions for promoting desirable innovation. So, how can we design the right regulations for the right AI innovation? There are no simple policy solutions to complex socio-technical problems, but several emerging lessons.

- **Focus on synergies.** Policymakers are increasingly abandoning the 'zero-sum game' assumption that regulation to protect citizens and standards is in direct competition with innovation. By identifying and fostering synergies, it is possible to optimise both, and deliver outcomes that are more desirable.
- **Take a long-term view.** Restricting some developments in the short term can deliver innovation payoffs in the long term by ensuring competitive markets or inspiring public trust.
- **Level the playing field.** A more even distribution of costs, benefits, and opportunities is conducive to innovation. Measures could include reducing barriers for SMEs and supporting them to enter markets, balancing the relationship between AI platforms and their users, and responding to emerging problems that could smother desirable innovation paths, such as uncompetitive markets and challenges to fundamental rights and democratic processes.
- **Define objectives, but stay out of the code.** AI develops more quickly than policy, so prescribing how algorithms work could constrain the innovation ecosystem and soon become outdated. Instead, policymakers can focus on defining outcomes, which can range from basic legal compliance to enhanced standards and extend to more ambitious moonshots, and creating optimal conditions for the innovation processes required to achieve them, such as the availability of data, skills, infrastructure, competition, and capital.
- **Regulate innovatively.** Novel approaches to regulation — such as sandboxes, experiments, and co-regulation — are increasingly commonplace, offering agile responses to AI's challenges and opportunities. For example, taking infrastructural and regulatory steps to temporarily enable fully autonomous vehicles to provide 'mobility as a service' in one city could help us achieve more ambitious innovation targets the world over.
- **Harmonise and recognise diversity.** While such experiments could advance AI innovation and adoption, it is crucial to re-harmonise conditions across the market once they are complete. Harmonisation is crucial to ensure sufficient data and interoperability to scale-up and diffuse good practices. This does not mean treating all regions in precisely the same way. To ensure a fairer distribution of costs, benefits, and opportunities, it is necessary to recognise social, economic, and other points of diversity across markets.
- **Adopt AI in public administration.** There are opportunities for the responsible integration of AI in some administrative processes such as impact assessment, public procurement, and service delivery. Done right, this can advance innovation while improving performance, accumulating in-house AI expertise, and promoting a culture of innovation in the public sector.
- **Confidence for citizens, consumers, and firms.** Confidence is a key condition for AI innovation. This includes confidence that citizens' and consumers' rights will be respected, and that the regulatory environment will remain stable and supportive.

To conclude, well-crafted regulation is not only compatible with AI innovation, but is its essential precondition.

Policymakers are increasingly embracing clear rules about ethics and standards as a means — not a barrier — to achieve the right kind of AI innovation. As demonstrated in the course of the CEPI programme, parliamentarians and parliamentary staff benefit enormously from working together, exchanging expertise, and sharing best practices. Transatlantic dialogue and other forms of cooperative multilateralism will play a key role in defining human-centric standards and ambitious objectives for AI together.

YOU CAN GET THERE FROM HERE:

BY STATE REPRESENTATIVE BRIAN CINA

TRAVEL ADVICE FOR POLICYMAKERS ON THE ROADS OF ARTIFICIAL INTELLIGENCE

Every major endeavor in life is like a long road trip, defined not only by the destination but also by the many stops along the way. I have worked for the past 22 years as an activist, a community organizer, a social worker, and an elected official. Over that time, I have learned that, regardless of the strategies we choose, the outcome of any political campaign is ultimately tied to the convergence of many factors, some within our control as advocates and others due to fate. It takes a combination of current events, zeitgeist, and political will to push the government to make transformative changes in policy and law.

Over the past few years, we have seen current events give new impetus to national and international social movements, leading to major policy shifts in the regulation of firearms, climate action, and criminal- and racial-justice reforms. We have also witnessed people gradually recognizing the potential impacts of artificial intelligence on humanity and the Earth. My story as the first U.S. legislator to establish an artificial intelligence task force might provide some guidance for other tech-interested legislators and policymakers, and perhaps even some entertainment for everyone else, as we collectively travel down the road to a future defined by artificial intelligence.

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Beginning of My AI Policy Work

When I was first elected as a state representative, I introduced a variety of bills in collaboration with social movements, involving issues such as universal health care, a zero-waste economy, and the creation of a state bank. Many of these proposals were in response to the present consequences of past decisions. Far too often, people wait until there is a problem instead of thinking ahead about the potential harm of current policies. As a legislator, I reflected on the future and asked myself, "What is the issue of the future that people are not talking enough about today?" I quickly identified artificial intelligence.

As a lifelong science-fiction fan, I have spent a lot of time imagining possible outcomes of the continued progression of technology. I grew up with an uncle who was a computer

programmer, and I have played on computers since I was a very young child (the first one I recall is the TRS-80). I studied electroacoustic music at Dartmouth College with advisers who ushered in major innovations in the use of technology for music. Immersed in technology for so long, I have often wondered what would happen when machines realized that they existed. The ethical dilemmas of the future will be rooted in the relationship between humans and technology. As the lines between humanity and our tools become blurred, are we headed toward an existential crisis? What happens when we can no longer identify a clear difference between humans and machines?

Bill Introduction

My first proposal was grounded in a future that may have seemed impractical or irrelevant to people who didn't realize how far artificial intelligence has come or how frequently it's used. I called for a state commission "to investigate the field of artificial intelligence and make recommendations to promote the responsible growth of Vermont's emerging technology markets."¹

The Artificial Intelligence Commission would "conduct studies of matters concerning: (1) how to allocate rights and duties among human beings and artificial intelligence entities when robots or other artificial intelligence entities create benefits; and (2) how artificial intelligence entities could be used in state government, including an analysis of the fiscal impact, if any, on the state."² Its first report to the legislature would include "(1) a proposal for a code of ethics for the development of artificial intelligence; (2) a proposal for a test or other method to determine whether an artificial intelligence entity has achieved consciousness; (3) a proposal for how the state could

promote the ethical development of artificial intelligence, including an analysis of the potential risks and benefits of such development; and (4) a proposal for how the state could support the development of artificial intelligence entities, integrate artificial intelligence into education, and provide incentives to support artificial intelligence businesses within the state."³

Initial Reactions

Artificial intelligence is like water flowing all around us. Carrying resources and information to us, extracting and collecting data from us, artificial intelligence animates the universe in new ways, bringing life to dead places. As artificial intelligence technology becomes more pervasive, the water is slowly rising from all sides, just like how our oceans are slowly encroaching on our coastlines. If we do not pay close attention, will there come a point where

AI erodes the structures that we have built around us? Will we get swept away by the currents? When I proposed this bill, some were curious and interested in the topic, but most were skeptical or even hostile. People struggled to see the relevance of an artificial intelligence bill, but it sparked a public discussion in Vermont on the subject. Opinions ranged from the Vermont Republican Party accusing me of wasting taxpayer money and being "looney"⁴ to a University of Vermont computer science professor acknowledging the ethical dilemma that will arise "when we get to machines that exhibit all of the properties that animals do."⁵

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Advocacy and Passage

When considering new ideas, legislators often look to other states for guidance. According to the Vermont Legislative Research Service, no state had yet passed a law like the one that I was proposing,⁶ which made it more difficult for me to get the bill into motion. However, there was a surge of coverage in the international media about artificial intelligence in 2017. In the summer of 2017, Elon Musk warned the National Governors Association that “AI is a fundamental existential risk for human civilization, and I don’t think people fully appreciate that.”⁷ Staff from Open AI suggested to me that any state-sanctioned body focus on evaluating the present, instead of speculating about the future. Musk’s remarks helped us get a critical mass of colleagues interested in moving

forward with some kind of legislation.⁸ I contacted the governor’s legislative liaison and the members of the state’s House Energy and Technology Committee, sharing a video of Musk’s speech and making my case for initiating testimony on the bill. I kept sharing articles and other videos with my colleagues, as well as engaging them in ongoing conversations about approaching the topic of artificial intelligence from slightly different angles.

Passing any policy requires a combination of work from both inside the building and outside in the community. This communication and advocacy helped educate my fellow legislators and strengthened our mutual relationships and our ties

to the community. I connected with a local youth⁹ who joined me in a public education and advocacy campaign that helped to push the bill forward.¹⁰ The House and Senate heard testimony on the bill, which was amended into “an act relating to the creation of the Vermont Artificial Intelligence Task Force.”¹¹ The bill (H.378) eventually passed both bodies with strong support and was signed into law by the governor as Act 137 of 2018.¹² In the face of misunderstanding and adversity, real

change is possible if we do not give up on our vision and on our relationships with one another. It may take a massive amount of work and compromise, but we can accomplish anything when we come together to solve our greatest problems.

The Work of the Vermont Artificial Intelligence Task Force

The remit of the new Vermont Artificial Intelligence Task Force included: “(1) an assessment of the development and use of artificial intelligence technology, including benefits and risks; (2) whether and how to use artificial intelligence in state government, including an analysis of the fiscal impact, if any, on the state; and (3) whether state regulation of the artificial intelligence field is needed.”¹³ Although the task force was my idea, in order to serve on it I had to be appointed by the Vermont chapter

of the National Association of Social Workers, as a “member with experience in the field of ethics and human rights.”¹⁴ The AI Task Force engaged in a comprehensive review of the field of artificial intelligence, hearing testimony from experts in various fields impacted by artificial intelligence.¹⁵ We held public meetings throughout the state to collect feedback and to provide public education.¹⁶ The interest was so high in our work that we had to ask for an extension to complete our report!

Vermont Artificial Intelligence Task Force Final Report

On January 15, 2020, the task force released its final report,¹⁷ which included recommendations to guide responsible growth of artificial intelligence development and use, specifically:

- The establishment of a permanent commission on artificial intelligence to support its development and propose policy initiatives to make that development responsible.
- The adoption of an artificial intelligence code of ethics.
- The creation of incentives for the further development of the artificial intelligence industry.
- Support for the responsible use of artificial intelligence by state and local agencies.
- Enhancements in education and workforce development programs targeted to artificial intelligence, with the recommended involvement of Vermont’s higher education community.
- Greater education of the public on the power and opportunity of artificial intelligence and the risks created by it.¹⁸

At the center of our work was a draft code of ethics that would serve as guidelines for the community. “Modeled after the European Union’s guidelines, the task force said AI should be manufactured with fundamental respect for human dignity, individual freedom, democracy, equality, and citizens’ rights, including the right to vote or right to protest.”¹⁹ From the work of the task force, it became even clearer that “we’re at a turning point where the decisions we make now will affect the trajectory of AI and how it unfolds.”²⁰ We realized that Vermont had a unique opportunity to lead the way in promoting responsible AI.²¹ The action of one government will not be enough. All of humanity must come together to harness the benefits and to mitigate the risks of artificial intelligence. Our common future depends on it.

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Global Impact of State Policy

Legislative bodies usually try not to reinvent the wheel when developing policy. After Vermont was the first state to pass legislation creating an artificial intelligence task force, other states began following suit. As of 2020, bills had been introduced in at least 19 states: Alabama, California, Connecticut, Delaware, Florida, Hawaii, Illinois, Indiana, Massachusetts, Maryland, Missouri, New Jersey, Nevada, New York, Rhode Island, Utah, Virginia, Vermont, and Washington.²² Alabama actually passed a resolution in 2019 creating a task force “to study the growth of artificial intelligence in the state, its potential uses in various private and public sectors, and AI’s effect on Alabama residents and their quality of life.”²³ The Alabama Commission on Artificial Intelligence and Associated Technologies “report is anticipated to address the use of AI in a wide array of fields within the state (including governance, health care, education, environment, transportation, and industries of the future such as autonomous cars, industrial robots, algorithms for disease diagnosis, manufacturing, and other rapid technological innovations).”²⁴

Challenges with Follow-Through of Recommendations

Another habit of legislative bodies is to ignore recommendations from commissions, studies, work groups, or task forces. However, these groups can be a valuable part of the policymaking process under the right conditions.²⁵ When the Vermont Artificial Intelligence Task Force released our final report, the relevant committees heard testimony but did not immediately respond to the guidance. Meanwhile, time was running out to turn any of the recommendations into legislation, let alone get them passed, in that legislative session.

Then the whole world changed. The coronavirus pandemic arrived in Vermont, and within days, the entire government shut down.²⁶ When the legislature resumed its session remotely, it entered a triage mode in which the entire focus was physical and economic survival of the people of Vermont.²⁷ In that context, the work of the AI task force fell by the wayside.

Former members continue to advocate for their recommendations, realizing not only the potential risks of neglecting to monitor the development and use of artificial intelligence but also the role artificial intelligence can play in the economic recovery from the pandemic. Although it is understandable for people to focus on the most pressing issue at any given time, the failure to manage emerging issues only leads to bigger problems down the road. It is important that policymakers follow through on the advice of experts and feedback from the public, not only to make good policy but also to honor the input of the most impacted people in a healthy democracy.

The CEPI Fellowship

One of the many benefits of establishing the Vermont Artificial Intelligence Task Force was being invited to become a Congressional European Parliamentary Initiative fellow with the Bertelsmann Foundation. The purpose of the fellowship is to promote international collaboration between government officials and policymakers “on the most pressing economic, political, and social challenges facing the United States and Europe.”²⁸ This year’s fellowship was focused on artificial intelligence policy. Exploring the global landscape of artificial intelligence policy and working with European colleagues as part of a learning community has given me new ideas for legislation. Participating in this program has also provided me with a clearer sense of the puzzles that can be solved on the local level and how they can influence national and international policy on artificial intelligence and beyond. Out of the broad range of topics covered during the fellowship, the two that seem most urgent on the state level are facial recognition and algorithmic accountability.

Next Steps: 2021 and Beyond

Among the policy areas that deserve closer consideration in the upcoming year, we must address racial justice and all forms of bias in the use and development of artificial intelligence and other emerging technologies. When Vermont was passing law-enforcement reform legislation in response to the racial-justice uprisings of 2020, we added “the strongest limits in the country on law-enforcement use of facial recognition technology.”²⁹ In the next session, we must go even further and require “specified commercial entities to conduct assessments of high-risk systems that involve personal information or make automated decisions, such as systems that use artificial intelligence or machine learning” at the state level, as proposed in the Algorithmic Accountability Act of 2019.³⁰ During the COVID-19 pandemic, we have seen how the flaws and risks of our existing policies and systems of government have amplified inequities. It comes as no surprise that the pandemic has exacerbated racial disparities through the use of artificial intelligence.³¹

In addition to addressing the risks of artificial intelligence, we must maximize the benefits and follow through on the other recommendations of the Vermont Artificial Intelligence Task Force, while taking into account the recommendations of other state task forces. We must look at ways to invest in workforce development and public education in artificial intelligence as an integral part of our economic recovery from the pandemic. Artificial intelligence created in Vermont shows promise for helping society manage the impact of the COVID-19 pandemic.³² We need to create a permanent state AI commission to assist in the economic recovery by helping Vermont to become a leader in the ethical development and use of AI. Instead of worsening disparities and replicating bias, artificial intelligence can help us solve humanity’s greatest problems — disease, climate change, poverty, and war — if we choose to harness its potential to serve the greater good.



YOU CAN GET THERE FROM HERE: TRAVEL ADVICE FOR POLICYMAKERS ON THE ROADS OF ARTIFICIAL INTELLIGENCE

Conclusion

In Vermont, we have a saying: “You can’t get there from here.” Because our state is made up of so many mountains, hills, valleys, and rivers, there is not always a direct route from one place to another. The voyage is going to be an adventure that takes you over, around, and through other places, and you never know exactly what’s beyond that next bend in the road. My expedition with the Vermont Artificial Intelligence Task Force, from dream to reality, was like driving from southwest Vermont to the Northeast Kingdom of Vermont in a Nor’easter. There were many detours, obstacles, forks, and intersections, and I had to stop and ask for directions a few times along the way. However, I discovered that you actually will get there from here! You just have to be willing to figure it out as you go and to stay focused on your destination. In the process of reaching the journey’s end, I experienced the complex interplay between the influences of interpersonal dynamics and societal trends. One of the greatest lessons that I learned from my trek with the Vermont Artificial Intelligence Task Force is that our existing systems of government and regulation will never be able to keep up with the exponential growth of technological development. We will need new systems of accountability and transparency in order to manage the impact of technology in the near future. Without a tech-informed general public empowered to influence policy, we may see violations of our human rights and increased exploitation and destruction of our planet. With leadership grounded in ethics and justice, we can strengthen our democracies and improve life for humanity and all other beings in the future. We can get there from here.



Representative Brian Cina, humanoid robot Bina48, and Bruce Duncan, Managing Director from the Terasem Movement Foundation, at a panel discussion about artificial intelligence at Dealer.com in Burlington, Vermont, in 2018.

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**Takeaways from
Tennessee: Ensuring
Employment for
People of Color in
the Machine Age**
by State Senator Raumesh
Akbari and Malick Gaye
36

**Civil Liability in an
Autonomous World**
by Luca Ravera
42

**What if Google Were
Belgian? Europe's
Shortsighted Dream of
Digital Sovereignty**
by Johannes Jaenicke
50

ECONOMY

TAKEAWAYS FROM TENNESSEE:



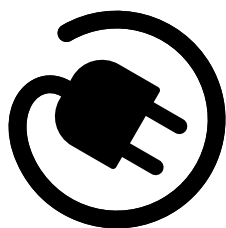
ENSURING
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TAKEAWAYS
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In light of the massive automation and robotics developments we've seen since the turn of the century, our national workplace is ripe for significant AI disruption.

From the 10th-century tale of the Zhou dynasty king fascinated by the gift of an artificial human to the late linguist Jane Robinson's advancements in natural-language processing in the late 20th century, theoretical and practical applications of AI have opened a new frontier in scientific discovery.

In some ways, this technology has surpassed human ability and brings us toward the precipice of singularity, when intelligent machines will upgrade themselves continually to a point beyond human control. Daily applications of AI and automation are so common that it's easy to forget we're even using it. The device you're reading this on can probably order your dinner, suggest clothing options based on the weather, and even hold a conversation with you. If you copied and pasted this sentence into your word processor, it would probably let you know that the final word is misspelled. On a practical level, we no longer have to interface with switchboard operators to perform a phone call and we can shop and pay for goods in a grocery store and avoid human interaction. Our homes have the ability to be fully automated and we can teach our virtual assistants to unlock the doors, open the blinds, and play our favorite concerto as it senses us approach the home.

Take robotic-assisted surgery, for example. As of 2019, Da Vinci Surgical Systems had installed around 4,000 medical robots in operating rooms around the world. These high-tech systems have performed more than 6,000,000 procedures, ranging from open-heart surgery to creating laser-focused micro-incisions.¹ While these machines mostly rely on the guidance of a trained surgeon, medical technology companies are racing to create the first fully autonomous system capable of performing specific medical procedures. Based on the advances of the past decade in machine learning and medical devices, it's only a matter of time before medical professionals can rely on machines to perform procedures and diagnoses that previously required years of education and experience. Famed tech investor Vinod Khosla thinks robots will replace most doctors within the next two decades. What should the consumer expect when complete automation reaches our operating rooms? Will access to care be more affordable? Will Black women no longer be two to three times more likely to die during childbirth than white women? Will medical malpractice essentially be eradicated? Will Black men no longer have a prostate cancer mortality rate 2½ times that of white men?

Radical shifts in industries like these are happening in the United States. Competition and advances in machine technology have reduced costs by 14 percent in the last decade, so that some machines are less expensive to maintain than a human payroll.² With the added benefit of longer work hours and virtually nonexistent occupational hazards, the automotive industry has been permanently changed by AI and automation. To put the job loss in context, the American automotive industry has seen an increase of more than \$350 billion in revenue over the past eight years, while keeping employment 30 percent lower than its peak in 2000.³ On a macro level, some industry leaders anticipate AI will take more than one-third of human jobs in the next two decades.

These advances give new urgency to a discussion of what lies at the intersection of AI and one of the United States' most pressing social issues, racial justice.

The technology we rely on to facilitate our workflows and drive consumerism are essentially artificial reflections of our own flawed and biased psyches. AI has the potential to be unintentionally coded with human biases, and policymakers must also be aware of the increased wealth gap and job loss that comes with AI. As it stands, workers of color represent the lion's share of those expected to be replaced by automation in the coming decades. The COVID-19 pandemic has illustrated how vulnerable these communities are to widespread market disruption. The

future of automation paints an image of consistent pandemic-level job loss, with no return date in sight for the millions of displaced workers. According to estimates, 800,000,000 jobs in the global market will be lost to AI in the next decade. Industries that employ a large percentage of minority communities, such as manufacturing, transportation, food preparation, agriculture, and retail, are expected to see the most significant changes.⁴

This demonstrates that AI policy is not only nuanced but is rapidly shifting and largely responds to changes in innovation. One solution that can adequately address AI's impact on communities of color comes from a surprising inspiration: President Franklin D. Roosevelt. During the worst depression in American history, FDR's New Deal contained economic and workplace strategies, such as the Works Progress programs and subsidized job training, that resurfaced a sunken economy. In the same sense, focused job training and STEM education are proactive approaches policymakers should consider when discussing AI's impact on communities of color. A New Deal targeting vulnerable workers in minority and aging communities can mitigate job loss from AI, reduce wealth inequality, and improve educational outcomes for communities of color. As a lawmaker in Tennessee, I have seen these approaches play out in my own city. As the second-largest city in Tennessee, Memphis' majority-Black population powers Fortune

TAKEAWAYS
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FOR PEOPLE
OF COLOR
IN THE
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In spite of these changes, Black Americans are still grossly underrepresented in the fields of AI engineering and automation development.

500 companies such as AutoZone, FedEx and Amazon. Over the past two decades, Shelby County and the city of Memphis have worked with industry partners to facilitate job training in tech and prepare the next generation of technology innovators. One nonprofit organization in Memphis, Tech901, offers low-cost training to adults seeking to migrate to various fields in tech. Tech901 has trained new workers in advanced information security, network management, and web development. Along with the work of dozens of partner organizations, and consistent local investment, Memphis is demonstrating an effective and scalable approach to assist in mass-training efforts and job-sector transfer.

While job training serves to prepare existing workers for changes in their industries, STEM education in secondary schools is a more proactive approach to mitigating AI disruption in communities of color. Shelby County has developed more than 40 STEM programs in its secondary schools, cultivating workplace partnerships ranging from large universities to the U.S. Federal Highway Administration to prepare its graduates for a shifting workforce. As the largest school system in the state, we've demonstrated the effectiveness of investing in a competitive workforce.

As a result, even the bleeding edge of AI has reflected the racial biases of its developers. Google Photos' facial recognition algorithms have infamously mischaracterized Black people as apes and mislabeled a Black hand holding an object as a pistol. In 2020, two Black men were arrested and held due to incorrect facial recognition technology some police departments use to identify unknown suspects.⁵ In the case of Robert Julian-Borchak Williams, the Michigan man wrongfully identified by the Detroit Police Department's AI technology, the wrong man was forcefully arrested, fingerprinted, and held in jail on felony larceny charges. A 2018 study by a researcher at the Massachusetts Institute of Technology's Media Lab found that the most advanced AI facial recognition programs properly identified white men 99 percent of the time, but Black women two-thirds of the time.⁶ Even the best AI systems suffer from algorithmic bias, the reflection of our own biases documented in code. As more police departments rely on AI to solve cases, airports use facial recognition to track passengers, human resources professionals rely on AI to sort applicants, and AI becomes more ingrained in our daily lives, the importance of unbiased algorithms becomes more apparent.

The solution, to invest in Black engineers, is already among some companies' priorities. According to Microsoft's 2019 Diversity and Inclusion Report, the number of African American/Black employees working for it in the United States rose by 17.3 percent over the previous year, including a 28.6 percent increase in "technical roles."⁷ Google has also set a goal to have 30 percent of its leadership teams made up of underrepresented minorities by 2025.

On a more abstract, yet frighteningly plausible level, biased AI has the ability to harm all of its users, regardless of their personal traits or even if they use the software. As we approach singularity, which mathematicians and computer scientists believe we'll see within the century, we'll be faced with a sentient and superintelligent being armed with immortality and infinite regeneration. When the time comes, humanity will benefit from a being that treats us better than we treat our neighbors.

When the time comes, humanity will benefit from a being that treats us better than we treat our neighbors.

- 1 Intuitive internal data. Da Vinci Systems, 2020. <https://www.davincisurgery.com/>.
- 2 "The macroeconomic impact of artificial intelligence," *Price Waterhouse Coopers*, February 2018. <https://www.pwc.co.uk/economic-services/assets/macroeconomic-impact-of-ai-technical-report-feb-18.pdf>.
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- 4 Manjeet Rege and Dan Yarmoluk, "Artificial Intelligence and Its Impact on Jobs," *University of St. Thomas*, 19 November 2020. <https://news.stthomas.edu/artificial-intelligence-and-its-impact-on-jobs/>.
- 5 Kashmir Hill, "Wrongfully Accused by an Algorithm," *New York Times*, 24 June 2020, <https://www.nytimes.com/2020/06/24/technology/facial-recognition-arrest.html>.
- 6 Steve Lohr, "Facial Recognition Is Accurate, if You're a White Guy," *New York Times*, 9 February 2018, <https://www.nytimes.com/2018/02/09/technology/facial-recognition-race-artificial-intelligence.html>.
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IN AN AUTONOMOUS WORLD

BY LUCA RAVERA

As governments and the private sector increasingly make use of AI, the pandemic has demonstrated technology's value to manufacturing (e.g., industrial robots), transportation (e.g., autonomous vehicles), finance, and health care. Of course, AI comes with its own "black box" aspects that pose unprecedented challenges for public policy and regulations. For instance, how should we define AI? Narrowly, such as machine learning, or broadly, to include general digitalization and automation? And how do we police it for the biases that humans inevitably embed into it? What to do about its potential for trickery, as in "deepfake" videos?

One of the main challenges this paper addresses is liability related to AI systems. Since even the best technology is not foolproof, domestic robots, self-driving cars, and other autonomous systems will inevitably cause harm to people or property. If we are to accept these new technologies, and foster innovation, we will need clear rules on liability. Currently, neither the European Union nor the United States has a specific civil liability regime for AI.

CIVIL LIABILITY

CIVIL LIABILITY IN AN AUTONOMOUS WORLD

PRODUCT LIABILITY

The first and most common legal basis for AI is considered to be product liability. In the EU, the general framework on the liability of the producer of a defective product is the Product Liability Directive 85/374/EEC (PLD). According to the PLD system of liability, the liability of a producer is triggered not by the fault of the producer, but by a product defect. Member states' legislation applies on both liability and victims' damage calculations.

In the United States, there is no uniform federal product liability statute or common law. Each state defines product liability law under its own standards. However, product liability claims are generally brought under the scope of strict liability, tort (negligence or fraud), and warranty.

While product liability has a well-developed case law, and PLD is perceived as a fair legal instrument, in the context of AI, there are several limitations to its application:

1

Are software and machine learning algorithms products?

2

In the long production chain, who is the final liable producer?

3

What is a real AI product defect? Normally in PLD, the determination of a defect is linked to the level of safety that consumers are entitled to expect. With AI, it would become increasingly difficult for consumers and courts to establish an expected level of safety. In particular, should cyberattacks be considered an external factor, or should the product be built to counter them effectively?

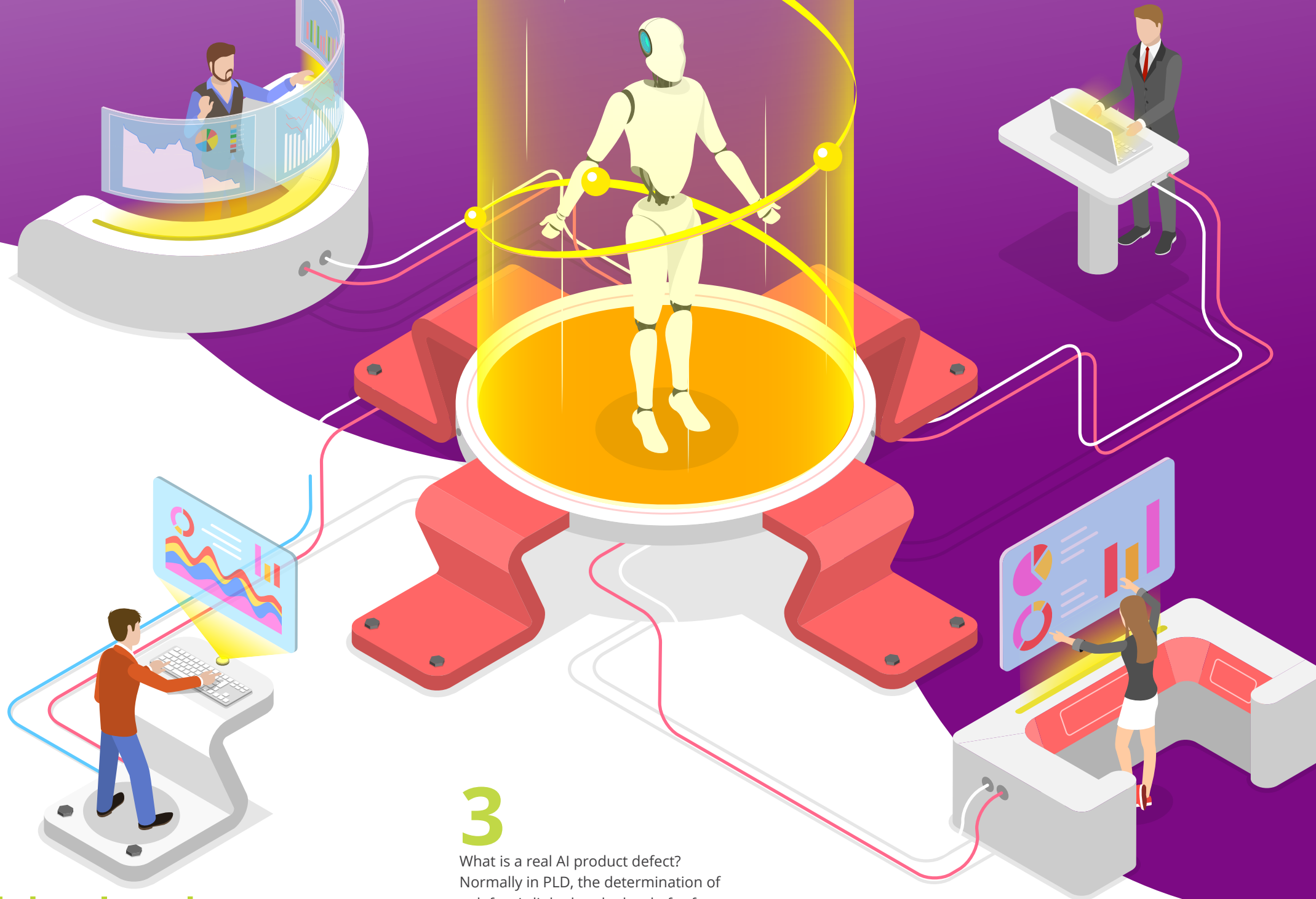
4

What is loss? Should damage to personal data or privacy be included in product liability?

5

How should the development risk clause be interpreted? A producer may argue that, at the time when the product entered into circulation, the state of scientific and technical knowledge was not such as to enable the discovery of a defect. Given the technologically complex nature of AI, this clause may be used increasingly to limit producer liability.

CURRENT PRODUCT LIABILITY LAWS WERE DESIGNED FOR A WORLD IN WHICH GOODS WERE RELATIVELY SIMPLE PHYSICAL ITEMS THAT DIDN'T CHANGE MUCH ONCE THEY LEFT THE FACTORY. AI IS STRETCHING THESE BOUNDARIES, AND A MERE APPLICATION OF PRODUCT LIABILITY PRINCIPLES WOULD PROVIDE AN INSUFFICIENT LEVEL OF PROTECTION.



CIVIL LIABILITY IN AN AUTONOMOUS WORLD

CONTRACTUAL LIABILITY

In civil law, damages can be recovered based on two broad categories of obligations: contractual and noncontractual. A contract concluded among parties can therefore stipulate the distribution of specific obligations, risks, and damages. Accordingly, contractual liability and recovery of damages are based on the terms of contract and applicable jurisdictional clauses.

Contracts related to AI technology will likely become very complex. They need to clearly define each party's responsibilities, while consumer-facing documentation must clearly enumerate a product's intended uses, explain how to use it, and provide relevant warnings. Lawyers will be busy helping businesses appropriately manage their risk, and SMEs might struggle in this new legal jungle.

Moreover, not all obligations and risks can be covered by a contract. Noncontractual liability comes into play when someone is responsible for damages caused to a third party by actions not covered by any provisions agreed between the contracting parties.

NONCONTRACTUAL LIABILITY

Noncontractual liability is based on the distinct concepts of fault and strict liability.

Fault-based liability is the central pillar of the liability system and it requires the establishment of a fault of a party, damage, and a causal link between fault and damage. On the other hand, strict liability does not require any specific fault; to recover damages, the claimant need only prove that the tort occurred and that the defendant was responsible. This kind of liability holds the defendant responsible for not safeguarding against a specific risk rather than for taking any specific action.

Product liability law, as discussed above, is strict liability. Noncontractual liability legislation is made at the state level both in the EU and United States. It can establish strict liability for a limited and carefully defined set of situations where there is significant risk of damage, such as high-risk activities or animal-related externalities.

In the context of AI, it is necessary to distinguish between low- and high-risk activities. High-risk AI systems should be subject to a strict liability regime. Other, low-risk AI systems should remain subject to fault-based liability. This approach is in line with the European Commission recommendations and the European Parliament (EP) resolution on civil law rules on robotics, which states that a future EU legislative approach on liability should be based on detailed analysis "determining whether the strict liability or the risk management approach should be applied."¹

The strict liability approach would help the injured party, since it requires proof only that damage has occurred, and that a causal link existed between the AI action and the injury. A risk management approach would, on the other hand, find liable the person who would have been able to minimize the risk, who is not necessarily the person who acted negligently.

1

Only damage to life, health, physical integrity, or property should be covered.

2

Claims of force majeure do not excuse the defendant/plaintiff from meeting the burden of proof.

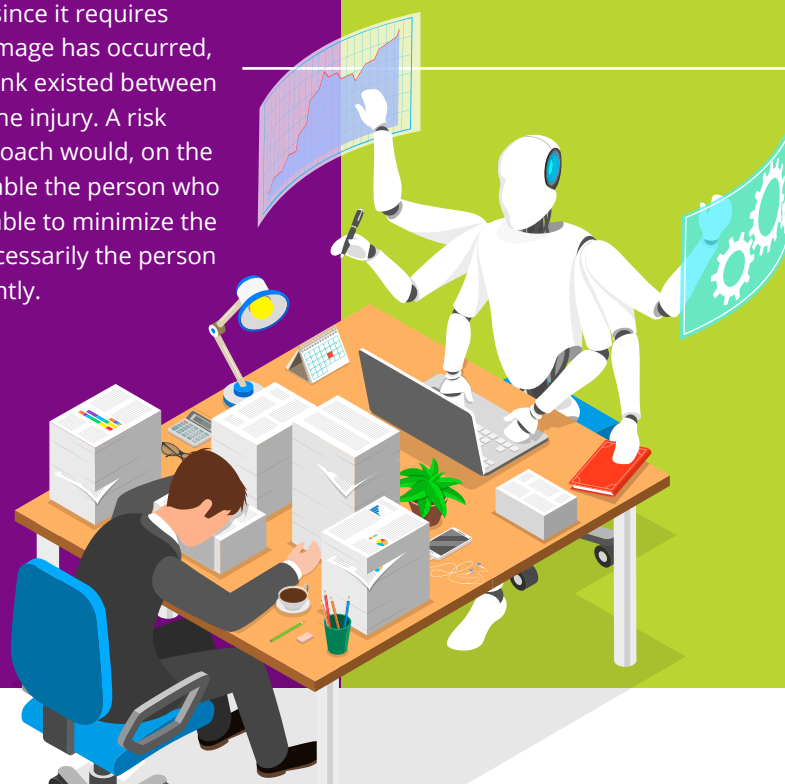
At the EU level, the EP has taken concrete actions and drafted legislative text for a regulation on liability for the operation of AI systems. The main items suggested in the proposed regulation follow the principles of strict liability and risk approach described above. They are as follows:

3

The deployer of a high-risk AI system must have liability insurance with adequate coverage.

4

A deployer of a high- or low-risk AI system cannot escape liability on the grounds that harm was caused by an autonomous activity, device, or AI system-driven process. There are exceptions to this rule, such as lack of due diligence by the user, or AI system activation without knowledge of the deployer.



CIVIL LIABILITY IN AN AUTONOMOUS WORLD

CHALLENGES AND RECOMMENDATIONS

This paper has analyzed different kinds of liability. All are somehow ineffective in regulating AI. Contractual liability provides significant protection to contractual parties, but it does not cover damages to third parties. Plus, a contract cannot foresee limitless types of offenses or damages. Product liability is a decent instrument, but it cannot provide sufficient protection, especially against new risks not covered by EU law or state law.

Product liability should be adapted to address these issues. Moreover, it could be integrated into compulsory insurance, such as for motor vehicles, to cover potential damages caused to a third party. Compulsory insurance and an accompanying insurance fund could help ensure that in certain situations covered by law, damages would be recoverable in instances of harm to a third party as the result of an AI.

Noncontractual liability regulates all of the situations not covered by the previous two liabilities, an umbrella under which most cases probably fall, and the EU is moving ahead with AI and product liability regulation at a European level.

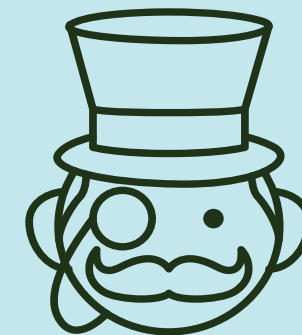
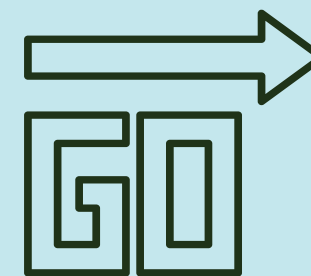
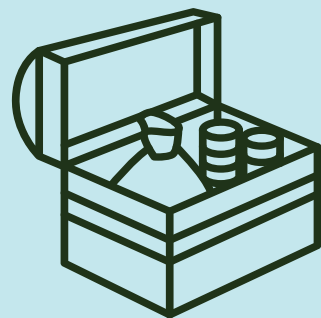
But the EU still needs a uniform European liability framework for AI systems that is based on risk level. Currently, there are many liability regimes across countries and sectors with different degrees of responsibility, making it nearly impossible to reconcile them all. It is not a given, though, that member states would readily accept an EU regulatory intervention on the matter.

**MOREOVER, VARIOUS SECTORS
WILL REQUIRE VARIOUS
APPROACHES TO LIABILITY.
THAT WOULD LEAD TO SECTORAL
REGULATION, RATHER THAN A
HOLISTIC FRAMEWORK.
THIS APPROACH HAS BEEN
TAKEN BY SOME U.S. STATES,
WHICH REGULATE THE
LIABILITY OF AUTONOMOUS
CAR MANUFACTURERS.**

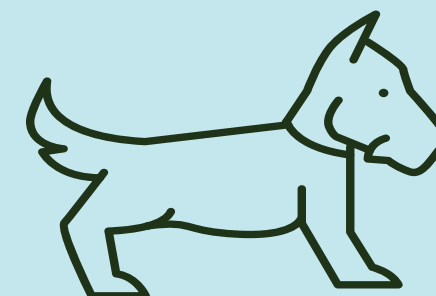
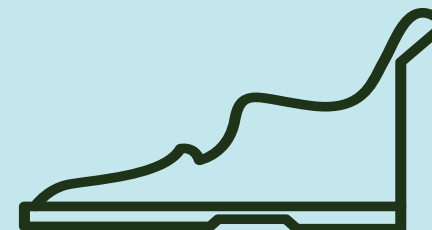
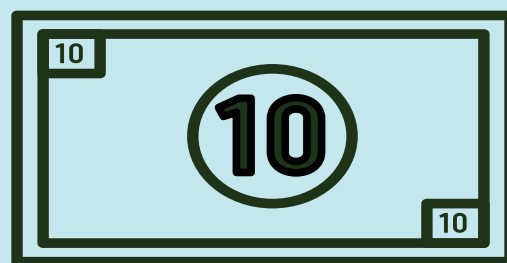
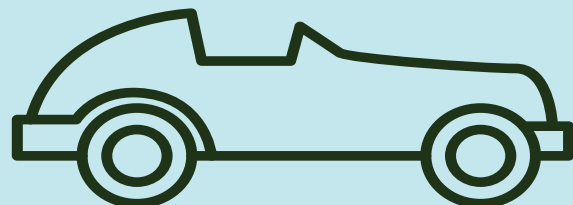
¹ European Parliament resolution of 16 February 2017 with recommendations to the Commission on Civil Law Rules on Robotics (2015/2103(INL)). Official Journal of the European Union, p. 251, point 53. Available here: < <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52017IP0051&rid=7> >.

Finally, the EP report attempts to establish certain financial compensation standards. In the event of death or harm to a person's health or physical integrity, the current maximum award is 10 million euros. The current maximum for property damage is 2 million euros. However, considering the potential severity and magnitude of damages that could result from AI systems, as well as the number of parties involved, these limits may be insufficient in many cases.

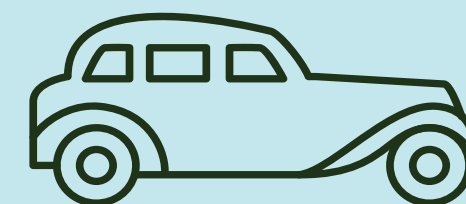
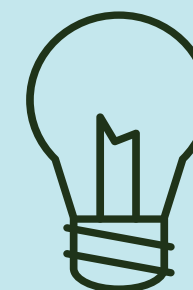
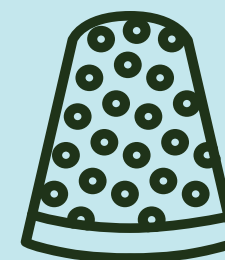
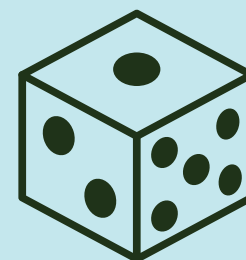
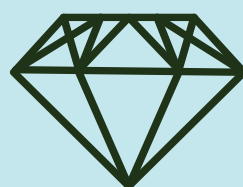
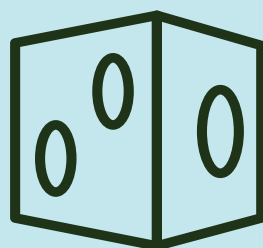
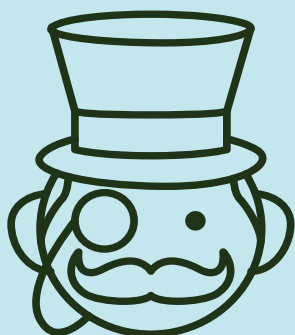
The EU seeks to be a pioneer in establishing an appropriate legal framework to cope with the legal challenges created by the new digital world. It remains to be seen which aspects of digitalization such legislation will cover and when such framework will be implemented into national legislation by the EU member states.



WHAT IF GOOGLE WERE BELGIAN?

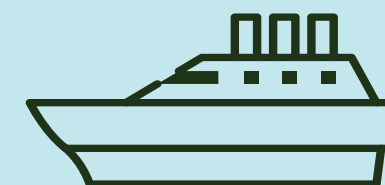
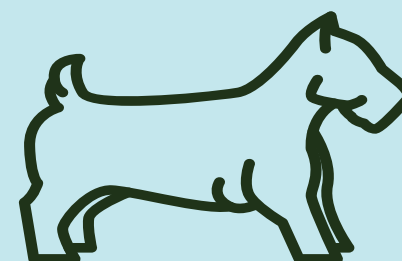
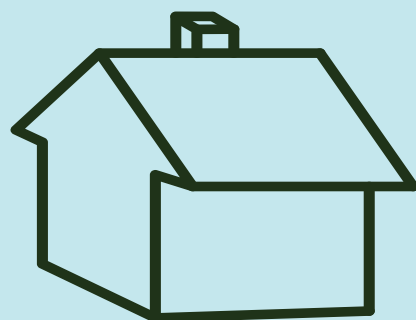
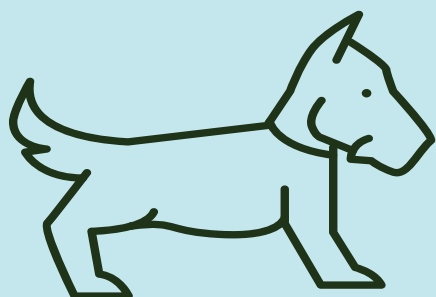


EUROPE'S SHORTSIGHTED

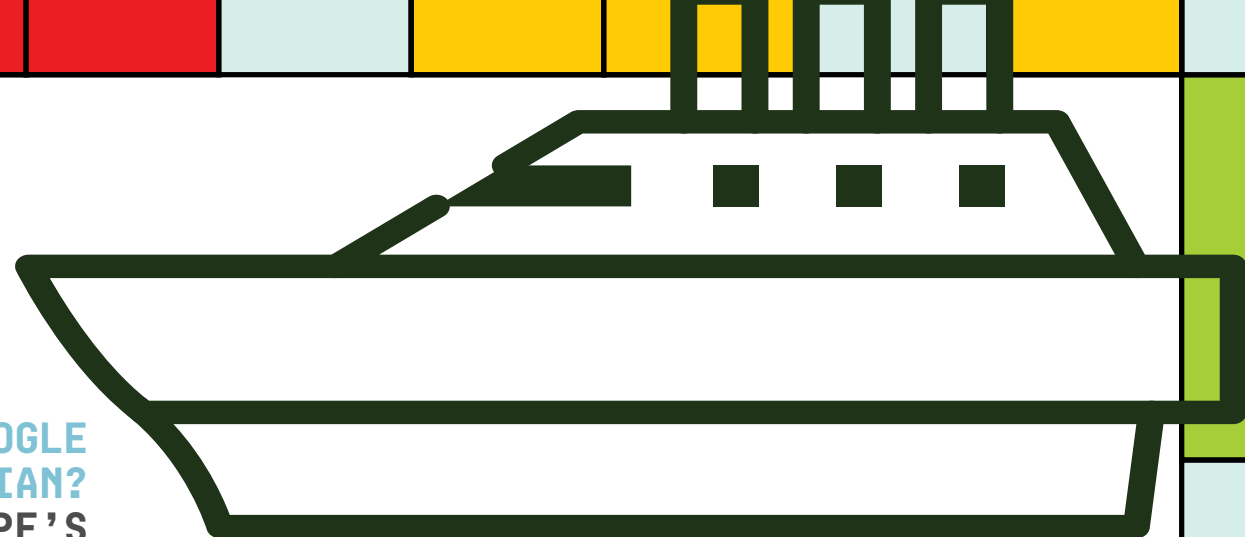
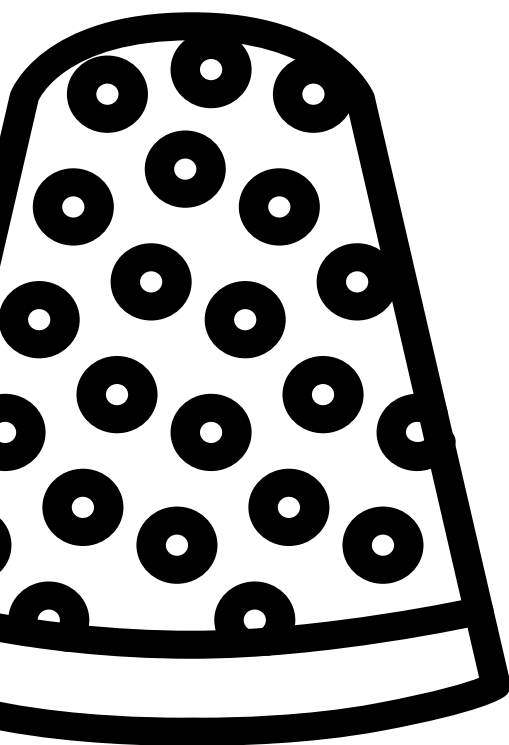


DREAM OF DIGITAL SOVEREIGNTY

BY JOHANNES JAENICKE



WHAT IF GOOGLE WERE BELGIAN? EUROPE'S SHORT- SIGHTED DREAM OF DIGITAL SOVEREIGNTY



EU leaders should stop framing the digital transition as a geopolitical race and instead strengthen the powers of the Common Market to enforce competition and innovation

The last few years have been a boon for advocates of a more autonomous and self-sufficient European Union. Trump's "America First" agenda, Brexit, and, most recently, COVID-19 have fuelled discussions about military capacities, secure sourcing of medical supplies and raw materials, and also about home-grown digital capabilities. In this context, the launch of the EU Commission's digital and AI strategies in February 2020 appears to have inspired strong feelings of pathos with EU policymakers, exemplified by this brief excerpt from the European Council's October 2020 Conclusions on digital policy:

Seizing the opportunities of this [digital] transition is crucial to strengthening our economic base, ensuring our **TECHNOLOGICAL SOVEREIGNTY**, reinforcing our **GLOBAL COMPETITIVENESS**...To be **DIGITALLY SOVEREIGN**, the EU must...make **AUTONOMOUS TECHNOLOGICAL CHOICES** and **DEVELOP AND DEPLOY STRATEGIC DIGITAL CAPACITIES AND INFRASTRUCTURE**.

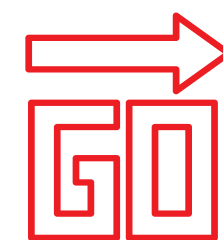
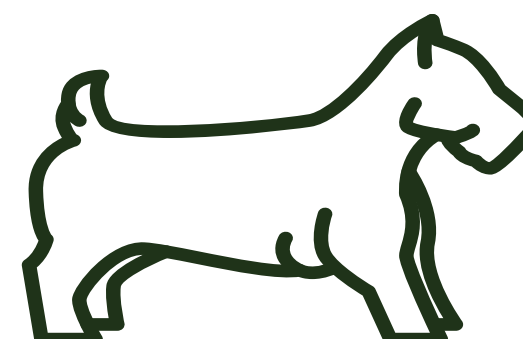
Big words! But what do they mean in practice? For many European policymakers, this digital doctrine implies that the utility from digital technology is no longer measured solely in quality, price, and societal benefit, but from now on will also take into account the origin of its producer.

In the eyes of Europe's "strategic autonomists," technological sovereignty is the answer to the challenges of an increasingly polarized world in which the enforcement of international rules is breaking down. They dream of European Googles, homemade tech giants that can hold their own against American or Chinese market leaders and that can develop the services and solutions, which currently have to be acquired abroad.

Unfortunately for EU policymakers, global tech giants are rather hard to build. Indeed, the dominance of predominantly U.S. players in EU digital markets leaves little room for smaller EU competitors to catch up. To solve this conundrum, strategic autonomists look to the state for

help. A favoured solution is to use regulatory tools and public funds to create European champions by combining existing businesses and to prop them up with money and government contracts, using the Airbus playbook. For this to work, they call for the Common Market's state aid, antitrust, and competition rules to be "tweaked" — a euphemism for "weakened".

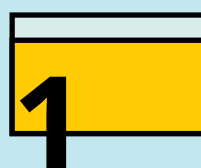
Writing recently in the Financial Times, Nicolas Petit, a former competition authority judge and a member of a European Commission expert group on artificial intelligence, argued the case for the autonomist, claiming that "in digital industries, economic concentration usually reflects innovation and dynamic efficacy and efficiency, not monopoly," and urging Europe to abandon "its obsession with small is beautiful." Surprising words from an antitrust professional and a high-ranking adviser to EU policymakers! However, they reflect the latest thinking in many EU governments, including France, Italy, Poland, and — somewhat surprisingly given the structure of its economy — Germany. Indeed, many EU leaders appear to consider the digital transition predominantly as a geopolitical challenge in a race for global dominance.



WHAT IF GOOGLE WERE BELGIAN? EUROPE'S SHORT- SIGHTED DREAM OF DIGITAL SOVEREIGNTY

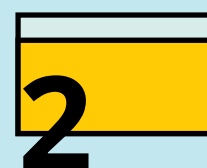
Do not mix up what should be considered separately

This embrace of technological sovereignty is dangerous, shortsighted, and intellectually lazy. It sounds compelling because it weaves together various economic concepts and strategic challenges into an oversimplified framework of international relations. In calling for state-supported European champions, policymakers fail to recognize the heterogeneity of the EU economy and overlook the implications for domestic competition and consumer welfare. However, to understand the challenges of EU digital policy, the narrative should be untangled into its main dimensions, of which four will be put forward here.



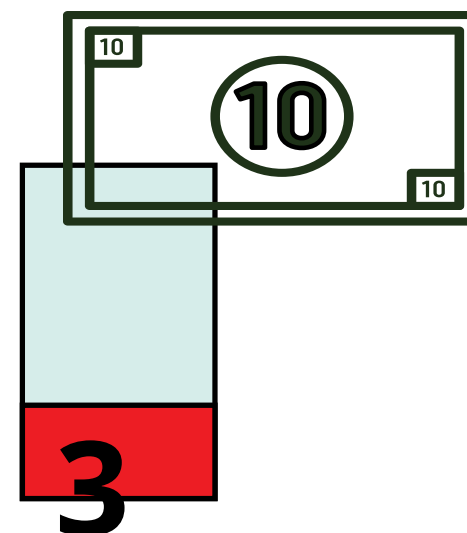
Technological capabilities for strategic and military purposes

It cannot be denied that in an open conflict with the United States or China, the EU would be put at a strategic disadvantage by its relative lack of technological capabilities. But given how unlikely that scenario is, it would be dangerous to let concerns about military readiness dictate changes to the EU's economic model or industrial structure. After all, national governments and their militaries have many options to procure the necessary military capabilities, including from their allies.



Data sovereignty

Concerns about the ability of EU countries to ensure the integrity and security of their citizens' and businesses' data are valid in the geopolitical realities of this day and age. The U.S. CLOUD Act grants the U.S. government access to data stored by U.S.-owned companies in the EU, in a clear conflict with the EU GDPR. Nonetheless, it seems disproportionate and economically inefficient to completely replicate digital capabilities when domestic legislation and international agreements can credibly address data-sovereignty concerns — and when European lawmakers can dangle access to their huge domestic market as leverage in those negotiations.



International competitiveness of EU firms

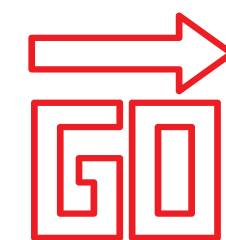
Strategic autonomists also bemoan Europe's tech companies' lack of competitiveness in the global market, especially compared to U.S. or Chinese firms. This concern is not new or unique to the tech sector (remember Siemens-Alstom?), and it usually leads to calls to weaken antitrust rules and to let EU businesses merge to gain size and global leverage. But in a market economy like the EU's, it is not the job of governments to actively contribute to form international champions. As in any other industry, digital champions emerge because they offer innovative and desired products and services at attractive prices. EU policy should focus instead on helping its companies become more competitive by creating the conditions in which they can grow, for example by fighting a patchwork of national digital regulations in EU countries, eliminating barriers for cross-border research, and facilitating an EU-wide capital market.



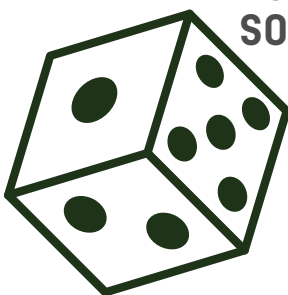
Competitiveness and consumer choice within the EU digital markets

The fourth dimension poses the toughest domestic challenge for EU policymakers, businesses, and citizens, yet, unfortunately, it is the one of least concern to strategic autonomists. Oligopolistic market structures tend to emerge quickly in digital markets, due to economies of scale and network effects inherent especially in data-driven business models. The balance of power has increasingly tilted towards tech oligopolists in their relationships with suppliers, customers — and regulators. It is clear that there are many problems with U.S. tech giants in the EU market — only that their nationality is not one of them.

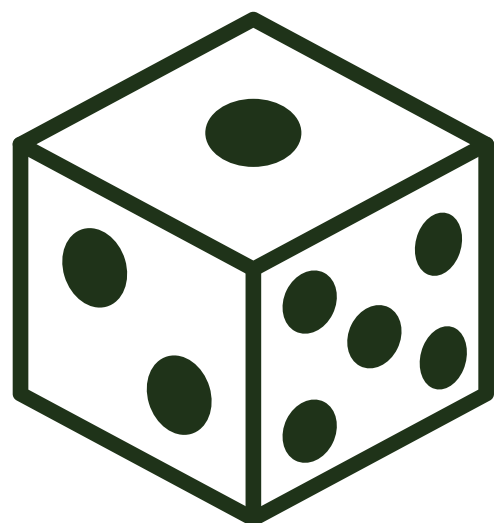
Let us imagine that Google, Facebook, Amazon, or Microsoft were Belgian companies. What would change from the EU consumers' standpoint? Not much. Sure, taxes would probably be easier to collect if the global holding companies were based on EU soil (even though there are still plenty of tax havens to be found here), and problems of extraterritorial access to data (see Point 2) would be lessened. Aside from that, at least some dominant actors would still use their position and ability to aggregate data to build barriers to entry, to form horizontal and vertical oligopolies (or even, in fact, monopolies) at the expense of their customers and society. It is high time for strategic autonomists to understand that these issues are caused by the weakness of rules that are meant to protect competitive markets, rather than by the national flag of tech oligopolists.



WHAT IF GOOGLE WERE BELGIAN? EUROPE'S SHORT- SIGHTED DREAM OF DIGITAL SOVEREIGNTY



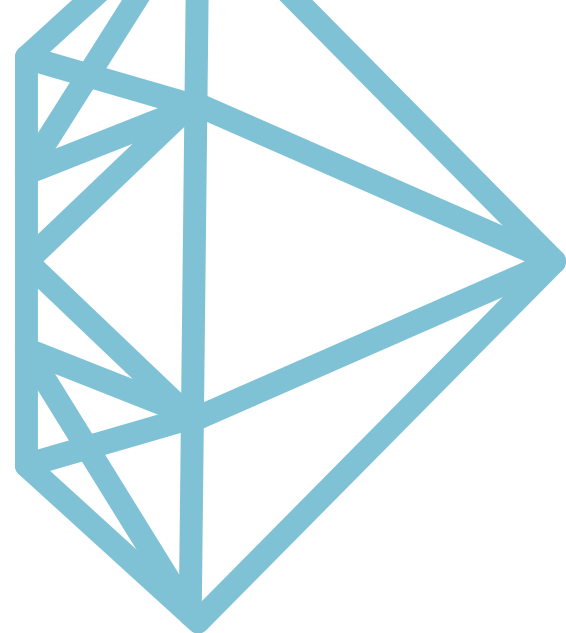
Since the introduction of the GDPR, EU officials have been working on extending regulations beyond personal data to apply to facilitate the data sharing of public and business-owned data. In December 2020, the commission introduced the Data Governance Act (DGA), aimed at clarifying conditions under which public-body data, which is subject to third-party rights, can be reused and shared. In addition, in 2021, a new law is expected to clarify rights and obligations in business-to-business data sharing, including provisions for international data sharing.



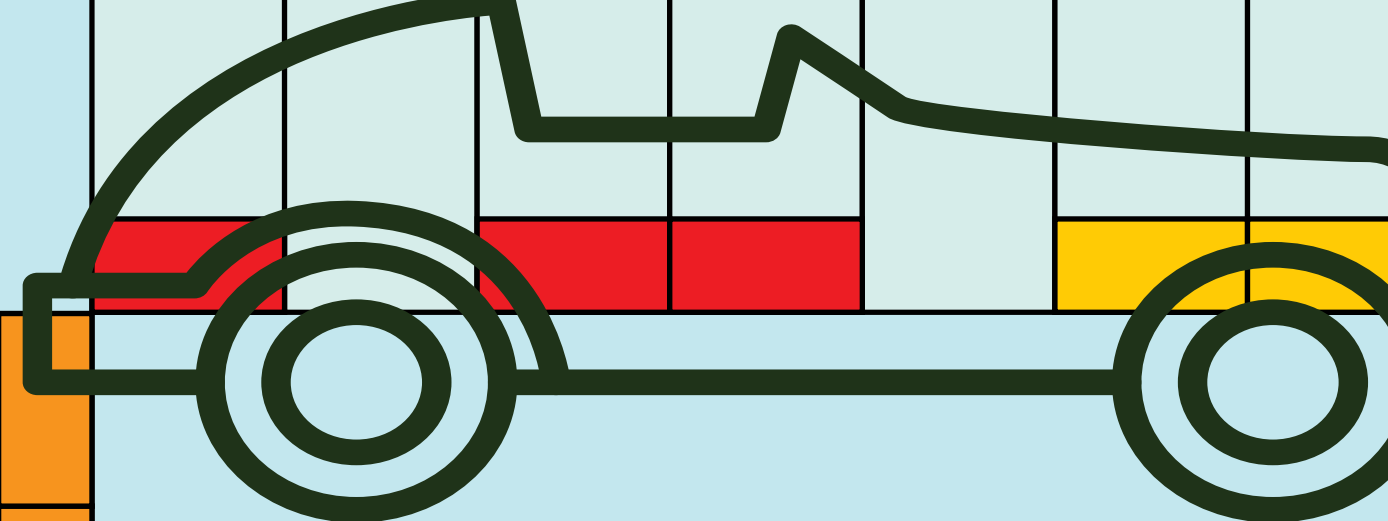
Luckily, the Commission has not acceded to the grumblings of the strategic autonomists and refrained from gearing the regulations toward the vision of European champions. Instead, it appears to have prioritised the power imbalances in data-driven markets. The proposed DGA, for example, explicitly prohibits exclusive arrangements between individual firms and public bodies on the reuse of public data. Most importantly, the proposed Digital Market Act defines very large tech platforms as “gatekeepers” and acknowledges the danger of platforms “combining end user data from different sources or signing in users to different services” to give them “potential advantages in terms of accumulation of data, thereby raising barriers to entry.” The legislation would require these gatekeepers to lower barriers to entry, including by allowing business users and potential competitors access to data and ensuring that consumers can switch providers and take their data with them.

The EU Commission's response

The European Commission embarked on some important legal initiatives in 2020, with much more to follow in 2021. After releasing its data strategy and white paper on artificial intelligence in February, the Commission focused new legislative proposals on mechanisms of data sharing and processing, but it is taking its time to propose rules on AI applications. That makes sense, given that — as far as the ‘digital value chain’ is concerned — data is the core input into machine learning, algorithmic decision-making processes and therefore the development of AI. Indeed, it is easy to imagine that oligopolies in data markets could perpetuate themselves into the emerging market for AI applications.



digital



The recent Commission proposals could help overcome inadequacies in current horizontal and vertical competition rules in the digital sector, which overwhelmingly rely on slow and ineffective after-the-fact assessments. It is crucial that they survive the legislative process in the EU over the next year or two, as lobbying and opposition from strategic autonomists and large tech firms alike will be intense. Policymakers must not fall for the oversimplified idea of “technological sovereignty” but instead see the challenges of EU digital policy as a nuanced interplay of domestic and international priorities.

In this interplay, geopolitics should not overrule the functioning of the Common Market. If it does, the EU's international advantage of a coherent market of 450 million citizens will be permanently lost. In the digital context, access to data markets for small actors like startups and researchers is essential to foster disruptive ideas and allow new players to emerge. After all, a company should become a European champion because it offers superior value to consumers, not because of state support schemes. And when such champions emerge, competition rules should apply — whether the firm is American or Belgian.

**Untangling
Personalization,
Polarization, Privacy,
and the Filter
Bubble Theory**
by Leif-Nissen Lundbaek
68

**AI and the New
Civil Rights Movement**
by State Delegate
Lashrecse Aird
68

**Preserving the Status
Quo Is Not Good Enough:
Why Germany Needs
More Women In AI**
by Louisa Well
74

SOCIETY

FEW ACTIVISTS GET TO BE QUOTED, EVEN INDIRECTLY, BY A U.S. PRESIDENT, BUT ELI PARISER IS ONE OF THEM. AN AUTHOR, ACTIVIST, AND ENTREPRENEUR, PARISER COINED THE TERM "FILTER BUBBLING" IN 2010, GAVE A VIRAL TED TALK IN 2011, AND WROTE "THE FILTER BUBBLE," WHICH BECAME A NEW YORK TIMES BESTSELLER.

Pariser argues that personalized search results and content recommendations made by social media algorithms ensure that people read only political opinions they agree with, resulting in entrenched views that are constantly validated and rarely opposed.¹ The result is polarized worldviews that are helping to endanger democracy.

But even though this argument has gained currency in the last decade, the more it is researched, the less it holds up. A more complicated and complex question is: What roles do search engines and social media play in our democracies?

UNTANGLING

PERSONALIZATION,
POLARIZATION, PRIVACY,
AND THE FILTER
BUBBLE THEORY

BY LEIF-NISSEN LUNDBAEK

СРЕДИ ЭТОЙ СМЕРТНОЙ ЛЮБВИ.

UNTANGLING
PERSONALIZATION,
POLARIZATION,
PRIVACY, AND THE
FILTER BUBBLE
THEORY

*“For too many of us,
it’s become safer to retreat into our own bubbles,
whether in our neighborhoods...work...
or especially our social media feeds.”*

Farewell speech of Barack Obama, January 10, 2017²

THE FILTER BUBBLE
ARGUMENT: PATTERN
MATCHING TO MAXIMIZE
USER ENGAGEMENT

Pariser described algorithms as the new gatekeepers that decide which information we see. To maximize user engagement, many sites will personalize for you wherever possible. Shopping websites show you personalized recommendations based on your past behavior so you stay longer on their pages, buy more, and even return more frequently. To make these predictions, these sites use “pattern matching,” tracking what you and other people who liked similar things have bought or looked at, then analyzing this data to find patterns.

Pariser applied the concept of personalization based on pattern matching to search engines and social media sites, with user engagement as the main currency on the latter sites. Personalized recommendations — either by search engines or by social media sites — maximize user interaction and, therefore, make financial sense for the companies whose business model is mainly based on advertising. The downside for the users may be that these personalized recommendations will only confirm narrower and narrower worldviews for people, cocooning them in comfortable bubbles, making it more difficult to interact with people with different political, religious, and social outlooks. All this is done by algorithms that are not transparent to the user, Pariser noted, so that people outside of the respective tech companies have no chance of understanding these algorithms, let alone controlling them.

“A world constructed from the familiar is a world in which there’s nothing to learn,” Pariser writes. He laments that “personalization filters serve up a kind of invisible autopropaganda, indoctrinating us with our own ideas.”³

Pariser offered a personal example, in which two of his friends searched for “BP” on Google. In their top results, one friend received information about the 2010 Deepwater Horizon spill (when an estimated 4.9 million barrels of oil gushed from a well into the Gulf of Mexico, 11 workers died, and uncountable marine life perished) and the other got results for investment opportunities. Personalization and polarization: What does the research say?

The idea of a filter bubble has gained a lot of traction because it sounds plausible and a lot of people can relate to it. In addition, it is a real problem that outsiders lack knowledge about the algorithms tech companies use to decide what is shown to users and what is not.

However, recent studies paint a slightly different picture. Researchers at the Reuters Institute for the Study of Journalism concluded that people “who find news via search engines (i) on average use more sources of online news, (ii) are more likely to use both left-leaning and right-leaning online news sources, and (iii) have more balanced news repertoires in terms of using similar numbers of left-leaning and right-leaning sources.”⁴

Another study from the same researchers conducted in 2017 found similar results for social media sites. People who use social media “are incidentally exposed to news whilst they’re there and this boosts the amount of news that people use compared to the group that doesn’t use social media at all. So the group that does use social media uses more and more different online news sources.”⁵

PUT IN THE TRASH

DONT THINK

DONT

PAY

NOTE

FOR

YOUR

SELF

UNTANGLING PERSONALIZATION, POLARIZATION, PRIVACY, AND THE FILTER BUBBLE THEORY

CONTEXT MATTERS

The idea of the so-called “filter bubble” should be reevaluated.

It is clear that people all over the world believe that societies are becoming more divided, but even though it plays an important role, technology cannot be the lone driver of polarization.⁶ The issue is far more complex, and exists within cognitive, societal, and political contexts. We need to examine our communities, politicians, and other public figures online and offline to develop a more coherent picture of contemporary polarization. Keeping these factors in mind, we can analyze social media communication with a fresh perspective.

Besides recommendation algorithms, social media, unlike search engines, relies heavily on community engagement. Social media sites live and die because of people interacting on them with other people, (re)sharing content and likes. We tend to share information that we care about — in a positive and negative sense — and that we know will get attention from other people using these networks.

And sometimes the way our brain works plays a trick on us. For example, according to the concept of “negativity bias,” explored by psychologists Daniel Kahneman and Amos Tversky and others, people consistently weigh the negative aspects of a stimulus more heavily than the positive aspects.⁷ What has been a major factor in our evolution leads to problems in modern communication because we are more prone to react to (and share) stimuli that arouse negative emotions in us, such as disgust.

A study funded by Twitter in 2018 found that “fake news” travelled six times faster than accurate news and that the main distributors were not bots but humans.⁸ Researchers noted that the fast-moving, false stories more frequently evoked negative reactions and surprise in the comments of a random sample of Twitter users. “Fake news” is often more novel, and people who share it gain attention because they’re sometimes the first to do so. Thus, “people who share novel information are seen as being in the know.”⁹ Social media technology therefore gives people the ability to share stories that spark outrage and to communicate misinformation instantly, giving rise to unfounded conspiracies like QAnon.

Add to this the second layer of privacy issues. Depending on your interactions, engagements, the groups you join, and other factors on social media, companies can use your data and profiles to make massive amounts of money by selling microtargeted ads. That gives social media companies and third parties an incentive to keep you longer and more engaged on their platforms and to collect more and more of your personal data so that they make even more money. Consider, for example, the Cambridge Analytica/AggregateIQ data scandal, in which a third company harvested the personal data of millions of Facebook users to exploit it for political advertising, aiming to manipulate voting behavior on a wide scale leading to outcomes such as Brexit. The massive scale of this attack on democracy through irresponsible tech companies is explained in a famous TED talk by the British journalist Carole Cadwalladr, who helped to uncover the connection between the Brexit Leave campaign, Cambridge Analytica, and Facebook.¹⁰

UNTANGLING PERSONALIZATION, POLARIZATION, PRIVACY, AND THE FILTER BUBBLE THEORY

ETHICAL DEVELOPMENT OF TECHNOLOGY

Combined, these proclivities of tech companies and their users mean that tech companies have a responsibility to try to anticipate and prepare for the harm their algorithms might cause and to explore the potential for exploitation they're creating. Companies also have a responsibility to act as soon as they realize that there might be a problem — not only when they're pressured by society and lawmakers to do so.

High-profile reassurances by companies such as Twitter and Facebook are a small step in the right direction, but they need to be accompanied by actual changes in behavior and more transparency into the platforms' actions and algorithms. To quote Pariser, "We need you to give us some control so that we can decide what gets through and what doesn't."¹¹

These questions will not get any easier. We don't even know what the next technology to fundamentally reshape our social relations will be. Society in general — and lawmakers in particular — must demand foresight and proactivity from the tech companies carving the way into the future. As the past has shown, many companies will not change unless pressed to do so. Therefore, policymakers should adopt a two-way strategy: first, enact strict regulations requiring more transparency into the algorithms tech companies use; and second, reward businesses that act responsibly (for example, by encouraging the development of privacy-protecting technologies) so that these companies create pressure from within the market itself. Lawmakers must act now.

**OUR DEMOCRACIES
DEPEND ON IT.**

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- 3 *Supra*.
- 4 Richard Fletcher and Rasmus Kleis Nielsen. "Automated Serendipity: the effect of using search engines on news repertoire balance and diversity." *Digital Journalism*. Volume 6, 2018, pp. 976-989. <https://www.tandfonline.com/doi/full/10.1080/21670811.2018.1502045>.
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- 7 Daniel Kahneman and Amos Tversky. "Choices, values, and frames." *American Psychologist*. 1984. Volume 39, pp. 341-350.
- 8 Peter Dizikes. "Study: On Twitter, false news travels faster than true stories." *MIT News*. 8 March 2018. <https://news.mit.edu/2018/study-twitter-false-news-travels-faster-true-stories-0308>.
- 9 *Supra*.
- 10 Carole Cadwalladr. "Facebook's role in Brexit — and the threat to democracy." TED Talk. 2019. https://www.ted.com/talks/carole_cadwalladr_facebook_s_role_in_brexit_and_the_threat_to_democracy/transcript?language=de.
- 11 Eli Pariser 2011: Beware of online 'filter bubbles'. TED Talk. https://www.ted.com/talks/eli_pariser_beware_online_filter_bubbles/transcript?language=en#t-513370.

Smoke billowing into the street from buildings set ablaze, thousands of mask-covered figures chanting in protest as they head toward an immovable police line. **IN A SUPERFICIAL WAY, THE RACIAL-JUSTICE DEMONSTRATIONS IN THE SUMMER OF 2020 ECHOED THE CIVIL UNREST OF THE 1960S. BUT IN MOST RESPECTS, THEY WERE UNIQUE TO THE MOMENT.** Thanks to protesters fed up with an unending string of deaths of Black people at the hands of the police, a bungled response to the pandemic, and the blatant racism and white supremacy still rooted in our institutions, 2020 will be remembered as the year Americans erupted with fury and demands for more.

AI AND
THE NEW

CIVIL RIGHTS
MOVEMENT

by State Delegate Lashrecse Aird

AI AND THE NEW CIVIL RIGHTS MOVEMENT

Their forebearers in the civil rights movement of the 1950s and 1960s had used peaceful and violent protest and the courts to dismantle Jim Crow segregation, but time has shown how incomplete their victories were and how many of the same fights remain. The intentional exclusion and oppression of people of color continue to permeate every system of government and our public and private institutions. Despite our best efforts, our society is rife with predatory practices that leave minorities with less access to jobs, a good education, and decent health care. **AND NOW, AS WE ACCELERATE TOWARD A DIGITAL ERA IN THE 21ST CENTURY, A MORE INSIDIOUS AND POSSIBLY MORE DANGEROUS SYSTEM IS BEING QUIETLY BUILT RIGHT BEFORE US. THE RAPID GROWTH OF ARTIFICIAL INTELLIGENCE AND ALGORITHMIC DECISION MAKING SYSTEMS IN TECH DESIGNS ARE PERPETUATING MANY OF THE SAME BIASES THAT HAVE LONG PLAGUED MINORITY COMMUNITIES.**

CIVIL RIGHTS MOVEMENT

This more subtle form of discrimination is buried deep within algorithms and codes, helping to obscure the racial outcomes that it promotes. While technology companies commit to building solutions to societal problems with predictive and personalized programming, the developers entrusted with this work are engineering automated inequities and reinforcing existing disparities. As more of our day-to-day tasks come to involve AI in some way, we must deliberately and urgently reimagine these technological systems if we are to finally break the perpetual cycle of overwhelming cultural unfairness.

Other countries are well ahead of the United States in developing ethical guidelines for the trade-offs we will undoubtedly make as we hand more processes over to intelligent machines. A framework that gives due attention to technology's societal impact puts the citizenry first and emphasizes accountability. For example, recent research and white papers show that the European Commission and European Parliament are developing their framework with an eye to building societal trust and safeguarding the fundamental values of human dignity and the right to privacy. Though the EU has its own share of racial challenges to overcome, the Europeans have established a model to follow as the United States and others adopt their own governing infrastructures.

Specifically, the European Parliament has developed an expert working group on AI, investing billions in research in public and private organizations. In a recent white paper, the European Union's Ethics of Algorithms project recommended an urgent push for new regulations but also possibly revising existing laws. So far, this project has produced policies and proposals that address fair working conditions, rights and social protections for platform workers, AI in education, gender inequality in STEM, civil rules for businesses operating online, AI in criminal justice matters, intellectual property rights in the development of AI technologies, and more.

The European scope of regulatory development assesses societal impact. It also has developed a risk matrix for potential harm toward citizens, including considerations about who overrules errant or harmful AI systems. Furthermore, they established a legal oversight mechanism from the onset that clarifies liability rules to reduce uncertainties.

The public interest is at the foundation of European regulators' long- and short-term goals. Every country that seeks to build out its own framework must also start by identifying its core values. As the United States builds its own set of standards, through federal and state regulations, finding consensus on its true values will be its greatest test.

While not an anomaly, the United States is a nation on edge, with trust in its leaders severely shaken. An open and honest assessment of its values, and its failure to apply them to all of its citizens equally, must inform its own ethical framework and protections before any regulations are written. Few states have embarked upon meaningful policy development in the areas of AI, and federal efforts to do so have been limited to recommendations from commissions and failed legislation.

AI AND THE NEW CIVIL RIGHTS MOVEMENT

AI technologies, marketers tell us, make our lives simpler and our tasks easier and intuitive. That seductive sales job leads some to engage with these tools blindly, without a good understanding of how they work and the risks they represent, particularly for minorities. Common bias can result in Black and brown people being misidentified in

policing incidents, discrimination in automated hiring systems, and flawed health care recommendations, among other serious consequences. Addressing historical inequities before they are baked too deeply into new technological programming can help inspire trust in AI, which will be necessary if this technology is to live up to its developers' dreams for it.

In a new era of urgency for racial-justice matters, if technology innovators and policymakers neglect issues of bias in intelligent machines, the inconveniences, frustrations, and even humiliations that will result for minority users will become another piece of kindling on a smoldering fire. If, on the other hand, they follow the model across the Atlantic, they could put powerful technology on the side of a new social order of equal opportunity.

History shows us that the real driver of change comes from society. When enough people experience injustice, that energy grows into movements for change. As protests throughout 2020 demonstrated, we are actively within the next social movement and well on our way to the next fight for our civil rights. I vow to continue fighting for the people who demand more.

AS A RESULT OF THE FAILED ATTEMPTS TO PASS MEANINGFUL AI REGULATION AT THE FEDERAL LEVEL, STATE LEGISLATURES LIKE MINE IN VIRGINIA NOW CARRY THE BURDEN TO EXPLORE THE NEXT GENERATION OF TECHNOLOGY POLICY.

As few lawmakers understand emerging technologies like AI, in 2020 I attempted to lay the foundation for comprehensive AI and facial recognition legislation with HJR 59, which would have commissioned a work group to conduct an assessment of the state's current use of these technologies. This legislation mirrored similar proposals in other states (CA, FL, HI, IL, MA, MD, MO, NJ, NY, RI, VT, and WA), but all have failed to be adopted. Perhaps that most forward-looking legislation has been proposed by State Representative Brian Cina. His proposal would have led the way by establishing a code of ethics for AI use. However, that legislation has yet to move forward. Ultimately, overdue and meaningful efforts to adopt critical reform have been stymied and delayed, and the real victims of this inaction are the people.



PRESERVING THE STATUS QUO
IS NOT GOOD ENOUGH:

WHY

GERMANY
NEEDS MORE
WOMEN IN

BY LOUISA WELL

AI

PRESERVING THE STATUS QUO IS NOT GOOD ENOUGH: WHY GERMANY NEEDS MORE WOMEN IN AI



WE NEED MORE WOMEN WHO SHAPE HOW WE USE ARTIFICIAL INTELLIGENCE FOR TWO REASONS: SOCIAL JUSTICE AND PROFIT

AI can improve our health care systems, help us combat the climate crisis, and allow science to ask new questions. Whether to provide easier access to government services, to improve the user experience in our phones and tablets, or to find a vaccine against the SARS-CoV-2 virus, the way in which AI is developed and applied greatly shapes our daily lives.

AI BUILT TODAY WILL SHAPE SOCIETY FOR YEARS TO COME

Accounts of unjust algorithms and flawed AI systems just keep coming. Algorithms have shown more prestigious openings to male job-seekers, assigned lower credit scores to women, put female jobseekers wanting to advance their educations at a disadvantage, and some facial recognition systems fail on Black women. These technologies are not neutral, and it matters who gets to develop and deploy them.

In Germany, only 16 percent of the people working in AI are female, a gross underrepresentation.¹ In order to build AI systems that work for a diverse society, it is essential that more than one homogenous group determines how algorithms are designed and applied. Bringing women into the process does not ensure that every group is represented, but including half of the population is a good start. The AI systems developed today will be with us for years, and with more women involved, the chances for a socially just design are much improved.



WE ACTIVELY NEED TO TACKLE GENDER STEREOTYPES

At a networking dinner for people interested in algorithmic accountability, I struck up a conversation with a manager who was struggling to fill a top position in his firm. When I asked him how many women had applied, he conceded that only men had sent their applications. The lone woman who had been recommended to him was interviewed but chose a better position somewhere else. He threw up his hands and said: "If they don't apply, that's their loss, not my problem. I'd be happy to employ a woman, but she has to be ambitious and want to go the extra mile. It's a problem if they want to go on parental leave; that costs me actual money and puts a strain on the customer relationship. Why would I want that?"

Judging from the numbers of women in leading positions, this mindset is not uncommon in Germany. During the COVID-19 crisis, the number of female managers in Germany's largest firms has plummeted from nearly 15 percent to 12.8 percent, while it rose in other Western countries, including the United States (28.6 percent), Sweden (24.9 percent), and Poland (15.6 percent).²

The obstacles that keep women from going into positions where they shape the digital transformation and AI pop up at every stage of life. It starts under the Christmas tree, when girls are given dolls instead of a DIY robot kit, and continues during high school, where IT classes are predominantly attended by boys who then continue to study the subject at university. In Germany, university IT courses start out with 30 percent female students but only 19 percent of the graduates are women.^{3,4} The few who make it into the job market with the right qualifications will find themselves rather alone in a male majority.



PRESERVING THE STATUS QUO IS NOT GOOD ENOUGH: WHY GERMANY NEEDS MORE WOMEN IN AI

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- 2 Wiebke Ankersen, Christian Berg, and Lucie Schibel. "Germany's Special Path: The Share of Women on DAX Executive Boards Declines During the Crisis." AllBright Stiftung gGmbH. September 2020. Allbrightbericht-Nr.9-Abstract.pdf (squarespace.com).
- 3 J. Rudnicka. "Students in computer science in Germany by gender in 2019." Statista. 22 October 2020. Studierende im Fach Informatik nach Geschlecht bis 2019/2020 | Statista.
- 4 Ute Wolter. "Number of computer science students decreases." Personal wirtschaft. 18 March 2019. nur-jede-sechste-it-fachkraft-ist-weiblich (personalwirtschaft.de).
- 5 Anna Powers. "A Study Finds That Diverse Companies Produce 19% More Revenue." *Forbes*. 27 June 2018. A Study Finds That Diverse Companies Produce 19% More Revenue (forbes.com). <https://www.forbes.com/sites/annapowers/2018/06/27/a-study-finds-that-diverse-companies-produce-19-more-revenue/?sh=46a39d22506f>.
- 6 She Transforms IT program. — She transforms IT. <https://www.shetransformsit.de/>.

WOMEN MAKE PROFIT

AI is a new technology, and the small- and medium-sized companies that form the backbone of Germany's economy are slow to integrate it into their businesses. Instead, SMEs still rely on innovations from a century ago, the strong automotive industry incrementally improving the performance of a combustion engine. With global players such as the United States and China mapping out the path of AI for the coming century, Germany is under pressure to foster innovation and help its people update their skills. It turns out preserving the status quo is no longer good enough. Statistically, diverse teams are better at innovation and produce more revenue. In a study, the Boston Consulting Group compared 17,000 companies in eight countries, varying in industry and size, and found that diverse leadership fostered innovation and boosted revenues by 19 percent.⁵ In this sense, bringing more women into positions where they shape AI is essential to the bottom line.

TAKING ACTION WITH #SHETRANSFORMSIT

Around the same time that I started the Congressional European Parliamentary fellowship, my boss, Dr. Anna Christmann, Green MP, together with a chief executive of a German industry organization, decided that we had to act to get more women into digitalization. So when I got off the Zoom calls with the CEPI group, I got on the phone and urged people to join our initiative. It did not take a lot of persuasion — everyone I talked to was excited to work on the mission. Within weeks, we had a digital policy lawmaker from every parliamentary group that we decided to work with, and soon large companies agreed to fund a campaign. Fifty influential women from politics, industry, science, and civil society signed a call to get more women into digitalization, demanding programs to change school and university education, address unconscious bias in companies, give female role models more publicity, and much more. A couple of months later, the initiative #SheTransformsIT officially kicked off at the government's Digital Summit. Today, we work on putting the projects together.⁶

The transformation we need must take place on different levels of society, and everyone must contribute something. Encourage your niece to build her own computer, share stories about inspiring women in tech, or actively address women in a job advertisement! As policymakers, we should dive into discussions on this issue and figure out what works best in our political systems, including funding education that counters technology-gender stereotypes, supporting female tech startup founders, or implementing quotas for women in leading positions. The CEPI fellowship showed me that a lot remains to be done in the field of AI policy, but also that there are many inspiring people working on similar issues who want to connect to make change.



**Developing A Sustainable
EU-U.S. Privacy and Data-
Sharing Regime: Policy
Recommendations**
by Yilmaz Akkoyun,
Leif-Nissen Lundbaek,
and Jana Schneider

82

**How the West Can Win:
Developing Transatlantic
Frameworks for AI**
by Melanie Meyer

90

**The Geopolitics of AI:
Avenues for Renewed
Transatlantic
Cooperation**

by Stefan Steinicke

104

**It's About Small
Enterprises and
Decentralized
Structures, Goliath!**

by Stefan Krabbes

116

SCITT LODOE GEOPOLITICS

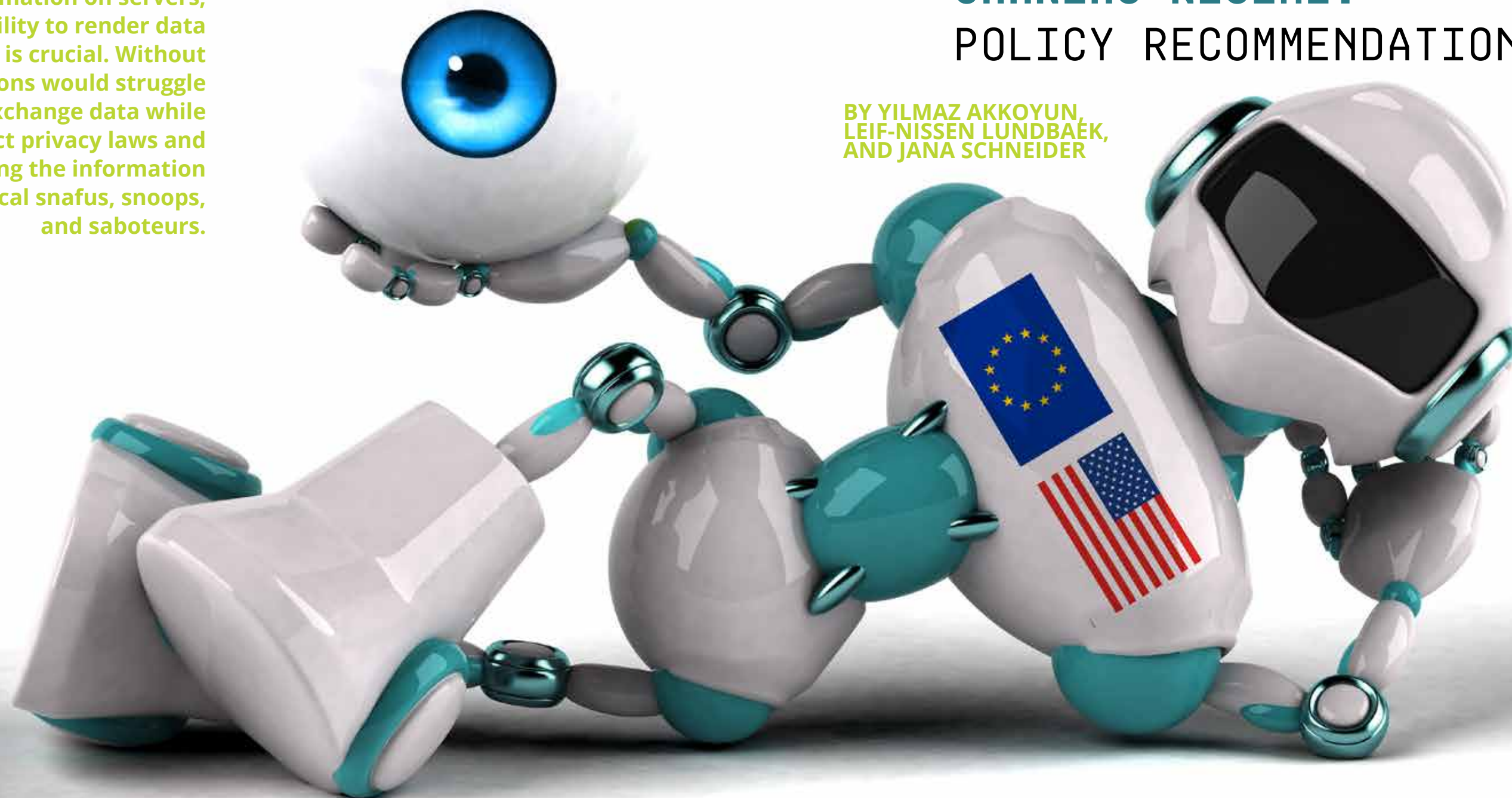
As national and local governments, health care providers, and many other organizations increasingly store people's personal information on servers, the ability to render data anonymous is crucial. Without it, organizations would struggle to exchange data while obeying strict privacy laws and protecting the information from technical snafus, snoops, and saboteurs.

The European Union's General Data Protection Regulation (GDPR) of 2018, which was born out of heated discussions of privacy rules in various EU countries and after repeated amendments to existing regulations, sets a high bar for the treatment of customer and patient data.¹ It also offers inspiration and ideas for developing global privacy laws, privacy tech, and regulations, which this paper will explore.

In addition, this paper considers the prospects for a privacy and data-sharing regime suited to the digital age that could become a role model for the world. The need for a new data-protection agreement between the EU and U.S. has taken on some urgency since the European Court of Justice (ECJ) ruled in July 2020 that the "Privacy Shield" program regulating data transfers with the United States did not adequately protect users' information.^{2,3}

DEVELOPING A SUSTAINABLE EU-U.S. PRIVACY AND DATA- SHARING REGIME: POLICY RECOMMENDATIONS

BY YILMAZ AKKOYUN,
LEIF-NISSEN LUNDBAÆK,
AND JANA SCHNEIDER



DEVELOPING A SUSTAINABLE EU-U.S. PRIVACY AND DATA-SHARING REGIME: POLICY RECOMMENDATIONS

The GDPR, which took effect May 25, 2018, is at the heart of the EU's efforts to ensure its people's right to the privacy of their personal data, as enshrined in the Charter of Fundamental Rights of the European Union and in one of the union's foundational treaties.^{4,5} It allows the processing of personal data only with the consent of the individual and requires that users (1) tell people how their data will be protected; (2) allow people to access their own data; (3) correct inaccurate or incomplete data upon request from the data's owner; (4) delete data when it is no longer needed, also upon request from the owner; (5) allow people to object to the use of their data; and (6) provide people, upon request, a copy of their data in a machine-readable format so that it can be used somewhere else of the owner's choosing. The regulation also allows personal data to be transferred only to those non-EU countries that ensure its protection, which the Privacy Shield program was intended to do in the United States.

In the ruling that shelved that program, however, the ECJ said that U.S. law allowing authorities access to personal information for surveillance purposes is broader than EU law, which makes the data available only when strictly necessary.

The loss of the Privacy Shield has created uncertainty for companies trying to develop long-term strategies for international business and trade.

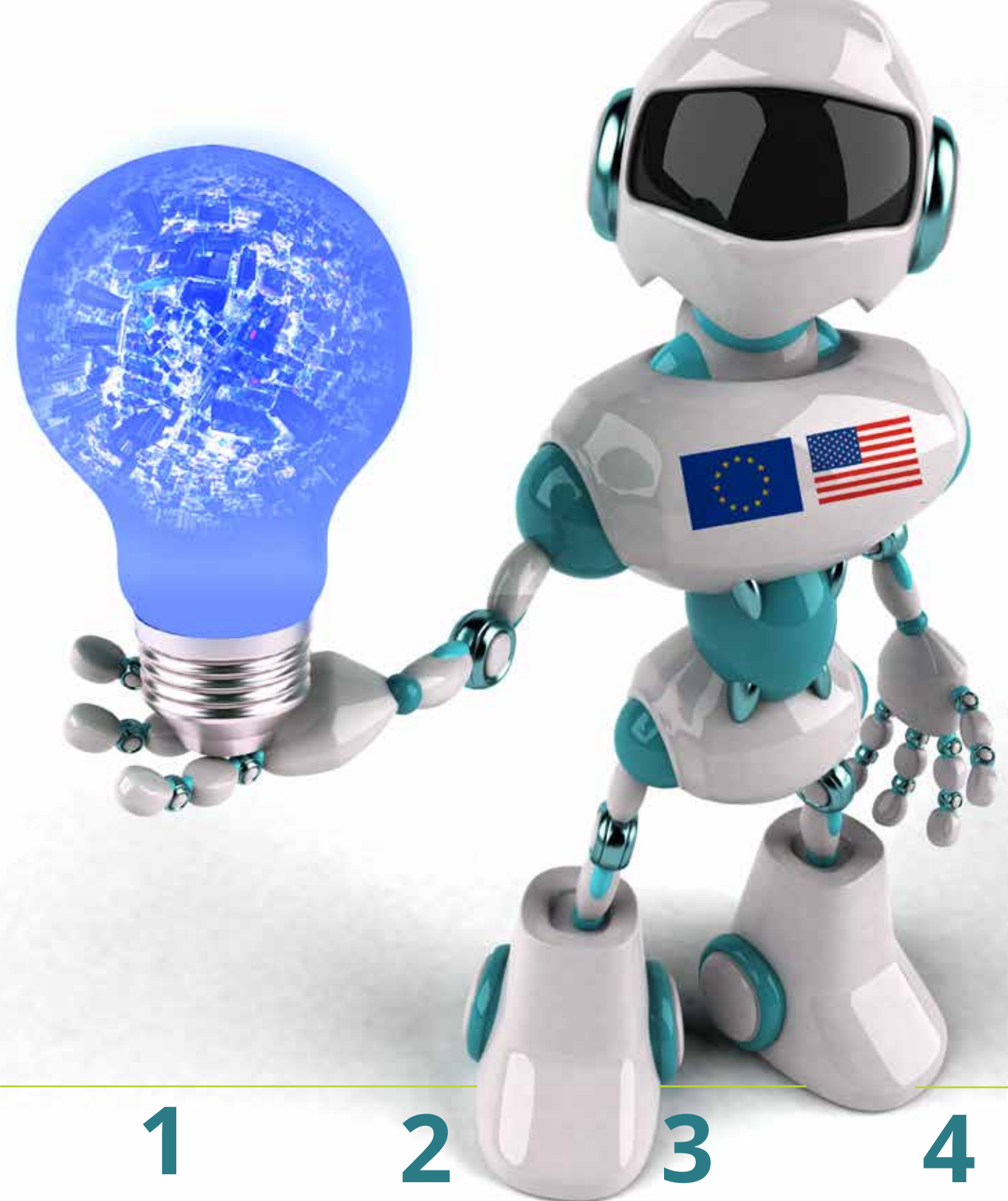
While not always visible to consumers on both sides of the Atlantic, digital trade affects daily life, and cross-border data flows are used in countless ways. For example, they are involved in the workings of Google Maps or even streaming services in automobiles. When someone in a car in Bulgaria streams music from Spotify's processing facility in Sweden, they are relying on the free flow of data. Or if a smart device, say a Miele dishwasher that connects to the Internet, needs an update, data from that IoT device might be transferred across the Atlantic. Data flows are also essential to the smooth functioning of critical technologies. Furthermore, local workforces often cannot handle the large-scale data processing that keeps power grids functioning, requiring that support for such infrastructure be maintained remotely in countries such as Germany and the United States.

In the absence of a privacy agreement, companies that rely on data transfers between the EU and U.S. face a choice that is really no choice at all: break the link between information in one country and processes in another — a complex, expensive, time-consuming, and possibly self-defeating task — or take on the significant legal and compliance risks when seeking to move personal data from Europe into the U.S.

Recommendations and Ways Forward

Any viable policy solution to this dilemma obviously must address the ECJ's concerns about data privacy and use in the United States. To that end, we propose four principles to guide the discussions on resolving the data-sharing impasse that the U.S. and EU face:

* If personal data does not leave the devices of those who generate that personal data, there is no need to cover these concerns in terms and conditions and other agreements. Analytics functions would instead be processed with privacy tech so that the customer for the analytics would not be able to tell which device reported this data but rather would only receive statistical aggregates of such information.



1

EU citizens' personal data should be transformed with privacy-preserving techniques, whenever possible, before it is stored and further processed on devices within the U.S.*

2

Commercial and public software should increasingly embed data analytics and other business functions into the devices of citizens with privacy tech so that personal data need not leave those devices at all.

3

Operating systems of profit-generating platforms and web browsers, including those for mobile phones, should offer versions to EU citizens that better enable principles 1 and 2.

4

Terms and conditions and agreements that businesses and government agencies offer EU citizens about the use of their personal data should be more transparent and easier to understand and should comply with the above principles.



DEVELOPING A SUSTAINABLE EU-U.S. PRIVACY AND DATA-SHARING REGIME: POLICY RECOMMENDATIONS

Under the first principle, companies and government agencies would find it harder to glean analytical insights about specific EU individuals by processing data available on devices located on U.S. territory. And thanks to the other three principles, nor could they easily use metadata to get around that roadblock. For example, the first principle would still allow the use of data analytics for important commercial and public applications, such as classifying consumer behavior into “tribes” or gaining valuable insights for long-term urban planning.

The second principle would shrink the footprint of personal data without limiting the value of the software to citizens and software suppliers. To put it simply, by reporting back only computational results, apps and other software can still perform their functions without extracting personal data from devices. For example, a fitness wristband can keep sensitive personal data on that device or its paired mobile phone and send back only data that is either coarse-grained or processed with privacy-preserving techniques.

The third principle is equally an important aspect of improving the environment in which a viable new agreement can function. Be they on desktops, mobile phones, or devices embedded in everyday objects, operating systems hold the key to the privacy castle. Privacy-preserving techniques that run at the application layer can be circumvented at lower layers that the operating system can interact with. Operating systems can also track a lot of metadata and send it to other locations without the running applications or users knowing. Versions or configurations of operating systems that limit this circumvention would increase overall trust in privacy preservation.

The fourth principle touches on the notion of informed consent, as it would allow EU citizens to better understand what relationships they enter regarding the control and processing of their personal data. It also raises the bar for software companies, which would become more accountable for how they store and process personal data. It should also make it easier for people to change or end those relationships, avoiding, for instance, the hassle currently involved in leaving a certain social network.

Of course, solutions that depend solely on legal finesse or diplomacy in getting consensus on the wording of an agreement will not genuinely address the concerns that led the court to gut the Privacy Shield program.⁶ A rethinking and earnest cross-Atlantic dialogue needs to take place in which not only the U.S. side challenges its way of doing things. The EU would also do well to reflect on the spirit that led to the GDPR and send stronger signals to all sectors that it will actively support risky but potentially rewarding innovation in privacy tech — for example, by establishing legal and technological “GDPR sandboxes” in which such innovation can take place.

In 2018, the U.S. Congress passed the Clarifying Lawful Overseas Use of Data (CLOUD) Act, which primarily sets up a way for law enforcement agencies in the United States and in certain other trusted countries to more easily share electronic data. But another provision of the law clarifies that U.S. authorities can compel companies in their jurisdictions to produce individuals’ electronic data, even if it is stored abroad.⁷ That far-reaching requirement applies to most of the data that leaves the devices of EU citizens. For example, contracting authorities in the EU do not have sovereignty over the data they collect if they contract with U.S. companies that thereby also get access to that data, not an uncommon

scenario. On the other hand, the EU GDPR is often interpreted and enforced in the minutia of administrative workflows, in which threats to privacy may be technocratic and not real for those EU citizens concerned. This mismatch in enforceability hinders the transformation of the EU in the digital age, when adequate enforceability is needed to assure a stable, prosperous, and self-determined European Union in this century.

All this lends urgency to a rethink and action on both sides of the Atlantic, as the contemplation of a long-term future without a viable agreement demonstrates. The countries that participate in the Five Eyes Intelligence Alliance — Australia, Canada, New Zealand, the United Kingdom, and the United States — may face data barriers to EU territories, possibly exacerbating the economic, cultural, and political disagreements already simmering across the North Atlantic and sparking them elsewhere.

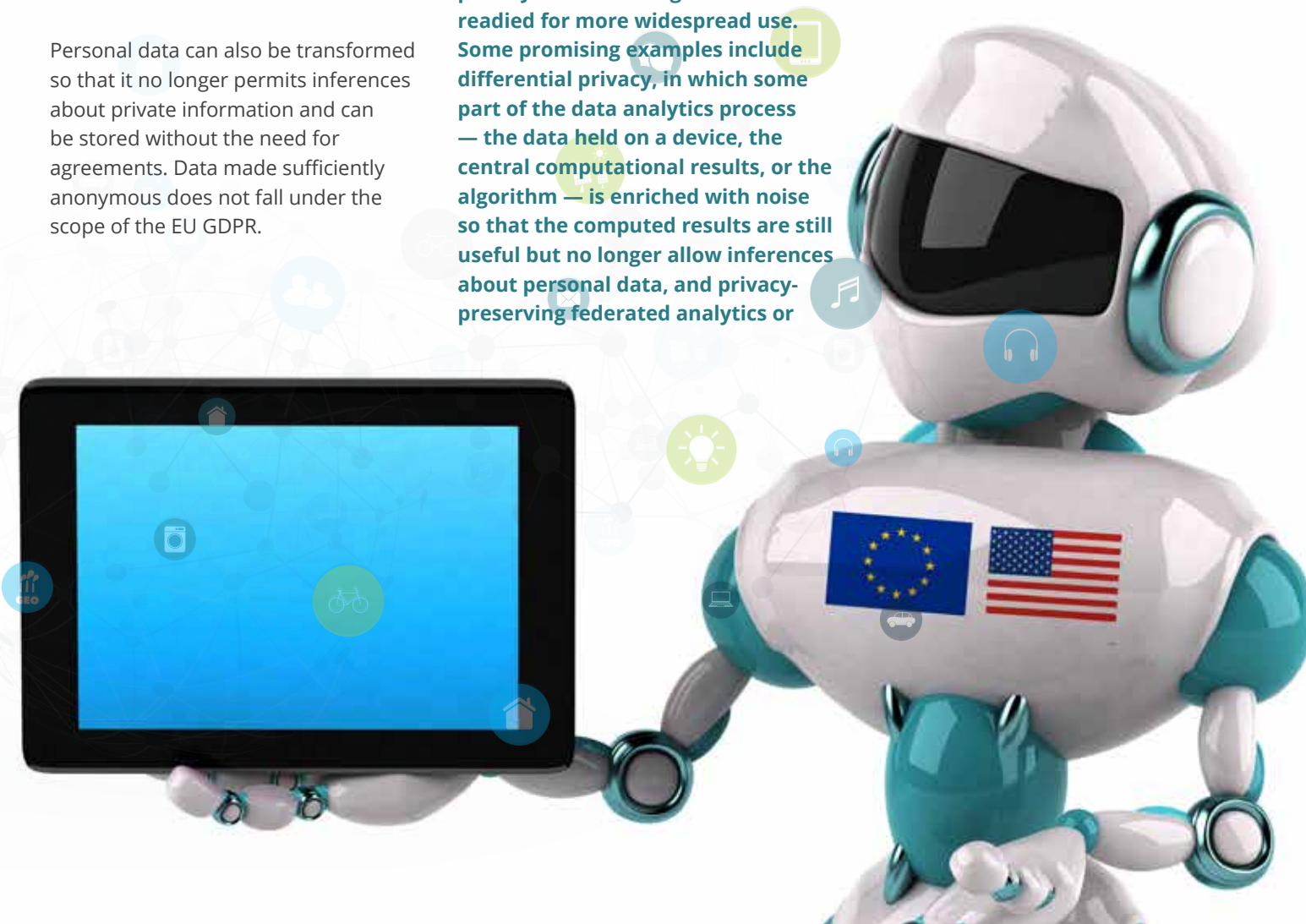
Personal data can also be transformed so that it no longer permits inferences about private information and can be stored without the need for agreements. Data made sufficiently anonymous does not fall under the scope of the EU GDPR.

But what is sufficiently anonymous? The answer to that involves technical and legal analysis: The GDPR and the California Consumer Privacy Act stipulate that someone with access to the data not be able to make inferences about it using “reasonably likely means” to interpret it.⁸ Modern tools from cryptography, statistics, machine learning, and information theory (entropy-based methods) can be included in digital products to meet that definition of anonymity. Less sophisticated methods, such as the removal of specific personal attributes from a dataset (as suggested, for example, by the “Safe Harbor” method of U.S. Health Insurance Portability and Accountability Act) cannot.⁹ State-of-the-art tools from AI and Information Theory can be used to re-identify personal information in datasets that were transformed with such less sophisticated techniques.

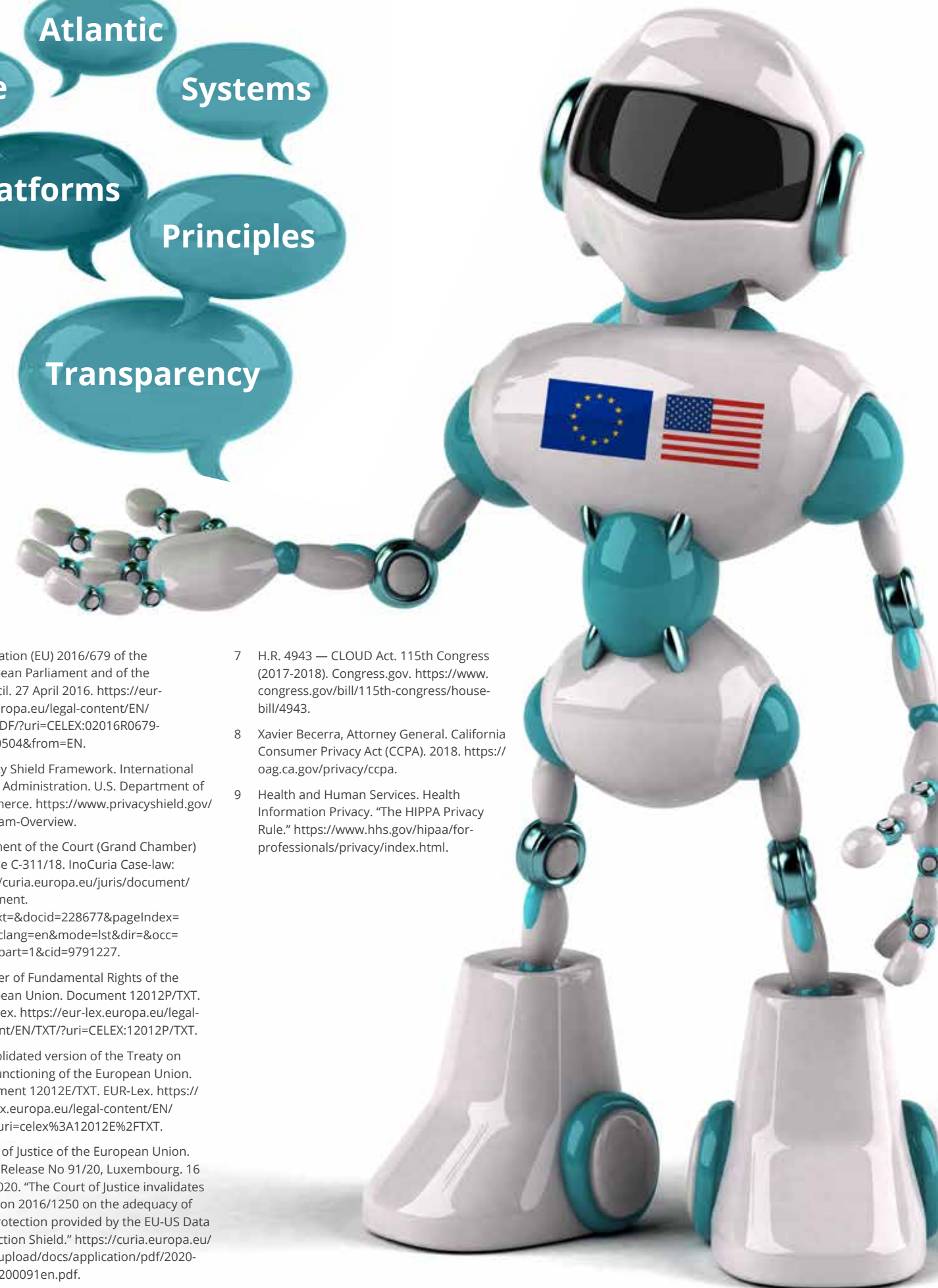
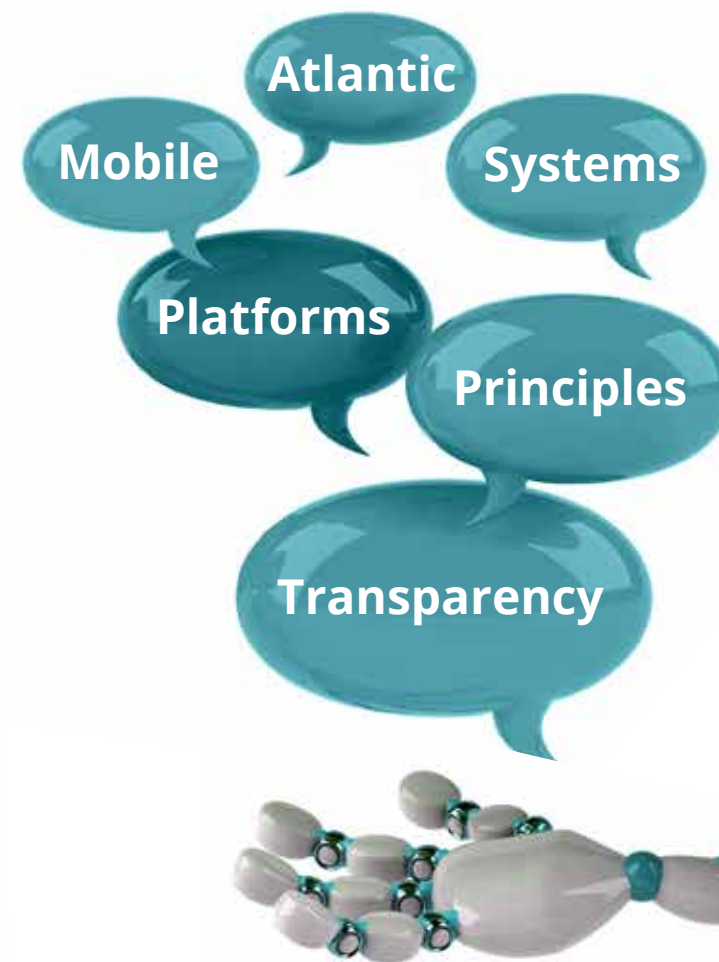
More sophisticated tools for privacy tech are being refined and readied for more widespread use. Some promising examples include differential privacy, in which some part of the data analytics process — the data held on a device, the central computational results, or the algorithm — is enriched with noise so that the computed results are still useful but no longer allow inferences about personal data, and privacy-preserving federated analytics or

federated learning — in which data remains on the local device and where the insights from local data are combined centrally and where, courtesy of cryptography, the central entity learns nothing about local insights.

But even the best tools can offer privacy guarantees only for datasets that are not combined with additional information, such as metadata or other datasets. The four principles outlined above therefore stress that data controllers should have clear limits on how to combine datasets with additional information for potentially privacy-invasive ends. Such limits, however, should not apply to basic research that develops and tests such attack techniques for security purposes.



DEVELOPING A SUSTAINABLE EU-U.S. PRIVACY AND DATA-SHARING REGIME: POLICY RECOMMENDATIONS



Conclusion and Outlook

Where do we go from here? Established technology that helps make data anonymous is no silver bullet and may fail in some cases. But innovations in privacy technology can mitigate such shortcomings, and the benefits of such innovations can be amplified through workable guidelines for best practices and transnational regulatory muscle that ensures innovative privacy technology is employed widely in existing technology stacks. Such transnational agreements must balance the needs of law enforcement with the right of citizens to protect their privacy.

There is significant common ground across the Atlantic through which to build a way forward, including the recognition that privacy and effective law enforcement create friction that requires a measured response in regulation and tech solutions. This common ground has a long and proud history, as exemplified in the historically

strong record on the exchange of goods, now complemented by a growing and equally strong exchange of, and shared dependency on, digital services.

To borrow a metaphor from professional sports, top athletes need state-of-the-art equipment developed through research in advanced materials, and they need to continually refine existing techniques to enhance their performances. But professional sports also must be organized in international bodies that develop common rules and training programs, establish guidelines, and enforce compliance to ensure fair and competitive play.

An environment of uncertainty regarding data flows between the EU and U.S. clouds the prospects for a transatlantic framework that promotes business but also safeguards civil digital liberties, including privacy. Developing a replacement to the Privacy Shield would signal to the global community

a joint EU-U.S. resolve to regulate the growing digital economy and a commitment to freedom and privacy over authoritarianism and surveillance. A first step is for the U.S. to agree that the four principles outlined in this paper are feasible and worth pursuing.

Indeed, the recommendations discussed above are actionable. We invite lawmakers, privacy experts, privacy technologists, dominant IT companies, professional organizations, and SMEs to consider them and to engage in a dialogue across disciplines to further a practicable and lasting agreement that can protect EU and U.S. citizens' privacy while fostering economic growth and free movement of data across the Atlantic.

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HOW THE WEST CAN WIN:

DEVELOPING TRANSATLANTIC FRAMEWORKS FOR AI

BY MELANIE MEYER

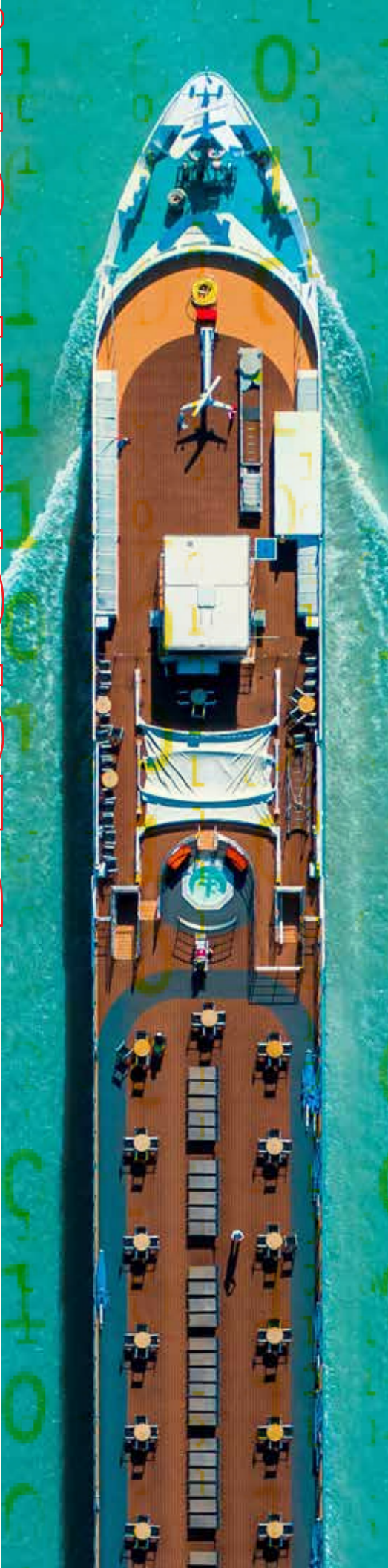
“The West is winning,” declared U.S. Secretary of State Mike Pompeo in February 2020 at the Munich Security Conference.

“We are collectively winning.

We’re doing it together,” he declared, in a speech that specifically sought to refute remarks — uttered by some of the leaders in the room with him — bemoaning the breakdown of the transatlantic alliance. Few in Munich shared that view. Better capturing the mood of the moment, French President Emmanuel Macron expressed grave concerns about the West’s fragmentation and its weakening influence in global affairs.

THE POLITICAL TERM “WEST” IS MUCH MORE THAN JUST A GEOGRAPHICAL DESIGNATION.

It represents a community of values and liberal international norms that champions human rights and freedom. In the postwar period, that community has seen repeated challenges to its ideals, but a new threat is emerging that will require another affirmation of shared principles at a time when Western solidarity seems less assured than it was even a decade ago. Machine learning and artificial intelligence confront the West with serious questions about the world’s ethical and moral future, and transatlantic thinkers and policymakers must not leave the field to powers that would take a more transactional or authoritarian approach.



Gradually, analog processes — from how we grow food to how we wage war — are digitizing, almost without us noticing. The big picture is so complex that it can seem unmanageable to the individual. Without strong, international rules-based order frameworks guided by Western values, technologies like AI will fundamentally challenge the world order that Europe and the United States have spent decades building.

The questions the West must ask itself are: How do we want to live in the future? How do we secure freedom and self-determination in the digital world to prevent the erosion of our civil rights and democracy? What tools are needed to avoid being remotely controlled by corporate algorithms or systemic rivals?

This paper argues that AI is fundamentally a foreign policy issue that merits more input from the foreign policy community. This paper also argues that, to maintain and build on the successes of the European-American relationship, the EU and U.S. must develop a joint strategy to ensure that the deployment of artificial intelligence adheres to core democratic values. Without such cooperation, the West risks a slow and steady unraveling of the institutions and liberal order it has built since World War II.

HOW THE WEST CAN WIN: DEVELOPING TRANSATLANTIC FRAMEWORKS FOR AI

Reservations and fears about AI are common. Horror scenarios, imagined by serious experts and Hollywood directors alike, range from cyberterrorist attacks on infrastructure to behavioral control of entire nations and self-learning AI capable of evading human control. In 1784, philosopher Immanuel Kant argued that a state that tries to determine the happiness of its citizens is a despotic one and that the right to individual self-determination can be realized only by those who have control over their lives.

Indeed, worst-case scenarios are not far-fetched. Take, for example, the Cambridge Analytica scandal, in which algorithms used massive swaths of citizens' data to influence both the Brexit vote and the U.S. presidential election. Or the Russian troll operation in St. Petersburg, which launched a disinformation campaign via more than 400 fake social media accounts to try to sway the Brexit referendum and thereby weaken Europe.¹ In these cases, foreign adversaries used algorithms to manipulate citizens, undermining their freedom of choice and ability to make decisions based on accurate information and their experiences.

Of course, AI can also lead to better and more efficient decision-making, but the Cambridge Analytica scandal underscores the danger that social networks, underpinned by algorithms, pose to democracy and how the West's rivals have already used AI to attack it.

Compounding these threats, digital disinformation is low cost and high impact: With few resources, customized disinformation can reach a global audience. Furthermore, these seemingly domestic problems have far-reaching foreign policy implications. In the wake of these massive disinformation campaigns, the U.K. has sought to withdraw from Europe, while the U.S. retreats inward, leaving Europe in a vulnerable geostrategic position.

EUROPEAN UNION APPROACH

In 1981, the Council of Europe adopted Convention 108, taking a first swing at data privacy by introducing the Convention for the Protection of Individuals with regard to automatic processing of personal data. In the ensuing 40 years, Convention 108 has been modernized and ratified by all 47 members of the council, which is Europe's intergovernmental human rights watchdog.

At the European Commission, President Ursula von der Leyen in November 2019 released a 200-page AI strategy within the first 100 days of her term and is expected to produce legislation similar to Europe's General Data Protection Regulation for AI and algorithms. In its 2020 White Paper on AI, the European Commission urged the EU to "act as one and define its own way, based on European values, to promote the development and deployment of AI."² A new EU digital approach released in 2020 spans antitrust, platform liability, and AI. While the EU has good reasons to seek its own path forward, it will not succeed unless key Western allies support agreed-upon frameworks for emerging technologies and unless there are clear multilateral frameworks under which to regulate the use of AI.

GOVERNMENT APPROACHES AND SYSTEMIC DIFFERENCES

PROBLEMS ARE GEOPOLITICAL ONES

HOW THE WEST CAN WIN: DEVELOPING TRANSATLANTIC FRAMEWORKS FOR AI

GERMAN APPROACH

As researchers have cautioned, foreign policy responses to AI cannot be handled by a small office managing a large “cyber” portfolio. Rather, “an effective response will be a multistakeholder affair with the ministry as an important hub in a network of actors that includes private companies, research institutions, civil society organizations, the media, and, of course, other government agencies with adjacent remits.”³ The German government has already begun to design a multistakeholder approach to AI, with participation from the federal ministries of Education and Research, Economic Affairs and Energy, and Labor and Social Affairs, following national consultations with other key decision-makers.⁴

The German Chancellery also houses several sections with specific digital policy portfolios. For example, Department 6 has a new unit that covers “basic questions of digital policy.” Also nestled within that department, a new digital legal philosopher, appointed in 2019, aims to establish principles with which to govern digitalization and to secure human agency over machines. These changes will only make a difference, though, if allies also take ambitious steps toward reimagining international AI governance.

The German discussion on the 5G network expansion shows how difficult it is to find common positions for the new key demographics. The debate in Germany is between those who want fast internet immediately and those who believe fast internet should be secure before it is rolled out. One group of lawmakers, along with the Foreign Office, is convinced that critical infrastructure in the wrong hands would make the country dangerously dependent on foreign actors, make espionage easier, and open the door to manipulation and sabotage. They put the security interest of the German people first.

The Federal Chancellery and the federal ministries of the Interior and Economics and Technology seek the rapid expansion of the 5G network so that Germany does not miss out on important technological and economic opportunities. In a statement, the Chancellor’s Office has said it does not want to be a cart pulled before the American horse in a geopolitical battle in which German interests are similar to those of the U.S., but not identical.

For now, the German government has agreed on an IT security bill, written in 2020. It does not rule out cooperation with critical manufacturers, such as telecoms giants Huawei or ZTE, but it leaves the devil in the details and underscores ongoing disagreements about how to determine Chinese vendors’ trustworthiness.

In a debate to which Chinese companies were central, Chancellor Angela Merkel opposed excluding any company on principle, while the Foreign Office expressed doubts about the trustworthiness of certain suppliers. Now they seem to have agreed at least on the conditions under which Huawei components may be used in the German 5G network, dropping the larger question of whether Huawei is trustworthy enough to participate in the network expansion into the laps of the authorities and ministries.

In a new draft for an IT security law 2.0, the Federal Ministry of the Interior has established framework for banning “critical components.” However, experts miss the clear line for the consistent increase of the safety level of the IT and critical infrastructures.⁵ Experts say that, rather than taking a political decision, it instead relies on technical guidelines and bureaucracy.⁶

Meanwhile, the third bill, in the section on critical components, underscores a crucial question: That parts from equipment suppliers like Huawei may only be used if they have first been tested and, secondly, certified. In addition, the manufacturer in question requires “a declaration of its trustworthiness vis-à-vis the operator of the critical infrastructure,” which “extends to the manufacturer’s entire supply chain.”

This means that a declaration of guarantee is now required, which must state whether and how the manufacturer can sufficiently ensure that the components cannot be misused for sabotage, espionage, or terrorism within the infrastructure. Furthermore, the Federal Ministry of the Interior can prohibit the use of a component “if overriding public interests, in particular security policy concerns of the Federal Republic of Germany, stand in the way of its use.” To do so, the Ministry requires the consent of the ministry responsible for the critical infrastructure in question. In the case of 5G networks, this is the Federal Ministry of Transport. However, the use of certain parts can also be subsequently prohibited.

With the procedure now being pursued, the Chancellor will always be able to look her Chinese colleague in the eye and say Huawei will not be excluded, because the law is not a “Lex Huawei.” On the other hand, however, Germany will have to act primarily in the transatlantic context, especially since the issue is how European technologies can be better promoted to achieve greater digital sovereignty. Germany will continue to be perceived as a country that has not yet really decided on 5G. Technology policy will thus remain a preeminent issue for the next German Chancellor.

Such half-a-loaf stances are not equal to the moment and weaken Germany’s hand. The rapid development of key technologies demands clear positions. Ideally, we would be able to consider security a function of quality products created by competition in an open market, without regulatory intervention such as the targeted exclusion of a competitor. But we live in the real world: China is a systemic rival that passed a law in 2017 requiring “all institutions and citizens” to “support the work of the intelligence services and cooperate.”⁷ If officials choose unwisely, a company under that dictum could control one of the most important parts of the German infrastructure. An exclusion of China would be the right and only way to join forces with the U.S., Great Britain, France, Japan, and Australia — side by side.

GOVERNMENT APPROACHES AND SYSTEMIC DIFFERENCES

HOW THE WEST CAN WIN: DEVELOPING TRANSATLANTIC FRAMEWORKS FOR AI

UNITED STATES' APPROACH

In February 2019, U.S. President Donald Trump signed an executive order that is essentially a blueprint for U.S. preeminence in AI. It encourages government agencies, academia, and industry to work together on technological breakthroughs; U.S. researchers to develop technical standards and opportunities to safely test AI so it can be adopted by businesses; and government agencies to train workers in AI technologies to reassure the public that these powerful tools do not represent a threat to their privacy or civil liberties, and develop markets for U.S. AI technology while maintaining a competitive advantage and keeping these tools out of the hands of rival or adversarial countries.⁸

Critics of the strategy believe it amounts to mere lip service rather than substantial support for AI development. With tightening immigration restrictions and funding reductions in critical industries, it remains to be seen whether or not the U.S. will be able to keep pace with China.

Alongside this blueprint, an expert commission tasked by Congress to consider AI's implication for national security released an interim report in 2019. It identified the following threats posed by AI: erosion of military advantage, strategic instability, reckless and unethical uses of the technology by rogue or nonstate actors, the dissemination of disinformation, violations of privacy and civil liberties, cyberattacks, and other, evolving dangers.⁹ Germans and Americans have a shared interest in mitigating the risks associated with AI and can best do so by working together.

USA

GOVERNMENT APPROACHES AND SYSTEMIC DIFFERENCES

AN EASTERN PHILOSOPHY
The regime in Beijing uses AI to strengthen the economy and consolidate the Communist Party's authoritarian rule. Even though the U.S. still sets the global pace for many technologies, China has a crucial advantage that makes it a world leader in AI: its huge population and widespread acceptance of wireless technology in daily life, producing infinite amounts of data that the state and its companies can use without legal restrictions.

Witness the Chinese government's handling of the COVID-19 pandemic, in which massive technology and surveillance systems allowed it to shut down the country seemingly overnight. Such technological power is an obvious boon in a public health crisis, but it also traps the Chinese people in a repressive surveillance state. For example, via its social credit system — which many countries and companies use a limited version of in, say, assigning credit scores — the Chinese government aims to assign “citizen scores” based on information from tracking and surveillance devices. Dignity, privacy, and, of course, the right to speak freely are sacrificed to a personal ranking that ultimately could mean the difference between affluence and privation, social cachet or isolation. And lest this seem like a domestic policy problem for Chinese citizens, China has begun exporting its surveillance state.*

Beijing builds its geopolitical clout through investment, lending and technological expertise. China buys entire ports, such as Piraeus in Greece, to open up routes to the Western market as part of its Belt and Road Initiative. It also supplies and installs critical infrastructure over territory ranging from Russia to the Balkans to France. European countries have signed contracts worth billions with state-owned Huawei, despite widespread concern that the company is a Trojan

horse because it uses components that allow extensive data to be fished out, giving China's surveillance dictatorship access to Europe's 5G mobile telecommunications network.

Whether or not Huawei is on the level, it is one tool China uses to make other countries dependent on, and vulnerable to, the regime in Beijing. To damage Europe, Huawei could simply close its maintenance center in Romania or stop providing important software updates. WeChat and TikTok are just the latest examples of an increasingly hot-cold info war.

Sanctions to remove potentially insidious technology will not help. Serbia serves as a cautionary example. In a “historic agreement” in Washington — deemed the “White House Papers” — Serbian President Aleksandar Vučić recently committed himself to a series of favors for Trump in return for American economic development.¹⁰ However, this is skillful double diplomacy on the part of the Serbs: Vučić also has irons in the fire with the Russians, Europeans, and, of course, the Chinese.

Inexpensive and reliable technology from China has been too tempting for some European governments, especially those with a mixed record on civil liberties, to resist. In a 2018 deal that undermined Serbia's prospects for EU membership, the Serbian government agreed to buy military drones from China, and Belgrade's city center is completely monitored by the latest Chinese facial recognition software. In Hungary, where Huawei has invested more than \$1.2 billion,¹¹ the central emergency call system for the fire department, police, disaster response, and rescue services uses Chinese software. Hungarian Prime Minister Viktor Orbán is increasingly blocking European policy that contradicts Chinese aims. While the debate over 5G and other Chinese inputs may seem like a simple hardware question, the real problem lies in China's ability to use advanced algorithms and intelligent machines to get sensitive information and citizens' private data.

BY 2030, CHINA HOPES TO BECOME THE WORLD'S LEADING AI SUPERPOWER,¹² WHICH SOME EXPERTS SAY IS FEASIBLE. THE CHINESE GOVERNMENT HAS POURED BILLIONS OF DOLLARS INTO THE GOAL, DEMONSTRATING THAT TECHNOLOGICAL DEVELOPMENTS ARE INCREASINGLY LINKED WITH GEOPOLITICAL GOALS AND POSSIBLY PRESAGING A DESPOTIC INTERNATIONAL REGIME.

* In 2019, The New York Times profiled Ecuador, whose police and surveillance agencies have imported Chinese surveillance technology. The same piece estimates that 18 countries, including Uzbekistan, Pakistan, the UAE, and Kenya, are using Chinese surveillance technology. The piece, “Made in China, Exported to the World: The Surveillance State” by Paul Mozur, Jonah M. Kessel, and Melissa Chan, was published in April 2019 and can be viewed online.

HOW THE WEST CAN WIN: DEVELOPING TRANSATLANTIC FRAMEWORKS FOR AI

MULTILATERAL POLICY PRESCRIPTIONS

At the domestic level, governments need to ensure that their people can use the internet in reasonable privacy and help them become astute judges of what they see there. Democracy is a complicated form of government that demands some intellectual heft of its citizens. A failure to establish a digitally savvy population risks the disintegration of our democratic future.

In addition to implementing domestic safeguards for AI, Western democracies must work together to ensure that AI is a force for good internationally, which will require common guidelines on AI and data protection.

Some global initiatives are already on the case. All under the umbrella of the United Nations, the International Telecommunication Union has organized the AI for Good conference three times; since 2016, an experts group has been discussing approaches to the international regulation of autonomous weapon systems; the International Labor Organization is considering the importance of AI for the future of work; and the UN's watchdog office for freedom of opinion and expression has presented a report on the subject.

A commitment to pluralism, privacy, freedom of speech and opinion, and human dignity raises ethical considerations and requires a robust international plan to deal with technological progress. These considerations, in turn, are likely to be sticking points in international negotiations, particularly since these considerations can be cast aside when competing with a rival not bound by them. The challenge will be to formulate a legally binding social contract for Western democracies, based on trust and cooperation with appropriate regulation, that ensures the use of technology guided by common values. It must be clear to the West that if it does not jointly adopt this "design of values," if it cannot agree on common standards, others will win the race.

CONCLUSION

An extension of classical intelligence analysis, AI systems are changing nations' foreign policy decisions in part by allowing analysts to game out those decisions' consequences before they arise. While AI can in some cases potentially avert crises, it also creates new foreign and security policy challenges, as the China-U.S. power competition demonstrates.

In many ways, the 5G debate exemplifies the dilemma Europeans face when dealing with foreign technology: Do they use it, ban it, or find a middle ground? Answers to these questions are complicated by the fact that, on one hand, European states do not agree with the hardline American approach toward Chinese tech containment. On the other hand, Europeans, especially Germans, are increasingly critical of China and Chinese technology. If the EU and U.S. fail to defuse the power struggle between the West and China, a new geoeconomic world order could materialize in which technological supremacy will be decisive. The post-World War II international rules-based order is showing strains and might need updating, but most of it is worth defending, particularly as liberal democracies weigh the potential and peril of 21st-century technologies.

AI is not value-neutral. Values are expressed in what people create. To preserve its way of life, the West must ensure that innovation does not conflict with the ideals of freedom or human rights, even as technological competition takes its place in the global arena alongside political-ideological rivalry.

Whatever approach the West takes, it should of course include cooperation in AI training and the exchange of experts. But technology and security expert Martijn Rasser's advice for the United States — "think big and take bold action to harness the technology's potential and address challenges" — also applies to international strategies and regulatory frameworks, driven by Western leadership. Defending liberal principles and the West's geopolitical clout will require a renewed commitment to strengthening social cohesion at home, while working together abroad. Especially in times of uncertainty, unease about globalization, and a perceived loss of identity and security at the societal level, Western allies must stand together.

The triumphal tone Pompeo took in Munich is premature. Before anyone can start bragging, the West needs to make sure that it gets to establish the prevailing standards and rules for these powerful technologies, which will eventually affect more realms of life and statecraft than most of us can yet imagine.

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THE 104
HUMAN
PROGRAM
A TRANSATLANTIC
AI AGENDA
FOR RECLAIMING
OUR DIGITAL
FUTURE

THE GEOPOLITICS OF AI.

AVENUES FOR RENEWED
TRANSATLANTIC COOPERATION

BY STEFAN STEINICKE

THE GEOPOLITICS OF AI: AVENUES FOR RENEWED TRANSATLANTIC COOPERATION



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Welcome to the Exponential Age

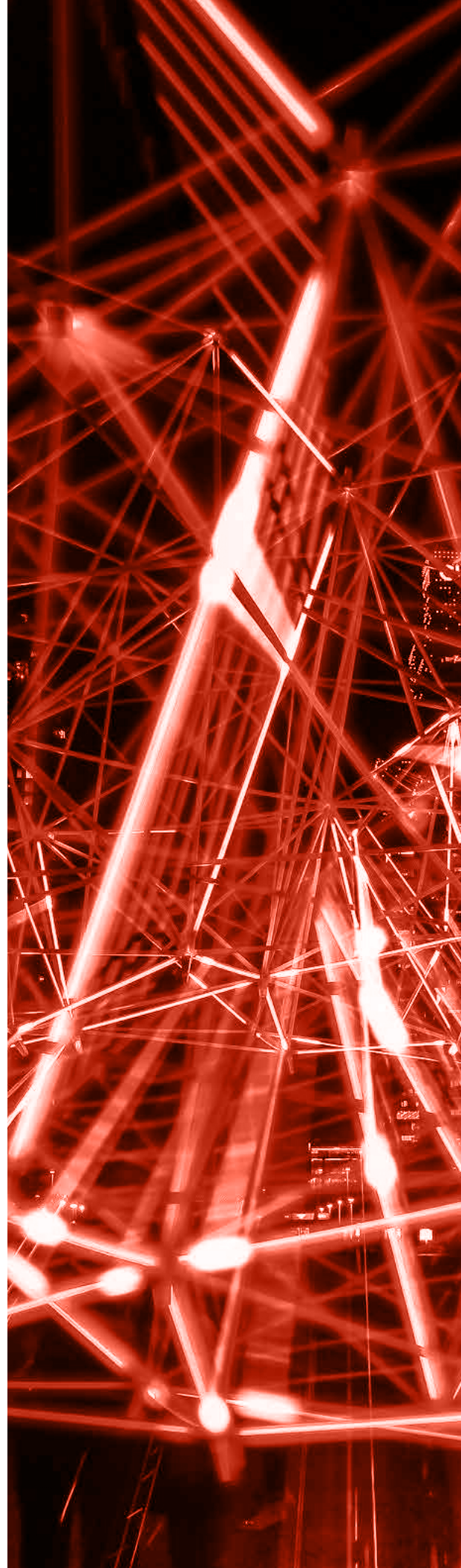
The rise of a networked world fundamentally transforms the structure and organization of societies, economies, and the global order. In this exponential age, technology is no longer to be understood simply as a sector but more as a layer that underpins nearly everything we do, everywhere we do it. As the globe becomes virtually connected, new rules, norms, and institutions have to be designed to govern our digital future, and those who set the new rules will heavily influence the international order.

Artificial Intelligence promises to be the most disruptive new technology in the coming decade. It will be applied almost everywhere, from the tiniest microcontrollers to the most expansive cloud infrastructure. With expected breakthroughs in semiconductors



optimized for machine learning and the general availability of quantum computers, companies and countries will have millions of times more computing power on which to run potent algorithms.

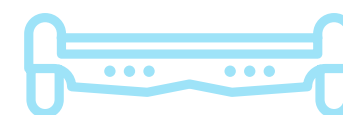
Those algorithms, in turn, will feed on a steady diet of data streams, some made possible only by the world's hyperconnectedness. Having the most and best data, and the most advanced AI, will be key to countries' economic competitiveness and military superiority. In this way, data and AI will reshape the 21st-century world order.



2

A Fragmented Geopolitical World

While digital technologies, until recently, have brought people closer together, geopolitics are decoupling the world. The United States and China are fighting each other for global leadership, but this great-power competition is not only about national security interests. On a more fundamental level, it is about a clash of ideologies and systems of governance. In the aftermath of the global financial crisis and again in times of COVID-19, the Chinese leadership has presented its model of authoritarian capitalism as a successful alternative to liberal democracy. As it sees the advancement of liberal ideals as an existential threat to its legitimacy and power at home, it is promoting its alternative system of governance more openly around the world. Consider, for example, the Belt and Road Initiative, the most ambitious infrastructure plan in world history.



At the same time, the regime in Beijing tries to shield itself from outside influences and aims to go it alone on technology. The "Great Firewall" has enabled censorship, making international data flows more difficult, while more recently, the "Made in China 2025" and "Dual Circulation" policies envision China as a self-sufficient technological powerhouse instead of the world's factory. Meanwhile, the United States has launched the Clean Network Initiative, a program that urges allies to exclude Chinese components from technology infrastructure, and threatens to sanction semiconductor companies that sell chips with U.S. components to Chinese telecoms giant Huawei.

On the most fundamental level, this decoupling is the result of a lack of trust. Both governments are wary of the potential for foreign interference and extortion. As this security dilemma is not going to disappear, the world needs to prepare for ongoing if not accelerated separation of the U.S. and Chinese tech spheres. This bifurcation will force most other countries in the world to take sides, as China and the United States more fervently promote their preferred regulations and norms on the global stage. The recent 5G debate is an early indication of how this contest will play out. Expect AI to become the new battleground.



THE GEOPOLITICS OF AI: AVENUES FOR RENEWED TRANSATLANTIC COOPERATION



3

Platform Geopolitics

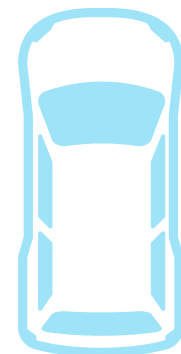
As the entire world becomes a potential platform, whoever sets the rules stands to gain enormous fortune and geopolitical clout. It seems clear that there is a first-mover advantage, and large private platforms are in the lead.

Digital platforms create marketplaces for consumers and businesses to exchange goods. They also create points of control and set standards for how the ecosystem works. The United States and China seek to play a decisive role in all of the platforms that are to be set up around the world in the years to come. Therefore “country-as-a-



platform” strategies will become a more defining feature of geopolitics in the 2020s.

It is not surprising, then, that China’s Belt and Road Initiative increasingly focuses on the digital domain. Via the “Digital Silk Road,” China links up with foreign markets and gets access to massive amounts of data. It can then use these new insights into its partner countries’ economies and societies to fine-tune its digital platforms. Meanwhile, China is also endeavoring to establish technical standards on the global level. By doing all this, China develops unique points of control throughout the digital economy.¹ If successful, this strategy could fundamentally shift global trade and financial flows toward a China-centric economic order. It could even reshape political systems in participating countries.²



To better understand what platform geopolitics will look like, we should compare the role that technology plays today with the role geography played in the 20th century. Then, geographical features such as mountains, oceans, or oil fields played a decisive role in shaping the relations among countries. Geography was destiny. Today, connectivity is destiny, and digital platforms are the principle enablers of connectivity. Those who run the platforms can decide who gets in and who has to stop at their digital border. The more social and economic activities take place on digital platforms, the higher their geopolitical value. This is what platform geopolitics is about. And this is why it is so important that partners on both sides of the Atlantic begin to develop common platforms to position themselves in a fragmented geopolitical world in which technological change is accelerating.

THE GEOPOLITICS
OF AI: AVENUES FOR
RENEWED
TRANSATLANTIC
COOPERATION

4

The Way Forward: Developing Transatlantic Platforms

As new rules, regulations, and norms for how to apply AI across the globe are written in the coming decade, the bifurcation of the U.S. and Chinese tech spheres will likely prevent a global and multilateral approach. The increased competition between two distinct digital models across the world will heavily influence the transatlantic relationship.

The value of closer transatlantic AI cooperation is obvious, but looming disputes over technology will complicate efforts to show a united front. While both sides of the Atlantic share a common foundation of democratic values, they differ on key issues, such as data privacy, government surveillance, or the regulation of big tech. Nevertheless, the world's democracies will have to find a middle ground and to agree on a comprehensive, multilateral approach to technology, the use of data, and the application of AI. The stakes are too high, and neither side can go it alone. To get ahead in global tech and AI dynamics, transatlantic partners should focus on three areas: shared data pools, secure supply chains and commercial-intelligence sharing, and norm-setting in global regulatory forums.



4.1

Develop Shared Data Pools Across the Atlantic

Data is a strategic resource. As with natural resources in the 20th century, access to and control over it could become a source of wealth and therefore a key driver of conflict and competition. Hence, combined U.S. and European data pools and unified regulation for data flows could give both sides of the Atlantic greater leverage, especially in the development of AI.

Data powers algorithms that then feed AI. Shared data pools across the Atlantic can foster new scientific insights and economic breakthroughs. Western countries, however, will have to iron out their own differences over data privacy. The U.S. government takes a more permissive stance on surveillance than the European Union, where a court recently struck down the transatlantic Privacy Shield agreement over the issue. Without data-protection regulations like those included in the Privacy Shield, sending data across the Atlantic gets more complicated.

To find common ground, a pragmatic discussion on data issues needs to start now. The European Commission's proposal for a new EU-U.S. Trade and Technology Council, to oversee the uses and regulation of new technology, is a step in the right direction.

Next to data privacy, the regulation of Big Tech is another thorny issue. The European Commission sees the reach of huge U.S. tech companies as anti-competitive and seeks to rein them in. In the U.S. economy, however, Big Tech is the strongest growth market and a powerful asset in the ideological and geopolitical competition with China. A transatlantic regulatory agreement is therefore difficult to achieve, not least because Europe lacks big tech companies and their political leverage.

One area of complementarity though — where U.S. companies amass huge troves of consumer data and their European counterparts draw upon a larger universe of industrial data — could be an incentive to create shared data pools, and therefore to write harmonized regulations.

Shared data pools will also be important for national security and military interoperability among NATO countries. As the alliance's planners look ahead to a future in which emerging and disruptive technologies, including AI, play a prominent role, better access to data will be crucial, as will an agreement on data protection and regulation.

In addition, debates regarding burden sharing within NATO will increasingly have a tech dimension in the era of AI. That might help European countries meet the NATO goal of spending 2 percent of their GDPs on defense, which has strained the transatlantic relationship these past four years. It's probably easier to sell Europeans on technology investments, even for defense purposes, than on tanks and fighter jets.



THE GEOPOLITICS OF AI: AVENUES FOR RENEWED TRANSATLANTIC COOPERATION

4.2

Enhance Technology Supply-Chain Security and Increase Commercial Intelligence Sharing

The application of AI is impossible without chips, quantum computing, and the whole physical infrastructure on which to run the algorithms. As self-sufficiency in supply chains is rather impossible, governments will have to think hard and be prudent about their interdependencies (as the rush for protective gear in the pandemic has shown). Here, too, trust is important, whether in deciding who can run a country's digital networks and the corresponding infrastructure or who can invest in AI and other technology startups or larger companies.

As the U.S. and Chinese technology spheres diverge, so will their supply chains. Already, Taiwanese semiconductor company TSMC, one of only three makers of advanced chips used for 5G, is caught in a supply-and-sanctions tug of war between the United States and China.

Safeguarding the supply of chips has become incredibly important, and there are two options for closer transatlantic coordination here. First, Europe and North America could develop an integrated chip supply chain that could also include like-minded partners in the Asia-Pacific region. Second, partners on both sides of the Atlantic could make joint investments into the research and development of the specially designed chips that will be sought after to run increasingly tailor-made AI algorithms. This field is extremely expensive to enter, and enlightened help from Western governments could improve their economies' access to a key AI resource.

Likewise, friendly governments across the Atlantic should share more commercial intelligence. In the globalized economy of the last 30 years, governments around the world have welcomed foreign direct investment into their tech industries, but recently they have become wary of ceding a stake in critical technology companies to possibly malign foreign actors.



AI is a key technology for future economic prosperity, but we are likely to see the emergence of only a handful of AI clusters globally, similar to the automobile industry.

This digital transformation, however, will take huge investments, especially for AI startups. Given that many of these young companies do not even realize that their algorithms and technologies could have particular security or defense uses, governments will have an interest in where that capital comes from. A more institutionalized dialogue between startups and decision-makers from foreign and security affairs seems necessary, as does extended commercial-intelligence sharing across the Atlantic. A concept of "trusted capital" is an important step in formulating a more coherent transatlantic approach to technology.

4.3

Promote Transatlantic Norms and Standards on the Global Level

A country's regulations and standards in AI and other emerging technologies are in part a reflection of its values. For instance, are they driven more by concern for security and stability or for democracy, human rights, and the rule of law?

Via its Belt and Road Initiative, China is increasingly setting standards and regulations across the globe. In Africa and the construction of smart cities, for example, many governments lack deep experience with regulatory affairs and are therefore inclined to adopt Chinese standards. Thus the continent with the highest population growth rate becomes more closely connected to the Chinese tech sphere, its algorithms, and its underlying values.

For transatlantic countries, the aim is to set global norms and standards to govern the use of data that ensure democratic values, freedom, and human rights. When speaking with one voice, the transatlantic community will have greater leverage in global discussions about AI norms and standards. In addition, a closely linked transatlantic technology sphere, with shared data pools and unified norms and standards, would be a sufficiently attractive market for companies across the globe to meet the regulatory criteria to do business there.

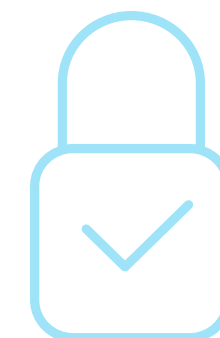
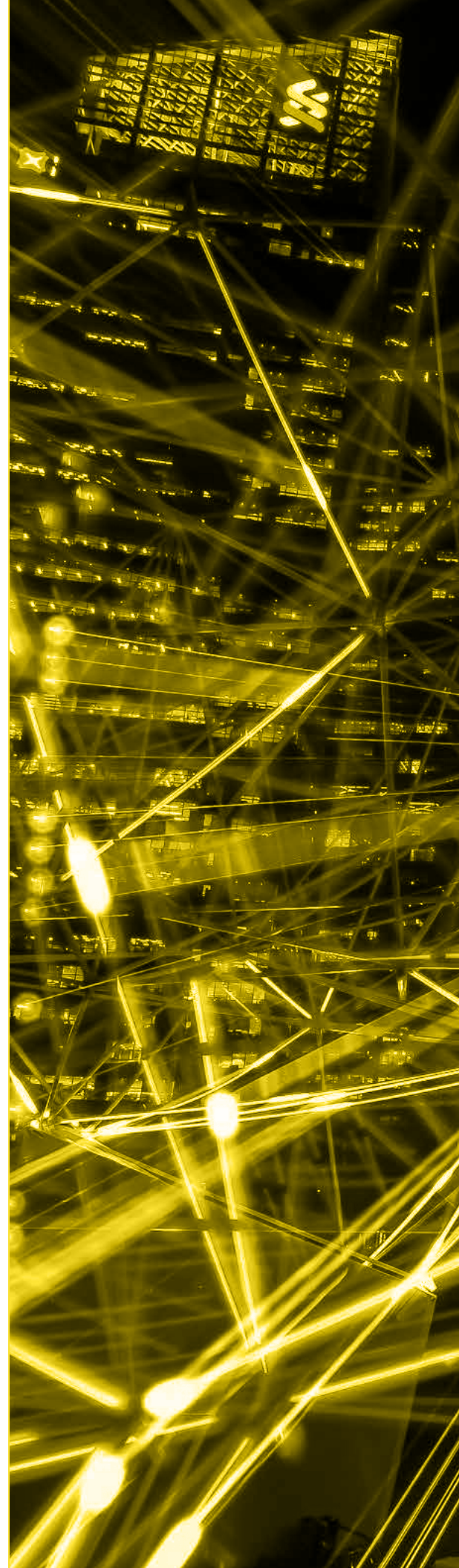
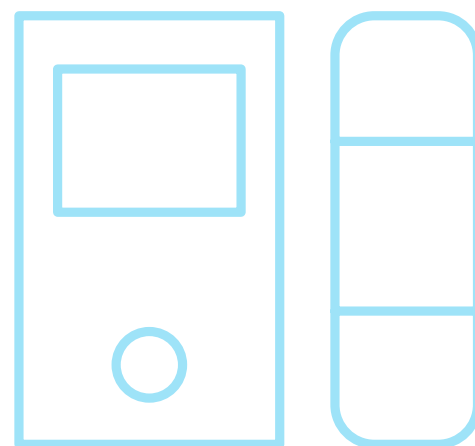
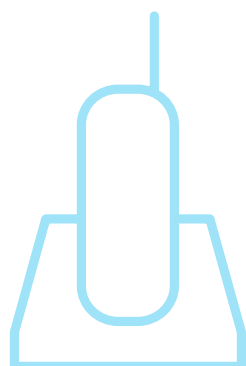
While the U.S. government's traditionally lighter approach to regulation, and EU regulators' heavier hand, might complicate efforts toward common U.S.-EU rules and standards, the two sides share a more profound kinship in their appreciation of democracy. The incoming U.S. administration's plan to organize a summit of democracies in the first half of 2021 is a sign of political emphasis that will clearly have a significant impact also on technology debates. In this spirit, the European Commission has proposed to start working on a transatlantic AI agreement with a human-centric approach that would become a blueprint for global standards aligned with U.S. and European values. This proposal builds on the work of the Organization for Economic Cooperation and Development's Global Partnership on Artificial Intelligence, with its focus on the "responsible and human-centric development and use" of AI. The more pronounced the great-power competition, the more democracies will have to close ranks. When the United States and Europe speak with one voice for democracy, freedom, and the rule of law, they have more chance of shaping debates in the United Nation's International Telecommunication Union, where many of the future global tech regulations will be determined. It might not be on the radar of many policymakers, but this is a key forum where some of the most profound decisions shaping the future of the digital world order will be made.

THE GEOPOLITICS
OF AI: AVENUES FOR
RENEWED
TRANSATLANTIC
COOPERATION

5

Conclusion

We cannot anticipate all of the ways AI will shape global geopolitics, but history shows clearly that technological leadership brings military and economic advantages, and it allows countries to shape international norms according to their own interests. Today, the West's technological leadership can no longer be taken for granted. China is the most prominent challenger but likely not the last. Thinking more in terms of platform geopolitics and global scalability of policy approaches would be an important step to accommodate the transatlantic relationship in the digital age.



In these early days, Western policymakers must:

- Develop shared pools of and common regulations for using the massive amount of data that crosses the Atlantic and is critical to fine-tuning AI algorithms. Companies around the world that want a presence in this desirable transatlantic data sphere would have to comply with its rules and regulations.
- Secure the steady supply of hard- and software components that are critical for the application of AI and other emerging technologies on transatlantic digital platforms. A coordinated transatlantic approach to supply-chain security and commercial-intelligence sharing will be important in the competition for economic and military supremacy.
- Speak with one transatlantic voice in global standards-setting forums in order to shape global regulation of digital platforms. While transatlantic partners might have significant differences on regulation, they share a fundamental belief in democracy, freedom, and the rule of law. These values can and should guide a transatlantic convergence on how to run digital platforms.



**THE CORONAVIRUS PANDEMIC
HAS REVEALED THE STRENGTHS
AND WEAKNESSES OF OUR SOCIAL,
POLITICAL, AND ECONOMIC SYSTEMS,
BE IT HOW MUCH FREEDOM A SOCIETY
IS WILLING TO GIVE UP TEMPORARILY
FOR THE SAKE OF COLLECTIVE
(AS WELL AS INDIVIDUAL) SAFETY;**



the state of play of digitalization in various areas of life, such as education or work; or the value of local economies in digitally networked times. We can no longer tiptoe around the sensitivities of people who are enamored with the past by pushing aside fundamental questions about the future.

**IT'S ABOUT
SMALL ENTERPRISES
AND DECENTRALIZED
STRUCTURES,
GOLIATH!**

BY STEFAN KRABBES

IT'S ABOUT SMALL
ENTERPRISES
AND DECENTRALIZED
STRUCTURES,
GOLIATH!

IN GERMANY IN PARTICULAR, THE CRISIS HAS ILLUSTRATED HOW FAR BEHIND SCHOOLS ARE IN DIGITAL EDUCATION. IT HAS ALSO THRUST THE HOME OFFICE INTO THE DEBATE OVER NEW WORK, ALSO KNOWN AS THE FUTURE OF WORK, WITH ITS IMPLICATIONS FOR ECONOMIC AND LABOR POLICIES, BUT ALSO FROM A SOCIETAL PERSPECTIVE. AFTER ALL, THE HOME OFFICE ISSUE ALSO REVEALS A FIELD OF TENSION BETWEEN THE PROFITEERS OF DIGITALIZATION (EVEN IF THERE ARE STILL SOME STANDARDS TO BE SET, LIKE THE RIGHT TO DISCONNECT) AND THOSE WHO WORK IN THE MAIL-ORDER WAREHOUSES AND DELIVERY SERVICES, BECAUSE IT IS CREATING A SIGNIFICANT DISPARITY IN WORKERS' RIGHTS AND VULNERABILITY.

Fittingly, albeit in the context of social media, scientists like Ursula Huws and Rafael Capurro are speaking of the cybertariat in reference to Marx's proletariat. And this term is an apt further development because people still give their labor force to those who hold the means of production. Today, these means of production are, for example, the algorithms that make us as users into a product, since they work with the data that we ourselves produce. We, the products, are then bought by companies. We no longer just produce the products — we become them. Points like these suggest that a renewed social question will inevitably result from digitization.

THESE ARE ONLY SOME OF THE ISSUES THAT SUGGEST INCREASING DIGITALIZATION WILL REQUIRE US TO REVISIT OUR SOCIAL COMPACTS.

Digitalization is the successor to industrialization, in which machines no longer perform only physical labor but also mental labor that used to be done by humans. For example, when Johannes Gutenberg invented the printing press with the first movable letters, the scribes' work was automated and simplified. But for a long time now, we have been transferring not only this mechanical work to machines, but also some mental work, such as translating entire books by artificial intelligence.

WE ARE IN AN AGE OF SCRUTINY — OF PROCESSES, STRUCTURES, AND ACTORS FROM WHICH USABLE DATA CAN BE MINED. THE EXPLORER ALEXANDER VON HUMBOLDT ONCE SAID, "EVERYTHING IS INTERACTION AND RECIPROCAL."¹ HE UNDERSTOOD THE NEED TO MEASURE THE THINGS SURROUNDING US TO FIND THE HIDDEN MECHANISMS OF ACTION, THAT ALGORITHMS ROUTINELY DISCERN — EVEN THEN WHEN THINGS SEEM TO BE UNRELATED. ONE SUCH EXAMPLE IS APPLICATIONS THAT CAN RECOGNIZE DISEASES SOONER THAN WE OR OUR DOCTORS DO, BECAUSE THEY NOTICE A DIFFERENCE IN THE WAY WE WALK.

Our data are raw materials that need to be put to concrete use by algorithms, which is to say according to fixed and standardized processes, to create either a version of reality in a social media timeline or the Swipe-O-Conomy, in which we are only superficially given a choice, because the actual evaluations and decisions have already been made opaquely without us, the consumers. Especially in times of advancing digitalization, it always helps to remember the saying: If it costs nothing, you are the product.

Nothing new there. But with the ascendance of artificial intelligence, digitalization is about to influence our lives more than most of us know. Technological progress undoubtedly makes our lives better and longer, for example by detecting diseases earlier by recognizing patterns in data. To do that, though, it increasingly requires data of the type long collected via smart devices, which in turn requires a broad discussion of who is allowed to use and evaluate that information. After all, a central question as we revise the social contract will be the relationship of the individual to society, the state, and the economy. Who has the right to evaluate my data in order to make a diagnosis? Do I give my data to a doctor for annual checkups, who in turn has access to a pool of data for pattern matching? Will the information be automatically transmitted to the health insurance company, which takes care of everything else within the framework of the medical treatment, or do we trust the tech giants like Apple and Google?



IT'S ABOUT SMALL
ENTERPRISES
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STRUCTURES,
GOLIATH!

THESE MIGHT SEEM LIKE
SMALL DETAILS, BUT THEY ARE
FUNDAMENTAL QUESTIONS ABOUT
THE ARCHITECTURE OF THE FUTURE,
WHICH SHOULD BE DOMINATED BY
NEITHER THE SURVEILLANCE STATE
NOR THE ECONOMY.

THE POWER ECONOMY
PRODUCES COMPANIES
THAT ARE TOO BIG AND
DICTATES THE RULES TO
THE MARKET, INCLUDING
COMPETITORS AND
CUSTOMERS. THE EXAMPLE
OF THE BANKING CRISIS
HAS SHOWN WHERE
IT CAN LEAD WHEN
COMPANIES ARE "TOO BIG
TO FAIL." THEY REQUIRE
CROSS-DISCIPLINARY
DEBATES THAT INVOLVE
ACTORS FROM ALL
SOCIAL BACKGROUNDS.
COMPANIES LIKE
HOLOCHAIN.ORG,
WHICH SEEKS TO CREATE
DECENTRALIZED MEANS
TO INTERACT ONLINE,
ARE WORKING ON THESE
KINDS OF QUESTIONS AND
TECHNOLOGIES.

A FUNDAMENTAL PART
OF THE ANSWER TO THESE
QUESTIONS OF CONTROL
LIES IN DECENTRALIZING
DATA STORAGE, AS
HOLOCHAIN DOES. LESS
OVERARCHING BUT STILL
KEY IS TO CHANGE THE WAY
WE INTERACT WITH BIG
TECH COMPANIES, SUCH
AS GOOGLE OR FACEBOOK.
A KIND OF DATA WALLET
WOULD ENABLE USERS TO
DECIDE FOR THEMSELVES
WHO GETS ACCESS TO
WHICH DATA, WHEN, HOW,
AND FOR HOW LONG.
SINCE WE HOLD THE DATA
OURSELVES, WE TAKE IT
OUT OF THE HANDS OF
CORPORATIONS AND THE
STATE, AND EMPOWER
OURSELVES AS INDIVIDUALS
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COMPANIES LIKE FACEBOOK
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IT IS THE RIGHT AND
DUTY OF FREE SOCIETIES
TO PUT AN END TO SUCH
CONCENTRATIONS OF
POWER BY CREATING NEW,
DECENTRALIZED STRUCTURES
IF THEY WANT TO REMAIN
FREE, OR EVEN IF THEY
SIMPLY WANT TO IMPROVE
THE WAY THEIR MARKETS
AND GOVERNMENTS
FUNCTION. IN ORDER TO
BUILD IN HUMAN AGENCY
FOR THIS POST-INDUSTRIAL
MACHINE AGE

DOMINATED BY ARTIFICIAL
INTELLIGENCE, THE EU AND
UNITED STATES MUST WORK
TOGETHER TO ENCOURAGE
A DECENTRALIZED
CYBERSPACE. THAT
MIGHT INCLUDE
FEDERATED MACHINE-
LEARNING APPLICATIONS,
DECENTRALIZED FINANCIAL
SYSTEMS, OR OTHER
FEDERATED TOOLS THAT
GIVE CONSUMERS AND
CITIZENS MORE POWER
OVER THEIR OWN DATA.
POLICYMAKERS COULD
START BY MANDATING
THE INTEGRATION
OF TRANSPARENT,
DECENTRALIZED SYSTEMS
IN THEIR PUBLIC
TENDERS AT THE LOCAL,
STATE, NATIONAL, AND
SUPRANATIONAL LEVELS.

1 Andrea Wulf. "The Forgotten Father of Environmentalism." The Atlantic. 23 December 2015. <https://www.theatlantic.com/science/archive/2015/12/the-forgotten-father-of-environmentalism/421434/>.

CONCLUSION FELLOW PROFILES



State Delegate Lashrecse Aird is a member of the Virginia House of Delegates.

How do you define AI in a few sentences? The ghost in the machine.

What's the most pressing policy we need to change or develop surrounding AI? Accountability for algorithmic bias.

What is the most difficult part of working at the intersection of technology and policy? The technology is actively evolving and so much continues to be misunderstood by policymakers, making it difficult to regulate.



State Senator Raumesh Akbari is a Tennessee State Senator.

How do you define AI in a few sentences? AI is technically defined as the intellect displayed by machines, but rapid developments in machine learning technology have left that definition in the dust.

How can we envision or describe data in a sentence or two? I see data as the rapid analysis of isolated information points in order to reach an actionable conclusion or to explain phenomena.

What's your go-to quarantine drink? Coffee with a shot of espresso and cream. And Diet Coke. Caffeine is a recurring theme.

Yilmaz Akkoyun is a policy advisor to Steffen Bilger, German Federal Parliament member and State Secretary in the German Federal Ministry of Transport and Digital Infrastructure.



What's your favorite written piece on AI? *The Singularity is Near: When Humans Transcend Biology* written by Ray Kurzweil.

Are you optimistic or pessimistic about the effects of AI on society? **Why?** Between utopia and dystopia, many more scenarios are possible. At stake is nothing less than what kind of society we aim to live in and how we experience humanity in the 21st century.

I am optimistic we will use AI to improve the state of the world. On the one hand, we can use AI to further reduce global poverty as well as diseases and offer better education to almost every student on our planet. On the other hand, AI and machine learning can also be used to increasingly concentrate power, wealth, and leaving many people worse off. It is our mission to ensure the technology advancement matches our values. I am convinced that AI will, above all, strengthen and improve the effectiveness of human activities — but will not replace them. The economic potential of AI is huge — but we also have to lift it.

What's your go-to quarantine drink? Double Espresso Macchiato.

Philip Boucher is a policy analyst in the European Parliamentary Research Service, where he works for the Panel for the Future of Science and Technology (STOA).

What's your favorite written piece on AI? I'll suggest two books that look at AI from my discipline of choice — sociology of technology: Harry Collins (2018) *Artificial intelligence: Against Humanity's Surrender to Computers*.

Hannah Fry (2019) *Hello world: How to be Human in the Age of the Machine*.

How do you define AI in a few sentences? I'd say it's machines that can respond autonomously to their environment in a way that we consider intelligent. One of the problems with the field is this loose and subjective definition which I think has become an obstacle to productive and meaningful debate.

Are you optimistic or pessimistic about the effects of AI on society? **Why?** I'm a bit of tech-pessimist in general. For AI, I find it hard to imagine that AI will contribute to the reversal of equating structural inequalities. I think if anything it is more likely to exacerbate them. I think AI (and tech more generally) is seen too much as an end in itself, while the benefits it has delivered so far are much more frivolous than the promises. I think seeing AI as a means to deliver real social value rather than as an end in itself could help improve matters.

What's the most pressing policy we need to change or develop surrounding AI? I think we need to address the market ecosystem, which tends too easily towards domination. I'm worried about how communicating with others and participating in public debates now seems to require joining private platforms (i.e., Facebook and Twitter). On a related note, I'm worried that AI will close down people's margins of manoeuvre as more aspects of our lives are measured and used as data.

David Bowen is a Wisconsin State Representative representing Milwaukee.



David Bowen is the son of Jamaican immigrants who came to Milwaukee to pursue a better life for their family. Born and raised on Milwaukee's North Side, David was a 2005 honors graduate of Bradley Tech High School. As a teen and young adult, David completed Urban Underground's youth leadership program. He was selected as a Legacy Foundation Youth Activism Fellow and is a two-time graduate of the AmeriCorps program, Public Allies.

In April 2012, he was elected to the Milwaukee County Board as Supervisor for District 10, becoming the youngest member of the Board and one of the youngest Black elected officials in Milwaukee's history. He currently serves on three County Board standing committees: Health and Human Needs, Transportation and Public Works, and as Vice Chair of Economic and Community Development.

CONCLUSION FELLOW PROFILES



State Representative Brian Cina is a Progressive State Representative in the Vermont State Legislature.

Are you optimistic or pessimistic about the effects of AI on society?

Why? I am both optimistic and pessimistic because AI can be a tool that both solves some of our greatest problems, as it becomes our greatest problem.

What's the most pressing policy we need to change or develop surrounding AI? Setting boundaries around the ethical use and development of AI.

Why did you choose to participate in CEPI? I would like to contribute to international policy regarding artificial intelligence because the greatest impact will happen through the policies that we make that go beyond borders.

What's a startup that you think is really cool right now? My baby Gilfeather turnip plants.

Tulsee Doshi is a product lead for Google's efforts in ML Fairness and Responsible AI.

What's your favorite written piece on AI? While not an opinion piece, I love the *PAIR Guidebook*, published by Google, as a written guide for designers to develop AI products that preserve their magic while still working well for users.

How do you define AI in a few sentences? AI, short for Artificial Intelligence, is the simulation of human intelligence, built and manifested by machines. The most common variant of AI is machine learning — the art of learning from data to develop complex patterns and predictions.

How can we envision or describe data in a sentence or two? Data can be anything, a single point that describes a moment in our stories and our histories. Data holds extreme power, and yet, by itself, is not useful. The meaning we ascribe to data, in how we develop our models, how we visualize and tell stories of this data, and how we aggregate and combine it is critical, and makes data the backbone of all our products and technological ventures.



What is the most difficult part of working at the intersection of technology and policy? A challenge I often think about is that there are only a few of us who work at the intersection of technology and policy, when really, these should be two fields that are taught hand in hand, and that work hand in hand. Making policy decisions can't be independent of understanding the technology. Otherwise, we make policies that are impossible to enact, and enact changes that need policy oversight.

Johannes Jaenicke is a policy advisor in the office of MEP Damian Boeselager (Volt Europa). Johannes is responsible for work in the Committee on Industry, Research and Energy, as well as the Budget Committee.

Are you optimistic or pessimistic about the effects of AI on society?

Why? I don't know yet. AI coming of age in an era of open geopolitical conflict and authoritarian governments may do more harm than benefit — but I would not dare to predict the future.

What's the most pressing policy we need to change or develop surrounding AI? Governing ownership rights of algorithmic applications and the data that is used to train them.

What's a startup that you think is really cool right now? Volt, the political startup I work for of course :-).

Stefan Krabbes is a parliamentary assistant in the office of MEP Anna Cavazzini, a member of the Committee on International Trade (INTA) and a member of the Greens.

How do you define AI in a few sentences? If one says industrialization was the outsourcing of physical works from human beings to machines, digitization is the outsourcing of mental work from human beings to machines...Artificial intelligence is more the creative and smart solving of problems (at least finding possible solutions) by “machines”. But for sure, there is a difference between machine learning, and AI. Via machine learning, you can program a robot to let it climb the stairs, and it improves the climbing step by step. Via AI, you can ask the robot to bring you the glass of milk from the kitchen, and it knows what to do. That's my definition, even if it's more a description.

How can we envision or describe data in a sentence or two? Data is fixing points of our lives. Based on a German movie about Alexander von Humboldt, I'd say that digitization is the new measuring of our world by using these fixing points. But there's a saying, data is the new oil. This saying may work from the perspective of earning money, but there is a difference: data's unlimited.

What's a startup that you think is really cool right now? Holochain.

What's your favorite movie?
Into the Wild.



CONCLUSION FELLOW PROFILES



Leif-Nissen Lundbaek is the founder of eXpandable AI Network (XAIN), a cyber-security protocol that combines AI with privacy paradigms.

How do you define AI in a few sentences? AI or machine learning is a programmatic way of automatically looping via one or more statistical layers to come up with decisions or forecasts in more or less complex, probabilistic scenarios. There may be data as an input for training, e.g., for model-based AIs, but not necessarily if we think of policy-driven reinforcement learning.

How can we envision or describe data in a sentence or two? Data can be numeric, characteristic, or symbolic values that describe facts or statistics. It is used to describe or define events as an input for human or machine understanding, yet, neither machines nor humans need (past) data as input necessarily.

What's the most pressing policy we need to change or develop surrounding AI? In my view, it is the question about data sovereignty and privacy. There is a lot of industry pressure that wants to gain massive access to user data for free. However, the data belongs fundamentally to the users and not to any company. It is also simply not true that companies require access to this data to deliver great services. We have technical possibilities to deliver the same services and convenience whilst guaranteeing the highest possible data privacy protection. And if a company really wants to have the data of users in plain text, they should pay for it. Delivering convenience or a specific service is just not enough.

What is the most difficult part of working at the intersection of technology and policy? The complexity of merging law and technology is always challenging due to the pace of technical development and the slowness (not in a bad meaning) of policy.

What's your favorite book?
Superintelligence: Paths, Dangers, Strategies by Nick Bostrom.



Melanie Meyer has worked for a decade in the office of MdB Peter Beyer, who coordinates transatlantic cooperation for the German federal government.

What's your favorite written piece on AI? *Salomons's Code: Humanity in a World of Thinking Machines* by Prof. Dr. Olaf Groth.

What's the most pressing policy we need to change or develop surrounding AI? Digital change and AI have to go side by side. AI needs visions and rules. AI has to serve humankind. Not more. Not less.

What is the most difficult part of working at the intersection of technology and policy? To put it bluntly, you could analyze it as follows: Think big and act quickly are not the strengths of politics, but the spirit of AI.

What's your go-to quarantine drink?
Coffee — black, like every morning.



Luca Ravera is an administrator in the European Parliament, where he has spent the last five years in the parliamentary Committee of Transport and Tourism.

Are you optimistic or pessimistic about the effects of AI on society? I consider AI as a tool: There is no implicit good or bad to AI. It will simply respond with results that are derived completely by its learning. The good or bad of AI will thus be based on what data we insert, how well we train the AI, and how we test it.

On one hand, we need to embrace new technologies, and on the other hand, we need to regulate them. As human behavior can be varied, we could expect the same from AI, depending on the data we feed in the machine and its learning process. At the end of the day, this question is not only about AI, but it is linked to our perception of society.

How can we envision or describe data in a sentence or two? Data is all around us. The Internet of Things (IoT) and sensors have the ability to harness large volumes of data, while artificial intelligence (AI) can learn patterns in the data to automate tasks for a variety of business benefits. Any inaccuracies in the data will be reflected in the results, exactly like humans getting wrong information and failing a test.

What's the most pressing policy we need to change or develop surrounding AI? I believe we need to regulate data governance, issues of privacy, civil liability related to product defect, and possible damages to victims. Possibly also introducing a scheme of mandatory insurance.

What is the most difficult part of working at the intersection of technology and policy? It is the fact of working in unknown territory. It is very difficult to predict all the implications and the consequences AI will bring to our society. It is even more difficult to have a legal framework which regulates in advance all the applications of AI and stays in line with the times and the rapid changes.

CONCLUSION FELLOW PROFILES



Jana Schneider works as a policy advisor to MEP Dr. Andreas Schwab, the EPP Coordinator in the Committee on Internal Market and Consumer Protection (IMCO).

What's your favorite written piece on AI? On digital development in general, one of my favorite books is *The Circle* by Dave Eggers. To me, it is the *1984* by George Orwell for the digital age.

How can we envision or describe data in a sentence or two? Data is the raw material of the 21st century.

What's the most pressing policy we need to change or develop surrounding AI? Technical development is very fast moving and it seems like the policymaker is often running behind the developments rather than setting a framework in advance to foster innovation while making sure regulation is put in place where necessary.

What is the most difficult part of working at the intersection of technology and policy? Policymaking mostly focuses on the “big picture”. When discussing technology, it is often important to understand technical details. To bring the details and the “bigger picture” together is a challenge for policymaking.

Stefan Steinicke is Chief of Staff and Foreign Policy Advisor in the office of MdB Christoph Matschie, where he focuses on digitization and foreign policy.

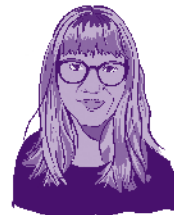


What is the most difficult part of working at the intersection of technology and policy? The equal lack of understanding of both sides. Many policymakers, who are not dealing with technology issues on a day-to-day basis, basically lack digital literacy. Likewise, many techies are a) not aware of the many societal implications of their developments and b) not aware of the political processes a democracy is based upon.

What's a startup that you think is really cool right now? Not really a startup in the classical sense. The Danish Ministry of Foreign Affairs came up with the idea of TechPlomacy, realizing that diplomacy needs to get a better grasp of how technology changes geopolitics. Hence they set up a team with outlets in Silicon Valley, Copenhagen, and Beijing. It's the attempt to bring a startup and technology mindset to the foreign affairs and diplomacy communities.

What's one thing people might not know about you? I was filmed by a CNN crew in 1990 as a six-year-old in front of the German Bundestag wearing a Soviet officer's cap (straight after the Fall of the Berlin Wall, Soviet soldiers started selling their equipment on the streets of Berlin).

What's the most pressing policy we need to change or develop surrounding AI? If you believe what AI thinkers like Kai Fu Lee and Yuval Harari are saying, it is to significantly invest in people's ability to develop empathy as well as to invest in social work jobs as this is a massive growth job market.



Louisa Well is a policy advisor to MdB Dr. Anna Christmann, who currently is the Spokesperson on Innovation and Technology Policy for the Greens.

How do you define AI in a few sentences? AI, in a machine learning sense, can do so many things by finding patterns in large data sets that humans wouldn't be able to see. In every sector, machine learning can play a role and change how we are solving problems: be it to find new vaccines, reorganize transportation, or combat climate change. What fascinates me most are the societal changes this new form of decision-making will bring.

Are you optimistic or pessimistic about the effects of AI on society?

Why? It can be used to both ends and I don't think fundamentally rejecting or embracing helps us to make the best of AI; I prefer thoroughly understanding the system, making use of the good and exposing the bad. For this, we need educated societies that have debates about pending value judgements. Rather than yet another panel talk on the trolley problem of autonomous driving, we need to answer questions of how we can foster innovation, improve living standards, and reduce inequality.

What's the most pressing policy we need to change or develop surrounding AI? Make AI more diverse and create spaces to develop ideas on how to tackle climate change and reduce social inequality.

What's your favorite book? I recently read *Humankind: A Hopeful History* by Rutger Bregman, which I quite enjoyed because, like all the books that leave a lasting impression with me, it gives plenty of opportunities to discuss new thoughts with the people around me.

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“SUCCESS IN CREATING AI
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IN HUMAN HISTORY. UNFORTUNATELY,
IT MIGHT ALSO BE THE LAST,
UNLESS WE LEARN HOW TO
AVOID THE RISKS.”

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