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# Europe in the Age of AI: How Technology Leadership Can Boost Competitiveness and Security

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# Foreword

Europe's place in the world and its way of life are at risk. A new geopolitical order is emerging, characterised by hard power combined with rapid technological advances in areas such as artificial intelligence, with the United States and China currently dominating. Navigating this order successfully will require all of Europe to mobilise in response.

We want to see a strong, prosperous and secure Europe that can defend and advance its values with like-minded partners. But that is not the Europe of today. A weak and disenfranchised Europe is the most likely outcome if leaders fail to seize the moment and take technology seriously. That is why we have come together to state a simple truth: for Europe to thrive, it must undergo profound and urgent change, transforming itself into a strong, competitive and global digital power.

## A New Urgency to an Old Problem

Several interconnected challenges are undermining Europe's ability to transform. Fragmented markets and complex regulations hinder businesses from scaling, while the continent's innovation ecosystem is held back by chronic underinvestment in infrastructure and some of the world's most expensive energy prices. As a result, Europe is being outspent, out-innovated and outperformed in AI and other technologies needed to secure future growth and prosperity.

Europe's competitive decline has not occurred overnight. For decades there were signs that Europe's lack of global technology leaders would have severe consequences. However, these signs have been consistently ignored, or answered with reforms that have failed to meet the scale of the challenge. As a result, Europe's share of global GDP continues to shrink and its innovative startups have been looking elsewhere to raise the capital they need to scale.

With the continent facing a series of existential threats, the need to act is more urgent than ever. Russia's full-scale invasion of Ukraine has highlighted the importance of Europe possessing its own defence capabilities; innovations in drone warfare have shown how central technology leadership is to the continent's security. Meanwhile, low voter turnout and the rise of anti-establishment parties threaten the core values on which Europe and its citizens rely. Here, too, technology can play a key role in improving public services and regaining the public's trust.

Bold reforms are needed to meet these challenges, yet many people do not realise how severe the situation is. Polling shows that digitalisation is not a priority for European voters, leading policymakers to focus attention elsewhere. This is a mistake: the time to act is now.

## A Vision for Europe's Tech-Enabled Future

We believe that Europe has what it takes to meet this moment. It has the talent and the resources, but they must be used and supported effectively. This will require European leaders to unlock infrastructure investments, accelerate technology adoption to boost productivity, foster an innovative private sector supported by deep pools of capital, streamline regulation, invest in talent and include the digital agenda among the top political priorities connected with people's needs. The prize for technology leadership is economic prosperity, improved social outcomes and secure borders.

Importantly, achieving global technology leadership is a constructive project, not a reactive one. The solution is not for Europe to copy the economic and social models of the US or China, but to re-emerge as a stronger, better version of itself, underpinned by a dynamic and innovative technology sector. This will also make Europe a reliable global partner that presents the world with another option: a technology stack that supports European values, the rule of law and a commitment to building a better, more prosperous global community.

Success will require sound policy thinking. Today, European debates too often conflate digital sovereignty with autarky: the belief that we must build domestic alternatives for every technology. This is economically infeasible and strategically confused: true sovereignty is not about ownership, but about leverage and choice. From market size to advanced manufacturing capabilities, Europe already has a lot of the bargaining chips that can shape global technology ecosystems in its favour.

What is lacking in the effort to achieve technology leadership is not ideas but a coherent and forceful political response. The Draghi report contained nearly 400 recommendations to boost EU competitiveness, but only 11 per cent have been implemented so far. Moreover, many problems that can only be solved through Europe-wide collaboration are still addressed piecemeal by national governments. This is why we have come together with this call to action.

## A Call to Action for European Political Leaders

The recommendations in this report require interventions by European heads of government as well as the European Commission, because they demand three things that only presidents and prime ministers can provide:

First, a compelling narrative. Technological competitiveness is not a priority for voters because European leaders have failed to connect it to what citizens care about: their security, their prosperity and their children's futures. Other leaders around the world have succeeded at this – you must as well.

Second, the strategic direction. Your ministers know the technical details, but they are lost in a sea of equally worthy initiatives. They need you to ruthlessly prioritise what needs to be done at a national level and at an EU level, and what challenges require a whole-of-Europe effort.

Third, the political mandate. Education ministers are running away from AI in schools. Finance ministers are protecting national prerogatives over capital markets. Energy ministers are defending fragmented grids. This is a failure of political leadership. When ministers can block progress on existential priorities, it means prime ministers have not made the stakes clear.

Political leaders in Brussels and European capitals should put technology leadership at the heart of our security and prosperity strategy. This means viewing digital sovereignty as leverage, not autarky. It means matching global peers on AI investment, including key enablers such as skills, energy and compute. And, most importantly, it means acting as Europe (the EU-27 plus Norway, United Kingdom, Switzerland, Ukraine and other countries) where solo action fails to address existential challenges.

Action at the European level is often hindered by domestic politics – but this deadlock can be broken. Previous leaders have secured elections with platforms that are both pro-growth *and* pro-welfare, as well as pro-nation *and* pro-Europe. It has been achieved before, and it must be achieved again.

Success in this endeavour is essential for guaranteeing Europe's ability to continue its way of life, deliver prosperity and defend its security. In a world increasingly defined by crises and disorder, success today is more important than ever. The world is looking for stability and security. We believe that only a strong, democratic and rules-based digital Europe can provide this.

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# Executive Summary

The world is entering a new era, in which leadership in frontier technologies determines not only economic success but national strength and societal resilience. AI, advanced robotics, clean energy and biotechnology are reshaping every domain, including defence, health, education and manufacturing. No country, economy or society will be left untouched.

At the same time, the liberal and transatlantic global order that once defined Europe's place in the world no longer exists. Instead, a new era is emerging, characterised by regional superpowers, strong leaders, hard power and technological advancements. The countries that master these technologies will define global power for decades.

Europe's competitiveness will decide whether it can maintain prosperity, security and sovereignty in this new age. Yet today, the continent is losing ground. The United States possesses 17 times more compute capacity (necessary for storing, processing and transferring data at scale, to train the likes of large AI models) than Europe<sup>1</sup> and China is building national AI infrastructure at record speed.<sup>2</sup> Europe, meanwhile, is held back by regulatory fragmentation, high energy costs and capital markets that inhibit innovation.

The result is a widening gap. The US has produced more than 240 technology firms worth more than \$10 billion, compared with just 14 in Europe.<sup>3</sup> At the same time, European households hold €11.5 trillion in cash and deposits<sup>4</sup> – a vast pool of underused savings that could fuel innovation if mobilised. Without reform, Europe will remain an innovation consumer rather than a creator, dependent on others for the technologies that underpin its future.

This is not simply an economic issue: it is existential. Technology shapes Europe's ability to defend its democracies, sustain its welfare systems and project stability in an uncertain world. The war in Ukraine and rising geopolitical competition underscore that digital strength is national strength. Moreover, technology is the best bet to improve government efficiency – a



task that will be key to building trust with citizens. Europe's leaders must therefore act collectively, not only to keep pace but to lead in the responsible and strategic use of technology.

Yet Europe also begins from a place of real advantage. It remains the world's largest integrated market, has a skilled workforce and leads globally in sectors such as life sciences and advanced manufacturing. It has pioneered digital-government systems,<sup>5</sup> AI-enabled public services<sup>6</sup> and data-protection frameworks that inspire trust. These strengths can form the foundation of a new European digital strategy if matched by urgency, investment and execution.

Recent actions such as the newly announced Competitiveness Compass,<sup>7</sup> the Apply AI Strategy,<sup>8</sup> the Scaleup Europe Fund<sup>9</sup> and the International Digital Strategy<sup>10</sup> are important steps in the right direction. But these actions hide the serious risks that Europe still faces.

The Draghi report set out a clear roadmap of 383 recommendations for what Europe must do, but many of the hardest – and most important – reforms remain unimplemented.<sup>11</sup> Europe cannot afford another decade of partial measures. It must now decide: will it remain a continent defined by past achievements or become one that shapes the future?

This report provides three main insights. First, it sets out a vision for a strong and competitive digital Europe. The prize is healthier lives and better care, improved learning outcomes and a highly skilled workforce, safer food and sustainable farms, global scientific leadership and competitive industries, and more innovative governance paired with effective institutions.

Second, it identifies recommendations across four areas of reform to achieve this vision. In short, Europe should reform governance to coordinate investments and harmonise digital markets; build the physical and digital foundations for the AI era; accelerate AI adoption to power transformation; and strengthen Europe's global tech engagement. These reforms are interrelated and can only be successfully implemented in unison.

Third, it demonstrates that a whole-of-Europe approach is needed. The problems related to declining competitiveness are significant, far surpassing what the European Union can accomplish on its own. Europe must not only boost its technological competitiveness but also support Ukraine in winning the war on its eastern border, to defend its democracies. To succeed, political leaders must draw on resources and expertise from across the continent.

If Europe acts decisively it can reclaim technological leadership, create high-value jobs, improve public services and reinforce democratic resilience. The reforms outlined here are not optional – they are essential when it comes to preserving the European way of life.

## Recommendations

Bold action is required for Europe to secure its place as a global digital superpower. This report sets out four decisive steps to strengthen Europe's position in the AI era.

### 1. REFORM EUROPE'S REGULATIONS FOR A STRONG DIGITAL FUTURE

Building a globally competitive technology ecosystem requires Europe to modernise its digital regulations and address market fragmentation. The current precautionary approach discourages high-risk innovation and leaves European firms at a disadvantage, while fragmentation makes it harder for European businesses to raise capital, scale and grow.

- **Accelerate EU-level reforms to create a unified, innovation-friendly digital single market.** Europe's existing digital regulatory framework makes it costly for businesses to innovate, scale and compete globally, and the AI Act illustrates these challenges. The EU should use the Digital Omnibus to simplify reporting, harmonise enforcement and streamline regulation across member states. Reducing this burden will cut compliance costs, unlock innovation and strengthen Europe's competitiveness in the AI era.

- **Fast-track the implementation of a Savings and Investment Union and a 28th regime, to unlock capital and create a foundation for innovation.** Europe's fragmented capital markets, rigid labour rules and lack of a unified stock market make it difficult for businesses to raise investment and scale. The EU should fast-track the Savings and Investment Union, introduce a 28th regime and support the creation of a continent-wide stock exchange; it should also encourage national reforms to mobilise pension and savings capital, and modernise labour markets.

## 2. BUILD EUROPE'S FOUNDATIONS FOR THE AI ERA

Competitiveness in the AI era depends on affordable, sustainable and abundant access to energy and compute; Europe's current approach to both is disjointed, costly and slow. Without reform, Europe's businesses will struggle to stay competitive as other countries rapidly build out AI and energy infrastructure.

- **Secure and maintain a minimum of 10 per cent of global compute capacity for Europe.** Europe risks falling behind in the AI era because it lacks sufficient compute infrastructure to train and deploy models at scale. Europe, both EU and non-EU, should collectively agree to secure at least 10 per cent of global compute capacity, building on existing initiatives such as the EU Gigafactories and EuroHPC JU and creating conditions to attract large-scale private investment in AI infrastructure.
- **Accelerate completion of the Energy Union with harmonised rules and Europe-wide planning to lower electricity costs and improve resilience.** Europe's energy system remains costly, with electricity prices more than twice as high as those in the US and China. Completing the Energy Union and expanding it to become a truly continental project will help harmonise market rules, modernise grids and accelerate cross-border integration. A unified energy market will lower costs, attract investment in clean and renewable energy, and strengthen Europe's energy resilience.

- **Launch a continental energy programme to coordinate the building of new nuclear-power plants and accelerate permissions for renewables, grids and storage.** Europe must secure affordable, clean and abundant energy to power its digital and industrial future. While renewables will remain essential, a major expansion of nuclear power will be needed to meet Europe's growing demand. The European Commission (EC) – in collaboration with Euratom, the European Investment Bank and partners such as Ukraine and the UK – should lead a continental programme to coordinate new nuclear projects, harmonise regulations and accelerate permitting for renewables, grids and storage.

### **3. ACCELERATE AI ADOPTION TO POWER EUROPE'S DIGITAL TRANSFORMATION**

Widespread adoption of AI across the European economy will be a key enabler of its future power, influence and strength. Open source will play a key role in driving adoption, and Europe should lead on building a trusted and interoperable open-source AI ecosystem. This effort must be supported by strategic, enabling sector-specific regulations and a strong AI talent base.

- **Accelerate AI adoption by building a trusted, interoperable ecosystem based on Europe's leadership in open data and open-source innovation.** Europe's success in AI will depend on turning its rich data assets into applications that drive demand. The Data Union Strategy should unlock strategic data sets and, supported by an EU Open-Source Trust Fund and an Open-Source Maintenance and Resilience Framework, foster an open-source ecosystem that lowers barriers to innovation. Public procurement and compute-credit incentives can then create the market pull required to scale adoption across Europe.
- **Create sector-specific AI-adoption regulation packages that provide regulatory clarity and fast-track approval paths.** Europe's overlapping horizontal and sectoral regulations make it difficult for businesses to deploy AI in critical industries. The EU should introduce targeted AI-adoption regulation packages that provide clear rules and harmonised standards, and fast-track approval paths for sectors such as health care,

energy, manufacturing and finance. Streamlined, sector-specific regulation will accelerate adoption, boost productivity and show that innovation and high safety standards can successfully coexist in Europe.

- **Align university systems with the demands of the modern innovation economy to attract researchers and strengthen Europe's talent base.** Europe's universities are constrained by rigid governance, outdated incentives and uncompetitive salaries, driving top researchers and AI talent abroad. Governments, funding agencies and universities should reform career structures, increase autonomy and offer globally competitive pay, as well as flexible pathways between academia and industry. A more talent-focused university system will help Europe attract, retain and deploy the expertise needed to lead on advanced research and AI innovation.

#### **4. STRENGTHEN EUROPE'S TECH ENGAGEMENT TO INCREASE GLOBAL INFLUENCE**

Europe's global tech competitiveness will depend on its ability to proactively shape the international technology landscape in line with its values and interests. Countries must know not only that they can choose Europe, but that it is the best choice for their technological needs. This will require Europe to build a network of countries aligned with its vision and values for the world's digital future; from there it can export its technology stack and make itself attractive to international investors.

- **Launch a coordinated strategy to export Europe's digital government stack to the world.** Europe is home to many of the world's most advanced digital governments. As AI transforms how states operate, Europe – meaning the EU, the UK, Ukraine and other partners – should develop a unified strategy to export its interoperable digital-government stack. This should be through initiatives such as Global Gateway, which can expand its scope to include digital public infrastructure and AI-ready government systems. The rapidly growing \$10 trillion GovTech market offers major opportunities for European industry, and wider global adoption of Europe's stack will strengthen its economy and international influence.

- **Create regional tech hubs across the world, staffed with technologists and diplomats, to promote a European tech stack.** Europe's technological strengths are often overlooked, limiting global awareness and adoption of its solutions. The European External Action Service should establish regional tech hubs, staffed by technologists, to promote Europe's digital and AI technologies, support local pilot programmes and gather insights on emerging trends. These hubs will expand Europe's global presence, deepen partnerships and create new opportunities for European industry in key international markets.
- **Establish a new vehicle to help major investors of strategic interest navigate Europe's regulatory environment.** Europe's complex and fragmented regulatory environment discourages major investments in critical technologies. The EC should establish a European Investment Acceleration Mechanism to support investors in navigating regulatory requirements quickly and predictably for projects of strategic importance.

Delivering these reforms will require a coordinated effort across Europe. Achieving global technology leadership is a challenge beyond what the EU – or indeed any European country outside the union – can manage alone. Successfully implementing the reforms in this paper will therefore necessitate close cooperation between the EU-27, the UK, Norway, Switzerland, Ukraine and other countries. All existing forums and governance structures should be mobilised to support this coordination.

The short-term solution is not about reopening debates on the EU's constitution, but creating the opportunity for new coalitions of the willing that can develop and implement a continent-wide strategy to quickly boost Europe's technological competitiveness. The European Political Community is the most suitable existing organisation for these discussions, given its membership and scope, from which a coalition of the willing can be formed to pursue coordinated and bold reform. In addition, forums such as NATO and The Council of Europe should also be utilised.

The reforms discussed in this paper will no doubt be politically contentious, which explains why so few recommendations from the Draghi report have been adopted so far. However, true leadership requires braving resistance

when the stakes are high. Only through bold reform will Europe secure the long-term prosperity and security that global technological leadership can offer.

# A New Urgency to an Old Problem

This section provides a brief overview of the European technology and innovation ecosystems' strengths and weaknesses. The goal is not to present a comprehensive analysis but, rather, to provide readers with the context in which our policy recommendations have been developed.

Europe has long struggled with its digital competitiveness. Microsoft was founded in 1975, Apple in 1976, Amazon in 1995, Netflix in 1997, Google in 1998 and Facebook in 2004: all these companies predate many of the European regulations that are often blamed for the continent's lacklustre technology performance. As far back as 1993, a white paper by the EC noted that Europe was falling behind the US and Japan in the development of information and communication technology (ICT).<sup>12</sup> The following year, the Bangemann report argued that though Europe was participating in the new technological revolution, its approach was "still too fragmentary".<sup>13</sup>

The Sapir report, released in 2003, reiterates these same arguments.<sup>14</sup> In the decades that have followed, generations of academics, governments, think-tanks and businesses have produced reports and strategies loudly asserting that Europe is not competitive or innovative enough. The most recent contributions to this list of publications are the Letta, Draghi and Heitor reports, which outlined the problems that Europe must overcome to boost its competitiveness.<sup>15,16,17</sup>

In short, Europe has debated technology leadership for more than 30 years. What has changed in the past five years is not the argument but the world. Artificial intelligence is poised to disrupt established business models and reshape geopolitical power.<sup>18</sup> The US and China are set to dominate this new paradigm. As they continue to build, innovate and invest, these two AI titans will be leveraging their influence over the world's digital infrastructure and forcing other countries to choose a side.<sup>19</sup>

Europe must present the world with another option: a technology offer that supports its own values, social model and commitment to multilateral collaboration, in support of a prospering global community. While Europe is



unable to compete on frontier AI development today, it has strong foundations to build on. As we will set out, these include the world's biggest integrated market, advanced manufacturing capabilities, large pools of uninvested capital and a highly educated workforce.

## Foundations for Europe to Build On

Europe has many strengths. If these are leveraged effectively, they could help turn the continent into a global digital superpower while maintaining and safeguarding its values and way of life.

Europe is a rich continent. The European Union's single market is still the world's largest integrated economic area, accounting for more than 16 per cent of global trade in 2022.<sup>20</sup> It is second only to the US in GDP but is more highly integrated, with the European Economic Area (EEA) comprising 27 EU member states, plus Iceland, Liechtenstein and Norway. Add the heft of other European economies – including the UK (which had the sixth highest national GDP in 2024 at \$3.6 trillion) and Switzerland – and the continent as a whole is a true economic powerhouse.

Europeans are also good at saving: on average they set aside about 13 per cent of their income, compared with 8 per cent in the US.<sup>21</sup> This amounts to savings of more than €1.4 trillion annually in Europe, compared to €800 billion in the US.<sup>22</sup> The problem is that Europeans sit on their financial assets rather than invest them.<sup>23</sup> One-third of European financial assets, equivalent to €11.5 trillion, are held in cash and deposits that offer low returns. Unleashing these assets represents a significant opportunity for Europe, but this requires incentives for investors to take greater risks.

Despite lacking its own global technology giants, Europe is home to several world-leading startup ecosystems, supported by a strong culture of research, innovation and entrepreneurship. In fact, six of the world's ten leading startup ecosystems are in Europe:<sup>24</sup> the UK (second), Sweden (sixth), Germany (seventh), France (eighth), Switzerland (ninth) and the

Netherlands (tenth). Similarly, seven of the world's 20 most innovative countries are located in Europe, with Switzerland being ranked the most innovative country in the world for 14 consecutive years.<sup>25</sup>

Europe can also effectively coordinate regulation across jurisdictions; simply put, it excels at regulating interoperability. If Europe were to combine its regulatory strength with advanced technological capabilities and the ambition to expand its influence, the continent could likely gain significant leverage when it comes to the emerging rules and standards set to define the AI era.

Examples abound. During the Covid-19 pandemic, Europe leveraged existing networks and interoperability regulations to rapidly develop the digital Covid certificate, facilitating safe travel. The tool was developed in Europe and then scaled internationally, ultimately being adopted by the World Health Organization (WHO) as a global certification system in 2023.

Europe has also shown how regulation can support technological innovation. Six of the ten countries in digital government are European and Europe has built regulatory infrastructure to enable data exchange and digital service provision across the continent. Take eIDAS 2.0, the EU's updated regulation for electronic identification and trust services, as an example. This initiative has set the foundation for Europe to be a world leader in the adoption and cross-border use of digital identity systems.<sup>26</sup> It will create a market of more than 400 million users, the majority of which will possess interoperable credentials, thereby enhancing the system's appeal.

Frontier-AI development aside, Europe maintains technology leadership in many other sectors. Though this does not amount to any single area of outright dominance, it is enough to make sure vital links in global technology supply chains stay in Europe. Dutch company ASML, for example, is a key player in the semiconductor manufacturing process. Companies such as Siemens in Germany and ABB in Switzerland provide crucial components for AI data centres, enjoying a rapidly growing valuation as a result.<sup>27</sup> More generally, Europe is home to strong life-science clusters and an industrial base for manufacturing and telecom.

Support for academic research also helps maintain Europe's competitiveness at the technological frontier. Europe currently produces about 20 per cent of the world's scientific publications; it is also home to world-leading research institutions such as the universities of Oxford and Cambridge, Imperial College London, ETH Zurich, EPFL Lausanne and TU Munich.<sup>28</sup> European research funding has financed groundbreaking research that has resulted in 33 Nobel prizes over the past 40 years, and many of the advances powering the digital age have their roots in European innovation, from the world wide web to semiconductors.

Importantly, these strengths have been developed and maintained alongside a high quality of life. Compared to the US, workers in Europe tend to have more holiday time,<sup>29</sup> more job security and higher levels of welfare, as well as working fewer hours. In the US, about 80 per cent of employees work 40 hours or more per week, whereas this number is closer to 50 per cent in Europe.<sup>30</sup> And in terms of measures of wellbeing – such as longevity, health-care access, life satisfaction and other metrics – many north and west European countries rank well above the US.<sup>31</sup>

These strengths do not mean that Europe can rest on its laurels: if it is to sustain its prosperity it must boost its digital competitiveness and overcome the structural challenges it faces. Keeping the status quo is not an option.

## Europe's Structural Challenges

Despite its many strengths, Europe is increasingly falling behind. Recent research found that it lags global rivals in seven out of eight critical technologies that are vital to economic security.<sup>32</sup> From AI and robotics to quantum and drones, Europe is failing to match global leaders in investment, innovation and competitiveness when it comes to the technologies it needs to secure its growth and security.

Though Europe boasts a large consumer market, its global share of the technology market remains small. The EU has created only 14 companies<sup>33</sup> with a market capitalisation greater than \$10 billion over the past 50 years, while the US has established more than 200.<sup>34</sup> The European technology ecosystem is ageing as a result.

The median founding year of the top ten firms in Europe is 1911,<sup>35</sup> vs 1985 in the US, reflecting US dominance in digital technologies. The Draghi report rightly notes that the EU is as competitive as the US “if you remove tech”.<sup>36</sup> But with the eight biggest tech companies making up nearly 40 per cent of the S&P 500 market cap, it is impossible to remove tech from any equation concerning productivity growth or national security.

Why has the EU failed to produce its own Google, Amazon, Microsoft or OpenAI? Multiple barriers hamper European businesses’ ability to scale, and one reason is that European investors display less risk appetite. The US has six to eight times as much venture capital (VC) as the EU, which means European firms secure most of their funding from banks. This favours players with existing assets over startups.<sup>37</sup>

Further, European capital markets are fragmented, resulting in inefficient capital allocation and higher capital costs. A 2023 study by the European Parliament found that removing all obstacles to a complete single market could add €713 billion in available capital by the end of the decade.<sup>38</sup>

In addition, Europe has some of the highest energy costs in the world.<sup>39</sup> In 2024, the average industrial electricity price in the EU was €0.199 per kWh, compared to €0.082 in China and €0.075 in the US. This stark price difference has a direct negative impact on European competitiveness in relation to energy-intensive activities such as AI model training.<sup>40</sup> On the demand side, slower technology adoption has led European firms to exhibit lower levels of productivity than their US competitors.<sup>41</sup>

European regulations burden European firms more than their global competitors. Mario Draghi has argued that internal European regulatory barriers are equivalent to a 45 per cent tariff on manufactured goods and a 110 per cent levy on services;<sup>42</sup> this creates barriers for startups with

compliance teams and limited resources. More generally, strict labour-market regulations make it hard for European firms to restructure their businesses.

Taken together, these barriers make Europe a less attractive location to build technology giants. The share of global foreign direct investment that Europe attracts continues to decline rapidly as investors opt for more attractive markets in China and the US.<sup>43</sup> However, one of the most critical reasons for the many failed attempts to boost Europe's competitiveness is the continent's governance structure. To compete effectively with the US and China, closer European coordination and integration will be required to address fragmented capital and energy markets, as well as build robust, scalable supply chains in critical areas such as AI and defence manufacturing.

The question of how to achieve European technology leadership cannot be solved in Brussels alone in that many levers to boost competitiveness are controlled by national governments. By targeting only the EU and its member states, many reports on European digital competitiveness overlook the potential offered by Norway, the UK, Switzerland and Ukraine, for example. Each of these countries could add value in areas where they contribute significantly to the continent's overall strengths, such as GDP, research, defence, digital governance and innovative policymaking.

Effective decision-making will be key if Europe is to achieve technology leadership. That is why this report includes recommendations not only to boost AI adoption and infrastructure investments but also to reform European governance processes. Europe approaches 2026 having experienced decades of stalled reform attempts; without strong political backing matched with action, the current round may end up being yet another example of this trend. The path towards a strong, digital Europe will require bold leadership. But, as we argue in the next chapter, the prize is worth it.

## 02

## A Vision for Europe's Tech-Enabled Future

Europe must build a new future for itself that places AI and emerging technology at the forefront of its strategy and identity. It is neither feasible nor desirable to adopt the American approach to innovation: Europe is not a single country (though it needs to act like one in this instance) and many Europeans are not attracted to the American social model that accompanies its growth. Europe's path forward is to build a tech-enabled future that protects its interests and promotes its values.

Europeans want to be technological leaders. A recent poll found that 85 per cent of surveyed EU citizens believe that public authorities should support European companies and help them grow into global champions; 89 per cent were also in favour of increasing funding for research and innovation in digital technologies.<sup>44</sup> That said, European voters consistently rank technology, innovation and AI near the bottom when it comes to issues that the EU should prioritise.<sup>45</sup> They also oppose the changes needed to improve the innovation ecosystem (such as more flexible labour rules and removing single-market barriers).

What is needed is a clear political narrative that connects technology leadership with the issues that citizens care most about. In the US, AI became politically salient when it was framed as a national-security issue;<sup>46</sup> in India, digital public infrastructure delivered visible improvements in citizens' daily lives;<sup>47</sup> and in Ukraine, digital-ID app Diia became a symbol of state resilience.<sup>48</sup> The lesson is clear: technology policy need not be an obscure fringe topic.

Delivery will be a key factor in changing the prevailing mindset. By deploying existing technologies to improve people's lives in tangible ways, European governments can demonstrate to their electorates what is possible when technology is used effectively. Many of the building blocks required to do

this already exist; countries such as Estonia have shown how digital transformation can succeed when built on public trust, open infrastructure and a strong societal consensus.

Europe can lead the way by reimagining what sectors such as health care, education, defence, agriculture, research, manufacturing and government could look like in the age of AI. Importantly, technology is not just about improving efficiency but also finding new solutions to pressing societal challenges such as poverty, crime and climate change. Achieving technology leadership would thus help secure Europe's place in the world while delivering value to its citizens.

## Health Care: Using AI to Improve Systems and Outcomes

The health-care sector is under serious strain in Europe, as it is across the world. Shortages of health-care professionals, insufficient funding and an ageing population, all while trying to sustain affordable and accessible health care, result in eye-watering costs to European governments. Without support in the form of technological innovation, these costs are unlikely to be reduced.

The use of AI in health care has already facilitated more cost-effective, accurate and efficient services. In Germany, the use of AI tools to help detect breast cancer led to a 17.6 per cent higher detection rate.<sup>49</sup> In England, a 2024 National Health Service initiative using AI to identify regular users of emergency services saw one hospital more than halve the A&E visits of those individuals.<sup>50</sup> Taking these studies and scaling them up to the whole continent holds phenomenal potential.

Yet this is only the beginning. In the next few years, AI systems will move from narrow diagnostic tools to comprehensive clinical assistants that continuously monitor patient data, predict health emergencies and coordinate care across providers. The upside is better health at lower costs

and health-care professionals able to spend more time caring for patients. A 2020 study by Deloitte<sup>51</sup> projected that the use of AI in EU health-care systems could save 400,000 lives and €200 billion every year.

AI can also speed up the discovery of life-saving drugs. A 2024 study in *Nature Medicine* found that AI-aided pharmaceuticals enter clinical trials after 18 months rather than the traditional four to five years.<sup>52</sup> With a strong life-sciences industry and rich clinical data sets, Europe is poised to lead this transformation if it gives AI systems access to integrated health data across borders.

Europe starts from a position of strength when it comes to health-care innovation. The fact that many European countries have universal health-care systems and comprehensive public health data can be a decisive advantage, if properly leveraged. The WHO's 2023 index covering global digital health placed Europe as the only region in the world at a "Phase 4" out of five levels of readiness (one being poor, five being excellent), with 16 out of the 29 countries ranked at Phase 5 located in Europe.

The EU has already laid the groundwork for cross-border digital prescriptions and digital patient records.<sup>53</sup> Thanks to its extensive public-sector health-care facilities, Europe also has a wealth of data at its fingertips that can be used to drive innovation in diagnostic research, pharmaceuticals, preventive medicine and health care more broadly.<sup>54</sup>

Europe should build on this head start to usher in a new era of personalised and anticipatory medicine in order to improve health outcomes and the effectiveness of its health-care systems. There is little question that the health-care sector is ripe for disruption by AI systems.

## Education: Improved Attainment and a Skilled Workforce

Europe boasts some of the world's best primary and secondary education systems. In the New Jersey Minority Educational Development's 2024 ranking of countries' education systems and their impact on their economic



and social environments, seven of the top ten countries are European.<sup>55</sup> But the traditional model – one teacher, 30 students, standardised curriculum, annual assessments – is increasingly under pressure. The twin challenges of teacher shortages (especially in STEM fields)<sup>56</sup> and declining skills in mathematics and reading<sup>57</sup> threaten European labour productivity and competitiveness.

In parallel, conventional assessment and learning paradigms are being disrupted: surveys show that more than 75 per cent of adolescents in Sweden<sup>58</sup> and the UK<sup>59</sup> are using generative AI to assist with educational tasks, including learning and homework. Such shifts demand new instructional models and learning frameworks.

The introduction of AI-enabled educational tools brings tangible upsides. Personalised learning platforms can adapt pace, style and content to individual needs; AI-driven analytics can help teachers identify struggling pupils early and direct support accordingly. To help policymakers map these opportunities, the EC and the Organisation for Economic Co-operation and Development have co-developed a draft AI Literacy Framework for education, which lays out 22 competences – from engaging and creating with AI to managing and designing AI systems – in anticipation of evolving student needs.<sup>60</sup>

Efforts to capture this potential are already underway. In Estonia, the national AI Leap initiative is giving every secondary student and teacher access to an educational AI licence and working with schools to redesign curriculums and assessment models.<sup>61</sup> This positions Estonia to move from reactive to anticipatory education and provides a blueprint for other European countries to follow.

Europe also boasts world-class higher-education institutions: five of the world's top ten universities are in Europe<sup>62</sup> and many of them have strong research and STEM capabilities. But European universities have curriculums and credentialing systems designed for stability, and thereby poorly suited to an era of radical disruption. AI is making many traditional credentials obsolete, while creating demand for skills that didn't exist when today's degree programmes were designed.

The challenge is not confined to universities. Adult education must now deliver large-scale upskilling programmes, but many providers lack the agility, funding or infrastructure to respond at speed. Europe must provide its educational institutions with the mandate and incentives to launch new programmes within months (not years), hire industry practitioners alongside academics, and deliver diverse micro-credentials and lifelong-learning pathways.

Europe can reinvent learning itself. Rather than treating AI as a tool for efficiency, it can use it to build a more inclusive, adaptive and creative education system – one that values curiosity and lifelong learning as well as rote memorisation. The goal is a more equitable and innovative European education system that helps every learner to reach their potential. In achieving that, Europe would also secure a more skilled workforce to fuel its ambitions for global technology leadership.

## Research: Accelerated Scientific Discovery

AI is transforming the pace, scale and nature of scientific research. From accelerating drug discovery to analysing cosmic data (information about the universe beyond Earth), it is already compressing cycles of discovery from years to mere days, while the 2024 Nobel prizes in chemistry and physics were awarded for work that advanced AI-enabled research.<sup>63,64</sup> Task-specific models and adaptable, general-purpose systems will soon permeate every step of the research process: drafting code and grants, orchestrating lab workflows, analysing data and generating hypotheses (see [\*A New National Purpose: Accelerating UK Science in the Age of AI\*](#)).

This transition is a strategic opening for Europe. If it cannot yet rival the US in training the largest frontier models, it might lead in the development and deployment of AI tools tailored to scientific research or industrial applications, including drug discovery, materials science, climate modelling and astronomy.<sup>65,66,67</sup>

Europe has significant strengths that could anchor leadership in AI-driven science. It has a deep reservoir of talent in the form of more than 2 million researchers (a 45 per cent increase since 2012), as well as leading universities and institutes that conduct world-class science, such as the European Council for Nuclear Research, the Max Planck Society and the European Molecular Biology Laboratory.

European institutions also host some of the world's most powerful research facilities – including four of the world's top ten supercomputers<sup>68</sup> – and valuable data sets, benefitting from strong domain expertise across scientific disciplines and a collaborative ethos that has resulted in significant advances. One key example of this is the contribution of the European Molecular Biology Laboratory's European Bioinformatics Institute (EMBL-EBI) to Google DeepMind's revolutionary predictive protein-folding model AlphaFold.<sup>69</sup>

But Europe will only capitalise on these strengths if it raises its ambition and improves execution. If it does not unite its efforts, scale up investments and overcome internal roadblocks, it risks falling further behind the US and China. The EU's AI in Science Strategy (also known as the Resource for AI Science in Europe, or RAISE) is a step forward: pooling talent, compute and data; funding thematic networks; and tying scientific AI to the European High Performance Computing Joint Undertaking (EuroHPC JU)<sup>70</sup> and the Open Science Cloud. However, current budgets are modest in comparison to US investment.

Turning promise into productivity requires targeted moves with regards to data, skills and infrastructure. High-quality, curated data sets (such as those held by EMBL-EBI) must be generated, expanded and made AI-ready. Data collection, curation and analysis – and the integration of AI capabilities into scientific workflows – will require new software tools. However, outputs such as new data sets and software tools are not rewarded by existing academic frameworks, which instead tend to prioritise the attainment of research funding and peer-reviewed publications.

European institutions must be able to attract, retain and empower top researchers to push the scientific frontier, while widespread adoption of AI across existing fields should be enabled by practical infrastructure: shared compute, lab automation, self-driving labs and bio foundries (biotech labs that automate the design and testing of biological systems). Ultimately, success might require new research paradigms to support diverse scientific projects. These new research models could include purpose-built institutes tailored to specific scientific goals, in the vein of the Arc Institute in the US,<sup>71</sup> or novel funding arrangements that can move at pace.

## Manufacturing: Industrial Strategy Optimised for Competitive Industries

Europe remains a manufacturing powerhouse: as of 2022, the sector supported more than 30 million jobs and accounted for about 25 per cent of business turnover in the EU.<sup>72</sup> But manufacturing is facing a transformation of equal magnitude to the shift from craft production to assembly lines in the early 20th century. The advance of AI and robotics is not simply about automating existing tasks: it is giving rise to entirely new production paradigms that will determine which manufacturers survive and which fade into obsolescence.

The advanced-manufacturing segment *is* expanding in Europe, but it is growing faster elsewhere. Traditional industrial robots execute predetermined sequences with high precision, but without awareness or adaptation. The next generation of robots is fundamentally different: they perceive changing conditions through computer vision; adapt in real time to material or process variation; learn from experience; and coordinate across systems to optimise entire production flows rather than isolated tasks.

In China and Japan “dark factories” (minus workers and lighting) already operate for days or weeks with minimal human oversight, with AI systems managing everything from inventory movement to quality control and maintenance scheduling.<sup>73</sup> The Netherlands has begun to operate similar factories in Europe.<sup>74</sup>

China is also ahead of the curve in automotive manufacturing, a sector that sits at the heart of Europe's industrial ecosystem and is currently at risk as a result.<sup>75</sup> Chinese electric-vehicle manufacturers are integrating AI across the value chain, from AI-optimised battery design and production to the vehicles themselves. The latter increasingly incorporate not only autonomous driving but also over-the-air software updates.<sup>76</sup>

European manufacturers are challenged by legacy production systems, rigid labour frameworks and fragmented supply chains, which limit their ability to match the pace of innovation and production efficiency of their competitors. For example, Chinese firm BYD Auto enjoys a 25 to 30 per cent cost advantage over many European carmakers, thanks to vertical integration and AI-enabled processes. The same issue applies beyond automotive, in the likes of clean tech<sup>77</sup> and robotics,<sup>78</sup> both of which are sectors in which Europe has traditionally been strong.

AI-driven manufacturing presents a significant opportunity and, as such, leading European firms are piloting new solutions. Airbus is using AI to automate tasks from manufacturing to customer service;<sup>79</sup> BMW Group has implemented GenAI4Q, an AI system that tailors quality inspections for each of the 1,400 cars built daily in its Regensburg plant, based on real-time data and production conditions.

These are blueprints to scale. By taking AI, robotics and digital twins to the next level, Europe can boost productivity. It can also reduce waste and energy use, enable flexible "batch one" production, shorten development cycles and respond better to shifting consumer demands and disruptions.

If Europe has serious ambitions to be a global technology leader, it must treat AI-driven manufacturing as central to its industrial strategy. That means factory networks built from the ground up for flexibility, connectivity and scale; supply chains integrated with real-time data flows; skill frameworks aligned with new roles; and regulatory frameworks that enable rapid experimentation and transformation.

## Agriculture: Safer Food and Sustainable Farms

Europe's farms face mounting pressure. Soil degradation, reduced yields from unsustainable practices, more frequent pest and disease outbreaks and a growing global population mean that food-security risks are more serious than ever.<sup>80</sup> Without new tools, the costs in environmental, economic and social terms will only increase.

Technological innovation – particularly in AI and automation – offers a potential solution. Already systems for autonomous harvesting, drone-assisted fertilising and seed optimisation are in active use.<sup>81</sup> And there is more to come: the precision-agriculture market in Europe is projected to double to more than \$6.3 billion by 2034. The Netherlands, often dubbed the Silicon Valley of Agriculture is a case in point.<sup>82</sup> The country hosts Europe's largest agrifood firms and is actively exploring regulatory reforms to enable drone and AI-driven farming at scale.<sup>83</sup>

However, the gap between potential and reality remains wide. Surveys show that European farmers report low levels of technology adoption: nearly 50 per cent of respondents cite prohibitive implementation costs,<sup>84</sup> while many question the investment case. At the same time, the sector is in decline: between 2005 and 2020 the number of farms in the EU fell by almost 40 per cent. These twin trends – underinvestment in innovation plus a shrinking labour force – signal a structural challenge.<sup>85</sup>

For European agriculture to become productive and sustainable, the policy path must place technology at its centre. Embracing AI, the internet of things, drones and advanced data analytics at scale can allow farms to boost yields, restore biodiversity and reduce administrative overheads.<sup>86</sup>

By placing smart, data-driven farming at the heart of its agricultural policy, Europe can deliver safer, more sustainable food systems – not just more output but higher-quality produce, stronger environmental stewardship and greater resilience in the face of climate and demographic change. It is thus encouraging that the EC has pointed towards the digitalisation of the agricultural sector as a priority in the effort to improve EU competitiveness and sustainability.

## Defence: A Gamechanger for Peace and Security

Europe faces its most complex and volatile security environment since the second world war. Rising Russian aggression, rapid technological change and tightening fiscal constraints demand a fundamental reimagination of how Europe builds and sustains its defence. On today's battlefield, those who innovate, adapt and scale the fastest will shape the future of power.

The war in Ukraine has shown how quickly this shift has taken place. In just three years, Ukraine has evolved from a conventional force into a networked, drone-enabled military. It now produces more than 200,000 drones a month, from €500 first-person-view units to advanced reconnaissance platforms using AI for target identification and battle-damage assessment.<sup>87</sup> The Delta platform, built on commercial cloud infrastructure, fuses satellite, drone and sensor data to give commanders real-time visibility, right down to individual soldiers.<sup>88</sup>

This is more than a tactical transformation: it is also an economic and strategic one. Cheap, expendable drones are capable of outmatching complex, high-cost systems, with civilian and dual-use technologies bending the cost curve back in favour of speed, scale and adaptability. A €1,000 drone can destroy a €3 million tank,<sup>89</sup> while AI-enabled jammers worth thousands can disable radars worth millions.<sup>90</sup> The new currency of military advantage is software.

The future of defence will be defined by intelligence, not just quantity – that is, systems that learn, adapt and act faster than the adversary. Modular, open software will enable rapid reconfiguration; AI-assisted command systems will compress decision cycles from minutes to seconds; and secure defence clouds will link rear and front lines in real time. AI is also transforming the threat landscape and redefining what credible defence requires.<sup>91</sup>

Investment in defence will play a key role in supporting and accelerating Europe's technological competencies. The goal is not more weapons but a new security model, based on European technology leadership and accelerated AI adoption. This model would be more agile and robust; it

would also be more integrated and affordable, relieving pressure on strained budgets across the continent. In addition, it would ensure that Europe has the sovereign defence capabilities needed to project influence abroad.

Europe has the industrial base, expertise and capital to turn this transformation into lasting strategic advantage. With the European Defence Industrial Strategy and new joint procurement and innovation funds, the foundation is there for deeper integration, greater interoperability and more intelligent defence.<sup>92</sup> Domestic innovation will underpin military strength and drive renewal; this will create skilled jobs, enhance digital sovereignty and reinforce Europe's role in NATO and beyond.

## Government: Improved Public Services and Effective Institutions

European governments face rising complexity, tighter budgets and falling trust. Citizens expect digital public services that function seamlessly, yet industrial-age bureaucracies and processes fail to meet 21st-century demands. Incremental digitisation isn't enough: the state must be fundamentally redesigned around data and AI to deliver better services faster and rebuild democratic confidence.

The shift is already visible. Ukraine has launched a national, citizen-facing AI assistant through its Diia platform<sup>93</sup> – an example of how agentic services can navigate forms, rules and agencies around the clock on behalf of users. Such systems point to a future in which government proactively handles renewals, eligibility checks and complex workflows, instead of asking citizens to do the paperwork.

Europe has strong foundations. It dominates the UN's digital-government rankings, with countries such as Denmark, Finland, Sweden, Estonia and the Netherlands at the frontier,<sup>94</sup> all underpinned by digital identity, interoperable data exchange and secure public-sector clouds. The X-Road, for example, is a platform used by multiple European countries that shows how shared components can let services talk to each other securely across public and private sectors.<sup>95</sup> The EU has now locked in the next leap with the European



Digital Identity framework and mandates EU Digital Identity Wallets (see TBI commentary [Digital-ID Wallets: Can the EU Lead the Way?](#)), with core implementing acts adopted in November 2024.<sup>96</sup>

The vision for the next five years is a reimagined state. Every resident and business should be equipped with a trusted digital public assistant that orchestrates life events end to end (the likes of starting a company, moving home and organising caring benefits), while every civil servant should work with an AI co-pilot that automates routine tasks, surfaces risks and routes complex cases for human judgement. Done right, these systems would operate under “earned autonomy”: starting in shadow/assist modes and progressing to co-worker roles with human accountability, auditability and redress (see [Governing in the Age of AI: A New Model to Transform the State](#)).

The economic and social upside is huge. Modernising Europe’s public services with interoperable cloud and AI platforms could unlock €450 billion annually<sup>97</sup> through efficiency gains and improved compliance, freeing up resources to be reinvested into frontline services. Equally importantly, proactive, transparent and explainable services can narrow backlogs, cut waiting times<sup>98</sup> and strengthen democratic legitimacy by showing citizens that capable government delivers.

Europe already has the basics in place: digital identity, platform interoperability and data security. Now it should scale what works: common data standards across ministries; privacy-preserving data access for innovation; procurement that rewards software cadence; and shared “defence grade” cloud/compute for critical workloads. With these elements in place, Europe can export a distinct model of digital government – a high-trust, rights-preserving and innovation-friendly “Agentic State”<sup>99</sup> – that sets the global benchmark for how democracies govern in the AI era.

## 03

## Delivering Europe's Tech-Enabled Future

Realising the vision outlined in the previous chapter means transforming Europe into a globally competitive, digital superpower. Political realities across Europe will make the necessary changes difficult, but for the sake of the continent's security, prosperity and longevity, it must be done.

For Europe to achieve global technology leadership, it must undertake targeted interventions across four areas:

1. **Reforming Europe's regulations for a strong digital future.** Europe must streamline and simplify its existing digital regulatory rulebook and increase integration across Europe to enable its businesses to effectively compete, scale and innovate.
2. **Building Europe's foundations for the AI era.** Europe must commit to building the foundations needed to guarantee its ability to compete in the AI era: affordable, sustainable and abundant energy and compute.
3. **Accelerating AI adoption to power Europe's digital transformation.** Europe must lead by example, demonstrating to the world how emerging technologies such as AI can be adopted on a large scale across a wide range of use cases and economic sectors to the benefit of all.
4. **Strengthening Europe's tech engagement to expand its global influence.** Europe's ambitions must be global. This will require active engagement with the international community and a technological and regulatory framework that other countries can develop and collaborate within.

These reforms will be discussed in detail later in the paper, but successfully implementing them will require Europe to overcome two clear challenges. First, any changes to existing regulations, capital and energy-market structures, and political decision-making processes will no doubt be controversial and face resistance from entrenched interests. Second, to compete with countries such as the US and China, Europe must act as a

unified entity. Addressing the continent's technological competitiveness crisis requires a comprehensive effort – the problems cannot be solved by the EU alone.

Without change, Europe's long-term prosperity and security cannot be guaranteed; at best, the outcome would be a managed decline. Europe must use every available forum to bring its leaders together effectively; true leadership requires acting despite resistance when the stakes are high.

Europe has multiple structures for pan-European dialogue and discussion; however, many remain underused and those that are active often lack political support due to EU political dynamics. The European Political Community (EPC), NATO and the Council of Europe, as well as EU decision-making bodies such as the European Council and ministerial councils, each have their own roles to play. Ultimately what matters is not just the forum but the outcome: whether Europe can drive the wide-ranging transformation urgently needed across the continent.

The EPC, which brings together representatives from EU and non-EU European countries to discuss issues related to European security and economics,<sup>100</sup> provides one of the best forums for these conversations. In the EPC's seven meetings to date, participating countries have never signed a joint communique between all leaders, assigned a budget or established an official secretariat.<sup>101</sup> Yet it remains an important mechanism and future EPC summits should be used to identify coalitions of the willing for practical, Europe-wide technology initiatives.

In addition to the EPC, other opportunities for continent-wide coordination should be leveraged to help drive the digital transformation agenda. NATO should be used to help drive defence-technology coordination,<sup>102</sup> including through joint procurement frameworks and standardisation that helps scale Ukraine's successful defence innovation across the continent. The Council of Europe should be leveraged to create continental alignment on technological safety and ethics frameworks that also support innovation and risk-taking.<sup>103</sup> The EU can also do more to support continent-wide

conversations: for example, the European Council<sup>104</sup> could invite non-EU countries to join policy debates and declarations as part of its ministerial meetings.

In short, Europe's ability to lead in AI and technology will hinge on interventions in four reform areas: governance, infrastructure, adoption and promotion. However, each of these areas will require Europe-wide coordination and effective decision-making backed by a strong political mandate.

## 04

## Reforming Europe's Regulations for a Strong Digital Future

In the 1970s, numerous high-tech firms with significant government contracts began to operate in Silicon Valley, which quickly attracted interest also from private-sector investors. But it was the regulatory reforms and judicial rulings of the 1980s and 1990s that really unlocked the potential of the valley and transformed it into the centre of the world's digital revolution.<sup>105</sup>

In China, Shenzhen followed a similar trajectory. In the 1980s it was a small fishing village with a relatively small GDP; today it is the powerhouse of China's technological ambitions and home to many of China's largest technology firms. Legal and governance reforms also drove the success,<sup>106</sup> which has seen the city's GDP grow to just under \$500 billion.

While China and the US have reformed their legal systems to foster innovation, growth and competitiveness, Europe has not and is thus decades behind its rivals in the new AI era. Recreating the success of Shenzhen and Silicon Valley is possible for Europe, but only if it acts decisively and implements the required regulatory reforms to integrate capital and energy markets across the continent, modernise digital regulations, reform labour markets, coordinate defence manufacturing and procurement, and adopt pro-innovation policies.

**Recommendation:** *Accelerate regulatory reforms at the EU level to create a harmonised, innovation-friendly digital single market.*

The regulatory burden created by the EU's current approach to digital regulation makes it more expensive for European businesses to compete, harder for them to innovate<sup>107</sup> and more challenging for them to scale.<sup>108</sup> This directly threatens Europe's prosperity and security, but the existential nature of this threat is not being met by commensurate action.

The EU's AI Act has brought the risks of Europe's traditional approach to digital regulation to the forefront. Across Europe, private- and public-sector stakeholders are struggling to develop and implement AI due to the complex regulatory framework surrounding the technology. European consumers are suffering too, only getting access to the most advanced AI models from the US months after other markets. Many suggestions have been made for how to improve the AI Act, but one of the most consistently mentioned is the need to delay its implementation.<sup>109</sup>

The EU's upcoming regulatory simplification effort, the Digital Omnibus,<sup>110</sup> aims to significantly reduce the administrative burden placed upon Europe's businesses. This is essential for addressing the confusion affecting Europe's digital single market, from onerous reporting requirements to duplication and fragmented interpretation across the continent. Simplification alone will not be enough, however: Europe must fundamentally rethink its current approach to regulating its digital market. That process must start with an examination of its commitment to the "precautionary principle" (the limiting of new technologies to head off hypothetical risk).<sup>111</sup>

For the EU to successfully leverage its greatest potential assets – its single market and its strong commitment to values that increase consumer trust – in the safe, widespread adoption and diffusion of technology, a renewed effort must be made to ensure that what is decided in Brussels is applied homogeneously across all affected jurisdictions. This should include greater coordination and centralisation of regulating authorities in order to tackle uneven implementation at the national level, the prioritisation of regulations over directives, and emphasis on sector-specific regulations over attempts at an all-encompassing horizontal framework.

The existing regulatory environment is suffocating Europe's tech industry. Between 2016 and 2024 the EU added 758 new articles and 3,500 new restrictions to its data, privacy, e-commerce and consumer-protection regulations.<sup>112</sup> These acts are intended to harmonise EU rules, but they are complicated by unique interpretations in more than 27 enforcement regimes, leading to an even more fragmented outcome.

There are real costs associated with the failure to act. Companies targeting the European market have experienced an 8 per cent reduction in profits and a 2 per cent decrease in sales due to their exposure to GDPR, whereas their larger American counterparts have not faced a comparative impact.<sup>113</sup> Cyber-security reporting requirements dictated by the Cyber Resilience Act and NIS2 alone cost upwards of €60 billion a year.<sup>114</sup>

Simplifying the digital rulebook could help to reduce these costs and boost the competitiveness of Europe's technology industry. That said, further reform will be needed to unlock European capital for investment, support innovation and experimentation, and harmonise fragmented rules across the EU.

**Recommendation:** *Fast-track the implementation of a Savings and Investment Union and a 28th regime to unlock capital and create a foundation for innovation.*

If Europe is to successfully build, grow and scale its technology firms, big and small, capital will be required. There is no shortage of entrepreneurs in Europe, but many founders and businesses are forced to build elsewhere instead of staying in Europe or raising funds from European investors.<sup>115</sup> This is because European capital markets remain fragmented,<sup>116</sup> which leads to high capital costs, limits the ability of investors and founders to profit from success, and disincentivises cross-border investment.

The solutions are known: Europe must implement the Savings and Investment Union to modernise its financial ecosystem, and European states must work to reform their domestic pension and savings accounts. Many European states will need to reform their labour markets to better support innovation and growth, while the EU should implement the 28th regime (incorporation framework for innovative companies).<sup>117</sup> The latter would enable companies to better scale across Europe's borders – and it should be a regulation rather than a directive.<sup>118</sup>

In the absence of well-functioning capital markets, businesses in Europe depend on financing from banks, which tend to be risk-averse. Across Europe, 85 per cent of business funding comes from banks<sup>119</sup> and this heavy reliance limits the ability of European businesses to grow, especially when their competitors have access to more capital at a lower cost.

European households are sitting on a vast pool of €13 trillion in financial assets. Every year, Europeans save almost double what their American counterparts do (€1.4 trillion vs €800 billion, respectively);<sup>120</sup> these resources could be invested in European champions, but instead they are typically held in safe, low-yield assets.

The same is true for European pension funds. Across Europe, including the UK, pension funds manage just under \$5 trillion in assets. Yet these assets are mainly used inefficiently, with less than 0.5 per cent of pensions' holdings allocated to private equity or VC funds. Previous efforts to improve pensions in Europe have included the creation of the pan-European Personal Pension, which has failed to see any meaningful uptake.<sup>121</sup> One solution being discussed by the EC is to give country-specific recommendations to encourage national pension reform and potentially withhold EU funds from those who do not implement them. If combined with European guidelines on best practices, modelled on successful European case studies, such an action would make sense.

European stock markets are also fragmented. Dozens of exchanges exist across the continent, which prevents the accumulation of capital that is needed to secure investment in European businesses. One solution would be the development of a new continent-scale stock exchange, a proposal recently endorsed by German Chancellor Friedrich Merz. This will only be possible by achieving regulatory integration across Europe, underpinned by an empowered European Securities and Markets Authority.<sup>122</sup>

Labour-market reform is also essential. Countries with higher restructuring costs, such as the UK, Germany and France, invest about three times less in technology than countries such as Denmark, Switzerland and the US, which boast more flexible labour markets.<sup>123</sup> Denmark's flexicurity model, which is characterised by flexible hiring and firing regulations combined with robust



social safety nets, offers a promising blueprint. It means that firms can swiftly reallocate resources without the threat of severe costs, while citizens continue to enjoy welfare security.

In addition to labour laws there are further limits to European businesses ability to scale: divergent insolvency, tax and corporate rules. High-risk technology projects face high failure rates at about 65 per cent to 90 per cent.<sup>124</sup> In the US and China, flexible labour markets allow technology giants to restructure rapidly; in contrast, European businesses are slow to respond to emerging technological developments due to costly and prolonged restructuring processes. The cost of failure for European technology firms discourages investment in high-risk, high-reward innovation.<sup>125</sup>

The price for these shortcomings is that capital is not being invested in Europe. Between 2014 and 2024, the Norwegian Sovereign Wealth Fund has seen its share of European equity holdings fall from 26 per cent to 15 per cent – and every year European households are investing about €300 billion outside of Europe. Without investment, Europe will not be able to grow the technology industry that it needs.

These reforms cannot be driven by the EU alone. European countries must individually choose to make the necessary domestic reforms so that Europe at large can become more competitive. European leaders must empower their ministers to modernise pension and savings accounts, update labour laws and work across the continent to harmonise regulations.

In addition, coalitions of the willing, united in their commitment to building a strong digital Europe, must be prepared to move forward – even if that means leaving behind those that hesitate. Together, these measures would establish the financial and social foundations of European competitiveness, enabling a continent that can fund, build and scale world-leading innovation.

## Building Europe's AI Foundations

Recent estimates suggest that Europe is likely to see demand for data-centre computational power more than triple by 2030, requiring up to \$300 billion in new investment.<sup>126</sup> At the same time, the International Energy Agency projects that the demand for electricity from AI and data centres in Europe is set to grow by 70 per cent by 2030.<sup>127</sup>

Europe's ability to compete in the AI era will depend on its ability to build the necessary infrastructure: abundant compute and cheap, clean electricity. The problem Europe faces is that its current energy system is fragmented, with national strategies pulling in different directions. Permitting delays and high financing costs slow the buildout of renewables, nuclear projects advance unevenly and grids continue to suffer due to underinvestment.<sup>128,129,130</sup>

As countries such as the US, China, Saudi Arabia and the United Arab Emirates continue to invest in compute, Europe's global share is shrinking. Europe must accelerate its efforts to obtain the compute that it needs to build and deploy AI at scale, power its domestic industries and engage with the broader global community. This cannot be done by the EU alone, or even European firms alone: it will require engagement across the continent and in lockstep with international firms capable of delivering the scale of compute required.

**Recommendation:** *Secure and maintain a minimum of 10 per cent of global compute capacity for Europe to remain competitive in the AI age.*

A minimum target of a 10 per cent share of global compute aligns with Europe's proportion of the global economy and should be attainable. This would position Europe among the world's leading compute powers, with sufficient capacity to train and deploy AI at scale strategically. European industry would gain access to the resources needed for innovation and large-scale deployment, while European governments could ensure resilience for AI systems vital to their economy, security and other key sectors.

Europe already has a strong base to build from. Across the continent, governments are engaging in campaigns to attract investment in domestic sources of AI compute. Recent announcements, such as the new Stargate facility in Norway, the UK's AI Growth Zones, France's AI infrastructure buildout and the EU's Giga Factory initiatives, are all steps in the right direction.

The EuroHPC JU is another example, showing how a broader European coalition – including non-EU countries such as the UK, Switzerland, Norway and Albania – can work together to build a world-class network of supercomputers, including JUPITER, Europe's first exascale system. Indeed, the EU has continued to adapt its public compute strategy to stay in the race, more recently rightly shifting access beyond researchers to more actively encourage use by startups, SMEs and other industry players.

For Europe to continue to build the infrastructure it requires, it must create the conditions to attract private funding at scale. Key to achieving this will be improving how it mobilises and cooperates with the private sector.<sup>131</sup> As other regions attract tens or even hundreds of billions in private capital into AI infrastructure, many of Europe's projects remain predominantly publicly or mixed funded. When private-sector capital is used, a significant proportion comes from outside Europe.

Though such investment is welcome, more can be done to incentivise European investment in local compute infrastructure. This includes using instruments such as the Innovation Fund or the European Investment Bank (EIB) to de-risk early investments, introducing long-term offtake or capacity-sharing agreements with cloud providers to provide investors with predictable revenue streams.

Europe's ability to expand its compute does face a physical constraint: electricity. The US and China have ambitious energy strategies for the AI era but within Europe, electricity has become a constraint rather than a driver of growth. The Draghi report found that closing the energy-cost gap is one of

the most critical problems facing Europe today.<sup>132</sup> Industrial-electricity costs remain more than twice as high in the EU as in the US and Europe continues to import most of the energy it consumes.<sup>133,134</sup>

**Recommendation:** *Accelerate completion of the Energy Union, allowing for harmonised rules and Europe-wide planning to lower electricity costs and improve resilience.*

Europe's priority must be to complete the Energy Union. The process towards building a fully integrated internal energy market has been going on since the first energy package was adopted between 1996 and 1998. In 2015, these efforts were given further support with the launch of a new strategy for implementing the "Energy Union"; the intention was to reduce dependence on Russian gas, integrate Europe's electricity markets and accelerate clean investment.

The Energy Union started as an EU initiative, but its reach extends across the continent. Norway participates via the internal energy market, Switzerland is integrated physically and operationally via the European Network of Transmission System Operators (ENTSO-E) and the UK is exploring closer alignment after years of divergence.<sup>135</sup> Ukraine, meanwhile, has synchronised its grid with Europe's and is progressively adopting EU energy law through the Energy Community.<sup>136</sup>

The future for Europe's energy must be continental in scale, yet many countries remain hesitant. Completing the Energy Union means ceding some levers to protect national interests: France has blocked cheap Iberian renewables; Nordic countries fear integration will raise domestic prices; and Germany prefers its own path. The result is billions wasted on curtailment, higher financing costs and a patchwork of rules that weaken resilience. But energy is too crucial to Europe's security for the continent to avoid hard decisions. There is no successful pathway towards global technology leadership that does not include this step.

The size of the prize is significant: moving towards a cleaner grid, combined with further electricity-market integration, could amount to €40 billion to €43 billion in savings annually for the continent by 2030.<sup>137</sup> Investments in cross-border electricity trade of €6 billion per year by 2040 would result in €13 billion in savings.<sup>138</sup>

Integration must go hand in hand with action to tackle the underlying causes of Europe's high power prices: actions including lowering capital costs for clean investment, reducing system inefficiencies and providing long-term price signals for industry. To achieve this, each member state should establish genuine one-stop shops for permitting with real administrative capacity, learning from the successful example in Denmark.<sup>139</sup> They should also embark upon grid modernisation by expanding grid development and deploying digital tools such as dynamic line ratings and AI-enabled grid management to unlock hidden capacity.

Market rules across the continent will also need to be updated, with the need to move towards more granular locational and temporal signals to drive effective utilisation of renewable-energy sources. Research by the EC suggests that locational signals could reduce total system costs by €23 billion to €59 billion.<sup>140</sup> Finally, Europe should deploy financial instruments – such as “contracts for difference”, risk-sharing facilities and expanded EIB guarantees – to lower the cost of capital for clean technologies, bringing financing conditions closer to those in the US and China.

**Recommendation:** *Launch a continental energy programme to coordinate the building of new nuclear power plants and accelerate permissions for renewables, grids and storage.*

Europe must generate more power for its tech industry to remain globally competitive. A renewed role for nuclear power – alongside renewables, grids and storage – would provide the firm, low-carbon foundation required to secure Europe's energy future and sustain the industries of the AI age.

The EC has recognised nuclear as a strategic net-zero technology under the Net-Zero Industry Act, while Euratom and the European Nuclear Alliance provide a foundation for coordination. A European nuclear programme

should be launched to pool resources, harmonise regulation and coordinate planning across member states. This effort should also look to Ukraine, which is already a world-leading producer of nuclear energy and looking to rapidly build out more nuclear infrastructure in the post-war period.<sup>141</sup>

The EC, working through Euratom and the EIB, should lead on three core actions.

1. Capacity planning and joint procurement to deliver standardised reactor fleets, achieving the “programme effects” that have cut costs by up to 40 per cent and halved build times in South Korea and China.<sup>142</sup>
2. Streamlined licensing through mutual recognition of reactor approvals (modelled on the recent US-UK agreement on nuclear power) would allow a reactor certified in one member state to be deployed across others, dramatically reducing duplication and cost.
3. Shared financing mechanisms for first-of-a-kind projects and small modular reactors (SMRs), lowering the cost of capital through EU-backed guarantees and green bond facilities.

For decades, Europe’s nuclear sector has been held back by political opposition, post-Chernobyl risk aversion and the lack of a cohesive strategy. This has led to fragmented national programmes, limited economies of scale and high costs; China and South Korea have bypassed these issues with coordinated, standardised, low-cost buildouts.

Nuclear energy is now returning to the agenda across Europe: Germany has announced it will drop its resistance to new nuclear buildout in the EU, Poland has set out its intent to build its first SMR, France is continuing its nuclear buildout and Denmark is reconsidering its ban on nuclear power. But isolated national efforts will not deliver scale, so member states should commit to clear siting frameworks, accelerated permitting, and investment in nuclear skills and workforce development. Political blockers, such as divergent safety regimes, financing constraints and anti-nuclear sentiment, must be addressed through public-engagement campaigns and EU-level guidance on safety standards.

With this coordinated approach, Europe can build the industrial capacity and regulatory confidence necessary for making nuclear a cornerstone of its clean-energy mix, supporting renewables, securing electricity supply, and underpinning its technological competitiveness in the AI era.

## 06

## Accelerating AI Adoption to Power Europe's Digital Transformation

Europe needs to accelerate the adoption of AI across all sectors of its economy, but recent actions are undermining its ability to deploy the technology at scale. The ongoing debate within Europe on AI sovereignty, along with the proposed new EuroStack (a proposal for a new industrial policy to support investment in a new sovereign European tech stack), serve as distractions, diverting resources away from where they are most needed: the development of AI applications that can be implemented throughout the economy.

In order to lead the world in the adoption of AI, Europe must focus less on technological sovereignty in isolation and more on creating an ecosystem that is open, interoperable and supports innovation, all through strategic, sector-specific enabling regulations.

**Recommendation:** *Accelerate AI adoption by building a trusted, interoperable ecosystem based on Europe's leadership in open data and open-source innovation.*

Open-source systems fundamentally support innovation and adoption by increasing trust in the technology, enabling global collaboration and decreasing costs, as well as removing access barriers thanks to permissive licensing.<sup>143</sup> Globally the capabilities of open-source AI models continue to catch up with those of their closed-source competitors; as a result, the uptake of open-source AI is growing.

Europe must develop leverage across the world's open-source AI stack to accelerate adoption and grow its global influence. Technological sovereignty will not come about as a result of closing the AI stack, but rather by mastering its application. If AI is to reshape existing industries and create the next wave, adoption will be a decisive source of strategic advantage. Investing in and supporting open-source AI is the mechanism through which Europe builds capability, embeds its standards and secures a sustained



advantage in the coming era of global innovation. This will mean unlocking strategic closed-data assets for researchers and startups (through tiered licensing, for example), encouraging uptake of open-source data, supporting the development of open-source AI models and building globally competitive open-source AI applications.

Europe is home to vast amounts of high-quality data that can power AI innovation. The size of the continent's data economy is projected to be valued at €829 billion by the end of 2025.<sup>144</sup> By 2030, the size of the European data economy could be valued at close to 6 per cent of GDP.<sup>145</sup> According to the EC, 80 per cent of industrial data (the vast troves of machine-generated, process and product data created across industrial operations) that has been collected remains unused.<sup>146</sup> If all Europe's data assets were used in support of growing an AI industry and to improve use cases of relevance to European industry, its data economy will increase swiftly and significantly.

Recent examples from the UK show what is possible. As put forward in our report [\*A New National Purpose: Accelerating UK Science in the Age of AI\*](#), curating new scientific data sets – such as the UK's recently announced OpenBind protein-data project – could accelerate innovation in key areas such as drug discovery.

Reform will be necessary to capture this potential. The 2020 European Data Strategy<sup>147</sup> – which sought to create a single market for data with open-source sectoral data sets – remains relevant, but political dynamics have delayed implementation and reduced its impact. Rules such as those within the EU's Data Act have added new layers of compliance on top of GDPR, making it harder to share data within the EU. The upcoming Data Union Strategy represents an opportunity to move forward with the delivery of a genuine European-wide data-sharing ecosystem.<sup>148</sup>

Europe's data advantage must be paired with a resilient and trusted open-source AI software stack, but the infrastructure that supports the world's open-source AI ecosystem remains fragile. A coordinated Open-Source Maintenance and Resilience Framework could provide support for widely used tools and models, track systemic risks and reward the often

uncompensated labour that keeps the infrastructure secure and up to date. Establishing an EU Open-Source Trust Fund to finance the long-term maintenance of key open-source AI systems, similar to Germany's Sovereign Tech Fund, and empowering the European Union Agency for Cybersecurity (or a similar body) to map and manage digital dependencies would strengthen Europe's capacity to scale AI safely and transparently.

Every tool available to Europe should be utilised to transform leadership in open-source AI into leadership in open-source AI applications. European governments should stimulate demand by committing to or mandating the use of open source for their official use cases. Compute initiatives, such as the EuroHPC JU or upcoming Gigafactories, could offer compute credits to European startups that are developing applications in key sectors such as pharmaceuticals or manufacturing. Europe should continue to support smart, sector-specific regulations that accelerate the adoption and implementation of AI across its industries.

Enabling innovative AI adoption through a strong open-source policy will not, on its own, make Europe a leader in frontier AI. However, it will put the continent in a strong position to lead in key AI-enabled industries that it already has strength in, including drug discovery, advanced manufacturing and nuclear fusion.

**Recommendation:** *Create sector-specific AI-adoption regulation packages that provide regulatory clarity and fast-track approval paths.*

Europe's most successful transformations have come from sectoral "reform stacks" that combine the opening of markets, a single rulebook, EU-level technical integration, targeted public R&D and credible safety institutions. This approach has underpinned many of the areas in which Europe is leading the world, including aviation, energy, telecoms and pharmaceuticals. In each case, liberalisation has been paired with harmonised standards and infrastructure investment, producing world-class regulatory systems such as the European Union Aviation Safety Agency, the European Medicines Agency and ENTSO-E.

The result has been a virtuous cycle of innovation and competition, within which industry competes without sacrificing consumer welfare or safety. European champions such as Airbus, Vestas, Novo Nordisk, Nokia and Iberdrola have flourished under these frameworks, while citizens have benefitted from lower prices and higher quality. In areas where the reform stack has remained incomplete, such as aerospace management and renewable permitting, Europe's potential has remained capped.

The overlap between sector-specific and horizontal “digital” regulations leads to uncertainty and confusion.<sup>149</sup> Additionally, many current sectoral rules were designed to restrict the use cases enabled by new technologies. The adoption of AI has been particularly challenging with the introduction of the AI Act, which has caused conflicts for companies in heavily regulated sectors such as health care, financial services, manufacturing and pharmaceuticals.

However, the recent Apply AI Strategy, consists only of non-regulatory measures.<sup>150</sup> As a result, its admirable goal of promoting AI use in sectors such as health care, pharmaceuticals, robotics, defence, manufacturing, transport, energy, climate, space and the public sector is unlikely to be achieved. Europe needs a new wave of sector-specific reforms, focused on sectors in which AI can deliver the greatest productivity value and welfare gains. These reforms should combine market access, interoperability, safety assurance and public investment to unlock technological diffusion.

None of these changes aims to deregulate or remove protections for consumers and users. Instead, the idea is to move regulatory decisions from the abstract to the concrete and entrust them to regulators and decision-making processes that have been proven to work. A coordinated European effort to build AI-enabled sectoral stacks would not only raise competitiveness but also showcase how open, pro-innovation governance can coexist with high social and safety standards.

**Recommendation:** *Align university systems with the demands of the modern innovation economy to attract researchers and strengthen Europe's talent base.*

Europe cannot lead in AI-enabled research and advanced technologies if its universities remain constrained by governance rules, incentive structures and career models designed for a different era. To attract, retain and ultimately deploy researchers, university systems must be made more autonomous and focus on talent. They must also be able to offer comparable salary packages to those offered to top talent in the US and China.

Europe's research base has grown substantially in the past decade, but this expansion is accompanied by increasing brain drain.<sup>151</sup> The number of researchers has risen but the number of high-quality, attractive research posts has not kept pace. Many countries now see a net outflow of top researchers, particularly to institutes in the US, where salaries, resources and career progression are significant pull factors.<sup>152</sup>

The data on Nobel laureates makes the point especially clear: based on country of birth, nine of the top ten countries by Nobel laureates per 1 million people are European, but it is the US where many of these scientists ultimately make their discoveries.<sup>153</sup> Early-career pathways across Europe are frequently precarious (with notable exceptions): short contracts, heavy teaching loads, limited lab resources and slow promotion. In the past few years these conditions have been flagged by the European Council and in the Pact for Research and Innovation, and underscored by the *Manifesto for Early Careers Researchers* produced by the European Educational Research Association.<sup>154,155,156</sup> Unless research careers become more attractive and better resourced, and progress faster, Europe will keep training talent for others to employ.

At the same time, this is a skills and deployment challenge. In 2023, about 75 per cent of employers across 21 European countries struggled to hire employees with the required digital skills.<sup>157</sup> Demand is building across major European economies and the number of AI-related job advertisements has more than doubled over the past year. Europe has a significant amount of AI talent, with a higher concentration per capita than both the US and China, but since 2022 it has become a net talent exporter.<sup>158</sup>

Reversing these trends in order to train and retain AI-capable scientific talent will require coordinated action by governments, funding agencies, universities and research institutes. The aim should be to make European labs the best places for early-career talent to pursue frontier science and technology. This will be achieved by offering compelling, AI-native research careers and environments, in the form of competitively resourced and secure roles for top talent, access to compute and opportunities to move fluidly between academia and industry.

Creating such environments might necessitate significant shifts in the assumptions that underpin European research structures and funding, which could be misaligned with the innovation era and global competition for talent.<sup>159</sup> Meanwhile, as leading countries (including the US) continue to shut out foreign talent and cut funding for universities, there is a prime opportunity for Europe to grow and expand its talent pool. The AI fellowships of the EU's AI Continent Action Plan and Choose Europe initiative, and the UK's Spärck AI scholarships, are steps in the right direction.

## 07

## Strengthening Europe's Global Tech Engagement and Influence

Europe should not be a passive consumer of the emerging tech-enabled geopolitical order that is being shaped. That means Europe needs to think more like a hegemon, identifying where its strengths lie and using them to actively shape the world in its interests.

Europe must make it clear what it is bringing to the table. Recent steps, such as the new International Digital Diplomacy Strategy from the European External Action Service (EEAS), recognise that maintaining and strengthening Europe's digital diplomacy is essential for its geopolitical influence.<sup>160</sup> However, recent actions, such as cutting the EEAS delegations' budgets and moves to reduce staff numbers across several delegations in Africa and Latin America, risk undermining this ambition.

The moment is right for Europe to take a more confident step into the global technology arena, but this must be matched with strategy, ambition and delivery. Europe has an attractive model to offer the world based on open, interoperable and democratic principles. It now needs to persuade the global community that its vision for the digital future is better than the alternatives on offer. This can only be done if the vision is backed by clear technological capabilities.

**Recommendation:** *The European Commission should launch a coordinated strategy to export its digital government stack to the world.*

Europe should actively promote its digital-government solutions abroad, embedding them within the world's emerging AI-enabled digital public-infrastructure stack. Europe has a strong track record of exporting its digital-transformation expertise, most often in the context of international development. Organisations such as the UK's Foreign, Commonwealth & Development Office and the German Agency for International Cooperation (better known as GIZ) stand out as clear leaders in this space, helping

countries upskill their domestic digital-technology capabilities.<sup>161,162</sup> At the EU level, the EEAS has similar expertise working on crucial digital-transformation projects.

These are important efforts but Europe needs to think bigger, be more unified and engage more strategically when promoting its digital public infrastructure to the world. This will require the development of a new Europe-wide strategy, specifically focused on how to make its digital public infrastructure the backbone for the world's emerging AI and digitally enabled governments.

This strategy should draw on the skills and capabilities of all Europe's assets. This would include utilising the expertise of non-EU countries such as Ukraine and the UK, both of which have world-leading digital capabilities. This effort should not be driven by governments alone but also include direct engagement with Europe's private sector.

At a minimum, the strategy should help rethink how Europe builds its own solutions – for example, by building for a global audience from the beginning and developing recommendations to expedite mutual recognition. It should also define how Europe can develop a full-stack, interoperable, modular and open digital-government platform that encompasses digital-identity systems, as well as mechanisms for data exchange, service delivery and more.

To encourage global uptake, the strategy should be linked to the Global Gateway initiative.<sup>163</sup> While this project has so far focused primarily on physical infrastructure, such as fibre networks, it should broaden its scope to include digital public infrastructure and AI-ready digital-government solutions.

Europe starts from a position of strength. The US has made little progress in digitalising its own government and while China offers a competitive model, it remains unattractive to most key European allies.<sup>164,165</sup> In contrast, Europe

is home to several world-leading digital governments and has extensive experience when it comes to building open and interoperable digital systems that can operate across diverse contexts.<sup>166</sup>

There are multiple examples of successes across Europe:

- It has been possible to create an active Europe-wide digital-identity ecosystem thanks to the help of eIDAS and eIDAS 2.0.
- The European Interoperability Framework, European Interoperability Reference Architecture and Interoperable Europe Act have helped accelerate Europe's lead in building open digital services.
- The Connecting Europe Facility and the Digital Europe Programme have helped develop reusable digital building blocks to help drive innovation for Europe's GovTech ecosystem, which in turn continues to push the frontier of government innovation.

It is estimated that the GovTech market will create almost \$10 trillion in public value globally by 2034.<sup>167</sup> Obtaining even a small percentage of this market would lead to massive financial and geostrategic benefits for Europe. The more countries that leverage European solutions, partner with European industry and participate in a European-led ecosystem, the greater the collective global benefit.

**Recommendation:** *The EEAS should set up regional tech hubs across the world, staffed with technologists and diplomats to promote a European tech stack.*

To support Europe in exporting its digital-government solutions, new regional technology hubs should be established. These hubs should be supported by European technologists possessing demonstrable frontier-technology skills and familiarity with the regional ecosystem and culture, as well as its policies.

The primary purpose of this network and the technologists involved should be twofold. First, they should act as active communicators for Europe, engaging directly with local businesses, investors and governments to raise



awareness of Europe's opportunities and assist with key projects, such as implementing European technological solutions. Second, by monitoring local perspectives on Europe's tech offer, these technologists would be able to provide feedback to European regulators on changes that should be made to its tech stack.

The continent possesses numerous technological strengths in the private and public sectors, but many remain unknown to the global community. Even in instances where awareness exists, complex regulations and implementation challenges often slow their international adoption. A better way for Europe to actively engage with mature and developed economies that align with Europe's world view is needed.

Regional technology hubs could provide this opportunity by functioning as vehicles for Europe's global digital strategy. For example, working with local industry, civil-society organisations, governments, academia and other stakeholder groups, these hubs could support pilots across several areas of Europe's digital-government stack, such as digital identity and digital-service delivery.

The EU has already experimented with this by opening a new office in San Francisco, which is tasked with strengthening the bloc's engagement with the American technology ecosystem. With its digital-partnerships programme, the EU has also helped to advance collaboration for several key technologies with four countries: Japan, South Korea, Singapore and Canada. Europe should strengthen these partnerships to launch the first regional technology hubs. This would create clear value for the host countries and also provide a base for introducing other countries in those regions to Europe's technology stack.

**Recommendation:** *The European Commission should create a new vehicle to help major investors of strategic interest navigate its regulatory environment.*

Europe must bring itself to the world while also attracting the world to Europe, attracting investment to power its growing digital ambitions. Today it is undeniable that growing regulatory complexity is translating into lost

investment. Large international and domestic firms – especially in the technology industry – and other institutional investors often face extended delays, fragmented rules and other uncertainties when building or financing major investments or developments in Europe. The consequence of this is an annual investment gap of €800 billion.<sup>168</sup>

Reforming the single market remains the most effective long-term solution for addressing these problems. However, Europe does not have the luxury of waiting. Trillions are flowing in the form of the digital-infrastructure investments that are necessary for powering the AI era. Without action, Europe will be unable to capture a meaningful amount of this investment.

Europe needs a short-term solution to help bridge the gap and several emerging examples illustrate how this could be done. In the US, a new investment accelerator ensures that investments of more than \$1 billion receive direct government support to navigate regulatory processes quickly and predictably.<sup>169</sup> This office is specifically tasked with helping to coordinate responses across multiple federal agencies, regulatory bodies and state governments.

Smaller-scale examples also exist within Europe itself. The Accelerate Estonia programme helps businesses that are blocked by outdated rules to secure targeted regulatory adjustments that enable innovation and investment,<sup>170</sup> which in turn encourages the experimentation and innovation that brings in new investment and opportunity. Across Europe, most countries also have specific bodies tasked with attracting international investment.<sup>171</sup> However, due to their size and mandate, they cannot provide the support needed for shepherding investments of European-scale importance through the variety of regulatory bottlenecks they are likely to encounter.

Hosted by the EC or integrated with the European Competitiveness Fund under the next Multiannual Financial Framework, a new European Investment Acceleration Mechanism should be created to act as a single front door for large, strategic investments. These would be investments worth upwards of €1 billion that directly contribute to strengthening Europe's industrial or technological base. The aim is not to bypass European regulation but to

demonstrate Europe's commitment to growth, as well as accelerating investments by coordinating across EU institutions, member-state authorities and the EIB.

# Conclusion

Europe has the potential to be a global lead in AI and tech, being home to the world's largest single market, a highly educated workforce, trusted institutions and advanced manufacturing capabilities. However, the continent is approaching this new era from a position of vulnerability: it is over-regulated, under-capitalised and often paralysed by fragmentation.

The challenges are well understood, in that the Draghi report and others have shown the path forward. What Europe now needs is leadership: the courage to move from consensus-building to action, and from managing decline to driving renewal.

Making technology a guarantor for, not a threat to, Europe's social model means reforming capital and regulatory systems to unleash innovation; completing the Energy Union to power growth with affordable, clean energy; building digital infrastructure; continuously upskilling workers; and deploying AI at scale across every sector.

At the same time Europe must look outward, working with partners to build a global technology ecosystem rooted in openness, interoperability and democratic trust. Europe's success at home must power its influence abroad.

This transformation cannot be delegated or delayed. It requires not only Brussels but also European heads of government to make technological competitiveness the defining political project of this generation – and to overcome the inertia and resistance that have held Europe back. The window for action is closing fast.

If Europe acts with unity and ambition it can prove that democracy and innovation are mutually reinforcing, and that freedom and competitiveness can thrive together in the AI age. If Europe hesitates, others will shape the future in its place. The choice is clear – and it will define the continent for decades to come.

# Acknowledgements

The authors would like to thank the following experts for their input and feedback (while noting that contribution does not equal endorsement of all the points made in the paper).

Rob Atkinson, ITIF

Bojana Bellamy, CIPL

Ayesha Bhatti, ITIF

Oliver Coste, formerly European Commission

Connor Dunlop, Lucid Computing

Natascha Gerlach, CIPL

Bertin Martens, Bruegel

Aïda Ndiaye, Meta

Alessandra Venier, Synthesia

Giorgos Verdi, ECFR

Alexandru Voica, Synthesia

Henry Wade, Klarna

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