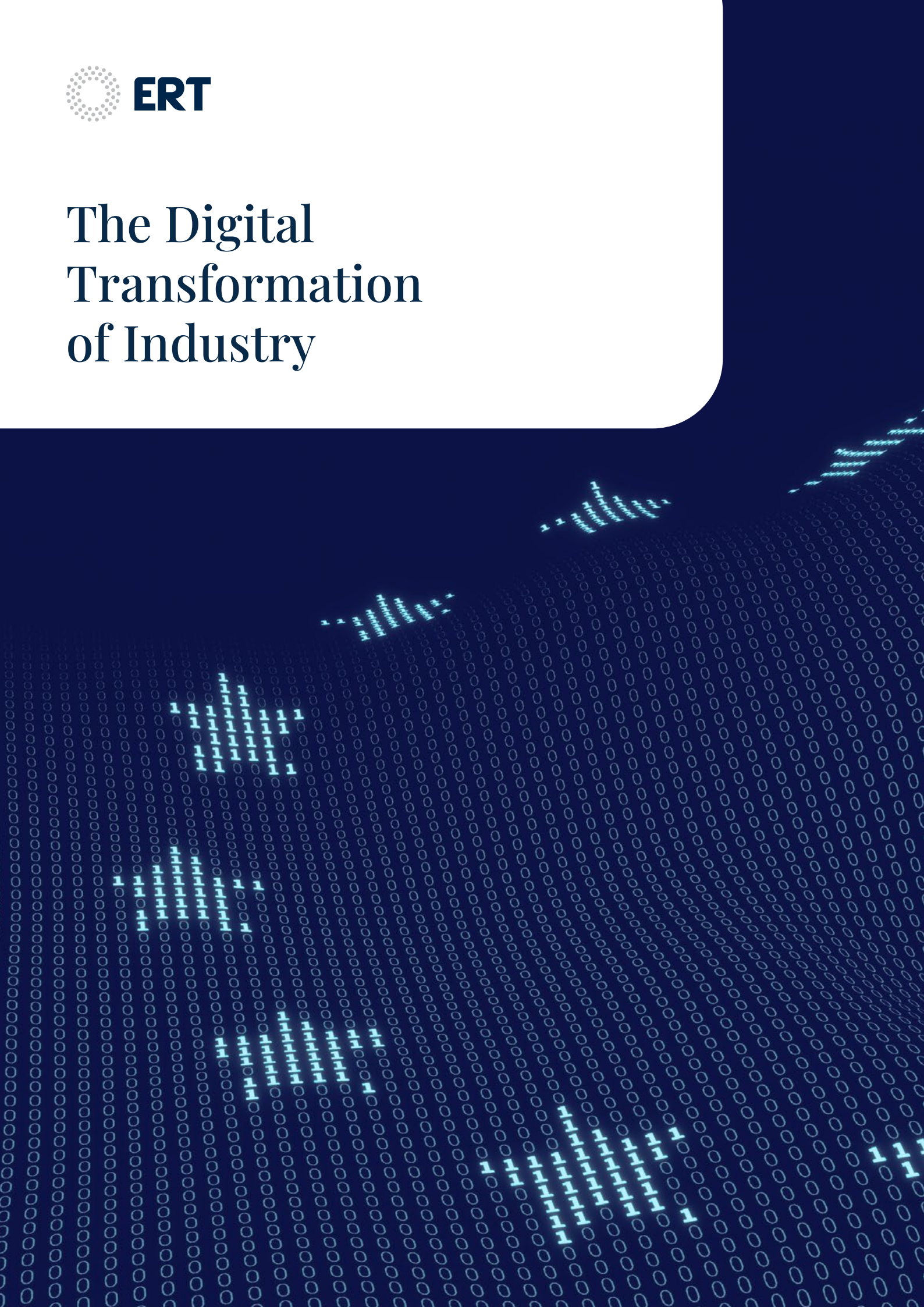
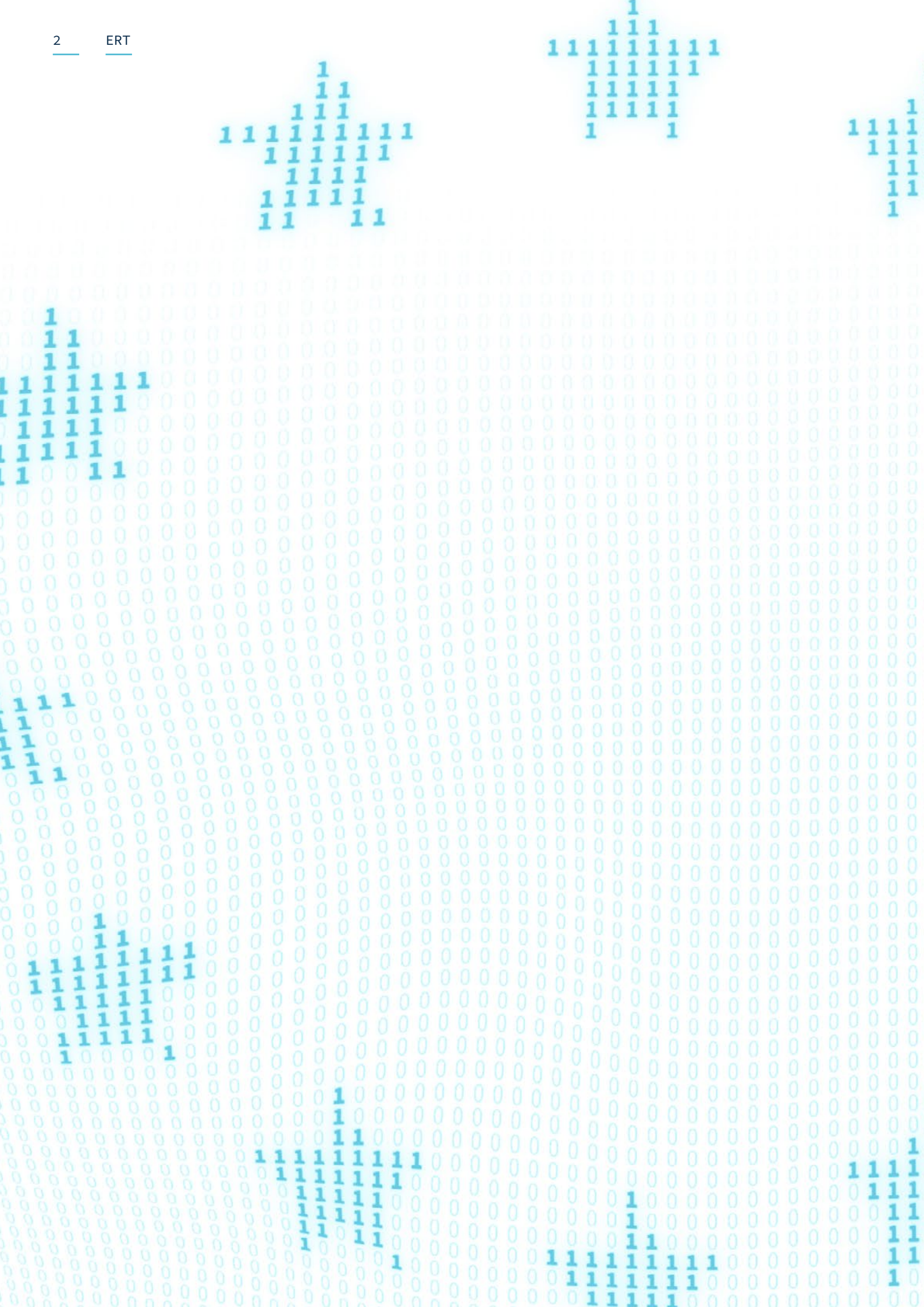
ERT

The Digital Transformation of Industry





Contents

Executive Summary 4

Summary of ERT Recommendations 5

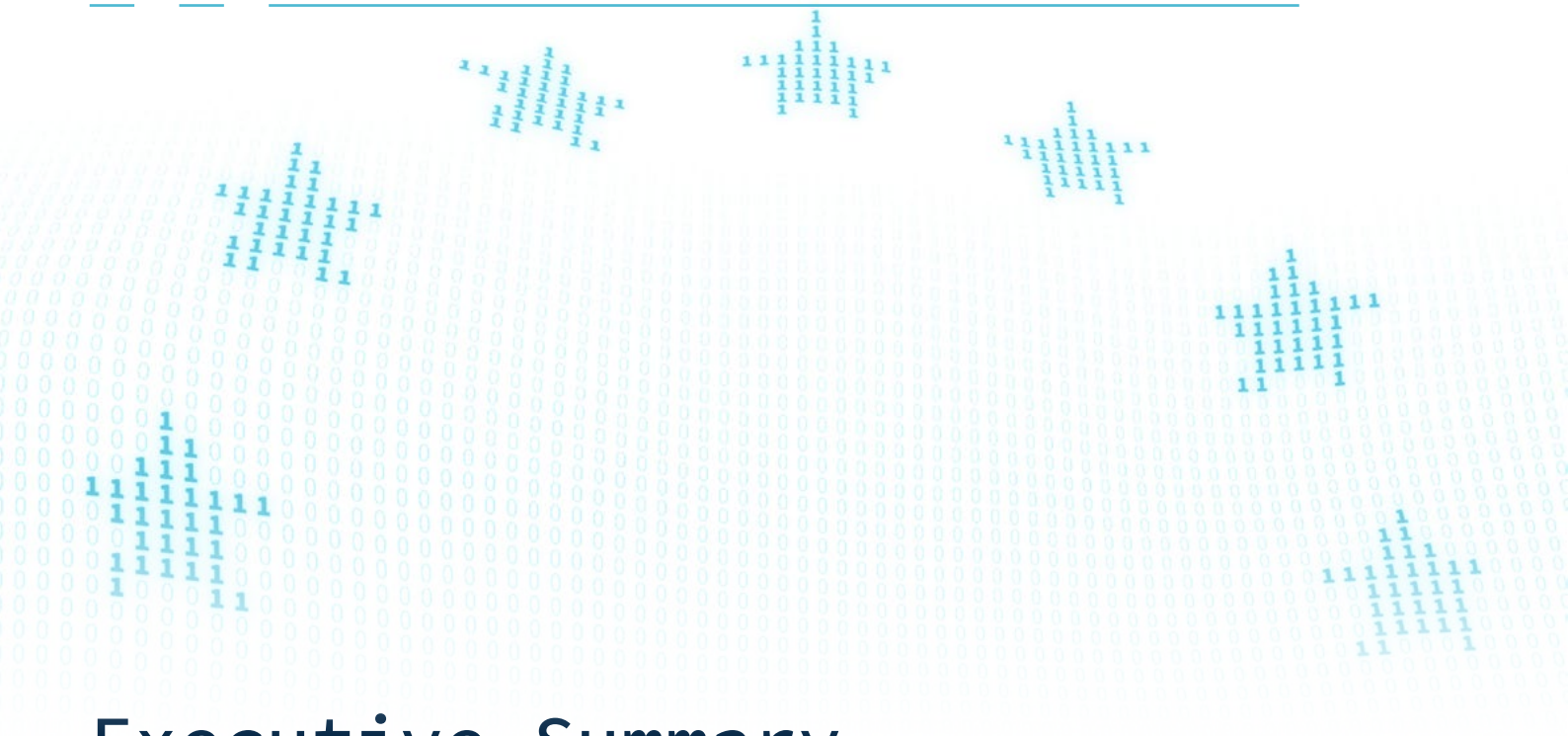
Foreword 9

I. Putting Digital Transformation back at the core of Europe's sustainable growth 10

II. Accelerating Key Areas of Digital Transformation 16

- Connectivity 18
- Data 20
- Artificial Intelligence 22
- Cloud & Edge 24
- Cybersecurity 26
- Sustainability 28

Conclusion 30



Executive Summary

In a world fraught with global geopolitical tensions and urgent sustainability demands, Europe's competitiveness is in stark decline. The urgency to ramp up digital transformation cannot be overstated. It is not merely a tool but the very foundation of the future. To navigate the challenges of today and tomorrow, Europe must therefore forge a robust, digitally empowered industry, lighting the path to renewed prosperity and enduring success.

Despite great efforts and investments by the digital sector, progress on digital has been too slow. European countries need to seize opportunities offered by digital as a way to bridge the productivity gap.

To do so, the European Round Table for Industry (ERT) calls for Europe to adopt a strong industrial action plan with clear roadmaps by industry. In this paper, we propose ways to make this plan a reality, and the required conditions for it to be a success. We are convinced Europe needs to operate a mindset shift and improve the regulatory framework, designing it in a way that promotes innovation. We also pledge for a massive digital skills plan to bridge the skills gap Europe is currently experiencing.

The digital transition is essential for Europe to restore its competitiveness. his paper constitutes an ambitious action plan to concretely accelerate on 6 areas that have been identified as critical for Europe's digital transformation: Connectivity, Data, AI, Cloud & Edge, Cybersecurity and Sustainability[1].

ERT stands ready to support the European Commission in addressing questions and advancing these critical initiatives.

This ERT paper is informed by a survey conducted by the Capgemini Research Institute, entitled "Toward a digital Europe in an era of sustainability". This survey collected the answers of 1,800 executives across 30 countries within Europe.

The survey report can be downloaded from the QR code & links at the back of this paper. Unless stated otherwise, all the numbers highlighted in the report are findings from this survey.

1 ERT, Competitiveness and Industry Benchmarking Report 2024, Rebuilding Europe's business case, working against the clock, 2024.

Summary of ERT Recommendations

Digitalisation of industries

- Develop a digital transformation strategy based on industry-specific digitalisation roadmaps rather than broad goals.
- Support the transformation of industries with faster and dedicated funding mechanisms.
- Facilitate more private resource availability, for example by accelerating on the Capital Markets Union and promoting more diverse private or public-private investment schemes through the European Investment Bank.

Innovation-friendly legislative framework

- Strike a better balance between innovation and regulation.
- Create a true Digital Single Market, with less regulatory fragmentation between European countries, and strive for less discrepancies with third countries.
- Strive to reduce regulatory complexity around digital legislations.

Digital skills plan

- Give a larger place to digital in education programmes and support professionals' further education.
- Leverage the learning capabilities offered by digital and create shorter and more practice-oriented development paths.
- Make Europe more welcoming for experts.
- Encourage more partnerships between public research and the private sector to help facilitate the transition of researchers into the private sector.

Approaching "new frontiers"

- Develop a strong industrial strategy for Europe to win on new frontiers, like Quantum technologies and the Industrial Metaverse.

Connectivity

Modernise regulations and practices to adapt to new market realities.

- Ensure that Member States follow pro-investment best practices when assigning spectrum (fees, prolongation rules).
- Boost operator scale by easing in-market consolidation restrictions, prioritising national mergers to drive economies of scale.
- Urgently review and simplify legacy regulations to account for new and upcoming market realities, which include cloudification, network disaggregation, 5G Standalone, 6G or satellite.
- Support telecoms infrastructure network sharing that allows for increased efficiency.

Increase and encourage public and private investments in network transformation and deployment of new technologies to meet the 2030 connectivity targets.

- Better leverage existing investment funds like Digital Europe, Connecting Europe Facility and Recovery and Resilience Facility to increase public investment in network deployment.
- Continue to fund and accelerate ambitious joint projects around 5G Standalone, Edge Cloud and 6G, like Hexa X-II.

Data

Focusing on implementation, harmonisation, and consistency of existing legislation.

- Rather than deploying new legislation, focus on facilitating the implementation and enforcement of measures already taken (GDPR, Data Act, Data Governance Act) by providing the tools, explanations and guidance needed.
- Make use of the ongoing review of the GDPR to reduce duplication and overlaps with more recent pieces of legislation.

Encourage data creation and transfer within the EU (for a true Single Market for Data) with appropriate links to markets also outside the EU.

- Accelerate the establishment of European Data Spaces to deliver economic added value and encourage data sharing and interoperability – within the private sector and between private & public players – to foster innovation and the emergence of joint European projects.
- Encourage secure and reciprocal international data transfers while preserving appropriate safeguards based on EU fundamental rights. Taking the EU legislative acquis as the basis, further alignment with the Data Free Flows with Trust (DFFT) G7 initiative and OECD proposals would allow for greater interoperability across different national data protection frameworks.
- Actively explore the development of Virtual Worlds for data creation to close the gap in accessibility to large data sets.

Artificial Intelligence

Actively facilitate the emergence of European AI solutions.

- Work to increase European investment capacities in AI, leveraging existing funds, such as the Coordinated Plan on AI, and promoting new incentives and investment schemes fitting the funding needs of startups and SMEs.
- Strive for increased data availability to train industry specific models by incentivising sharing of industrial data sets and feeding models with data from emerging European Data Spaces while respecting and appropriately safeguarding trade secrets and sensitive data.
- Drive an industrial strategy to create differentiated European industrial AI models. To do so, set up an industrial consortium and public-private initiatives to develop smaller, more sober and verticalised AI models. Besides AI models, encourage projects to build industrial applications on top of AI models.

Make sure legislation and governance does not dampen the use of AI in Europe.

- Release standards and guidelines to ensure a consistent and harmonised implementation of the AI Act across the EU, also creating spaces for real dialogue with business while leaving enough time for companies to prepare.
- Provide timely guidance for companies on how to interpret the risk categorisation framework contained in the AI Act's Article 6/Annex III, ensuring that only the systems which pose a meaningful risk are captured.
- Foresee adequate support for smaller companies as they often do not have the required resources to fulfil timely the AI Act requirements.
- Align the AI Act with EU laws on data, security, consumer protection, and cybersecurity. Use the GDPR review to adapt existing laws facilitate data access for research and innovation.
- Strive for better regulatory alignment on AI with like-minded partners through the OECD, EU-US Trade and Technology Council (TTC) and the G7 (i.e. Hiroshima process).
- Ensure fair competition and contestability of emerging AI models providers markets to prevent anti-competitive tendencies early on.

Work to bring and retain key AI talents in the EU (researchers and employees).

- Create a European AI R&D hub to retain talent and attract global experts. Foster university-industry partnerships, invest in research and employee retraining and incentivise R&D clusters for applied work.

Cloud & Edge

Ensure respect of EU laws and values without jeopardising existing operational models.

- Ensure robust enforcement of European regulations like the Digital Market Act, Digital Services Act, Data Act, and competition law to ensure compliance and fair competition among cloud providers, fostering the growth of a European Cloud industry.

- Adopt a version of the European Union Cybersecurity Certification Scheme for Cloud Services (EUCS) that promotes transparency, common standards and harmonisation across the EU.

Facilitate the emergence and adoption of a competitive European Cloud/Edge industry.

- Work to increase public investment in European cloud and edge through agile Important Projects of Common European Interest (IPCEI), while also incentivising more private funding.

- Advance on implementing a true Digital Single Market, solving hurdles related to market fragmentation, certification challenges, and regulatory inconsistencies in cloud that slow down the scaling of European cloud solutions. To support this, accelerate the creation of a unified marketplace of European cloud providers.

- Walk the path towards cloud adoption in the public sector.

  - In the short term, encourage the harmonisation of public cloud procurement criteria (especially by pursuing the project of an EU Cloud Rulebook for public procurement).

  - In the medium term, develop and expand pan-European public services in the cloud edge continuum.

Cybersecurity

Adopt an ecosystem approach to improving cybersecurity in Europe.

- Support ENISA's role in setting and sharing best practices, providing expertise, facilitating information sharing initiatives and ensuring dialogue with other bodies and the private sector.

- Accelerate the establishment of modern and harmonised cybersecurity standards for IoT products across Europe.

- Strive for more public/private spin-offs like other regions, such as the United States.

- Drawing inspiration from credit rating, set common rules for cyber rating agencies, with a goal to ensure transparency, comparability of ratings and robust methodologies, while allowing for consent or opt out for rated entities.

- Solve the shortage of cyber professionals and cybersecurity researchers through measurable training and talent attraction. Initiate an institutional drive to set up high-quality training and awareness programmes on a European scale.

- Strengthen public administration capacity building, cooperation and international enforcement in the fight against cybercrime.

- Support funding instruments to stimulate investment in cybersecurity and address market failures in this area with spill-over effects on the economy. Explore tax incentives, similar to R&D tax relief, to improve cyber resilience.

Ensure an efficient and coherent legislative environment.

- Improve the consistency of existing cybersecurity regulations, notably between the Digital Operational Resilience Act (DORA), the Directive on measures for a high common level of cybersecurity across the Union (NIS2 Directive), and the Cyber Resilience Act (Act), avoiding double obligations and contradictions. Coordinate the interplay of enforcement of these acts between stakeholders.

- Create a dedicated Expert Group specifically on CRA implementation that would allow the industry to provide expertise and receive official clarifications from the EU regulators on CRA requirements and obligations.

- Leverage dialogues like the G7, the EU-US Trade and Technology Council (TTC) and particularly the EU Cyber Dialogues to progress on making international cybersecurity converge and mutual recognition.

- Help SMEs comply with cybersecurity requirements, by creating specific guides, tools and resources.

Sustainability

Better support digital solutions in favour of sustainability goals (IT for Green).

- Back each industry-specific decarbonisation strategy with a plan for digitalisation. These strategies should include Key Performance Indicators to monitor progress.
- Continue to make efforts to harmonise and clarify ESG reporting and carbon accounting standards to allow for the emergence of digital solutions to support companies in their compliance and overall sustainability efforts.
- Remain open to revisions of the Corporate Sustainability Reporting Directive (CSRD) aligned to feedback from businesses during implementation.
- Leverage existing funds to finance technology and digital innovation required by the industries to reach their net zero goals.
- Make sure the EU sustainable finance taxonomy adequately incentivises investments in the twin transition by acknowledging the role of digital technologies for sustainability.
- Support new initiatives for increased supply chain data sharing through the European Data Spaces. Support common standards for CO2 calculation methodology, secure data interoperability and make sure to leverage available data sources.
- Encourage the use of Digital Twins and the Digital Product Passport.
- Support a skills plan to prepare the European workforce to combine digital and green skills, ensuring both are taught together.
- Enhance distribution grids to secure security of supply, EU citizens energy provision and to enable the operation and participation in flexibility markets.

Ensure the sustainability of digital solutions (Green IT).

- Support the development of standards to calculate the environmental footprint of B2B products and services.
- Develop a secondary market for ICT equipment within the EU and support the implementation of industry-specific circularity ecosystems for digital products.
- Consider machine readable formats for regulations to reduce the administrative burden of compliance and improve implementation by companies, to facilitate product development, and to reduce scope 3 emissions as energy required to do the processing will decrease.

Foreword

“Digital is pivotal for Europe, providing a competitive edge while driving positive outcomes for businesses, society, and the planet.”

Over the past decade, our economy has been transitioning to a new digital era. We are currently witnessing a revolution that rivals the impact of the industrial revolution itself. Digital is reshaping the way we live, interact, work and consume, but also how we do business, and that trend has again been accelerated with the pandemic.

This shift has created new societal opportunities. It has propelled progress, for instance on health and education, while also urging swifter action on climate and sustainability goals. Digital also comes with its own set of emerging risks, from data privacy to deep fakes, that need to be addressed responsibly and sustainably.

In this evolving landscape, Europe must not merely catch up, but take a leading position in the global digital economy. On one hand, a robust digital ecosystem is essential to create a win-win relationship in an open economy with our non-European partners and prevent a full dependency on critical technologies. On the other, digitalisation is critical to ensure competitiveness and innovation. Without it, Europe risks losing market share and faces further deindustrialisation.

Europe stands at a pivotal moment to further propel the pace of its digital transformation. Building upon the legislative framework established during the 2019-2024 tenure, we collectively need to shift gears towards widespread deployment of digitals solutions, bringing initiatives at scale with maximum efficiency.

Europe must embrace a renewed industrial strategy, implementing targeted deployment plans for each industry, while rapidly advancing key digital enablers such as connectivity, data & AI, cloud computing and cybersecurity. Additionally, Europe must pioneer several “new frontiers,” where it can cultivate the champions of tomorrow for instance on Quantum.

Our action towards this new digital economy must be guided by three principles:

First, our regulation must not hinder European competitiveness and innovation at global level, and should contribute to preserving the necessary level of independence when needed.

Secondly, digital transformation and sustainability should be thought of together. Digital technologies play an important role to accelerate the transition to a low-carbon economy, whether it is to monitor, track and report emissions, make supply chains more efficient, agile and resilient or implement circular practices.

Finally, talent is paramount, but the necessary skills to achieve these transitions to a more digital and sustainable world are sorely lacking. It is time for the EU, alongside governments and corporates, to accelerate on digital skills. We need more talent in the pipeline and we need to train them faster.

Europe has what it takes to stay ahead, let’s collectively shape it into a reality.

Aiman Ezzat

Chair of the ERT Committee on Digital Transformation

CEO of Capgemini

I. Putting Digital Transformation back at the core of Europe's sustainable growth

Crafting Europe's Future: the imperative of Digital Transformation

This year's European elections are an invitation to look back on what has been accomplished during the past few years and analyse current systemic trends in order to fight the right battles during the next mandate.

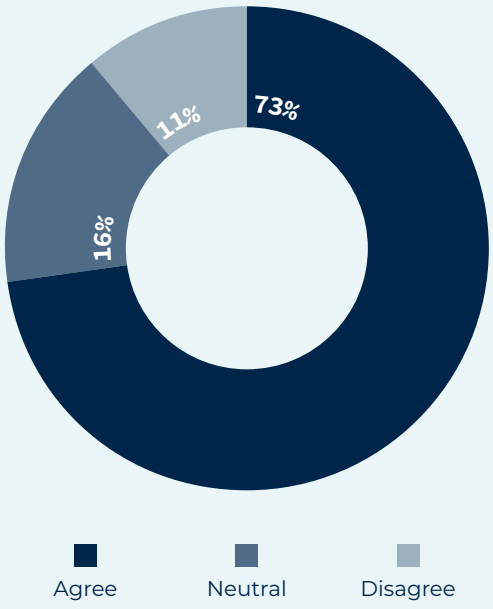
Not only do European countries keep suffering from a sustained loss of competitiveness compared to China and North America[2], but they are also experiencing new challenges. In the past few years, we have witnessed a global acceleration in climate change calling for increased efforts at reconciling growth and sustainability.

In parallel, the shifting geopolitical context sparks new concerns on the right path to follow in the technological race, including on the topic of technological dependency or sovereignty.

More than ever, all eyes are set on the European Union to provide strong answers to these issues and ensure the economic security of Europe: nearly three-quarters (73%) of European executives agree that policymakers must develop a stronger strategic approach to securing future competitiveness (Figure 1).[3]

Europe needs to seize the opportunities offered by digital transformation. Digital brings transformative solutions to European companies, streamlining and automating operations, improving productivity, fostering innovation and accelerating the transition to a more sustainable economy, ultimately creating strong potential for competitive advantages over international competition. For these reasons, eight in ten executives agree to the statement: "The digital transformation of large EU industrial organisations is critical to Europe's global competitiveness."[4]

Figure 1. A large majority of European executives think policymakers should develop a stronger strategic approach to securing future competitiveness



% of executives who agree that policymakers must develop a stronger strategic approach to securing future competitiveness

Source: Capgemini Research Institute, Survey for the European Round Table for Industry (ERT), February 2024, N=1,800 European executives.

2 ERT, Competitiveness and Industry Benchmarking Report 2024, Rebuilding Europe's business case, working against the clock, 2024.
3 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024
4 ERT, Competitiveness and Industry Benchmarking Report 2024, Rebuilding Europe's business case, working against the clock, 2024.

In light of these considerations, ERT urges policymakers to renew their support for digital transformation in order to set Europe on the right path towards:

- A renewed industrial strategy for a digitally driven sustainable Europe, relying on a pragmatic deployment plan per industry.
- A more practical and harmonised legislative framework, appropriate for the modern digital ecosystem, creating a true Digital Single Market, designed to accelerate innovation rather than hindering it.
- A massive digital skills plan to address the skills gap and respond to the pressing needs of the digital revolution.
- An offensive approach towards several "new frontiers", where Europe can shape the champions of tomorrow.
- An acceleration of the six key areas of digital transformation: Connectivity, Data, AI, Cloud & Edge, Cybersecurity and Sustainability.

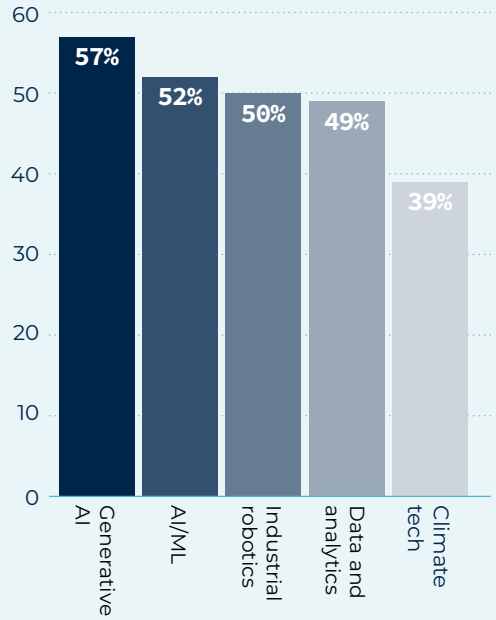
A renewed industrial strategy for a digitally driven sustainable Europe.

In the past few years, the lines between the physical world and the digital world have faded. Across industries, firms are building continuity from product design to supply chains, from marketing to R&D, from production to end customer usage. Digital is reshaping the very core of their business models – from the development and sales of their products to innovation strategies and product or service interaction with customers.

The COVID-19 pandemic highlighted flaws in global supply chains, pushing organisations to reassess production and sourcing. To foster sustainable growth and competitiveness, digitalising industries is crucial. Existing factories are rapidly transforming, investing to adopt new digital technologies while most new ones are fully automated by design, leveraging IoT technologies, industrial robotics, data analysis and AI to optimise workflows, processes, and tasks. By embracing manufacturing techniques such as additive manufacturing, companies can also benefit from rapid prototyping and produce more locally. Digital twins allow physically precise simulations of assembly lines and components to facilitate predictive maintenance, reducing downtime, improving resilience and extending the lifespan of machinery and equipment. To reap the strong competitiveness and sustainability benefits that digital can bring, adoption of these technologies among European industries must be accelerated.

The EU's digital ambition must embrace a new paradigm, strengthening technology deployment across industrial value chains. We strongly support the observations made in Enrico Letta's Report on 'Empowering the Single Market to deliver a sustainable future and prosperity for all EU Citizens'.[5] The EU should now build on the actions identified for the different sectors. Success requires Europe to find the right balance between sector-specific strategies, considering each sector's unique needs, and cross-sector initiatives that transfer learnings to drive progress economy-wide.

Figure 2. AI/generative AI, industrial robotics, and data and analytics are the top digital investment areas



% of executives planning to increase digital investment in the following technologies in the next 12–18 months (top 5 ranked)

Source: Capgemini Research Institute, Survey for the European Round Table for Industry (ERT), February 2024, N=1,800 European executives.

5 Enrico Letta, Much more than a market, April 2024

Europe can leverage its robust prior experience. In the life sciences sector, the Cancer Imaging Initiative advances Artificial Intelligence, catalysing the development of ground-breaking cancer diagnosis and treatment technologies. Similarly, in the automotive industry, the CARA project promotes enhanced standardisation of car operating systems amidst the sector's profound digital transformation.

Moving forward, it is imperative that Europe's support consistently builds upon and expands this industrial approach for main digital technologies (see Figure 2) with industry-specific digitalisation roadmaps, similar to decarbonisation roadmaps, supported, whenever necessary, by dedicated funding mechanisms. In particular, allocation processes for public funding must be made faster and simpler, delivering funds to companies as soon as possible and reducing the administrative burden of applying for them. One second lever is acting for more private resource availability. Accelerating on the Capital Markets Union (CMU) and promoting more diverse private or public-private investment schemes through the European Investment Bank (EIB) would be two strong steps towards this goal.

A more practical and harmonised legislative framework designed to accelerate innovation, rather than hindering it.

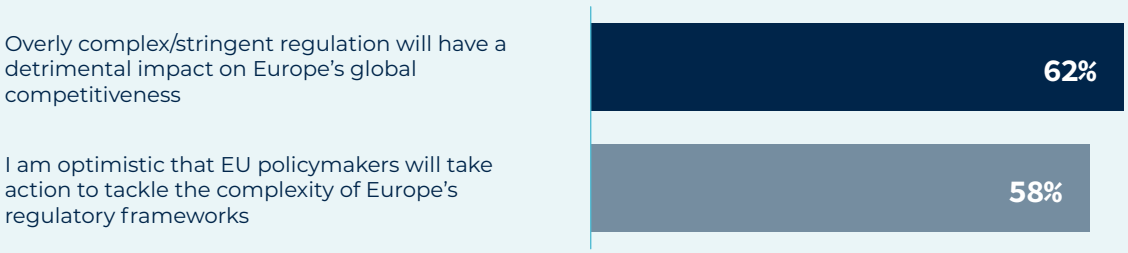
Europe's recent efforts in digital regulation have been commendable. Legislative initiatives like the AI Act, Data Act, Data Governance Act, Cyber Resilience Act, NIS2 Directive, and the Digital Operational Resilience Act (DORA) are examples of substantial strides in safeguarding end-user rights, promoting best practices and competition, supporting EU ecosystems and businesses, and reducing uncertainty.

However, despite their potential benefits and positive objectives, the implementation of these acts and their related reporting requirements often impose heavy burdens on companies. Such burdens can impede competitiveness and innovation, particularly when these regulations suffer from evident inconsistencies, overlaps, contradictions, ambiguous language, or weak governance models.[6] Arresting this trend requires better alignment between each piece of legislation and better coordination between the European Commission's Directorates-General (DGs).

The other side of this problem is the fragmentation and overly complex nature of national regulations. The result has been a hindering of the deployment of technologies like 5G, fibre, cloud or edge computing and the services that underpin these technologies. Without a true Digital Single Market, our industries will not be able to effectively scale and reach the size required to face international competitors.

A majority (62%) of European executives believe that overly complex and stringent regulations

Figure 3. While most executives believe complex regulations hinder European competitiveness, many are also optimistic the complexity can be addressed.



% of executives who agree with the statements below

Source: Capgemini Research Institute, Survey for the European Round Table for Industry (ERT), February 2024, N=1,800 European executives.

[6] ERT, Innovation made in Europe, Setting the foundation for future competitiveness, 2023

can have a negative impact on Europe's competitiveness (Figure 3). Furthermore, only a few executives consider current European regulations across key technology areas such as cloud (33%), connectivity (34%), cybersecurity (37%), data (44%), and AI/generative AI (46%) to be clear.

The EU must also adopt a mindset shift in the way regulation of emerging technology is approached, looking to strike a better balance between fostering innovation and safeguarding ethical standards and the safety of European citizens, and systematically aiming to be clear and unambiguous. This implies that the policies to be implemented must take into account the business community and its characteristics. It should be borne in mind that 99% of the private sector is made up of small and medium-sized enterprises. Their digitalisation will depend on active policies favourable to the development and adoption of emerging technologies, as well as regulation that takes into account the characteristics of companies of all sizes. Regulation should be more systematically founded on risk assessment and remediation, without getting directly involved in the technological aspect, and focusing on properly identified needs and opportunities of all parties.

Beyond Europe, legislative fragmentation also complicates the operations of global European companies. The EU should strive for better regulatory alignment with like-minded third countries, leveraging international fora such as the G7 and EU-US Trade & Technology Council (TTC) or international bodies like the OECD.

A massive digital skills plan to address the gap and respond to the pressing needs of the digital revolution.

The digital transformation of Europe's industry requires skills. However, Europe is facing a massive shortage of digital skills, particularly in critical areas such as cybersecurity, data management, Digital Twins, Simulation, and AI. In addition, these digital skills are often separated from sustainability and energy transition skills. Benefiting from unique intra-EU labour and student mobility, the EU should support Member States in strengthening digital skills by forming and retaining talents better – from the EU and abroad – and breaking the barrier between green and digital skills. While initiatives like the European Skills Agenda, Digital Education Action Plan, and the Digital Skills and Jobs Coalition are commendable steps forward, closing the vast digital skills gap requires further, more urgent action.

KPIs set by the Digital Decade envision 20 million Information and Communication Technology (ICT) specialists by 2030 and 80% of the population to know basic digital skills. Europe needs to accelerate on this ambition. Indeed, a third of the EU's labour force still lacks the digital skills required for most jobs.[7] Some areas are particularly impacted: for instance, the skills gap in the field of cybersecurity amounts to 300,000 professionals[8].

This explains why executives are concerned about the availability of talent and specialist skillsets in their organisations. Just one-quarter (25%) of executives believe their organisation has the talent and skills required to grasp cloud-related opportunities and only 32% say the same for AI and generative AI (see Figure 3).

How the softwarisation of the automotive industry creates a wide skill gap to address

Vehicles are quickly turning into "software-defined vehicles." This digital shift brings many benefits to customers, such as new features and services that can be added after purchase, such as remote vehicle monitoring, ongoing quality and cybersecurity updates, and preventive maintenance.

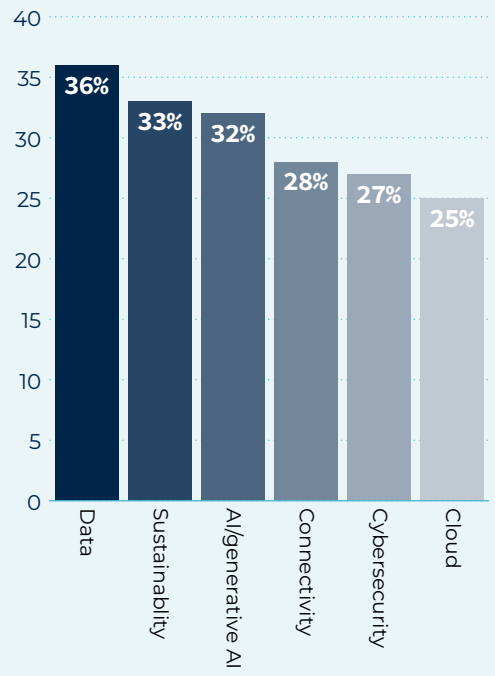
As vehicles rely more on software, the European automotive industry is moving away from traditional assembly lines towards a focus on software. This change means car manufacturers need to develop new skills in software design, engineering, production, and testing, including using digital twins. They also need expertise in data management, connectivity, cloud computing, cybersecurity, and AI.

However, the shortage of skilled software professionals in the EU and high labour costs make it challenging for manufacturers, leading them to look for talent elsewhere.

7 Plugging the digital skills gap, Europa.eu, 2023.

8 OECD Skills Studies, Building a Skilled Cyber Security Workforce in Europe, 2024

Figure 4. Around one-quarter to one-third of executives believe their organisation is prepared to seize opportunities from a talent and skills perspective.



% of executives who feel their organisation has the talent and skills required to seize opportunities across the below domains

Source: Capgemini Research Institute, Survey for the European Round Table for Industry (ERT), February 2024, N=1,800 European executives.

One first course of action should be to give more prominence to digital in education programmes and to support professionals' re- and upskilling. The EU and Member States should better leverage the learning capabilities accessible by digital tools and channels and create shorter and more practice-oriented development paths.

However, there is no point in training talented digital professionals if they end up leaving us for more attractive work conditions abroad. As such, a key focus should be to make Europe more welcoming for experts by improving the general and legal conditions, especially by making it easier for experts to migrate, work and research. Encouraging more partnerships between public research and the private sector would help facilitate the transition of researchers into the private sector.

To help close the skills gap for entry level positions in IT (and other) professions, ERT has launched an ambitious end-to-end reskilling programme called Reskilling 4 Employment (R4E) which is now active in Spain, Portugal, Greece, Sweden and Germany. Pilots are planned in other Member States as well. This programme acts by supporting and developing high-placement reskilling programmes while bridging the gap with employment ecosystems.

Many of Europe's corporates are also re- and upskilling their existing labour force, via extensive internal programmes that are tailored to specific needs and add or upgrade skills to allow for the widespread use of new digital tools.

An offensive approach towards several "new frontiers", where Europe can shape the champions of tomorrow.

Europe must be ambitious and proactive in cultivating the champions of tomorrow. Instead of dwelling on past setbacks, Europe must aim higher by swiftly targeting "new frontiers", in domains where no dominant player has yet emerged, therefore presenting opportunities for Europe to take the lead.

For instance, Quantum Computing or Industrial Virtual Words (Industrial Metaverse) are examples where industrial strategies could be forged.

To lead the digital race, computing power is key. Europe already benefits from strong supercomputing infrastructures, leveraging initiatives like EuroHPC. But to go further, the EU could also get a step ahead with Quantum technologies. In particular, Europe could work on providing concrete uses cases and applications, bringing strong benefits to industrials. For instance, such technologies can improve machine learning models by making algorithms faster, more accurate, and more efficient with the same amount of training data, leading to reduced computing costs and better accuracy. Solutions could be created to support manufacturing use cases such as new materials discovery through simulation or anomaly detection for quality control. In the mobility sectors, such technologies could be a cornerstone to autonomous vehicles models or support designing of next-generation batteries. In the life sciences industry, they can support faster drug development. Europe is already a global leader in building supercomputers and could get a head start in Quantum Computing by applying

its industrial expertise to this area, increasing funding to specific application projects to create flagship solutions.[9]

Similarly, by investing into the next step of Digital Twins, the Industrial Metaverse, European companies could leverage important benefits. This environment of advanced modelling of real-world objects properties and interactions would bring significant benefits to European industries. Advanced simulations can increase productivity as well as energy and resource efficiency and enhance the sustainability of operations across entire production systems and beyond.

In order to enable the champions of tomorrow – whether in the digital field or elsewhere – it is vital to have the right infrastructure in place. State-of-the-art digital infrastructure is a key determinant of how fast the metaverse can progress. Moreover, Europe must support R&D and innovation in academia, technology infrastructures industry and deep techs. The Horizon Europe programme needs to be strengthened further to employ even better successful strategies of cooperation and collaboration in the innovation ecosystem.

Accelerating six key areas of digital transformation.

Six areas are considered by European executives as their main priorities for digital transformation in Europe. These areas include five main technological enablers (Connectivity, Data, AI, Cloud & Edge and Cybersecurity), but also Sustainability as both a driving force for digitalisation, and an imperative for digital solutions.[10] In the following part, we present the main initiatives we believe should constitute a strong action plan to accelerate in these areas and reach the KPIs set by the Digital Decade.

ERT Members have no doubt that our European industries can be at the forefront of the next competitive innovations, provided they can develop in a supportive, pro-investment and innovation-driven environment.

ERT Members have no doubt that our European industries can be at the forefront of the next competitive innovations, provided they can develop in a supportive, pro-investment and innovation-driven environment.

9 Capgemini Research Institute, Quantum technologies: How to prepare your organization for a quantum advantage now, 2022

10 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

II. Accelerating Key Areas of Digital Transformation

Connectivity 18

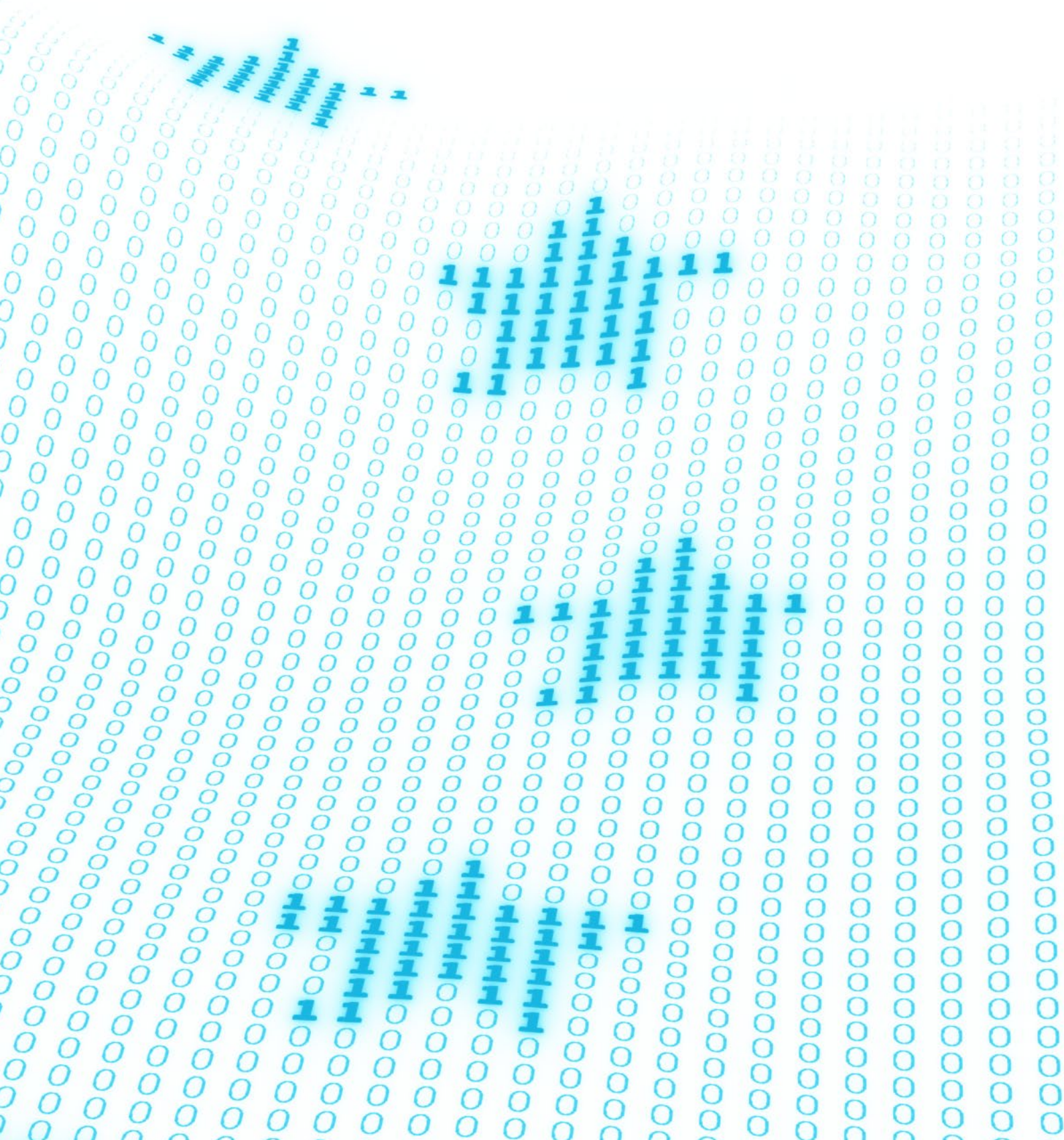
Data 20

Artificial Intelligence 22

Cloud & Edge 24

Cybersecurity 26

Sustainability 28



Connectivity

Advanced and ubiquitous connectivity sets the preconditions for digital transformation in Europe. For this reason, the Digital Decade has set up strong targets for connectivity in Europe: by 2030 all European households should be served by a Gigabit network, and all populated areas should be covered by next generation wireless high speed networks offering performance at least equivalent to that of 5G. However, the rollout of 5G and fibre has been insufficient so far. This is particularly clear when the EU is compared to North America and China: In 2023, at least a 174bn€ investment shortfall has been identified to reach the 2030 targets.[11]

The reasons behind this are threefold. First, the heavy and unevenly implemented regulation surrounding European connectivity makes it slow and difficult for operators to roll out infrastructures, especially when it no longer reflects today's market realities.

Secondly, the return on investments remains too low, mainly due to competition policy in Europe preventing operators from reaching sufficient scale.

Lastly, bureaucratic burdens have led to slow and difficult conditions for operators to roll out infrastructures.

11 European Commission, Investment and funding needs for the Digital Decade connectivity targets, March 2023

All these concerns need to be tackled urgently, as they will remain an obstacle in the future. For example, high spectrum prices and a lack of harmonised spectrum availability (with huge diversity across Member States in terms of timing or licence duration) is currently slowing down the rollout of 5G and will also hinder the rollout of 6G. This concern is shared by most European executives: 60% of them expect policymakers to establish a clear framework for spectrum deployment and operation[12].

Europe needs to address the adoption gap by enterprise in advanced and trusted connectivity technologies like 5G Standalone, fibre, WiFi 6, edge computing, etc. Being drivers of IoT data collection, automation, analytics and AI use at scale, these technologies stand to bring strong benefits in operational efficiency.

The European Commission white paper on 'How to master Europe's digital infrastructure needs' rightly considers most of these issues and makes an accurate assessment of the situation. This calls for quick and urgent action to address those issues and ensure Europe not to miss out on present and future connectivity benefits.

In his recent report on the Single Market, Enrico Letta also assesses the continuing challenges that a fragmented and outdated regulatory framework poses to innovation and investment and he specifically highlights the need for a true Single Market for electronic communications networks and services.[13] ERT strongly supports Enrico Letta's road map to speed up integration in electronic communications in the EU's next five-year term, with enhanced harmonisation of the regulatory framework and the various laws framing the sector.

ERT recommendations on connectivity

1. Modernise regulations and practices to adapt to new market realities.
    - Ensure that Member States follow pro-investment best practices when assigning spectrum (fees, prolongation rules). It is urgent to solve these issues before 6G is available.
    - Boost the scale of operators by alleviating restrictions around in-market consolidation. National mergers and acquisitions should be the first focus, as rightfully outlined by the Letta report, in order to help operators generate economies of scale.
    - Urgently review, harmonise and strip down legacy regulations to account for new and upcoming market realities, which include cloudification, network disaggregation, 5G Standalone, 6G or satellite.
    - Support telecoms infrastructure network sharing that allows for increased efficiency.
2. Increase and encourage public and private investments in network transformation and deployment of new technologies to meet the 2030 connectivity targets.
    - Better leverage investment funds like Digital Europe, Connecting Europe Facility and Recovery and Resilience Facility to increase public investment in network deployment, prioritising rural areas where profitability is lower.
    - Continue to fund and accelerate ambitious joint projects around 5G Standalone, Edge Cloud and 6G, like Hexa X-II, to ensure a solid technology foundation to serve and transform society and business in Europe.

Smart Grids: How connectivity solutions improve energy networks

Smart grids are designed to improve energy grid reliability and efficiency, bringing strong benefits to energy networks. They manage the output variability of renewable energies, adapt to the more decentralised supply structure and accommodate bidirectional electricity flow.

Smart grids rely on real time monitoring & control of grid assets, dynamic routing of electricity flows, real time fault location, isolation. These functionalities require advanced connectivity solutions to connect assets, collect vast amounts of data and process information in real time, including IOT, 5G and distributed edge compute across the grid.

12 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

13 Enrico Letta, Much more than a market, April 2024

Data

As companies across diverse industries navigate an increasingly digital and interconnected world, facing growing pressure from strong international competition and ambitious sustainability goals, the importance of data has soared to unprecedented heights.

In the past few years, following the 2016 General Data Protection Regulation (GDPR), we have witnessed the adoption of other major acts in the area of data policy, such as the Data Act and the Data Governance Act.

We welcome the efforts of the European Commission to address these topics. In order to avoid a lack of legal certainty and overlaps or contradictions, the next step clearly lies in coherence and enforcement. Too much fragmentation remains between European countries, even on the eight years old GDPR. This slows down cross-border collaboration and operations within the EU. To achieve this goal of coherence, more consistency and full EU harmonisation are needed. 66% of executives also expect more support on the implementation application of data laws.

Outside of regulation, the focus should now be on accelerating the European Data Spaces, which will have to deliver concrete customers value in order to reinforce our industries' competitiveness. This requires a-clear business case and strong political will to make real progress, treating each use case independently and collaborating with Europe's industries to better apprehend their business strategies, opportunities, and value chain optimisation challenges.

ERT recommendations on data

1. Focusing on implementation, harmonisation, and consistency of existing legislation.

    - Rather than deploying new legislation, focus on facilitating the implementation and enforcement of measures already taken (GDPR, Data Act, Data Governance Act) by providing the tools, explanations and guidance needed. Pay particular attention to harmonisation of enforcement between countries and industries, encouraging the sharing of best practices when relevant and the creation of homogeneous technical standards at European level.

    - Make use of the ongoing review of the GDPR to reduce duplication and overlaps with more recent pieces of legislation.

2. Encourage data creation and transfer within the EU (for a true Data Single Market) with appropriate links to markets also outside the EU.

    - Accelerate the establishment of European Data Spaces to deliver economic added value and encourage data sharing and interoperability – within the private sector and between private & public players – to foster innovation and the emergence of joint European projects. To do so, simplify processes to create data spaces, focus on supporting industry-specific initiatives like Catena-X, strive to improve awareness across industries, support industry R&D and fund the implementation of common data sharing infrastructures across industries.

    - Encourage secure and reciprocal international data transfers while preserving appropriate safeguards based on EU fundamental rights. Taking the EU legislative acquis as the basis, further alignment with the Data Free Flows with Trust (DFFT) G7 initiative and OECD proposals would allow for greater interoperability across different national data protection frameworks, preventing regulatory fragmentation of data governance across the world.

    - Actively explore the development of Virtual Worlds for data creation to close the gap in accessibility to large data sets.

A dedicated plan for the digitalisation of healthcare systems

In healthcare, encourage the establishment of the European Health Data Space with a strong EU programme for digital Health. The implementation of this programme would notably need unifying systems, processes and guidance, defined in consultation with public and private health data stakeholders. It must also consider the difference in digital health maturity across EU countries, providing a roadmap, funding and technical assistance to support progress in countries and areas lagging behind in health digitalisation.

EU funds should also be allocated to create the infrastructure for seamless access, exchange and sharing of health data, as demonstrated by the example of the Cancer Imaging Initiative. This data is key to improving European research capabilities.

Finally, it is also necessary to improve interoperability between healthcare systems and health IT infrastructures by harmonising the use of international standards as well as public procurement criteria.

Artificial Intelligence

In the past few years, we have witnessed an acceleration in the development and adoption of artificial intelligence that remains unmatched by other digital technologies. As a result, more than half (57%) of European executives rank AI and Generative AI among the top technology investment priorities for the next 12–18 months, making it the top priority of European companies among other digital technologies.[14] AI promises to bring considerable benefits to businesses, including tremendous time savings and productivity gains, efficient data processing, automation (including factory automation or applications such as highly-autonomous cars), decision-making support and widened creative possibilities, among others.

While the US champions a market-driven strategy based on competition and China favours a state-led approach with a clear developmental agenda, Europe has chosen an approach mainly driven by risk mitigation. The risk-based approach rightfully aims to ensure ethical and responsible use of AI, but it has also partly drifted towards excessive, complicated, and sometimes unclear or even overlapping and contradicting regulation. This may lead us to regulate from a position of vulnerability and industrial dependency, putting more burden on European companies and creating incentives to innovate elsewhere.

With innovation cycles measured in months, time is of the essence. AI must be set as a top priority by EU leaders, with a proper plan to reunite all the conditions needed for the European AI ecosystem to thrive and compete with global leaders.

We welcome the AI Act's risk-based approach. However, Europe must ensure that its implementation will be fully harmonised and will support innovation in the EU. Therefore, implementation should be clear and stringent, supported by unambiguous EU guidelines and innovation-friendly enforcement.

We moreover urgently require a stronger push to address key obstacles hindering the development of a robust AI ecosystem, in particular on skills and funding. Addressing AI skills at the education level is vital, from basic proficiency to advanced competencies, ensuring our talent is primed to seize opportunities. Stemming the brain drain of top talent outside Europe, lured by higher salaries and prestigious career opportunities, is equally paramount. Securing adequate funding is also critical for fuelling progress in AI research and development. While Europe shows promise in nurturing emerging startups, it often struggles to compete in acquisition phases, yielding its burgeoning companies to non-European actors, such as it was the case recently with Mistral AI.

In the future, having fair access to AI resources will greatly impact economic success for both companies and countries. Competition authorities will need to closely monitor the AI market, especially focusing on providers of advanced generative AI models.

Finally, significant compute capacity and infrastructure is required to train AI models. The EuroHPC Joint Undertaking plays a crucial role in Europe to provide access to the necessary compute power. In order for Europe not to lose ground, public funding and infrastructure building activities for supercomputers should be enlarged to build a competitive pan-European AI ecosystem, which also grants SMEs access to AI technologies, as envisaged by the 2024 Communication on boosting startups and innovation in trustworthy AI. At the same time, access to semiconductor technologies and specialised AI processor chips has become a key concern. The EU has put forward the Chips Act and the Chips Joint Undertaking to support the European semiconductor value chain.

14 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

ERT recommendations on artificial intelligence

1. Actively facilitate the emergence of European AI solutions.

    - Work to increase European investment capacities in AI, paying particular attention to leveraging existing funds, such as the Coordinated Plan on AI, and promoting new incentives and investment schemes fitting the funding needs of startups and SMEs.

    - Strive for increased data availability to train industry specific models by incentivising sharing of industrial data sets and feeding models with data from emerging European Data Spaces based on a trustworthy computing infrastructure. This should be done while respecting the principle that data sharing by companies is conducted on a voluntary and/or contractual basis to appropriately safeguard trade secrets and sensitive data.

    - Drive an industrial strategy to create differentiated European industrial AI models. To do so, set up an industrial consortium (including leading European AI companies, startups, and business users) and public-private initiatives to develop smaller, more sober and verticalised AI models, trained on proprietary industry datasets. Besides AI models, encourage projects to build industrial applications on top of AI models.

2. Make sure legislation and governance does not dampen the use of AI in Europe.

    - Release standards and guidelines to ensure a consistent and harmonised implementation of the AI Act across the EU, also creating spaces for real dialogue with business while leaving enough time for companies to prepare.

    - Provide timely guidance for companies on how to interpret the risk categorisation framework contained in the AI Act's Article 6/ Annex III in different scenarios. We urge the Commission to adopt a lenient and practical approach on that matter to ensure that only the systems which pose a meaningful risk to EU citizen's safety and fundamental rights are captured.

    - Foresee adequate support for smaller companies as they often do not have the required resources to fulfil timely the AI Act requirements.

    - Align the AI Act with existing EU legislation in the areas of data protection, data security, consumer protection and cybersecurity (NIS/NIS2). Particularly, seize the review of the GDPR to accommodate the latest AI developments and to facilitate access to data for AI research and innovation.

    - Strive for better regulatory alignment on AI with like-minded partners through the OECD, TTC and the G7 (i.e. Hiroshima process).

    - Ensure fair competition and contestability of emerging AI models providers markets to prevent anti-competitive tendencies early on.

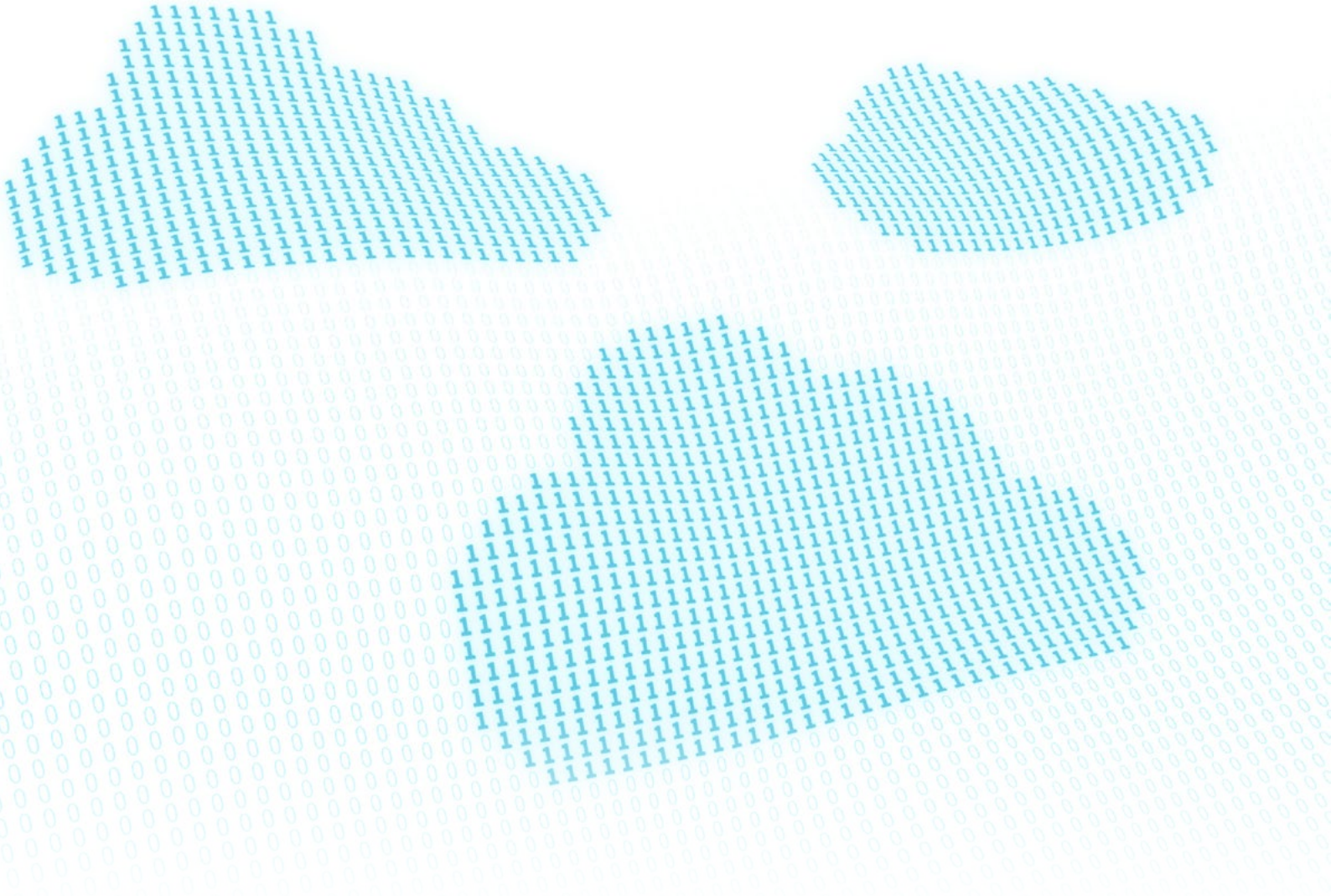
3. Work to bring and retain key AI talents in the EU (researchers and employees).

    - Build an AI R&D cluster in Europe capable of retaining talents and attracting international experts. Facilitate the hosting of research centres from foreign companies through R&D partnerships with universities. Create a strong bridge between research, innovation and its commercial dimension, and the job market. Invest in research, and in retraining for employees. Incentivise R&D clusters to move to more applied and mature R&D.

How AI drives efficiency for telecom operators

With the evolution towards 5G and IoT, telecom operators face new challenges in managing network complexity and resource allocation. AI promises to bring significant benefits to the sector, enabling network automation and improvements for efficiency and sustainability.

For instance, AI-driven models like Generative AI facilitate faster troubleshooting and enhance operational scalability in Europe. Telecom networks, facing increasing demands for performance and reliability, can leverage AI to optimise resource allocation and improve user experiences. With examples such as predictive maintenance and network optimisation, AI enables telecom companies to reduce downtime and unlock new business opportunities, ensuring their viability in the evolving digital landscape.



Cloud & Edge

By managing and distributing data and computing resources effectively, cloud and edge technologies stand to bring strong benefits to companies in a complementary way, such as scalability, operational efficiency, cost optimisation, cybersecurity, or resilience.

For example, Edge AI technologies hold the promise of transformative enhancement across various sectors – namely added security, responsiveness, and reduced energy consumption – by processing data locally rather than in the data centres of a centralised cloud. Large cloud capacities are also essential, for instance as a support to train large AI models.

As such, the EU Digital Decade has set strong 2030 targets for cloud computing: 75% of European businesses should use cloud-edge technologies, and 10,000 climate-neutral and secure edge nodes should be deployed.[15]

But several barriers stand in the way of these objectives, with the latest assessment showing the EU is far from meeting these targets.

On the demand side, customer concerns around data sovereignty, cybersecurity, data portability and GDPR compliance slow down the adoption of cloud technologies. These technologies also face a causality dilemma, as businesses cannot build services based on cloud and edge capability if that capability is not there in the first place.

On the supply side in the cloud, the lack of harmonisation in public procurement, regulations and cybersecurity standards slow down the development of a strong, scalable cloud offer at the European level. The €1.2 billion IPCEI CIS project will in that sense be pivotal to boost cloud/edge investment and improve multi-vendor cloud-to-edge continuum. However, it will not be enough to meet the Digital

15 https://digital-strategy.ec.europa.eu/en/policies/cloud-computing

Decade targets on edge cloud. Cloud and edge processing capability must also be linked to high quality networks. As noted above, the EU is also falling behind in this regard.

While some initiatives stand as noteworthy attempt to provide an alternative to non-European hyperscalers, none has reached a European scale yet. From Q1 2017 to Q2 2022, European service providers have grown their cloud revenues by 167%, but their market share has declined from 27% to 13% as they grew well behind the overall market growth[16].

To preserve their competitiveness, European industry players must be able to leverage the most advanced and secure cloud solutions. Meanwhile, we acknowledge the need for transparency and initiatives to provide solutions for specific sensitive areas (defence, government, health, etc.) Overall, the final goal should be to be able to choose the right offer for the right application.

Finally, the lack of knowledge and awareness around cloud needs to be tackled. Only 25% of European executives say they have the talent and skills required to seize opportunities related to Cloud, making it the main digital technology for which companies are the least prepared. At the same time, most also expect more support and guidance from policymakers on cloud-related policies and regulation.[17]

ERT recommendations on cloud & edge

1. Ensure respect of EU laws and values without jeopardising existing operational models.
    - Strive for effective enforcement of European regulations such as the Digital Market Act, Digital Services Act, Data Act and overall competition law. The goal is to ensure compliance with European rules while maintaining fair competition between cloud providers, giving chance for a European Cloud industry to grow.
    - Adopt a version of the EUCS that promotes transparency, common standards and harmonisation across the EU.
2. Facilitate the emergence and adoption of a competitive European Cloud/Edge industry.
    - Work to increase public investment in European cloud and edge through agile IPCEI, while also incentivising more private funding.
    - Advance on implementing a true digital single market, solving hurdles related to market fragmentation, certification challenges, and regulatory inconsistencies in cloud that slow down the scaling of European cloud solutions. A strong attention should also be paid to national gold-plating while respecting national competencies, especially in terms of national security. To support this, accelerate to create a unified marketplace of European cloud providers, as this would facilitate cloud adoption by improving confidence and clarity between different cloud provider offerings.
    - Walk the path towards cloud adoption in the public sector.
        - In the short term, encourage the harmonisation of public cloud procurement criteria (especially by pursuing the project of EU Cloud Rulebook for public procurement).
        - In the medium term, develop and expand pan-European public services in the cloud edge continuum.

How the EU could accelerate cloud adoption in the automotive industry

To accelerate cloud/edge adoption in the automotive industry, the EU should focus on encouraging and leveraging data sharing initiatives like the successful cloud-based Catena-X.

Indeed, increased data-sharing within the automotive sector encourages cloud adoption across a large, digitalised value chain (software providers, Original Equipment Manufacturers (OEMs), suppliers, assemblers), providing a specific use case for which all these actors should switch to cloud. This means working at every step of the supply chain to encourage adoption, providing funding and encouraging best practices sharing.

16 European Cloud Providers Continue to Grow but Still Lose Market Share, Synergy Research Group, Sep 27, 2022

17 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

Cybersecurity

While not a new topic, Europe has recently been increasing its focus on cybersecurity regulation to protect critical infrastructure, businesses, and citizens from cyber threats.

Indeed, as critical parts of businesses' and institutions' operations become digitalised, they also become increasingly sensitive to cyber-attacks. More broadly, as countries, companies and institutions get more connected, it is crucial to start considering the continent as a chain whose weakest link defines its resistance. Larger actors are generally able to face these attacks, but small suppliers may not, which can lead to severe supply chain disruptions.

To make sure Europe becomes more cybersecure, companies expect a lot in terms of acceleration. Indeed, 71% of European executives want regulations that ensure adequate security features in products, and 66% want the EU to encourage innovation in AI for cybersecurity.[18]

The regulatory aspect has already been covered with previous pieces of legislation: the Cyber Security Act, NIS and NIS2 Directives, the Digital Operational Resilience Act (DORA) and Cyber Resilience Act (CRA) have all emerged in the past years, setting up strong requirements and goals for cybersecurity in Europe.

From now on, the challenge will not be to add further complexity to this already rich regulatory framework, but rather to successfully focus on its gradual and harmonised implementation, while tackling the lack of alignment between these acts themselves and with other legislations, such as the AI Act, that also set up cybersecurity requirements. European companies expect these acts to make progress on referring to the same rules, standards, and obligations. This could also transpose to the international level where globalised European companies often find it difficult to navigate different cybersecurity standards that lack alignment or mutual

18 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

recognition. Europe also needs to keep in mind that cybersecurity legislation must be equipped with flexible enough provisions to rapidly adopt to emerging threats, technologies and changing business models.

Finally, to reach its cybersecurity goals, Europe will also need to act outside of regulation to foster innovation and collaborative progress. Skills will need to be tackled, as only 27% of executives feel they have the talent and skills required to seize opportunities across cybersecurity domain.

ERT recommendations on cybersecurity

1. Adopt an ecosystem approach to improving cybersecurity in Europe.

    - Support ENISA's role in setting and sharing best practices, providing expertise, facilitating information sharing initiatives and ensuring dialogue with other bodies and the private sector.

    - Accelerate the establishment of modern and harmonised cybersecurity standards for IoT products across Europe.

    - Strive for more public/private spin-offs like other regions, such as the United States. To do so, strengthen the role of public/private cooperation and cross-sectoral exchange formats to enable fundamental innovations to spread within European ecosystems.

    - Drawing inspiration from credit rating, set common rules for cyber rating agencies, with a goal to ensure transparency, comparability of ratings and robust methodologies, while allowing for consent or opt out for rated entities.

    - Solve the shortage of cyber professionals and cybersecurity researchers through measurable training and talent attraction. Initiate an institutional drive to set up high-quality training and awareness programmes on a European scale.

    - Strengthen public administration capacity building, cooperation and international enforcement in the fight against cybercrime.

    - Support funding instruments to stimulate investment in cybersecurity and address market failures in this area with spill-over effects on the economy. Explore tax incentives, similar to R&D tax relief, to improve cyber resilience.

2. Ensure an efficient and coherent legislative environment.

    - Improve the consistency of existing cybersecurity regulations, notably between DORA, NIS2, and CRA, avoiding double obligations and contradictions, especially for reporting obligations. Coordinate the interplay of enforcement of these acts between stakeholders. Overall, Europe should also continue to capitalise on previously implemented cybersecurity standards and rules in future legislation to improve regulatory clarity.

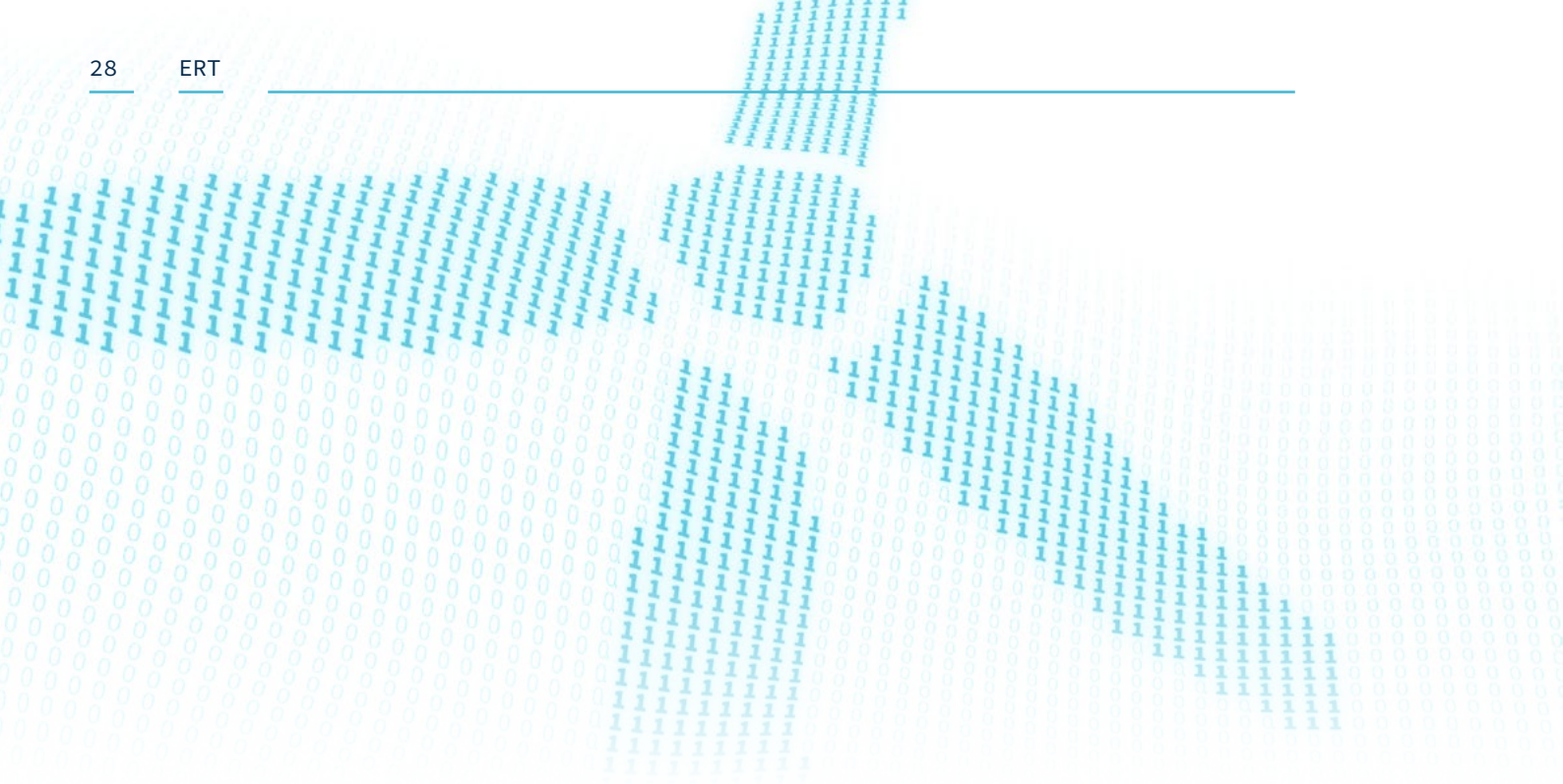
    - Create a dedicated Expert Group specifically on CRA implementation that would allow the industry to provide expertise and receive official clarifications from the EU regulators on CRA requirements and obligations.

    - Leverage dialogues like the G7, the EU-US Trade and Technology Council (TTC) and particularly the EU Cyber Dialogues to progress on making international cybersecurity converge and work towards mutual recognition. The goal should be to better refer to international standards developed by experts (IEC 62 443, ISO 2700X, ETSI 303 545) that allow for a level playing field in the sphere of product and processes cybersecurity.

    - Help SMEs comply with cybersecurity requirements by creating guides, tools, and resources for them to be more cybersecure (drawing on national initiatives, as is done by ANSSI in France).

Cybersecurity challenges of the aerospace industry

In the aerospace industry, digital systems increasingly govern critical operations. With the rise of connected aircraft and reliance on data-driven technologies, the industry faces heightened risks of cyberattacks targeting flight systems, communication networks, and sensitive data. Europe needs to support the industry in its cybersecurity efforts. Collaborative initiatives at the European level can facilitate information sharing, establish standardised protocols, and develop innovative solutions, bolstering resilience against evolving cyber threats.



Sustainability

The European Union is committed to slashing greenhouse gas emissions by at least 55% by 2030 and becoming carbon-neutral by 2050. This ambition is enshrined in the European Climate Law and pursued notably by the EU strategy on adaptation to climate change or the 'Fit for 55' package. Given these ambitious goals, embracing digital technology is as a crucial opportunity for acceleration, and a way to breathe new life into the green transition while maintaining profitability of companies and protecting the competitiveness of Europe.

Digital technology plays a vital role as an enabler in reducing Greenhouse gas emissions [19], from which all sectors could benefit through measures such as smart building, smart energy and transport initiatives.[20] Further support comes from initiatives like the European Green Digital Coalition which is supported by the EU.

In particular, software solutions and data sharing enable companies to comprehensively analyse their carbon footprint throughout the value chain, treating it with the same precision as financial data, and taking action to reduce it. In many industries, digital solutions are replacing resource-intensive and less sustainable activities. For example, in agriculture, digital solutions such as precision farming and smart irrigation management solutions enable climate and soil monitoring, as well as more efficient use of land and water. In healthcare, telehealth solutions reduce emissions from patient and health professional travel. In the energy sector, smart grids enable efficient distribution of energy resources and demand-side management. Solutions such as digital twins allow industries to cut down emissions during the engineering phase, simulating the behaviour of physical elements in the digital realm and provide a crucial opportunity for modelling climate risk. To bring these benefits to life, Europe needs to set the course to sustainability by funding and supporting the right applications and industrial transitions, with a supportive regulatory framework to enable the emergence of these solutions.

Concretely, the significant sustainability reporting burden placed on European businesses through the Corporate Sustainability Reporting Directive (CSRD) needs to be mirrored with policy and incentives that ensure businesses can invest in sustainability innovation and carbon reduction, as well as undertaking reporting. Indeed, while a large majority (69%) of executives believe that digital transformation is a prerequisite for achieving long-term sustainability, only 39% of organisations are prioritising digital investments in climate tech, showcasing their need for more support from the EU.[21]

Digitalisation of course also remains a source of carbon emissions itself and its electricity demand further increases the need for renewable

19 A widespread implementation of digital solutions and new technologies is estimated to potentially reduce global emissions by 15%

20 A summary of literature is included in WIK (2019) Analysis of the Danish Telecommunication Market in 2030

21 Toward a digital Europe in an era of sustainability - Capgemini Research Institute, 2024

energy sources across Europe, calling for the European distribution grid to be prepared at an accelerated pace and with new capabilities. The European industry is doing its part, as technology companies are actively developing more energy efficient IT systems and energy companies are driving the transition to renewable energy supply.

ERT recommendations on sustainability

1. Better support digital solutions in favour of sustainability goals (IT for Green).

    - Back each industry-specific decarbonisation strategy with a plan for digitalisation (similar to the EU Action Plan on Digitalising the Energy System). These strategies should include Key Performance Indicators to monitor progress.

    - Continue to make efforts to harmonise and clarify ESG reporting and carbon accounting standards to allow for the emergence of digital solutions to support companies in their compliance and overall sustainability efforts.

    - Remain open to revisions of the Corporate Sustainability Reporting Directive (CSRD) aligned to feedback from businesses during implementation.

    - Leverage existing funds like Next Generation EU or Horizon Europe to fund technology and digital innovation required by the industries to reach their net zero goals.

    - Make sure the EU sustainable finance taxonomy adequately incentivises investments in the twin transition by acknowledging the role of digital technologies for sustainability.

    - Support new initiatives for increased supply chain data sharing through the European Data Spaces. Support common standards for CO2 calculation methodology, secure data interoperability and make sure to leverage available data sources. For example, data from the Corporate Sustainability Reporting Directive (CSRD) could be fed into the Green Deal Data Space to assist companies with Scope 3 assessment.

    - Encourage the use of digital twins and the Digital Product Passport to bring sustainability benefits to industrial operations by driving collaboration between stakeholders, fostering the establishment of ecosystems, and leveraging public procurement capabilities.

    - Support a skills plan to prepare the European workforce to combine digital and green skills, ensuring both are taught together.

    - Enhance distribution grids to secure security of supply, EU citizens energy provision and to enable the operation and participation in flexibility markets.

2. Ensure the sustainability of digital solutions (Green IT).

    - Support the development of standards to calculate the environmental footprint of B2B products and services.

    - Develop a secondary market for ICT equipment within the EU and support the implementation of industry-specific circularity ecosystems for digital products. This would help companies' transitions towards circularity requirements and develop a good governance of critical raw materials within the EU.

    - Consider machine readable formats for regulations to reduce the administrative burden of compliance and improve implementation by companies, to facilitate product development, and to reduce scope 3 emissions as energy required to do the processing will decrease.

How AI can support greener mining and metallurgy operations

By leveraging AI technologies, mining companies can optimise their processes throughout the value chain and become more sustainable. For example, they can leverage AI in high-temperature furnaces to predict production quality and increase the production of manganese and nickel alloys, optimising operations and thus optimising their energy consumption. Predictive analytics provided by AI also enable real-time risk assessment and selective ore extraction, promoting sustainable resource management practices.

Conclusion

We believe that Europe can achieve its digital acceleration goals if we carefully address the challenges we've outlined. European companies need policymakers to create a legislative framework that supports innovation, focusing on putting existing regulations into practice rather than introducing new ones. If we meet these conditions and prioritise digital advancement, Europe can move towards greater competitiveness and sustainability.

Companies led by the Members of ERT will continue to carry out initiatives towards these goals and to engage with policymakers to accelerate progress.

As a new EU institutional cycle is due to begin later this year, we want to underline the need for close collaboration between major European companies and national and European authorities.

All ERT Members stand ready to share their vision of the next phase of the EU's digital transformation. Their ideas, recommendations and best practices for the whole European ecosystem can advance the vision of a stronger, more technologically advanced continent.

List of ERT Members

Chair

Jean-François van Boxmeer
Vodafone Group

Vice-Chairs

Nancy McKinstry
Wolters Kluwer

Ilham Kadri
Syensqo

Acting Secretary General

Jan-Eric Sundgren
ERT

Members

Austria

Stefan Doboczky
Heubach Group

Belgium

Ilham Kadri
Syensqo

Denmark

Vincent Clerc
A.P. Møller-Mærsk

Finland

Pekka Lundmark
Nokia

Lars Fruergaad Jørgensen
Novo Nordisk

Henrik Ehrnrooth
UPM

France

Benoît Potier
Air Liquide

Guillaume Faury
Airbus

Aiman Ezzat
Capgemini

Jean-Pierre Clamadieu
ENGIE

Jean-Paul Agon
L'Oréal

Florent Menegaux
Michelin

Christel Heydemann
Orange

Pierre-André de Chalendar
Saint-Gobain

Peter Herwck
Schneider Electric

Patrick Pouyanné
TotalEnergies

Germany

Markus Kamieth
BASF SE

Oliver Zipse
BMW Group

Timotheus Höttges
Deutsche Telekom

Leonhard Birnbaum
E.ON

Ola Källenius
Mercedes-Benz Group

Belén Garijo
Merck Group

Christian Klein
SAP

Jim Hagemann Snabe
Siemens

Miguel Ángel López Borrego
thyssenkrupp

Greece

Dimitri Papalexopoulos
TITAN Cement

Hungary

Zoltán Áldott
MOL

Ireland

Tony Smurfit
Smurfit Kappa Group

Italy

Rodolfo De Benedetti
CIR

Claudio Descalzi
eni

Gianfelice Rocca
Techint Group of Companies

Norway

Eivind Kallevik
Norsk Hydro

Portugal

Cláudia Azevedo
Sonae

Spain

Rafael del Pino
Ferrovial

Ignacio S. Galán
Iberdrola

Óscar García Maceiras
Inditex

José María Álvarez-Pallete
Telefónica

Sweden

Martin Lundstedt
AB Volvo

Börje Ekholm
Ericsson

Jacob Wallenberg
Investor AB

Switzerland

Björn Rosengren
ABB

Jan Jenisch
Holcim

Mark Schneider
Nestlé

Severin Schwan
Roche

The Netherlands

Nils S. Andersen
ASML

Thomas Leysen
dsm-firmenich

Dolf van den Brink
HEINEKEN

Kurt Sievers
NXP Semiconductors

Roy Jakobs
Royal Philips

Nancy McKinstry
Wolters Kluwer

Turkey

Güler Sabanci
Hacı Ömer Sabancı Holding

United Kingdom

Michel Demaré
AstraZeneca

Helge Lund
bp

Jonathan Symonds
GSK

Jakob Stausholm
Rio Tinto

Wael Sawan
Shell

Hein Schumacher
Unilever

Jean-François van Boxmeer
Vodafone Group

This ERT paper is informed by a survey conducted by the Capgemini Research Institute, entitled: “Toward a digital Europe in an era of sustainability”.

The survey collected the answers of 1,800 executives across 30 countries within Europe. The findings informed the analysis by the ERT working group on Digital Transformation.

The full suite of detailed findings from the survey can be downloaded here or at the QR code.

The European Round Table for Industry (ERT) has a long history of promoting competitiveness and prosperity in Europe. In April 1983, 17 leading European business leaders came together to launch ERT. They were then, as we are now, united by a belief that European co-operation between industry, policymakers and all stakeholders is essential to ensure Europe continues to thrive.

Today, ERT Members include CEOs and Chairs from around 60 of Europe's largest companies in the industrial and technological sectors. By facilitating cross-sectoral dialogue at the highest level, we build consensus informed by the realites faced by European companies operating worldwide. We are committed to creating a strong, open and competitive Europe through which we promote sustainable growth, jobs and prosperity for all.

Released on 4 July 2024.

+32 2 534 31 00
contact@ert.eu

𝕏 @ert_eu
www.ert.eu

Boulevard Brand Whitlocklaan 165
1200 Brussels, Belgium

© ERT 2024