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The future of technology in Europe

European technological sovereignty, innovation and AI in four scenarios

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In today's increasingly complex and interconnected world, Europe[1] continues to face structural barriers to growth. Ensuring resilient growth and prosperity is a shared priority for businesses and governments across the continent.

Recent geopolitical disruptions have exposed a critical vulnerability: Europe's heavy reliance on external sources for essential materials and services. This dependency poses serious risks to both national and regional resilience. At the same time, technological innovation, particularly in artificial intelligence (AI), is a driver of economic growth and global competitiveness. However, Europe currently lags the US and China in scaling large, influential AI companies, highlighting a widening technology investment gap and raising urgent concerns about its innovation capacity and technological sovereignty.

Europe's growth challenge is clear. Faster-growing regions of the world share two defining traits: they are less dependent on external supply chains for critical inputs, and they lead the global race in technology and AI. Europe, by contrast, lacks both. Its geopolitical vulnerabilities highlight the risks of dependency, while its distant third-place position in AI behind the US and China, coupled with a limited track record of commercialising innovations and retaining tech talent, threatens its future technological leadership.

What can Europe do to overcome these challenges and secure greater technological sovereignty while fostering innovation leadership? Deloitte's Centre for the Long View addresses this question by exploring four extreme but plausible scenarios that could shape Europe's technological sovereignty and innovation trajectory over the next decade, within a rapidly evolving global landscape.

The future of European technology

Will Europe be a tech leader over the next decade? What role will its technology industry play in realising the potential of breakthroughs such as AI, quantum computing, and other innovations? Crucially, how can Europe avoid falling further behind in the global competition for technology and business success?

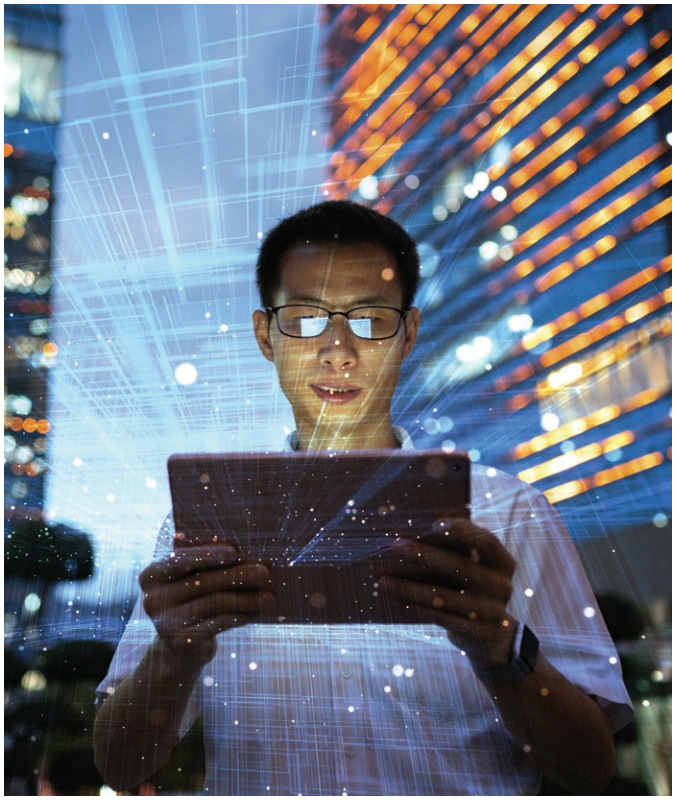
Europe's position as a pioneer, follower, or laggard in developing and implementing new technologies has long carried both geopolitical and economic significance. In an era of rising global tensions and fragile international partnerships, resilience in digitalisation is essential for European governments and businesses alike. Central to this is the concept of 'technological sovereignty' – the ability to independently develop, control, and benefit from critical technologies.

Technological sovereignty and innovation are vital not only for Europe's tech sector but also for traditional industries that rely on digital technology to transform their processes and business models.

Deloitte's Centre for the Long View, together with a team of European technology experts, has developed four distinct scenarios outlining possible futures for the European tech industry. These scenarios build on a proven and unique methodology previously applied to the German market and adapted for a pan-European perspective.

While deliberately extreme, these four scenarios are plausible. They suggest that Europe's digital future hinges on its ability to cultivate homegrown innovation while harnessing AI's benefits to foster positive labour market outcomes and mitigate social risks. By exploring these potential futures, policymakers, industry leaders, regulators, and investors can make more informed decisions today—decisions that will determine whether Europe becomes a strong, resilient, and sovereign technology hub within the next decade.

To succeed, Europe must build on its existing digital strengths: deep B2B expertise, high-quality standards, a robust education system, effective cross-border cooperation within the single market, and a specialised small- and medium-sized enterprise (SME) sector that forms the backbone of its economy. The goal is not to replicate Silicon Valley or China but to drive a digital evolution rooted in Europe's unique strengths and values.



AI and geopolitics: two disruptors driving change

Europe's digital future is set to undergo profound transformation over the next decade, driven by the combined force of two powerful disruptors: AI and geopolitics. While each is impactful on its own, together they create unprecedented momentum for change, affecting all players in the region.

1. AI: a milestone in technological change

While AI has existed for decades, recent advances in generative capabilities and natural language processing (NLP) have made it far more accessible and useful to a broad range of users. This has triggered a rapid expansion of use cases and accelerated innovation, driven by capital investment. AI is evolving into critical infrastructure, comparable to energy networks, and is becoming fundamental to how society operates. It offers opportunities for new business models and efficiencies but also presents an array of risks, such as privacy, security, accountability and social impact. Europe faces a complex regulatory challenge, with over 20 different national regimes needing alignment, unlike the more unified approaches in the US and China. How regulation and innovation evolve together in Europe will be a key factor in its future AI leadership.

2. Technology becomes geopolitical

The strategic rivalry between the US and China, coupled with fragile transatlantic partnerships, is fragmenting global markets and supply chains. Over 90% of AI data centre capacity is controlled by these two powers, underscoring Europe's dependency.[2]

Technology and digitalisation have become central to geopolitical competition, influencing access to raw materials, patents, semiconductor manufacturing, and data infrastructure. In response, the European Commission has prioritised technological sovereignty through initiatives like the Digital Decade, the Chips Act, and the AI Act, supported by national strategies across member states such as France's "France 2030", Germany's new Digital Ministry and the Nordic digitalisation strategies. Accelerating innovation while reducing dependencies is now a core element of Europe's competitiveness agenda.

Digital players in the European tech landscape

Seven key stakeholder groups will shape Europe's digitalisation and its development as a centre for technology. Their roles and influence vary significantly across the four respective scenarios: winners in one scenario may be losers in another. The descriptions below reflect the situation as of 2026, which may change significantly over the next ten years.

Seven stakeholder groups

1. European technology companies

- Tend to be medium-sized, with ASML as the only European company in the global top 20 tech companies by market capitalisation. While a few larger hardware players exist, software and services dominate.
- Regional strengths differ: Germany and Austria lead in B2B software and Industry 4.0.; France excels in AI research and aerospace and defence technology, Nordic countries specialise in digital finance and cleantech, the Netherlands and Belgium focus on logistics IT and semiconductors.
- These companies maintain close partnerships with traditional industries such as automotive, mechanical engineering and finance. They are important enablers for the digitalisation of other industries.

2. Global tech corporations and hyperscalers

- US and Chinese tech giants dominate the European market as key technology and platform providers. They set standards and, in some cases, offer their own ecosystems and exclusive services.
- Hyperscalers provide large-scale cloud services with comprehensive infrastructure, serving as platforms for AI and other new technologies. In 2025, US-based cloud providers held 85% of the European market.[3]

3. European start-ups and innovators

- Include new companies and research-intensive SMEs where they are taking on a creative role in the European technology industry and are the producers of digital innovation.
- Tech hubs such as Berlin, Paris, Amsterdam, Stockholm, London, Munich and Barcelona offer a dense ecosystem for innovation.
- Their global competitiveness depends heavily on access to capital and skilled talent.
- Operating in a European environment where prevailing mindsets and cultural factors within the broader ecosystem often limit incentives for companies to scale and mature beyond the start-up and growth phases, with many founders prioritising early exit strategies over long-term expansion.

4. European manufacturing companies

- Particularly mechanical and plant engineering, but also the automotive sectors, are evolving from product manufacturers to digital service providers, closely linked with European tech companies.
- They bring distinctive domain knowledge but face increasing competition from international players.

5. Educational and research institutions

- Crucial for developing the digital skills of future generations and addressing talent shortages. Europe's strong education system provides a foundation on which to build future growth in the coming decade.
- Initiatives such as Horizon Europe, Erasmus+ and the European Universities Initiative promote cross-border research cooperation and talent mobility.
- They conduct successful basic research but often need to undergo digital transformation themselves.

6. Politics and regulation

- EU and national policies alike determine digital investment priorities and influence the shaping of the market environment.
- They determine the framework for competition, innovation, data protection, AI governance and technological sovereignty.
- Europe's multi-level governance (EU, national, regional) offers both coordination challenges and opportunities for differentiated approaches.

7. European institutions and funding programmes

- Actors such as the European Commission, the EIB (European Investment Bank) and the EIC (European Innovation Council) drive strategic investments and policy framework.
- Programmes such as Digital Europe, the European Chips Act and InvestEU mobilise significant resources for digital transformation.
- These supranational actors enable economies of scale and coordinated measures that individual member states would not be able to achieve on their own.

A market with numerous influencing factors

To develop plausible predictions for Europe's tech sector, Deloitte's Centre for the Long View identified 90 relevant drivers shaping its future. These were identified through expert interviews, trend analysis and AI-driven prediction models, capturing the complex interplay of political, business, technological, scientific, and societal forces having a decisive impact on the future of Europe's technology industry.

The significance of the individual drivers was evaluated and validated by a panel of experts and structured according to their level of uncertainty and influence. This process resulted in two categories that are particularly relevant for determining our scenarios:

1. **Critical trends:** Drivers with predictable development and strong impact on digitalisation's future.

2. **Critical uncertainties:** Drivers with significant influence but uncertain likelihood or timing.

90 drivers that determine the future of digitalisation

Source: Deloitte analysis

Key questions for scenario development

'Critical trends' and 'critical uncertainties' are equally important for the future of digitalisation in Europe. However, in developing our scenarios, we focus more initially on the critical uncertainties because these will determine which of our four scenarios will emerge. We therefore examined 27 critical uncertainties for relevance and interdependence, grouped them as shown in Figure 3, and derived two key questions that frame the future of Europe's tech sector:

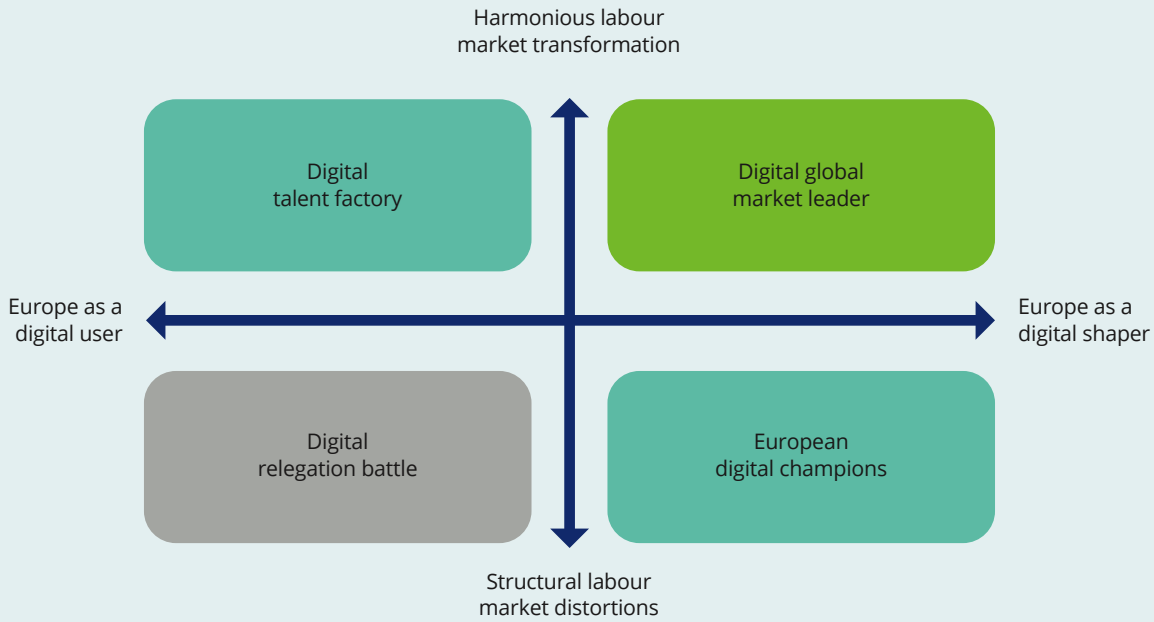
The two key questions:

1. **How sovereign will digital Europe be in ten years?**
2. **How will new technologies change the European labour market?**

These questions form the axes of the scenario matrix, with the first reflecting the tremendous momentum of AI and technological sovereignty, and the second highlighting the vital role of the labour market in Europe's prosperity. Together, they provide the framework for exploring the four distinct scenarios shaping the continent's tech sector.

Scenario matrix

How will digitalisation develop in Europe by 2035?



Knowns and unknowns

Digital uncertainty factors

The numerous critical uncertainties highlight that Europe's technological future cannot be predicted with confidence. Beyond the scenario matrix axes, several key uncertain factors will influence all four scenarios and are considered accordingly:

1. AI governance is a global challenge

While AI will be well established in Europe within a decade, the evolution of ethical and regulatory frameworks remain unclear. Meaningful regulation is complex and must keep pace with the rapid developments in AI, yet geopolitical tensions make uniform global rules unlikely. It is also uncertain whether governance will be led by business, government, or society. The EU AI Act provides an initial European framework, but questions remain whether it might slow Europe's ability to keep up with AI innovation compared to regions with lower levels of regulation.

2. Consumer acceptance of new technology is uncertain

Emerging technologies, especially AI, will unleash disruptive potential over the next ten years, with significant consequences for users. While technical possibilities can be predicted with relative certainty, how consumers and business will respond is far less certain. Acceptance may vary widely across demographics and cultures—Northern Europe tends to be more open to technology, while scepticism is stronger in Southern and Eastern Europe. Responses could range from enthusiastic adoption to active resistance.

3. Privacy is being put to the test

A "post-privacy" world, where personal data is openly accessible and privacy no longer exists, could emerge within ten years due to increased data use and AI. However, ethical concerns, public resistance, and regulation (building on GDPR's legacy) may prevent this. Europe's strong privacy stance may shape a unique path, with implications for its AI. leadership.

4. Platform regulation is caught in a political tug-of-war

The future freedom of digital platforms in Europe is uncertain. EU regulations like the Digital Markets Act and Digital Services Act could serve as a blueprint for other countries, but the US remains cautious about national regulation and views EU rules as potentially disadvantaging American firms. This dynamic creates unpredictability and potential geopolitical tensions.[4]

5. Access to venture capital remains uncertain

Venture capital is vital for Europe's digital innovation, yet investment levels have stagnated or declined in recent years.[5] Key factors include government programmes that mobilise private capital and reduce investor risk, as well as corporate venture capital enabling targeted, strategic investments in start-ups. Whether Europe can create a financing environment that boosts start-up rates and ensures competitiveness remains to be seen. Initiatives like the European Savings and Investments Union (SIU) and the European Tech Champions Initiative (ETCI) could improve the situation, but overcoming fragmented national financial markets is crucial.

Reliable predictions

Despite these uncertainties above, expert feedback highlights several drivers with high influence and likelihood. Three key predictions stand out across all four scenarios:

1. Artificial intelligence is ubiquitous

Within the next decade, AI will be deeply embedded across all sectors throughout Europe. Beyond automating routine tasks, specialised AI will assist professionals such as helping doctors detect and treat diseases early. For consumers, AI will enable hyper-personalised experiences, including bespoke product design, immersive shopping and predictive health interventions through wearables.

2. Cybersecurity and data protection are essential

As digitalisation and connectivity expand, risks of cyberattacks and data misuse will rise sharply, amplified by AI's growing data demands. Continuous enhancement of security measures will be vital, making cybersecurity laws and data protection regulations increasingly important.

3. Digital-first business models are spreading

In ten years, companies will increasingly design products and processes around digital channels and technologies. Digital-first models will dominate, delivering greater efficiency, reach, and flexibility. Apps and online platforms will be standard customer touchpoints, with AI enabling tailored, individualised services.

The four scenarios

The four scenarios presented here are deliberately extreme and thought-provoking yet they remain plausible. This is the essence of scenario analysis: to explore a range of possible futures that challenge assumptions and help stakeholders prepare for uncertainty. Each scenario highlights different pathways Europe's digital transformation might take, shaped by choices around innovation, regulation, talent, and sovereignty.

Scenario 1: Digital global market leader

Europe has successfully transformed its strength as a continent of hidden champions (small and medium-sized enterprises that excel in their niche yet remain largely unknown publicly) into being a global leader in technology. European experts celebrate success in global B2B digital markets with highly specialised solutions, operating on par with leading global tech trendsetters. The new formula for success, 'European digital excellence', combines traditional expertise with digital innovation. European corporations and medium-sized companies are setting global standards with their own platforms. Europe is defining benchmarks for Industry 5.0 – humans working alongside advanced technologies and robotics - and shaping global digital markets. The European single market acts as a powerful launchpad for companies scaling globally.

The European tech sector has nearly doubled in size within ten years, generating annual revenues over €3 trillion,[6] with more than half based on the export of digital services. Several former niche players have grown into billion-euro global platform providers. Based on the formula 'domain knowledge + digitalisation = global market leadership', European companies are shaping the global market for industrial digital solutions.

The transformation of the labour market is achieved through 'dual digitalisation', supported by a strong European education system with various strengths (dual training in Germany, Austria and Switzerland; technical universities in France; practical training in the Netherlands). Ten million people work in the European technology and digital economy. New hybrid qualifications such as 'digital mechanical engineer' or 'AI chemist' emerge. EU-wide recognised digital certifications and micro-credentials enable lifelong learning and professional mobility.

The digital regulatory framework is pragmatic, promoting innovation while ensuring quality. The European Trust Label is internationally recognised as a guarantee of quality. European testing institutes certify AI systems. Politicians act as enablers, fast-tracking approvals for digital projects, creating a comprehensive and pragmatic regulatory framework for innovation, and investing heavily in digital education. The EU digital strategy harmonises national approaches without weakening regional strengths.

Scenario 2: Digital talent factory

Europe becomes a preferred innovation hub for international tech giants, hosting numerous innovation and R&D centres. While Europe helps shape digitalisation, it is not in the driver's seat and remains dependent on decisions made elsewhere. Corporations from North America and Asia operate many R&D centres on the continent, where European engineers uniquely combine precision with innovation. European companies are sought-after development partners for digital industrial solutions.

The European technology industry has grown by over 60 per cent in ten years to €2.4 trillion, driven by massive foreign investments. European companies benefit as co-innovators and premium implementers. A new model emerges: "Developed in Europe, owned by Silicon Valley and Shenzhen". Start-ups are globally oriented, often acquired by major players, while SMEs supply innovation to global platforms.

Around 7 million people work for international tech firms – half directly and half through partners and suppliers. Salaries are high, especially in global technology hubs like Munich, Paris, Amsterdam, Berlin, Stockholm and Barcelona. Europe is benefiting from a 'brain gain' as international talent arrives for tech jobs. European universities evolve into practically oriented talent factories, producing graduates in high demand worldwide. Cooperation between tech giants and European educational institutions fosters the development of young talent.

Europe positions itself as extremely innovation-friendly, fast-tracking tech talent to obtain visas (EU Blue Card 2.0), offering flexible working time rules, and providing tax breaks for R&D. The strategy towards non-European tech giants emphasises cooperation over confrontation. Data protection is approached pragmatically, with users consciously accepting data use in exchange for improved services.

Scenario 3: European digital champions

Europe has developed its own continental tech champions producing excellent, but highly specialised and complex solutions that struggle to scale globally. Strict data protection and high technical standards turn European idealism into a curse. Political ambitions for digital sovereignty lead to strict 'Buy European Digital' policies. As a result, European alternatives such as EuroCloud and EuroGPT dominate the internal market, innovative and powerful but internationally isolated and not scalable.

Annual revenues stagnate just above €1.5 trillion. The industry remains a technological leader but lacks global reach. Automation and efficiency maximise productivity across sectors, yet the labour market suffers job losses due to inadequate adaption to new technologies. European digital champions are profitable but small while exports decline due to incompatible standards. A two-speed economy emerges: prosperous high-tech islands contrast with shrinking traditional industries.

Comprehensive digitalisation and disruptive technologies deepen societal and labour market divides. A wealthy, highly qualified digital elite contrasts with a significantly larger underemployed population. Training and retraining programmes fail to meet digital market demands. Regional disparities widen: tech centres such as Paris, Munich, Stockholm and Amsterdam thrive, while other regions including southern Italy, rural Eastern Europe, and structurally weak regions in Western Europe are being left behind.

Social mobility is stagnating, with limited opportunities for those outside the digital elite. Political tensions between 'digital' and 'analogue' are shaping elections, and Eurosceptic movements are gaining support as they criticise the 'Brussels digital dictatorship'.

Technology protectionism dominates policy. Digital sovereignty becomes an end in itself. Strict regulation protects European providers but prevents scalability, flexibility and innovation. Massive subsidies for European tech companies burden national budgets. Tensions rise within the EU between member states that are prioritising digital sovereignty and those that are more open.

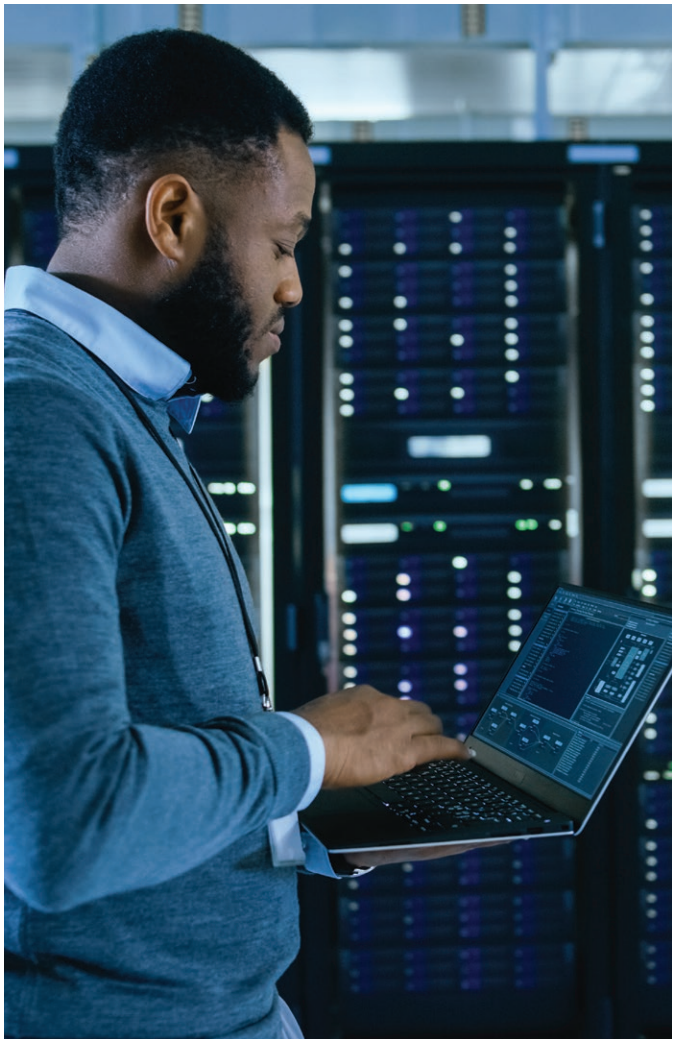
Scenario 4: Digital relegation battle

Europe becomes a digital laggard, fully dependent on foreign platforms and technologies. International tech companies see Europe purely as a sales market, avoiding local investment and partnerships. European companies rely entirely on foreign cloud services and AI systems, with even critical infrastructures running on imported technology and systems. There is no technology transfer, as Europe only buys ready-made solutions, losing direct customer access to foreign platforms.

The European tech industry shrinks to €750 billion in annual revenue, half its size a decade earlier, while €800 billion flows abroad annually in licences and platform fees. The European IT industry has practically collapsed with traditional companies facing insolvency. Europe is becoming a low-wage digital region: simple online services are handled locally, while innovation occurs elsewhere. Massive digital imports deepen the trade deficit. The labour market suffers massive structural underemployment. Highly qualified digital specialists work for low wages as offshore developers. Platform work at minimum rates replaces jobs with social security. The middle class is rapidly eroding. Young people face bleak career prospects, leading to brain drain to the US and Asia. Social security systems collapse under the strain.

Politicians have capitulated to global platforms. Weak regulatory efforts are being ignored or circumvented by global tech giants. Europe is becoming a 'supplicant' with officials traveling to Silicon Valley and Shenzhen to negotiate better terms. Digital colonialism has become a reality. Algorithms shape European destinies with democratic oversight. The EU is divided and ineffective, with fragmented national efforts worsening the situation.

Scenario	Description
Digital global market leader	Europe successfully transforms its strength as a continent of hidden champions into global digital leadership, achieving success with highly specialised solutions on the world stage.
Digital talent factory	Europe becomes a leading hub for innovation and development for global tech giants. While it helps shape digitalisation, it remains dependent on decisions made elsewhere.
European digital champions	Europe is marked by technological protectionism and strict regulation. Continental tech champions offer excellent but highly specialised and complex solutions that struggle to compete globally.
Digital relegation battle	Europe falls behind as a digital laggard, lacking innovation and fully reliant on foreign platforms, cloud services, and AI systems.



The holistic strategic view: Options for action

How can Europe's seven stakeholder groups advance digitalisation while benefiting themselves in the process? Answering this question is difficult because the two key disruptors, AI and geopolitics, will build exceptionally high momentum in the coming years.

It is no longer enough to simply observe new trends and market developments within the European tech industry; players must adopt an international perspective. Customs and trade policies are increasingly becoming strategic, long-standing partnerships are losing their reliability, and supply chains are becoming more fragile.

Therefore, players in the European tech sector must regularly review and adapt their strategies. Our four scenarios provide valuable guidance, enabling companies to derive robust and dynamic strategies valid across all or specific scenarios. Considering all possible developments forms the basis for holistic strategy development, helping businesses and the public sector respond flexibly to diverse market conditions and developments.

Options for action by companies

1. Emulate the successful model of European SMEs in industrial digitalisation

European SMEs and their hidden champions offer highly specialised products and services and often lead globally. This expertise must be systematically transferred to the digital world. To succeed in Industry 5.0, Europe must focus on SMEs' strengths: short decision-making processes, customer proximity, flexibility and innovation. Cross-border cooperation and using the internal market as a springboard for global expansion are essential.

2. Build digital sovereignty without burning bridges

Europe must balance digital sovereignty with global partnerships by developing new resilience strategies without calling old partnerships into question. Multi-cloud or hybrid cloud solutions, for example, reduce dependencies by incorporating European providers and on premises ('on prem') computing. Enhanced data encryption is increasingly important. The motto must be: 'Independence without digital protectionism'. Initiatives such as Gaia-X should be consistently developed and provided with sufficient resources.

3. Anchoring AI in European corporate DNA

AI is here to stay. To compete globally, European companies must integrate AI sustainably into existing business processes and tailor solutions, whether automating processes or augmenting employees. European tech providers can capitalise on AI breakthrough by positioning themselves as reliable partners with resilient offerings and local cloud services. Developing globally competitive AI and data architecture solutions and systematically expanding Europe's specialised industrial AI strength is vital.

Recommendations for the public sector

1. Adopt a balanced regulatory framework with long-term vision

Regulation must not become a short-term political bargaining chip. Despite (geo)political pressure, decision-makers must consider long-term digital framework implications and reduce bureaucracy promptly. The EU should improve coordination between national and European regulations and consistently apply the 'digital by default' principle in administration.

2. Create an innovation-friendly environment

Start-ups and innovative tech companies are the growth engines of Europe's digital economy. This makes it all the more important to create the right environment for them to grow into Europe's own tech giants. Strengthening financing through public funds (EIC, InvestEU, national programmes) and improving tax, legal, and financial conditions for private capital access are crucial. Simplifying employee participation schemes and easing visa and naturalisation processes will attract top international talent. Completing the Savings and Investments Union is essential to retain European capital in the tech sector.

3. Promote practical education and research

Digital skills are key to Europe's competitiveness. Aligning education and research with industry needs through practical training supports the social transformation driven by AI and new technologies. Expanding EU-wide recognised qualifications, Erasmus+ programmes for professionals, and the European Universities Initiative will strengthen this foundation..

4. Leverage European strengths through coordination

The EU's coordination capabilities surpass those of individual member states. These should be used consistently through:

- Joint procurement of cloud infrastructure and AI computing capacity
- Coordinated investment in key technologies like semiconductors and quantum computing
- Harmonisation of standards to ensure global scalability of European solutions
- Pooling research resources in European centres of excellence

Contacts

Dr. Andreas Gentner
Deloitte Germany Technology, Media & Telecommunications Industry Lead
agentner@deloitte.de

Jordan Bish
Deloitte Netherlands Technology Sector Lead
jbish@deloitte.nl

Dan Ison
Deloitte EMEA Technology, Media & Telecommunications Industry Lead
dison@deloitte.co.uk

Caroline O'Driscoll
Deloitte EMEA Technology Sector Lead
caodriscoll@deloitte.ie

Contributors

Ralf Esser
Deloitte Germany Sector Insights Lead
resser@deloitte.de

Wanja Giessen
Deloitte Center for the Long View Manager
wgiessen@deloitte.de

Helen Cerys Garbade-Jones
Deloitte Center for the Long View Lead
hgarbade-jones@deloitte.de

Sophie Beerlage
Deloitte Netherlands Technology & Transformation Director
sbeerlage@deloitte.nl

Endnotes

1. For clarity, Europe in this article refers to continental Europe or the broader European continent rather than the European Union (EU). Any references to regulations across the continent are EU regulations and are explicitly identified as such, unless otherwise specified.
2. Adam Satariano and Paul Mozur, "AI computing power is splitting the world into haves and have-nots," The New York Times, 21 June 2025.
3. Kai Nicol-Schwarz, "These four charts show how reliant Europe is on U.S. digital infrastructure," CNBC, 13 February 2026.
4. Raphael Satter and Alexandra Alper, "US orders diplomats to fight data sovereignty initiatives," Reuters, 25 February 2026.
5. Josh Lerner, "The venture capital challenge for Europe," CEPR, 20 February 2026.
6. This figure is derived from Deloitte's earlier analysis and simulations forecasting the growth of the European tech sector up to 2030. The revenue estimates presented in the scenarios here are based on this original methodology.

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