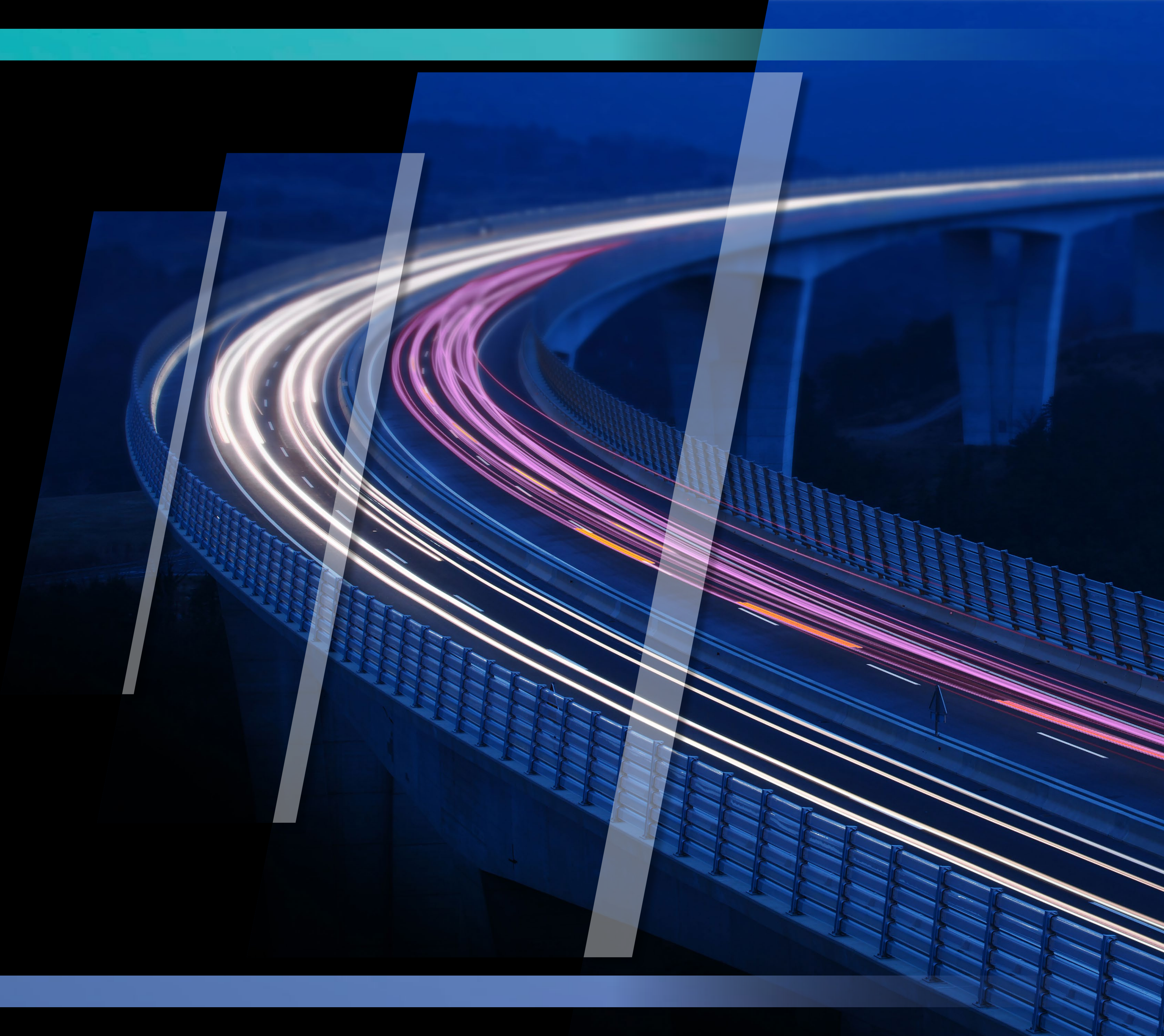




Innovate or Fade

European businesses need
to address the technology
deficit to turn the tide



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An aerial photograph of a rugged, rocky coastline. The rocks are dark and jagged, jutting out into the sea. A vibrant, glowing blue energy trail or light path winds its way across the rocks and the water, creating a sense of movement and technology. The overall mood is futuristic and dynamic.

01

Reducing the tech deficit: a growth dividend awaits Europe

Our January 2023 report, “Accelerating Europe's Path to Reinvention”, highlighted how – and why – European companies trail their North America (NA) and Asia Pacific (APAC) counterparts in revenue growth. According to our study, one factor weighing down the growth prospects of European businesses is an inadequate adoption of technology, what we call the “tech deficit.”

While our latest analysis shows that Europe’s revenue growth forecasts are improving today (figure 1), it also confirms that the tech deficit remains entrenched, risking a return to a relatively weak economic growth in the long-term.

What is the tech deficit?

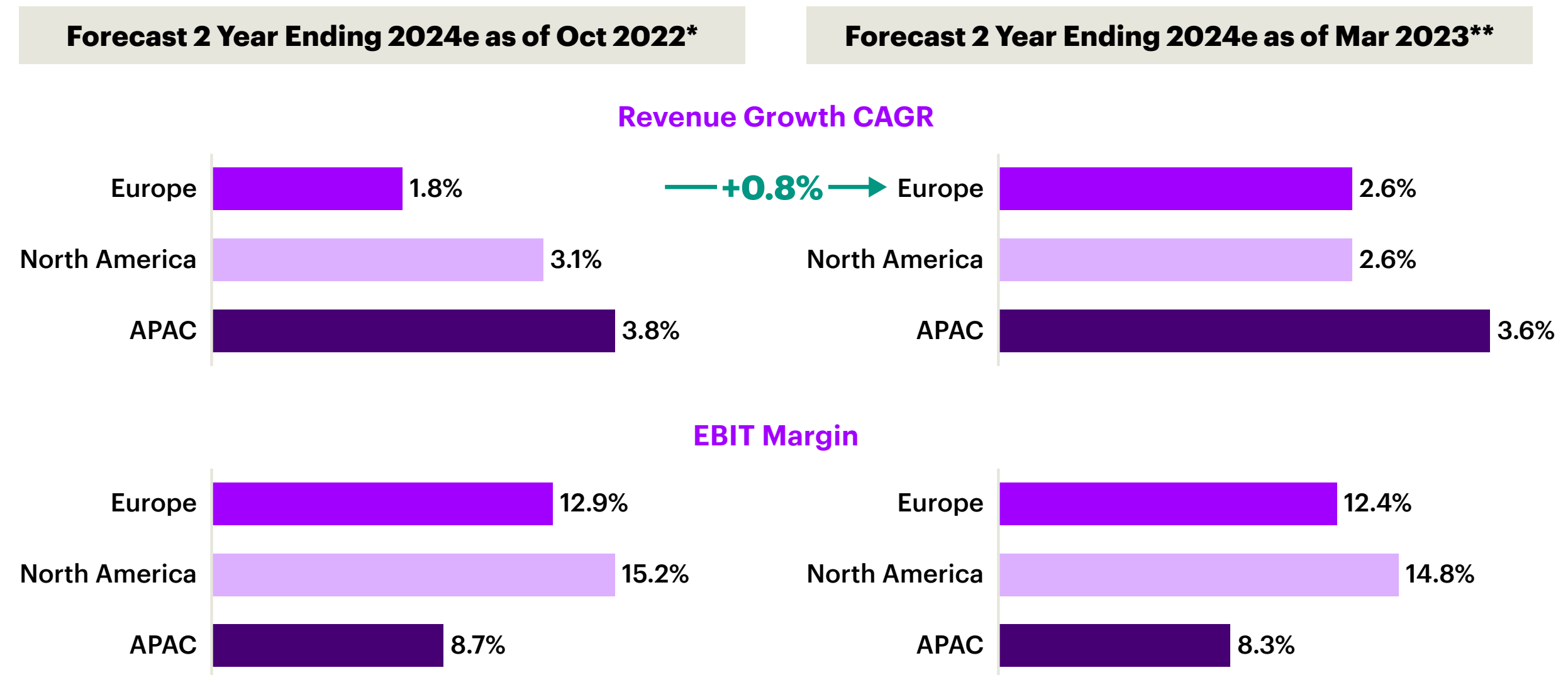
We use the term “tech deficit” to refer to the disparity in adoption, implementation or effective use of technology (both established and leading-edge) to create business value.

This goes beyond the size of technology investments and encompasses leadership, skills, prevalence of digital business models and the absorptive capacity of organizations to create value from technology.

Figure 1:

Europe has defied expectations on growth

Global – Forecasted Revenue Growth CAGR and EBIT Margin % (Oct 2022 vs Mar 2023)



Source: S&P Capital IQ, Accenture Research. Sample Size: 2114 companies (NonFS-1843, FS-271) (EU-1019, NA-571, APAC-524). EBIT margin excludes FS companies. *Consensus forecast as on 31st Oct 2022 and 31st Mar 2023 for NonFS+FS companies. **In Mar 23 dataset – for a small set of companies (count = 18) for which the forecast were not available as on 31st Mar 2023, Leveraged the latest available forecast post 31st Oct 2022.

Digital innovation is essential to Europe's competitiveness and its role as a leader in sustainability. That explains why nearly 19% of European leaders say they feel the need to accelerate technology adoption, versus 16% in the US and 8 % in APAC. (This is evident most strongly in Italy (28%), France (23 %) and Spain (21%). Germany stands at 15% and is below Europe's average).

Companies that fully commit to a tech-driven reinvention of their business stand to gain a significant advantage. The potential benefits for European companies of closing the tech deficit amount to a staggering \$3.2 trillion USD in additional revenue by the end of 2024.

Figure 2:

How reducing the tech deficit delivers a growth dividend

\$1.5 trillion

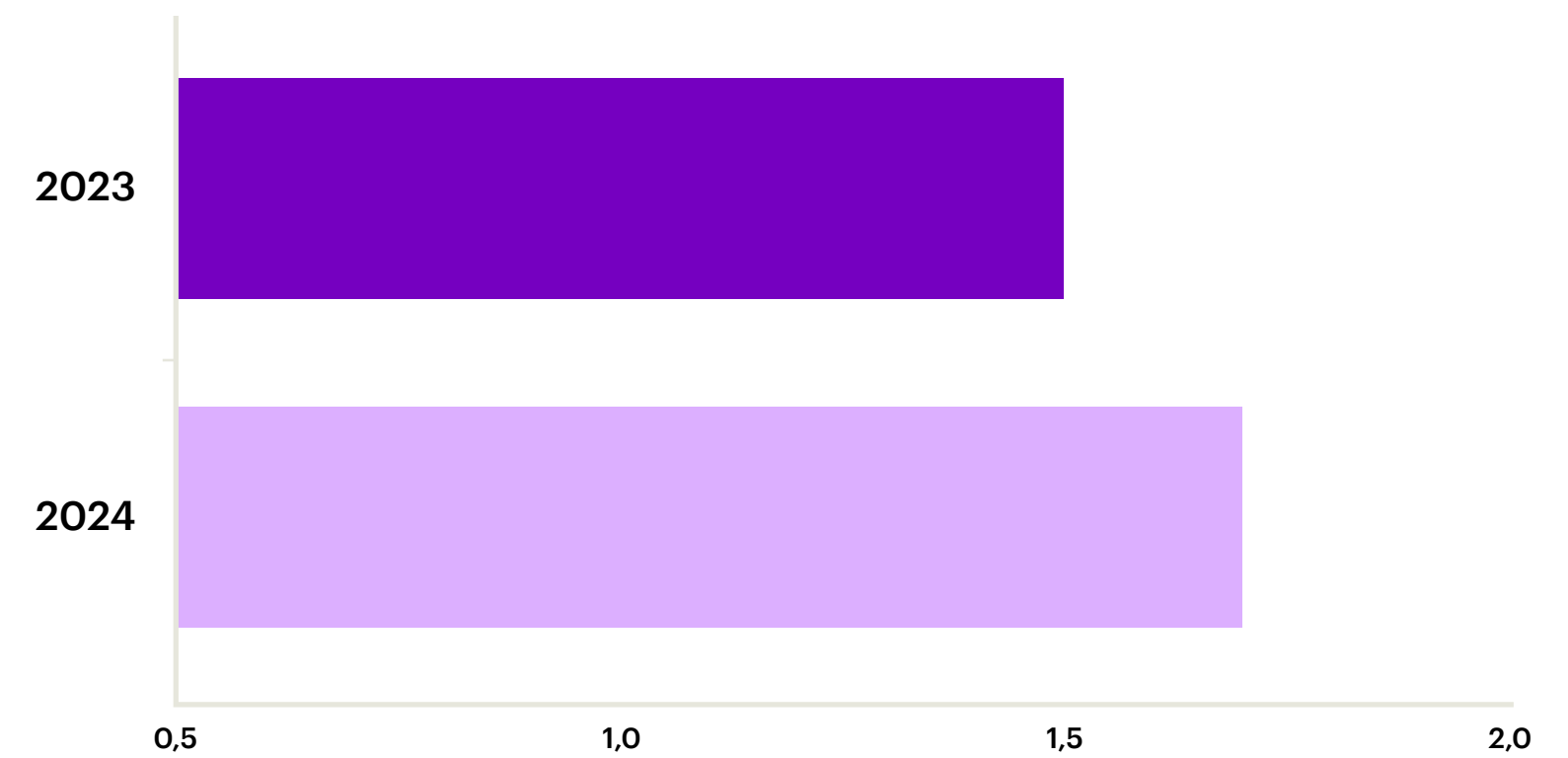
Revenue boost in 2023

\$1.7 trillion

Revenue boost in 2024

**Aggregate revenue lost due to the tech deficit
- Simulation based on a European sample of 996 companies**

US trillions of dollars gap between scenario based on EU tech scores and NA tech scores



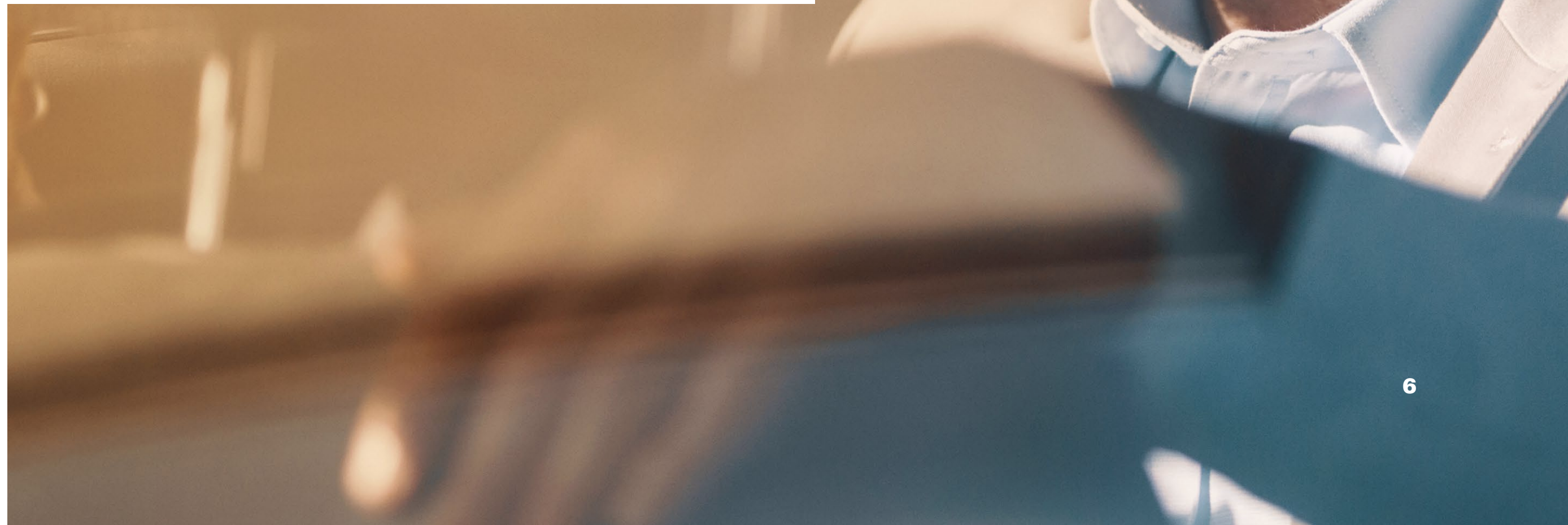
Source: Accenture Research model based on S&P capital IQ data for financials and Accenture Research Resilience Index for dimensions (see details in appendix). For a total sample of 2114 global public companies above 1 billion USD of annual revenue, of which 966 in Europe.

It's not just technology firms that stand to benefit. The biggest opportunities exist for industries such as retail, life sciences, mobility and insurance, where technology can help create new revenue streams with smarter products and services and more efficient operations across Europe.

For example, the Swiss multinational pharmaceutical Roche is using technology to develop remote patient monitoring solutions and virtual clinical trials. This has improved patient outcomes and can also drive revenue-generating, innovative digital healthcare services.¹

Similarly, in the retail industry, companies such as ASOS, a UK-based online fashion retailer, have harnessed digitalization to expand their online sales platforms, enabling them to reach more customers.²

In today's environment of rapid and constant change, traditional transformations aren't enough. To survive and thrive, companies must embrace a deliberate strategy of what we call Total Enterprise Reinvention. This comprehensive and continuous approach demands setting new performance frontiers that enable them to transcend traditional boundaries and disrupt their industries in the process. As this report shows, this strategy requires a bolder adoption of technology, starting with building a digital core.





Designing a strategy that works for Europe

Europe's situation is unique. It draws on extraordinary diversity, a rich tapestry of cultures and strong national policy making. But it also benefits from the synergies, cohesion and unity of the EU's single market. For example, the EU has implemented initiatives and regulations to promote cross-border digital trade, harmonize data protection laws and enhance cybersecurity.

Amidst a global shortage of technology talent, Europe overall is ahead of the US when it comes to reskilling workers. European companies have also made considerable progress in upgrading infrastructure, ensuring that they keep pace with technological advancements. And leaders in Europe are being incentivized to use technology with key performance indicators that evaluate technology adoption (see Figure 5).

At the same time, Europe also faces a unique set of geopolitical challenges such as trade tensions, regional conflicts and shifting alliances. According to our survey, 78% of business leaders believe we will see an increase in regional divergences and fragmentation of the world economy in the next 12 months.³ Again, however, Europe is actively tackling these geopolitical and economic headwinds. Its policy makers and businesses have been driving the digital sovereignty agenda to ensure resilience amid geopolitical challenges.⁴

Addressing Europe's unique circumstances

Any growth strategy for Europe must consider its distinctive set of circumstances.

Five stand out, and each requires a nuanced approach:

Economic and technological dependency

Europe is one of the most economically interconnected regions, heavily reliant on export markets and imports of technology, components and natural resources.

Shrinking workforce

The share of working-age people (aged 20-64 years) in the EU's total population is projected to decrease from 59% in 2022 to 50% in 2100.^{5,6}

Higher cost of energy

Energy prices in Europe are still up to five times higher than in North America, hampering industry competitiveness and citizens' disposable income. As a result, there was a decline in output from energy-intensive industries, such as basic metals, chemicals, non-metallic minerals and paper.⁷

Aiming for strategic autonomy and harmonization

In the past 5 years, the EU has pushed its digital policy through a series of regulations that apply (or will apply) across all its 27 Member States, in an effort of harmonization, but also to create a level playing field and uphold its technological strategic autonomy. The US, on the contrary, is more focused on sector-specific measures and on an approach more based on voluntary commitments from industry players.

Strong focus on sustainability

The European Union is dedicated to an ambitious climate policy, striving to achieve a significant milestone in becoming the first continent to eliminate as much carbon dioxide (CO2) emissions as it generates by 2050 under the Green Deal. This objective gained legal force through the adoption of the Climate Law by the European Parliament and Council in 2021. Additionally, the EU's interim target for reducing emissions by 2030 was revised, increasing it from 40% to a minimum of 55%.⁸

The challenge? Europe's approach to technology adaptation emphasizes cost-effectiveness over productivity and new business opportunities, which shapes the way European businesses perceive return on investment and cost implications.

Given these unique requirements, what actions should companies take?

European companies are pretty good in being resilient. Second, they are pretty good in learning things and improving them. The third part, we tend to be good at creating that unique character or create our own space, where we could actually compete. It's creating that distinction.

Transformation Executive, Mobility





02

Drivers of Europe's tech deficit

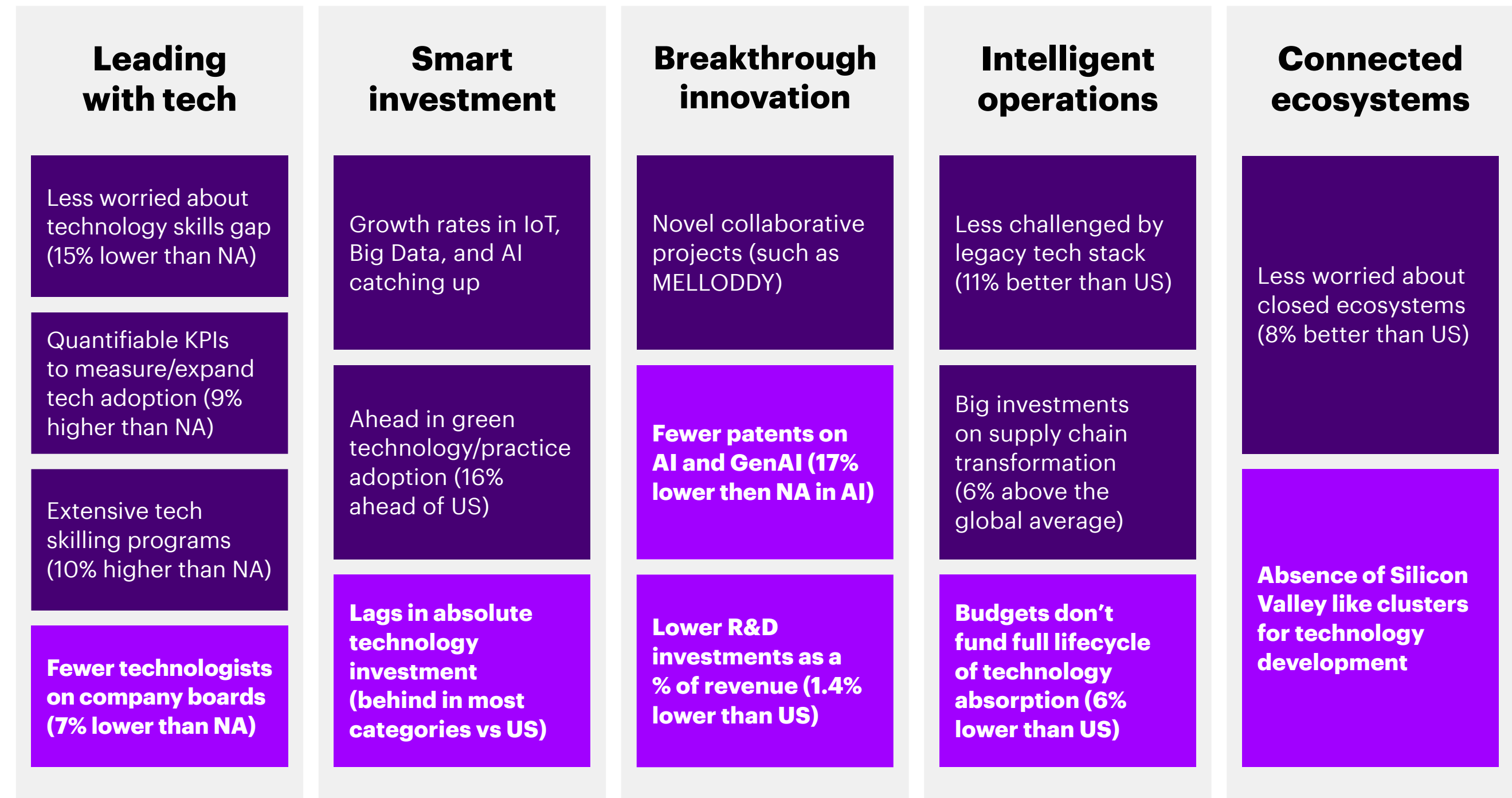
Drivers of Europe's tech deficit

To investigate how best to address Europe's tech deficit, we assessed where companies are strong and where they are falling short. Our extensive assessment included the survey of 1,000 European executives, the scanning of more than 100,000 patents and 10 in-depth interviews with key decision makers and thought leaders in the industry.

Our approach looks beyond just the size of technology investments and includes leadership, skills, prevalence of digital business models as well as the absorptive capacity of organizations to create value from technology. Specifically, we examine technology experience in company boards, investments, patents, R&D as a percentage of revenue, technology strategy and interconnections among different parts of the technology stack. As a result of our analysis, we propose the following areas of action for Europe's business leaders:

1. Build the digital core to reach new performance frontiers
2. Extend the advantage in smart manufacturing
3. Increase the technology quotient at the top

Figure 3:
Summary of Europe's tech deficit measured along 5 dimensions



■ Europe leading © ■ Europe lagging ©

A Paris skyline at dusk, featuring the Eiffel Tower on the left and a bridge over a river on the right. The scene is illuminated by city lights, with reflections on the water. The background is a mix of purple and blue tones. Overlaid on the image are several semi-transparent, overlapping geometric shapes in shades of purple and blue.

03

Three areas of focus to bridge the tech deficit

1. Build the digital core to reach new performance frontiers

Earlier research by Accenture identified a small group of companies that are embracing Total Enterprise Reinvention, a deliberate strategy of comprehensive and continuous reinvention. The approach of these “reinventors,” as we call them, is centered on building a strong digital core. This comprises interconnected cloud, security, platforms, data and AI solutions covering the enterprise as well as customers, partners and suppliers.

It is no surprise that these reinventors report generating 10% higher incremental revenue growth, 13% higher cost reduction improvements, and 17% higher balance-sheet improvements compared with companies that change incrementally.⁹

But where do European companies stand (on average) in terms of investment in leading-edge technologies and how deep is the gap between European and North American and Asian peers?

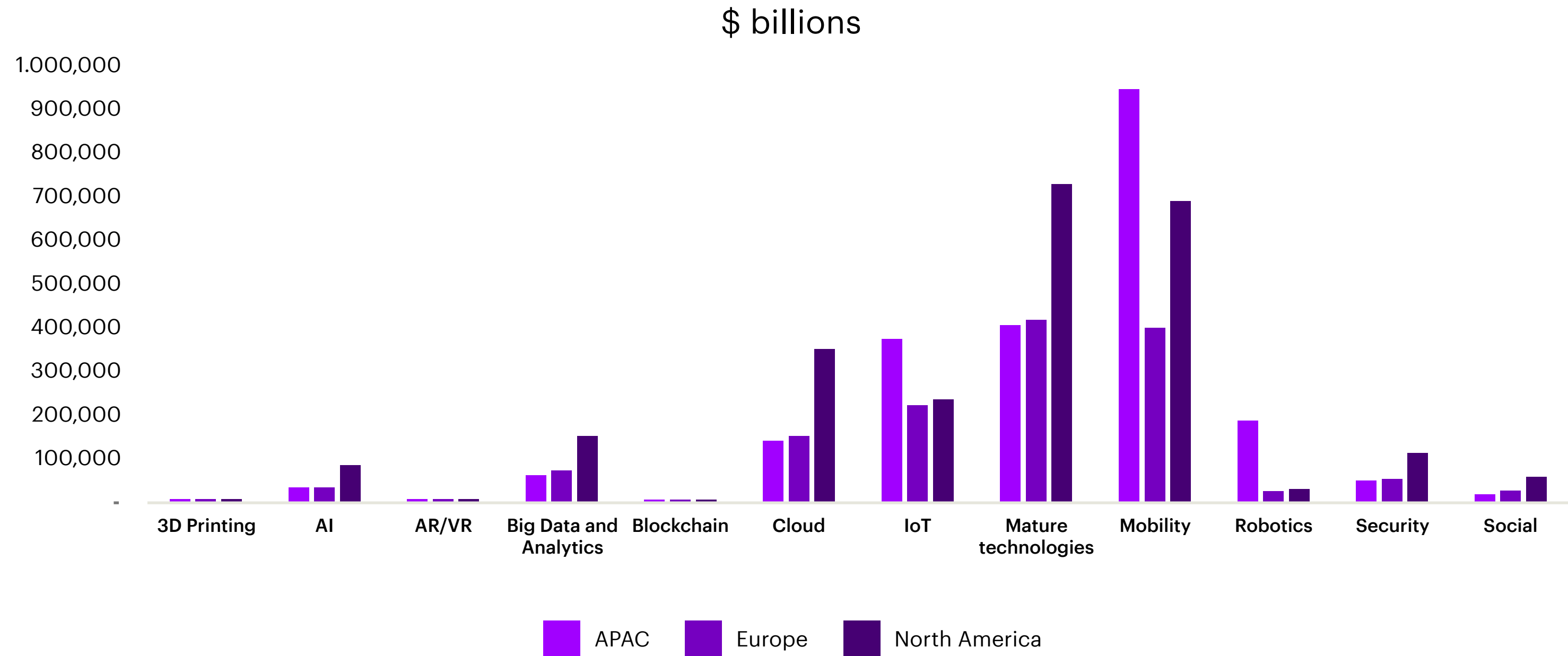
“You have a business strategy supported by a technology roadmap. We don’t see technology or digital as something “on top” or something “aside”, but as a real strategic enabler supporting your business plans.”

Chief Digital Officer, Consumer Goods

According to data from independent technology analyst firm IDC, both Europe and APAC are behind the US. Europe and APAC are at comparable levels in some areas such as cloud and big data. Its overall investment in technology is lower than that of the US, but its investments in IoT and 3D printing are on par.

The question is not only how much, but how investment is applied. Our survey shows that, globally, most companies focus their digital journeys on adapting existing processes, rather than taking this as an opportunity to reinvent them. In Europe, the percentage of those reimagining their processes is lowest (Europe 11.6%; USA 12% and APAC 16.8%).¹⁰

Figure 4:
Where Europe stands on IT spending



Source: IDC Blackbook 3rd platform data, May 2023



The digital core enables rapid scaling of AI

Artificial Intelligence (AI) – in particular the emergence of generative AI will be the next big enabler of innovation and growth. Generative AI – and the large language foundation models it is based on – has convincingly shown, even to the public, its potential to propel the future. ChatGPT reached its first million users in just five days.¹¹ A total of 98% of executives globally agree that AI foundation models will play an important role in their company’s strategy in the next 3-5 years.¹²

Emerging use cases for generative AI such as revolutionizing customer care, software and product development or clinical research point to its potential to amplify human creativity and boost productivity. The greatest potential comes from harnessing and analyzing the data generated by the usage of services, products, or machine operations and the deeper understanding of customer needs it provides. This will be the basis for enhancing products and services and the design of innovative business models.

Standing in the way

But many organizations may not be set up to create value with AI due to data quality/silos, talent gaps and outdated technology infrastructure. More importantly, many treat AI as a distinct, siloed capability rather than a holistic foundation of their enterprise. The speed with which generative AI has emerged also raises the need for regulatory and ethical guidelines to give businesses the guardrails and confidence they need.

The EU AI Act due to be finalized by the end of 2023, will establish legal certainty, and has the potential to enhance Europe's competitiveness. While EU regulations have historically been perceived as hindrances to innovation and business, they have, in fact, shaped the EU's identity through a value-based approach to new technologies. An essential factor for its success lies in the timely definition of standards, adequately equipped and qualified National conformity assessment bodies, and the necessity to ensure that reporting procedures imposed on companies will not become unnecessarily cumbersome.

Key steps

To capitalize on the AI revolution and foster growth, European companies should prioritize building a strong digital core, including cloud migration, strategic data and application transition to cloud-based environments, and the establishment of a modern enterprise data platform. This foundation will enable the harnessing of generative AI and other emerging technologies, while ensuring compliance, security, and interoperability even beyond the organization. Increasingly, companies need to factor in different regulatory regimes in designing their operating and governance models that embed digital solutions such as AI and cloud.

- **Migrate and re-platform systems to the cloud.**

Migrating existing applications to the cloud is usually the first step in this journey. Companies should first assess their application landscape and identify dependencies and performance requirements. Then comes choosing suitable cloud platforms and developing a migration plan, considering factors such as data transfer, testing and security. To benefit from modern

digital infrastructure, companies need to consider SaaS applications that reside in the cloud. Europe should evaluate sovereign cloud—which allows control over location, access, and processing of data—in response to resiliency, regulatory compliance and reputation demands.

- **Strategically transition data and applications to cloud-based environments.**

Our research shows that most companies have moved over 30% of their workloads to the cloud.¹³ They need to expand this effort, exploring a hybrid of multiple types of cloud, including sovereign cloud to provide optimal security based on data type. While doing this exercise, it is best to think of eliminating data silos. This requires an understanding of the entire landscape of internal data and building interoperability across platforms and applications to ensure that systems speak one language. Realigning departmental structure and incentive systems reduces redundant investments in digital infrastructures and applications.

- **Build the foundations to capitalize on the AI revolution.**

In the pre-generative AI era, companies could still get value from AI without having modernized their data architecture and estate by taking a use-case centric approach to AI. That is no longer the case. Key components include technical infrastructure, operating model and governance structure to meet the high demands of the Large Language Models (LLMs) at the heart of generative AI. The key lies in customizing foundation models, requiring domain-specific organizational data (along with the associated semantics, knowledge and methodologies). Attention must also be paid to rethinking existing responsible AI practices to ensure that generative AI foundation models are tailored and applied in ways that engender trust. And the data implications of generative AI requires “Secure by Design” approaches, including intelligence and risk modeling that right-sizes security needs for these emerging technologies. Finally, European businesses will need to build on their strength in talent and reskilling to prepare workers to adopt new applications and adapt to new working ways.

2. Extend Europe's advantage in smart manufacturing

Adopting a strong digital core and AI will play to Europe's strengths in R&D, product design and smart manufacturing. This is of particular significance as we are entering a new era of industrialization—with an emphasis on carbon neutrality, smart production, and transparent supply chains: European companies are digitizing and integrating sustainability with greater intensity than their global counterparts. Recent research reveals that over half (53%) of European businesses are investing more than \$50 million to enable this transformative journey, surpassing the global average of 47%.¹⁴

For instance, Germany, which stands at the forefront of the Industrie 4.0 movement, actively promotes the adoption of Industrie 4.0 principles and propels innovation in manufacturing. Collaboration between the German government, academia and industry associations has resulted in initiatives such as

the Industrial Twin Association. These initiatives aim to drive standardization, interoperability and the reinvention of digital business models in manufacturing.¹⁵ France, too, aspires to embark on the path of industrialization—with governmental backing—and establish factories that fuel job creation and bolster the nation's sovereignty. Since 2017, France has constructed 300 new factories, two-thirds of them in the past two years alone.¹⁶

Build on strength in operations

European companies' strength lies in orchestrating for operational effectiveness, which enables them to be the top manufacturing centers of excellence. Notably, Europe has fortified its competencies in building resilient supply chains, a pivotal element in the triumph and competitiveness of asset-heavy industries such as manufacturing. These supply chains

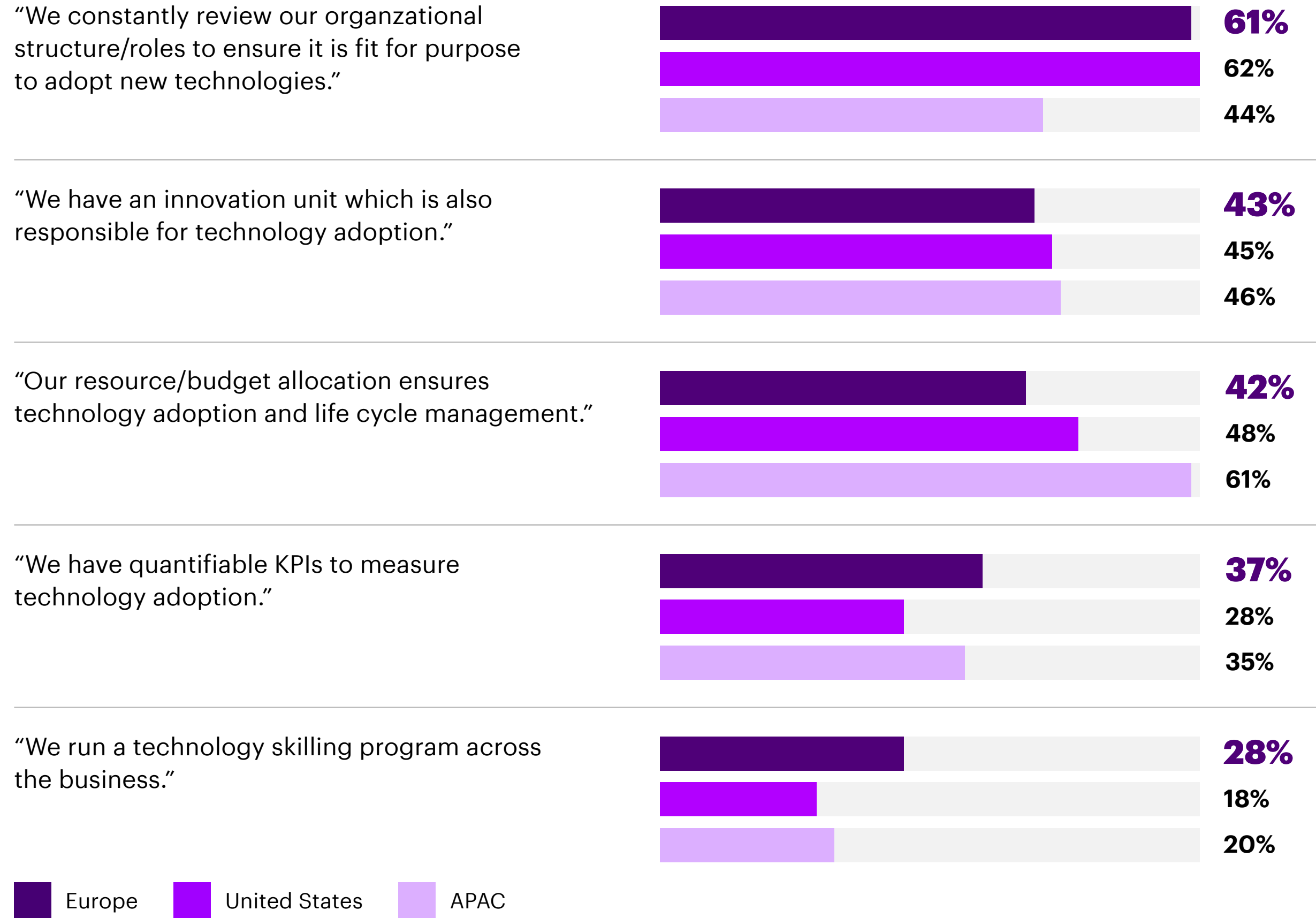


serve as the nerve center of the European economy, with up to 30% of the total European value-add relying on functioning cross-border supply chains, serving as inputs or destinations for production.¹⁷

Our research shows that European businesses surpass their US counterparts in several key aspects of technology-enabled operations as well. They have successfully established key performance indicators (KPIs) to measure technology adoption, enjoying a 9% lead over US companies (see figure 5). Furthermore, they outpace their American counterparts by an impressive 10% in terms of technology reskilling programs. European companies also incentivize their leaders to drive technology adoption, gaining a competitive advantage of 5% compared to US companies. However, European businesses lag in connecting their internal processes such as budgeting and life cycle management with technology adoption, which is likely to impact speed. Tapping into the potential of data through predictive insights, real-time monitoring, and delivering personalized recommendations can help to accelerate decision making.

Figure 5:

Which processes do you have in place to ensure technology adoption and application to business? (Top 5 answers)



Source: Europe Tech Deficit Survey Europe n=500, US n=250, APAC n=250.

From operational excellence to new business models

But everything is changing with the maturing of new technologies that enhance the power of data. Europe must invest more and shift the balance from operational excellence to growth and radical new business models.

Exciting business models are possible, fueled by powerful partnerships and technology. Data sharing and its productive use is at the heart of it. Recent strides in advanced digital technologies, such as AI, have precipitated progress across scientific domains. At the same time, scientific breakthroughs are propelling technological advancements. This symbiotic feedback loop between science and technology can be Europe's calling card — if it can make the right investments and build the right partnerships.

For example, the public private partnership MELLODDY demonstrated the possibility of industrial-scale collaboration in AI for drug discovery by enabling 10 pharmaceutical companies and seven technology and academic strategic partners to work together using machine learning ledger orchestration. Competition of competing firms takes a whole industry to the next level.¹⁸ UK-based Benevolent AI, a leading AI company uses AI and machine learning to accelerate the drug discovery and development process.¹⁹ Applications of science technology can span industries, ranging from ground-breaking medical therapies to viable alternatives in the energy sector to cost-effective ways to foster a burgeoning space economy.





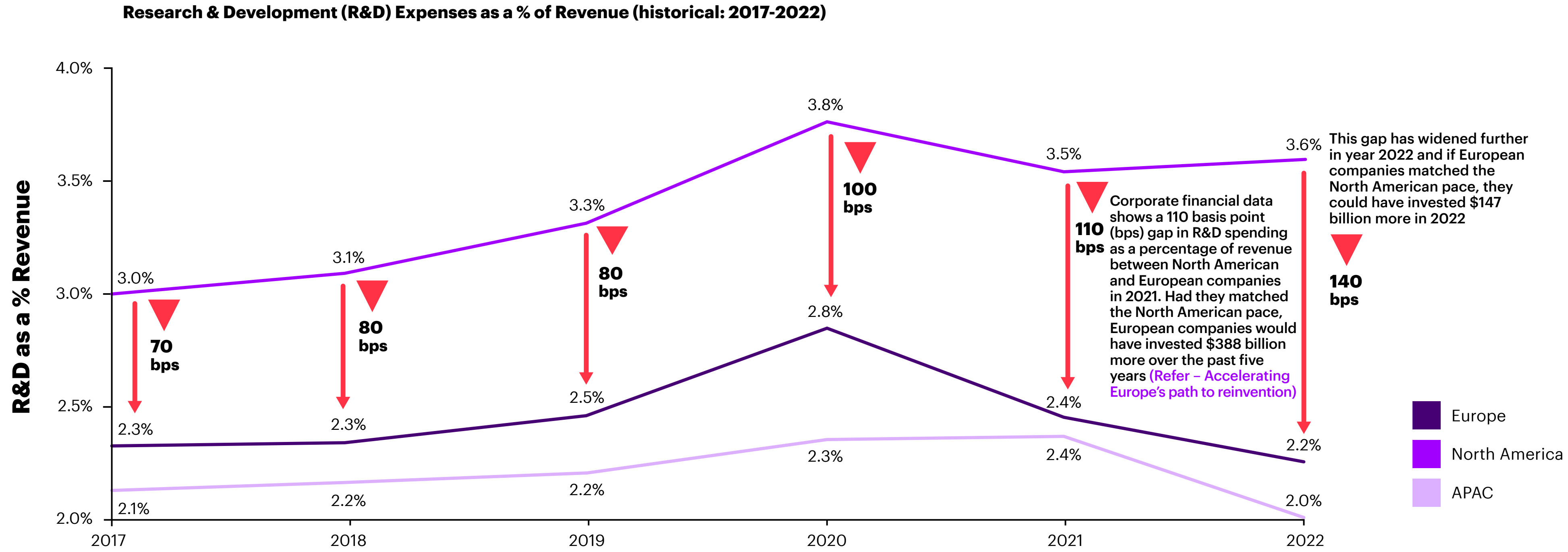
Europe must close the gap in innovation

To track innovation levels, we investigated companies' long-term research and development (R&D) investments and patent activity, specifically in Artificial Intelligence (AI) and generative AI. R&D investments are vital as they drive innovation, enhance products and services and ensure competitiveness. On the other hand, patents serve as crucial indicators of innovation activity and direction. Additionally, assessing the maturity of a company's digital business model is crucial to gauge if innovation is effectively reaching the market.

Our results show that the gap between European and North American innovation investments is widening. In 2017, European companies trailed their North American counterparts by 70 basis points in terms of R&D investments as a percentage of revenue. By 2022, this gap had doubled to 140 basis points, as depicted in Figure 6. European companies are allocating a smaller proportion of their earnings to R&D, jeopardizing future growth and innovation. The estimated shortfall amounts to a staggering \$147 billion.

Figure 6:

Europe's R&D gap is widening



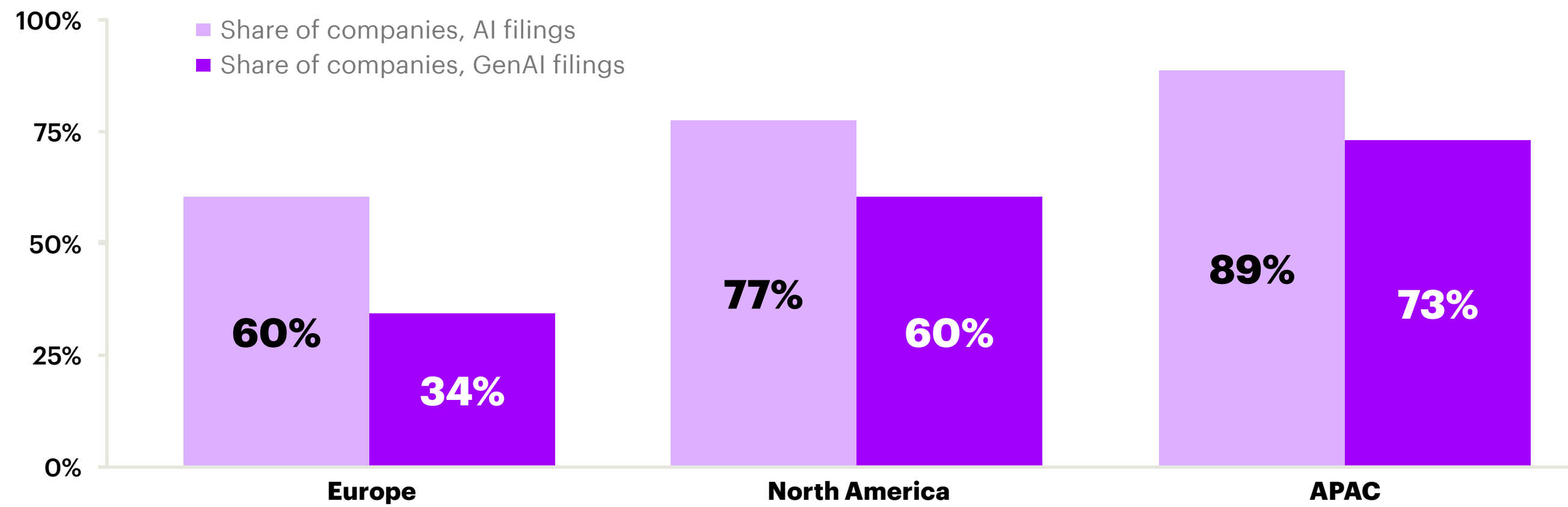
Source: S&P Capital IQ, Accenture Research;* Excludes FS companies. Sample Size: 1,843 of which Europe: 909, North America: 486 and APAC: 448. The cumulative figure is based on the sample of companies covered in the analysis and is arrived by applying North America rate of investment in R&D to European companies to arrive at the approximate shortfall.

When it comes to patent activity, a considerably lower share of European companies file AI related patents. This gap widens even further for generative AI, as illustrated in Figure 7.

Moreover, European companies show less inclination to innovate within their own region compared to their North American or APAC counterparts (see Figure 8), exerting a negative impact on the innovation ecosystem in Europe.

Figure 7:

Europe lags in the share of AI patents (2010-2021/09)



Analyzing ~ 2100 public companies. 777 companies are aligned to a unique assignee code, as they are highly active in filing patents (characterized by DWPI C-Coded alignment): 280 European HQ companies, 230 North America, 267 APAC.

Out of these **777 companies, 584 companies** have filed ~108K priority patents 2010-2021/9months (last fully published filing data) in the context of AI (searched by keywords and classification codes): 169 European HQ companies (60% of 280), 178 North America (77% of 230), 237 APAC (89% out of 267).

Closer context of GenAI (keywords in the abstract) resulting in 431 filing companies, representing 18K priority patents: 96 European HQ companies (34% of 280), 139 North America (60% of 230), 196 APAC (73% of 267).

Source: Accenture Research based on Derwent Innovation™ (Clarivate©, 2023), CapIQ.

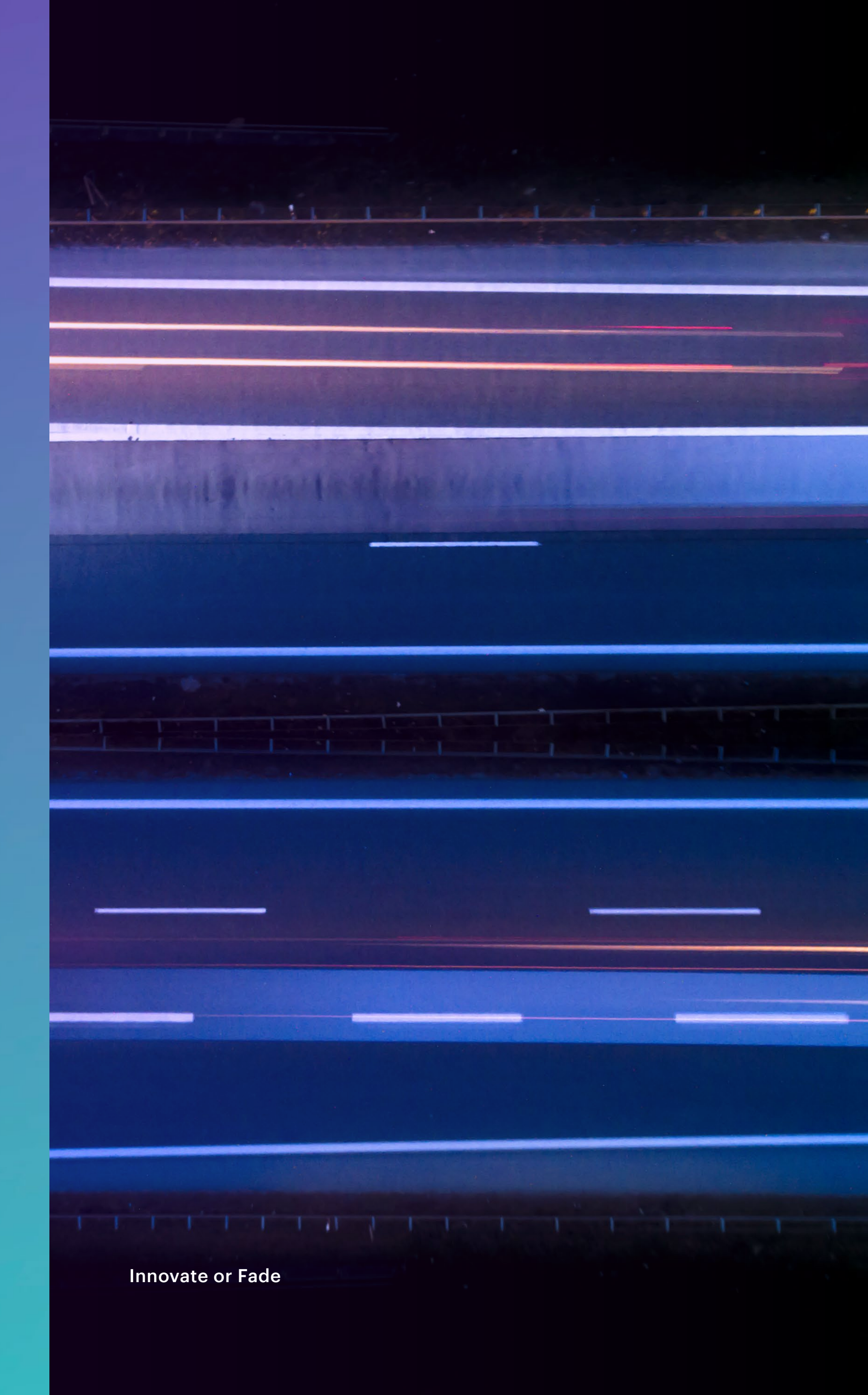
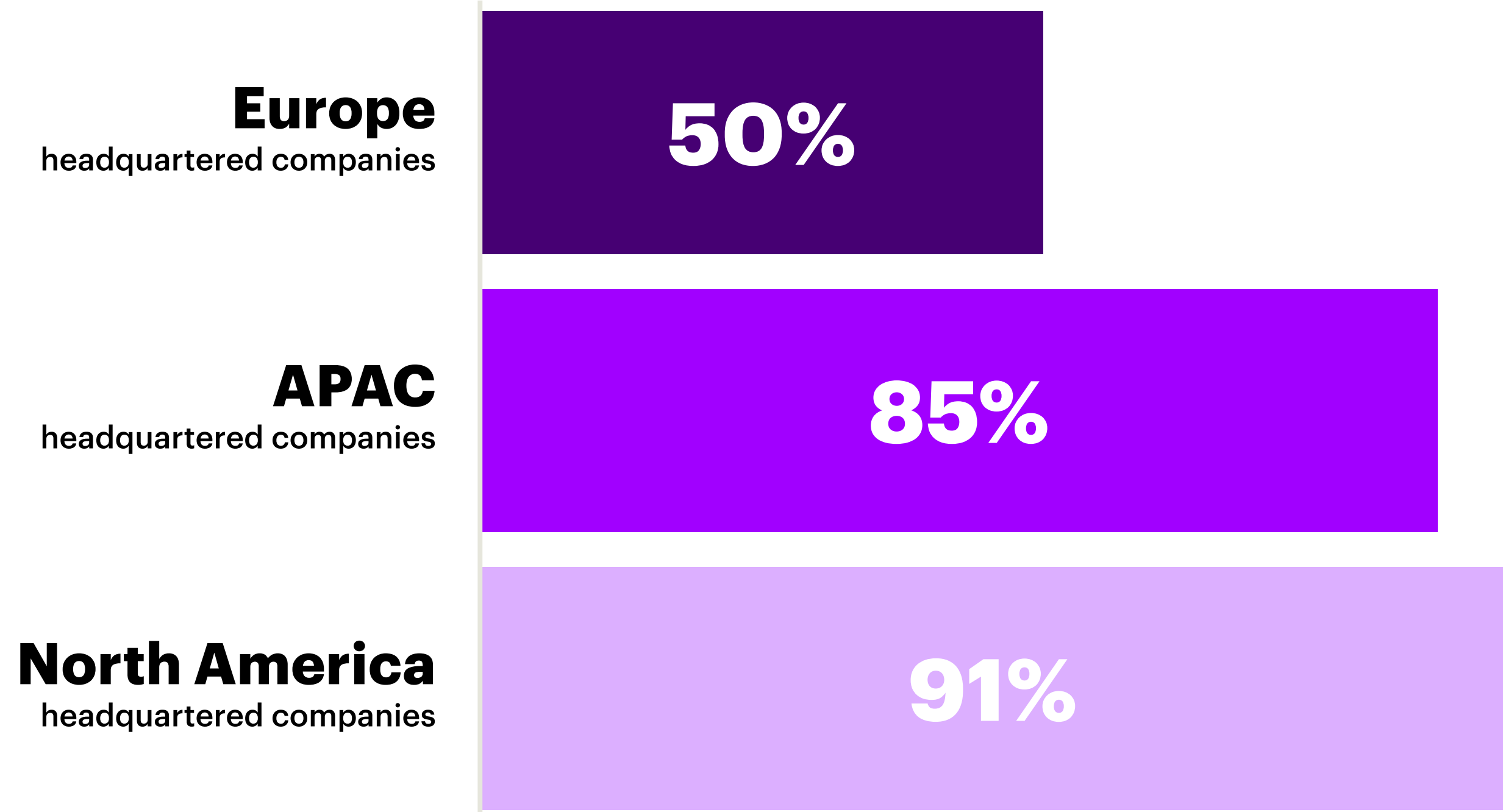


Figure 8:

Percentage of patents filed at home/in HQ region (2010-2021/09)



% regional split of AI filings (#) by headquarter.
584 selected companies, 108 K priority filings,
Source: Accenture Research based on Derwent Innovation™ (Clarivate©, 2023).

Key steps

European companies should leverage their digital core to drive innovation in smart manufacturing, supply chain optimization, and operational effectiveness, while embracing sustainability keeping the European context in mind. By investing in R&D, forging partnerships, and exploring new business models, European companies can position themselves as leaders in digital intelligence, fostering resilience, productivity, and sustainability throughout their operations.

- **Reimagine manufacturing.** Manufacturing is reimagined beyond a re-industrialization agenda; it is about digitizing what you make and revolutionizing how you make it. This involves making seismic changes to traditional engineering and manufacturing methods that have existed for decades, by utilizing advanced technologies such as digital twins, robotics, AR/VR, cloud, data and AI. Getting this right is the cornerstone for seizing the opportunities presented by new markets with a sustainability focus. Embrace the shift towards an

"As-a-Service" model by aligning value propositions with customer needs and sustainability requirements. Seek strategic partnerships to enhance your offerings and continuously monitor product and machine performance using data and AI. This iterative approach will drive improvements, while also serving as the launchpad for the design of new business models.

- **Leverage the combined power of data and AI for efficiency and resilience.** Adopt advanced analytics and AI-driven demand forecasting to optimize production planning, reduce lead times and minimize inventory holding costs. Integrate cloud-based collaboration platforms to streamline communication and information sharing between suppliers, manufacturers and distributors, enhancing coordination and reducing delays. Embrace robotic process automation (RPA), generative AI, and smart automation technologies to automate repetitive tasks, improve accuracy and boost operational efficiency throughout the manufacturing and logistics processes

- **Aim for new revenue with breakthrough innovation.** By combining science and technology strategically, European companies can revolutionize their R&D processes, accelerate time-to-market and drive breakthrough discoveries. For example, combining R&D efforts with artificial intelligence and machine learning algorithms can facilitate the analysis of vast amounts of data, leading to more precise drug development and personalized treatments.

3. Increase the technology quotient at the top

Today, every business is a digital business. To fully harness the potential of technology and drive innovation, companies need to ensure that they have the technology leadership, mindset and expertise necessary to make informed decisions and guide the organization on how to create value from technology and be at the forefront of innovation. We call this capability **technology quotient** (TQ): having enough knowledge about technology to gauge, analyze and envision how it can propel the organization forward. The need for technology skills extends beyond IT departments and is essential across the enterprise and all functions.

To understand the level of technological savviness in companies we measured the TQ of Board Members of the 2000 largest companies across the US, Europe and APAC. We also investigated the executive suite assessing the TQ of CEO's.

This is a major development area for most global companies, but more so for European businesses. While European board members seem to have a comparatively high level of confidence in the availability of technology skills in Europe, there seems to be much lower representation of technologists on boards. European leaders feel less stretched by the lack of digital skills of their employees than their US and APAC counterparts. In Europe only 43% raise concerns, in comparison to business leaders in APAC (56%) and the US (58%).²⁰

“Pretty much every company tries to react to the latest trend. There are experiments that explore and validate new technology, but at the end of the day, the turnover and value adding of the solutions tells a lot about the digital culture of the organization.”

Director, Pharmaceuticals

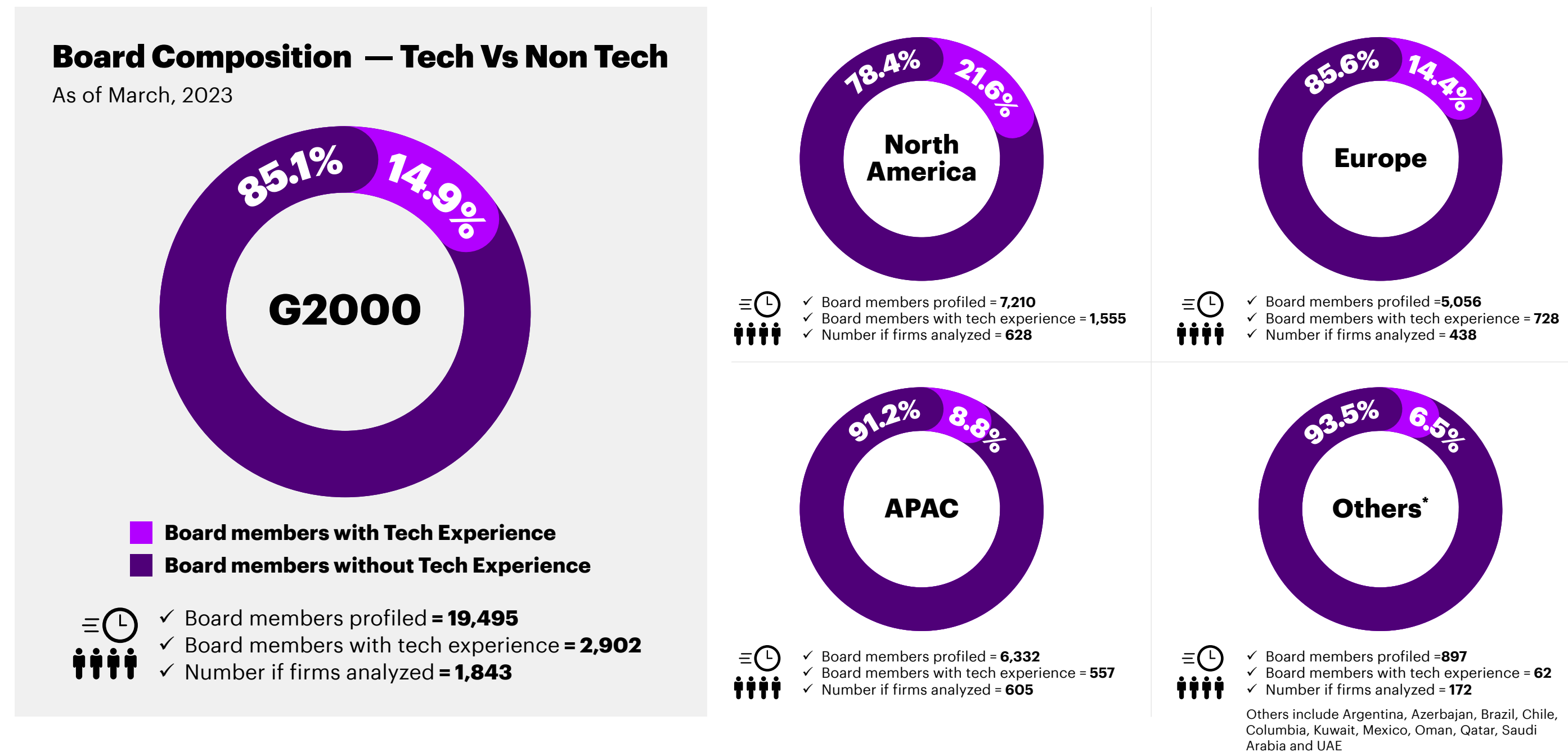


This indicates that perhaps European executives focus on technology skills in the engine room, but not so much in the board room. Only 14% of board members in the largest European organizations have the expertise or background to drive technology-augmented business strategies, compared to almost 22% in North America (see Figure 9).

Netherlands has the most tech-savvy boards with 19.1%, followed by Ireland (18.9%) and United Kingdom (18.8%). According to our board research, a large part of this increase is coming from core European industries such as capital markets (25.2%), life sciences (17.0%), aerospace and defense (17.0%) and industrial (16.1%). Regrettably, critical industries such as health (7.7%) and energy (6.6%) are at the bottom of the list.

The picture is similar when you look at the experience/expertise of CEOs. Only 11% of European CEOs have technology experience, compared to 17% North American CEOs.

Figure 9:
Technology maturity of boards



Source: Board profiles are sourced from Capital IQ as of March 2023.

There is an urgent need to accelerate at all levels

According to the Digital Economy and Society Index (DESI) by the European Commission, approximately four out of every ten adults in the European Union lack basic digital skills.²¹ This means that a significant portion of the population faces challenges when it comes to effectively utilizing digital technologies.

In addition to the skills gap among the general population and businesses, Europe is also experiencing a shortage of digital experts who possess the knowledge and expertise to develop cutting-edge technologies. For instance, there is a demand for approximately 500,000 professionals skilled in big data and analytics, indicating a significant gap between job openings and the available workforce. Similarly, the cybersecurity sector also suffers from a shortage, with around 300,000 vacant positions for cybersecurity experts.²²

Key steps

European companies must prioritize building their technology quotient by enhancing the technological expertise of board members and executives through mandatory training, setting measurable learning goals, and promoting gender diversity to tap into a wider talent pool for technical expertise.

- **Leading by Example.** Making technology trainings compulsory for the executive team and boards sends a strong message to the rest of the organization about the importance of technology and continuous learning. It sets an example for employees to prioritize their own technology skill development and encourages a learning culture throughout the company.
- **Set measurable learning goals/KPIs for all employees (including boards) and invest in continuous learning.** Accenture is a strong believer in this idea—we provide continuous TQ modules on the latest technology topics to all 700,000+ employees and encourage learning through badges and gamification models. Use insights from behavioral science combined with gamification (e.g., award of badges) to encourage learning and make it engaging and effective.
- **Greater gender diversity in boards could also help.** European companies currently have 18% women with technology expertise or backgrounds in their boards, against North America's 26%. Promoting or hiring more women with technology backgrounds and hiring more women in senior positions could help European companies close the gap by tapping into a wider talent pool.



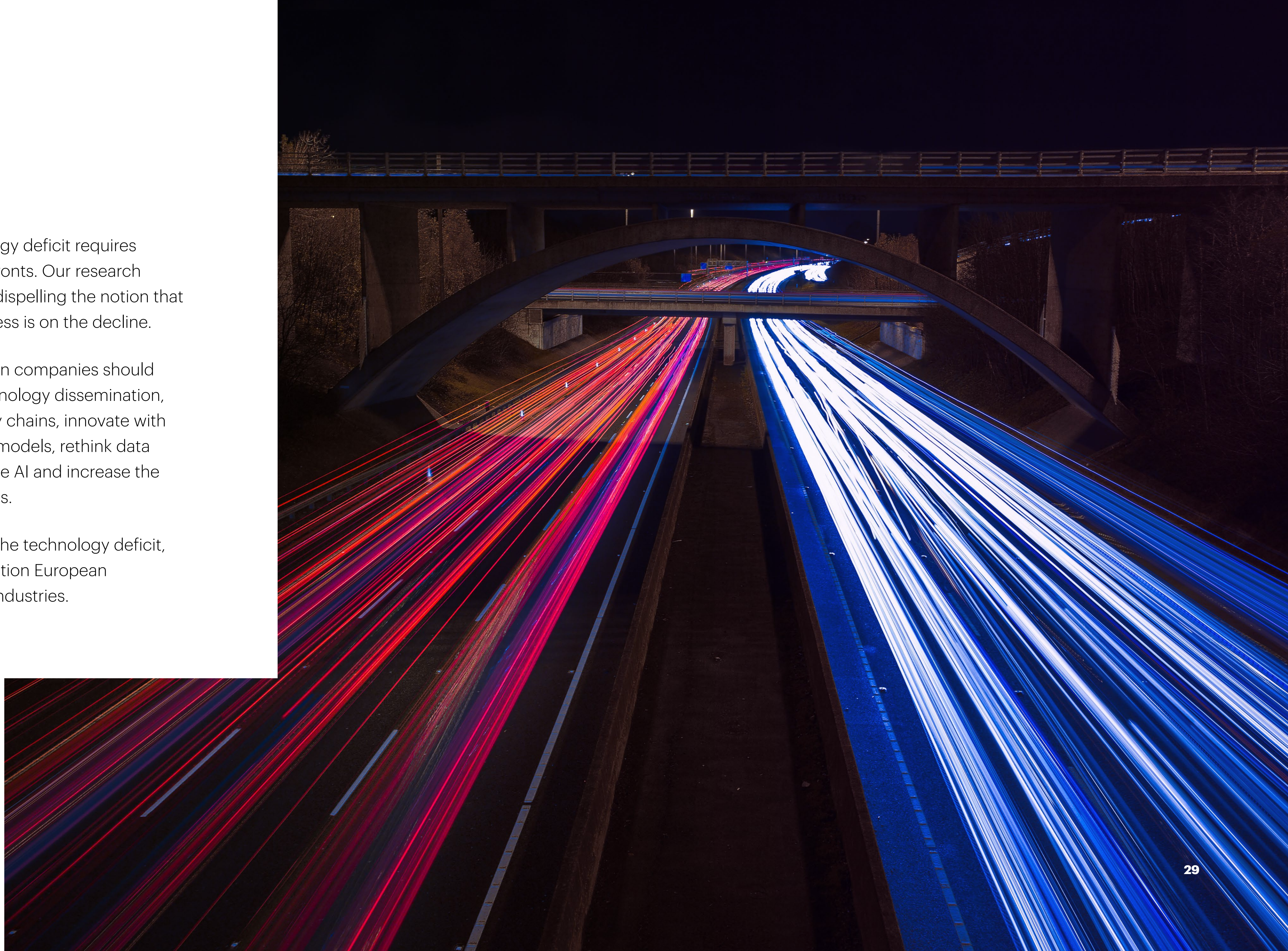
04 Conclusion

Conclusion

Addressing Europe's technology deficit requires focused actions on multiple fronts. Our research shows progress in key areas, dispelling the notion that Europe's global competitiveness is on the decline.

To build new growth, European companies should invest in enterprise-wide technology dissemination, digitize operations and supply chains, innovate with digital services and business models, rethink data strategies, embrace generative AI and increase the technology quotient of leaders.

These actions will help close the technology deficit, unlock opportunities and position European companies as leaders in key industries.



Meet the authors



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Jean-Marc is the Chief Executive Officer of Accenture for Europe, with management oversight over all industries and services in the region. He is also a member of Accenture's Global Management Committee. Prior to achieving his current position in March 2020, Jean-Marc was group chief executive of Accenture's Resources group from 2011, serving the energy, utilities, chemicals, forestry products, metals and mining industries. Between 2006 and 2011, Jean-Marc was Managing Director for Accenture's Resources group in Europe, Africa, the Middle East and Latin America. Prior to this role, he was Country Managing Director of Accenture in France and the Benelux countries, and has held leadership roles in France and globally within Accenture's Financial Services operating group.



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Research
Europe



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Surya Mukherjee is a Senior Principal at Accenture and Head of Technology Research for Europe. He has more than two decades of experience as an advisor to platform providers and their users, and has been quoted in the Wall Street Journal, ZDnet and Computer Weekly. His interest lies in exploring the transformative impact of technologies on industries, companies and brands.

About the research

Accenture Tech Deficit Survey, 2023

Accenture Research commissioned Oxford Economics to survey CXOs in technology roles across Europe, the United States and APAC. Our respondents were asked a set of questions regarding their company's technology spending and adoption.

Data collection method: web-based surveys
Fieldwork timing: April 26–June 5, 2023.

All respondents meet the following criteria:

- C-Suite executive in technology role of company headquartered in Europe (France, Germany, Italy, Spain, the UK), APAC (Australia, China, India, Singapore) or the US
- Work for a company in any of following industries: Automotive, Banking, Capital Markets, Communications Media & Entertainment, Consumer Goods & Services, Healthcare, Industrial Goods and Equipment, Insurance, Life Sciences, Retail, Software & Platform, Travel and Utilities
- Work for B2B or B2C company

- Work for company with annual revenues of \$500 million and above

Sample sizes:

- **Europe** N=500 (Margin of error of +/- 3.2% at the midpoint of the 95% confidence interval)
- **US** N=250 (Margin of error of +/- 4.3% at the midpoint of the 95% confidence interval)
- **APAC** N=250 (Margin of error of +/- 4.0% at the midpoint of the 95% confidence interval)

Qualitative Research

On request of Accenture Research, Atheneum Partners conducted 10 in-depth interviews with top leadership representatives highly involved in technology transformation at the largest global companies. The research focused on the role of digital transformation in achieving companies' business aspirations as well as comparison of unique advantages and shortcomings across Europe, US and APAC.

Data collection method: Individual In-depth Interviews
Fieldwork timing: May 5–16, 2023.

Economic model to Quantify the Value at Stake

Objective: Quantify the aggregate USD figure of potential revenue loss driven by the gap in Technology adoption that the average European company has relative to the best Geographic benchmark (average US company).

Step 1: Dataset & regression construction

We built upon the analysis done for the "Accelerating Europe's path to reinvention" framework. We leveraged the set of indexes (0-100) around five of the six company-level dimensions we constructed that proved to have a significant impact on profitable growth.

Then, we ran the following regression model to understand the relative importance of each of the five dimensions on revenue growth.

$$\text{Revenue}_{i,t} = \beta_0 + \beta_1 \text{Company historic perf (revenue)}_{i,t-1} + \beta_2 \text{RI Customer \& Sales}_{i,t-1} + \beta_3 \text{RI SC\&O}_{i,t-1} + \beta_4 \text{RI Sustainability}_{i,t-1} + \beta_5 \text{RI Talent}_{i,t-1} + \beta_6 \text{RI Technology}_{i,t-1} + \beta_7 \text{Industry perf (yoy change)}_{i,t} + \text{Controls} + e_{i,t}$$

(with i = company and t = year)

Step 2: Simulation of the gap at a company level

Leveraging our model, we simulated the revenue growth for each European company in our sample.

Then we used the model to simulate the scenario where each European company would take the Technology score of the average US company in the same percentile as they occupy in the European distribution. We gave the European companies the distribution of scores of the North American (best geographic benchmark).

We computed the difference between both scenarios to estimate the technology driven gap at a company level.

Step 3: Estimation of the aggregate figure – value at stake

Overall \$ figure for the companies in scope is estimated by adding up the individual company gaps.

Sample: 2,114 public companies for which consensus forecasts is available; of which 9-66 are in Europe.

Corporate financial performance

We had 2,114 companies for which consensus forecasts (based on analyst consensus estimates) were analyzed in our report titled “Accelerating Europe’s path to reinvention”. Using this consistent sample, we calculated the regional comparison for Revenue Growth and EBIT Margin and compared the forecasts as on 31st Oct 2022 and as on 31st March 2023. All financial data is sourced from S&P Capital IQ.

Patent Analysis

We conducted an analysis of AI-focused priority patents from a selection of 777 globally recognized public companies with high filing activity (C-Code) using data sourced from Clarivate and Derwent Innovation. The companies were aligned with their respective headquarter regions. The selection of AI-focused patents was determined through a combination of keyword searches in the patent abstracts and AI-focused patent classification codes. Out of the initial 777 companies, we found that 584 of them had filed patents related to AI. The regional split for each company's headquarter region was calculated based on the priority country filing, which represents the country of origin for the innovation.

Boards and CEO Tech Experience

Accenture Research conducted an analysis of board members' professional backgrounds in 1,843 of the largest firms based or headquartered in North America, Europe, and Growth Markets (as listed in the G2000). The analysis included a total of 19,495 inside and non-executive directors. Accenture identified board members with technology experience by considering individuals who had technology responsibilities in their current or previous companies (such as CIOs, CTOs, CDOs) and those who held senior positions in technology firms. Additionally, the research examined evidence of experience in areas such as Cloud Computing, Artificial Intelligence, Machine Learning, Data Science, among others. The primary objective of the research was to assess the prevalence of board members with technology backgrounds and gain insights into their representation within these organizations. We also analyzed the tech experience of CEOs.

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