

# Executive Summary

## BUSINESS OPTIMISM IS ON THE RISE AND DRIVING INVESTMENT

Business leaders across countries are increasingly positive about their organizations' future growth with 56% reflecting optimism, as compared to 42% last year. Driven by this optimism and confidence in their abilities to navigate prevailing headwinds, organizations are likely to invest more, in contrast to the wait-and-watch approach adopted in 2023. Customer experience, innovation, talent and skills, sustainability, and supply chains will be key investment areas in 2024 – with a large majority (83%) of business leaders planning to increase investments in technology and digital tools.

### ORGANIZATIONS ARE UNLOCKING THE VALUE OF AI AND GENERATIVE AI BY USING IT TO AUGMENT HUMAN CREATIVITY

As business leaders increasingly recognize AI's value as an accelerator for driving innovation and revenue growth, almost 9 in 10 organizations (88%) plan to focus on AI, including generative AI, within the next 12–18 months. The role of AI is gradually elevating from supporting operational decisions to assisting in critical decision-making too. Amidst these technological advancements, most business leaders (56%) acknowledge the indispensability of human judgment and creativity when utilizing AI models. Additionally, with generative AI entering its initial phases of adoption, business leaders are focused on scaling it sustainably. They aim to do so while adhering to robust regulatory guidelines and establishing their own internal guardrails to ensure the ethical use of AI.

# Executive Summary

### SUSTAINABILITY IS A PRIORITY; WITH ECONOMIC INCENTIVES PLAYING A PROMINENT ROLE IN DRIVING INVESTMENT

With widespread recognition of climate change as a leading cause of future operational disruptions (48% of business leaders believe that climate change will cause the majority of operational disruptions in the coming decade), a lack of sustainable practices is considered an existential threat by a majority (61%) of organizations. As a result, sustainability investments are expected to rise at 52% of organizations, marking a significant increase from the past year, when only 33% of organizations expected to increase investments in this area. Economic incentives are influencing the direction of investment: 57% of business leaders globally say that their organization is likely to increase investment in clean tech in the US over the next 2–3 years due to the Inflation Reduction Act (IRA). A similar proportion say that their organization is likely to increase investment in the EU due to the EU Green Deal Industrial Plan.

### ORGANIZATIONS ARE ADDRESSING THEIR SUPPLY CHAIN VULNERABILITIES THROUGH NEARSHORING AND FRIEND-SHORING

In recent years, supply chains have faced significant disruptions, including logistical issues stemming from geopolitical and climatic factors, trade conflicts, reliance on China, and sustainability-related requirements and regulations. Supply chain vulnerability remains a concern for 41% of business leaders. As a means to de-risking their supply chains, 49% of business leaders state that they are investing in other emerging economies to reduce reliance on China, while 45% express intentions to friend-shore a significant portion of their sourcing or production moving forward.

In the 2023 edition of our investment trends report, we talked about the looming recession and contrasted this gloomy outlook with business leaders' optimism around the resilience of their individual organizations to withstand and progress against these headwinds. As 2024 approaches, business sentiment is, once again, on an upswing, with business leaders exhibiting confidence in their organizations' growth potential for the year ahead, despite the backdrop of shifting business, macroeconomic, and geopolitical risks. We examine how this positive outlook is impacting investment priorities going forward and, in particular, changing investment strategies in areas such as emerging technologies, with AI and generative AI, sustainability, and supply chain being key areas of focus.

To do so, we surveyed business leaders from 2,000 organizations across 15 countries and multiple sectors, including automotive; consumer products; banking and capital markets; insurance; retail; life sciences; telecom, media, and high-tech; manufacturing; and energy and utilities. Please refer to the methodology for more details on the survey.

Drawing on this extensive research, we explore the key themes below:

- More business leaders than last year are optimistic about their organization's growth potential for the year ahead.
- Driven by this optimism, in 2024 organizations are planning to increase investment in several areas:
- As organizations set about transforming themselves into digital companies, they plan to focus on key areas such as Al/generative Al, cloud, cybersecurity, 5G, and digital twins.
- With organizations viewing emerging technologies as a value play driving innovation and new revenue, AI/ generative AI is a leading investment area for 9 out of 10 organizations. Organizations concur on the role of generative AI on redefining, augmenting, and liberating, rather than replacing, human creativity.

- The majority of organizations view climate change as a pressing existential risk for their businesses and for society and, consequently, are committed to increasing their level of investment in sustainability in 2024. The consensus is that regulation, especially that incentivizing adoption of clean tech, can help drive sustainability investment.
- Supply chain features as one of the top three most vulnerable areas for business this year. Driven by geopolitical tensions, climatic disruptions, reliance on China-based suppliers, and emerging regulations, many of the organizations we surveyed are adopting nearshoring and friend-shoring (where organizations base their supply chains in politically and economically allied countries) strategies to de-risk their manufacturing and supply chains.



# BUSINESS LEADERS ARE INCREASINGLY OPTIMISTIC AND ARE DRIVING INVESTMENT IN KEY AREAS

## More business leaders than last year are optimistic about their organizations' performance

Business leaders are facing several challenges today, from persistent inflation, high interest rates, and volatile energy supplies, to skills gaps and snarled-up supply chains, all against a backdrop of geopolitical conflict that feeds into all of these. However, despite having to contend with these uncertain market conditions throughout 2023, most business leaders are confident of their organization's ability to navigate through these disruptions and are optimistic about prospects for growth in 2024.

Last year's survey showed that only 42% of business leaders at that time were positive about the future of their organization, considering the economic headwinds

expected in 2023. However, for 2024, more than half (56%) are optimistic about their organization's outlook for 2024 (see Figure 1).

Moreover, the outlook for business growth is more positive than that for the global operating environment, with only 30% of business leaders expressing optimism about the global operating environment.

**56**%

of business leaders are optimistic about their organization's outlook for 2024

#### FIGURE 1.

A majority of business leaders based in the EU, UK, and Canada see a huge shift from last year in terms of optimism about the future of their organization

### PERCENTAGE OF BUSINESS LEADERS WHO ARE OPTIMISTIC ABOUT THE OUTLOOK FOR THEIR ORGANIZATION, GROUPED BY COUNTRY OF PRIMARY RESIDENCE



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders; Capgemini Research Institute, Global Investment Research Edition 1, November 2022, N=2,000 business leaders.

## Owing to this optimism, organizations plan to increase investment in multiple areas in 2024

In 2024, organizations are planning to increase investment in many areas to accelerate growth (see Figure 2):

• Customer experience: Organizations agree that getting customer experience (CX) right is key to a company's success and growth. Nearly three-quarters (73%) are planning to invest more in improving customer experiences – a significant increase from only 20% last year. As organizations seek to achieve and sustain a more meaningful and productive relationship with their customers, they are aiming to deliver it through more intuitive, seamless, and personalized digital offerings. Our previous survey reveals that 71% of organizations believe that generative AI can enable them to create more interactive and engaging experiences for their customers.<sup>1</sup> Organizations also need a more holistic approach in solutions connecting domains such as marketing, sales. service, and commerce across the complete customer lifecycle. Integrating these solutions with back-office

- enterprise applications, such as supply chain, finance & accounting, and product lifecycle management, is an important element in the delivery of a connected and seamless customer experience.
- Engineering, R&D, and innovation: We expect R&D and product/service innovation investment to increase in over two-thirds (67%) of organizations in 2024. As organizations view engineering and R&D as a strategic capability, they are not only investing in improving products or services but also in reinventing and disrupting parts of their businesses. Our previous research highlights that 83% of organizations acknowledge that the shift from product-based to service-based business models (e.g., "as-a-service" models) is the key trend impacting their industries today.<sup>2</sup>

**71**%

of organizations believe that generative AI can enable them to create more interactive and engaging experiences for their customers • Talent and skills development is another key area, in which 57% of business leaders plan to increase investment. Scarcity of talent with the right skills ranks among the top business risks in the next 12–18 months for 59% of organizations (in comparison to 35% of organizations last year). Our multiple research projects have highlighted that a large majority of organizations believe that significant talent gaps exist in several critical technology areas, such as product development, software engineering, AI/machine learning (ML), cloud, cybersecurity, data science, as well as in behavioral skills such as design thinking and business modelling.

As organizations plan and implement their "return-to-office" policies, nearly a quarter (25%) also plan to increase investments in office space. However, organizations also believe that flexible and hybrid work engagements are here to stay. "Hybrid work will be about mass customization, allowing every employee to customize working environments to their personal circumstances, career, or life stage," says Jean-Pascal Tricoire, Chairman, Schneider Electric.<sup>3</sup>

• Sustainability investments are also anticipated to increase in 52% of organizations, whereas, last year, only 33% expected an increase. Our recent research on sustainability trends highlights that organizations understand the business case for environmental

sustainability better than they did a year ago. In 2022, only 21% of executives agreed that the business case for sustainability was clear. In 2023, this percentage tripled to 63%. \*\* "The only way IKEA can be successful in the future is to be in a hurry to get sustainable," agrees Jesper Brodin, CEO of Ingka Group. 5

• Manufacturing and supply chain is an area in which half of business leaders plan to increase investments in 2024. Our recent research papers on supply chains in the automotive, consumer products, and retail industries highlight that diversification, nearshoring, and friendshoring are gaining prominence. Giant organizations such as Apple and Google have begun to shift a portion of their manufacturing operations from China to India. 6 A general manager at a European automotive OEM told us: "Nearshoring is a strategic goal for us. In view of political pressures and availability of raw materials, at least 75% of the supply chain needs to be nearshored or moved to domestic markets in the long run."7 Organizations are also focusing on developing an intelligent supply chain that enables agility, transparency, and visibility, A VP of strategic sourcing at a US-based food company elaborates: "Our focus on innovation and digitalization paused during the pandemic. But now, innovation has come back into the pipeline."8

#### FIGURE 2.

Organizations are increasing investments in many areas

#### PERCENTAGE OF BUSINESS LEADERS PLANNING TO INCREASE INVESTMENT IN THE FOLLOWING AREAS



<sup>\*</sup>Only for manufacturing companies; N=1,087 business leaders. \*\*Only for organizations with supply chain networks; N=1,407 business leaders.

Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders; Capgemini Research Institute, Global Investment Research Edition 1, November 2022, N=2,000 business leaders.

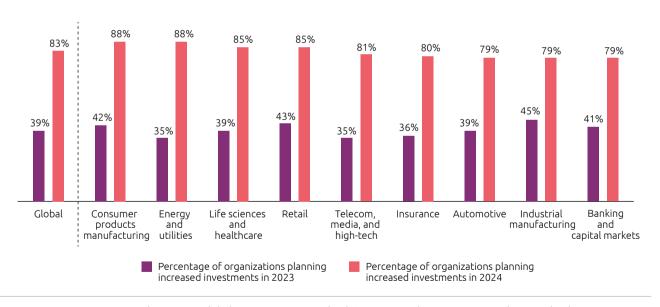
## Driven by both risks and opportunities, digital tools and technologies are a strong investment focus

To craft personalized customer experiences, accelerate innovation, achieve climate goals, build intelligent and datadriven supply chains, and unlock new value, organizations consider digital to be a strategic asset. Gartner expects worldwide IT spending to increase by 8% to reach \$5.1 trillion in 2024.9 As Figure 3 shows, a large majority (83%) of business leaders in our survey plan to increase investment in digital tools and technologies in 2024 (compared with only 39% last year). Imran Ansani, Head of Retail Edge Solutions and Ecosystems at Dell, comments: "From a hardware-centric enterprise, we've transformed into a holistic solutions innovator. In an era of ubiquitous hardware, our cutting-edge software and unparalleled managed services distinguish us from the rest." 10

#### FIGURE 3.

Digital investments will increase for 8 in 10 organizations in 2024

### PERCENTAGE OF BUSINESS LEADERS PLANNING TO INCREASE INVESTMENT IN DIGITAL TOOLS AND TECHNOLOGIES, GROUPED BY INDUSTRY



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders; Capgemini Research Institute, Global Investment Research Edition 1, November 2022, N=2,000 business leaders.

"From a hardware-centric enterprise, we've transformed into a holistic solutions innovator. In an era of ubiquitous hardware, our cutting-edge software and unparalleled managed services distinguish us from the rest."

### **IMRAN ANSANI**

Head of Retail Edge Solutions and Ecosystems at Dell

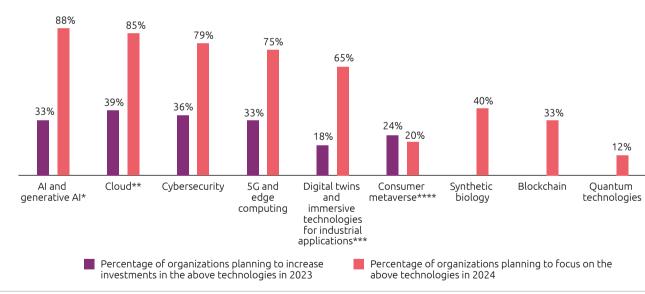
## AI and generative AI are leading digital investment

Many organizations already see generative AI as a powerful tool with which to accelerate growth, enhance capabilities, and unlock new opportunities without drastic restructuring of business models. Pat Geraghty, CEO of GuideWell, a US-based mutual insurance organization, comments: "Every board meeting we've had this year has had a standing agenda item of AI and ChatGPT. As we're thinking about where we're going, we want to make sure we've got our board with us." Our recent research highlights that generative AI is on the boardroom agenda at 96% of organizations surveyed globally. In our research, 88% of business leaders plan to focus on AI and generative AI in the next 12–18 months (see Figure 4).

In the following sections, we explore three key investment trends in detail: the growing prominence of AI and generative AI; the focus on sustainability; and the pivot towards nearshoring and friend-shoring of manufacturing and supply chains.

### FIGURE 4. A majority of organizations are planning to focus on Al/generative Al. cloud. and cybersecurity





Note: \*Data for "Intelligent automation (AI/ML/cognitive technologies etc.)" in Edition 1 research; \*\*Data for "IT infrastructure and Cloud" in Edition 1 research; \*\*\*Data for "operational technologies such as digital twins, automation, operational visibility, etc." in Edition 1 research; \*\*\*\*Data for "Immersive tech such as metaverse, web 3.0, etc." in Edition 1 research.

Synthetic biology, blockchain, and quantum technologies were not asked about in the research for Edition 1.

Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders; Capgemini Research Institute, Global Investment Research Edition 1, November 2022, N=2,000 business leaders.

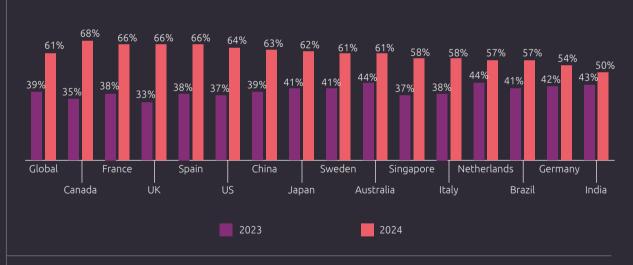
## A deep dive into cybersecurity:

Cybercrime is estimated to have cost business over \$8 trillion in 2023 and this figure is forecast to increase by 70% by 2028, to approach \$14 trillion.<sup>13</sup> Cyberattacks are more frequent and sophisticated, prompting organizations to bolster their security measures and recruit cybersecurity experts, and adapt to comply with new regulations designed to protect their industry. As Figure 5 shows, 61% of business leaders consider cybersecurity threats to be a leading risk to business growth (compared with 39% last year).



Cybersecurity is a top risk to business growth

PERCENTAGE OF BUSINESS LEADERS WHO CONSIDER CYBERSECURITY THREATS AS A BUSINESS RISK IN THE NEXT 12–18 MONTHS, GROUPED BY LOCATION OF ORGANIZATIONAL HEADQUARTERS



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders; Capgemini Research Institute, Global Investment Research Edition 1, November 2022, N=2,000 business leaders.

**61**<sup>%</sup>

of business leaders consider cybersecurity threats to be a leading risk to business growth in 2024

As Figure 4 shows, 79% of business leaders plan to focus on cybersecurity in the next 12–18 months. "The convergence of IT and OT systems will create a larger attack surface for cybercriminals, increasing their potential to compromise operational systems that control critical infrastructure. Organizations must prioritize cybersecurity measures that protect their entire infrastructure, from the endpoints to the core systems," emphasizes Agnidipta Sarkar, former Group CISO at India-based biopharma Biocon. 14 Moreover,

in the US, the new rules on cybersecurity disclosures from the Securities and Exchange Commission (SEC)<sup>15</sup> are likely to push organizations to strengthen their cybersecurity efforts, including mitigating risks and vulnerabilities in their partners' operations.

When used in conjunction with traditional methods, AI offers a powerful defense against AI-powered cyberattacks, as cited by 34% of business leaders in our research. A recent survey highlights that 34% of organizations have already implemented AI application security tools to mitigate the concomitant risks of generative AI. At the same time, generative AI can enhance accuracy of threat-identification; generate realistic training data to test ML models' attack detection and prevention; and automate routine security tasks. Additionally, 44% of technology leaders in our survey say that their cybersecurity may be compromised if they fail to become quantumsafe (i.e., resistant to quantum as well as traditional cyberattacks) in the near future.



## AI AND GENERATIVE AI: AUGMENTING HUMAN INGENUITY

## AI will play a more prominent role in critical decision-making

A recent report from Goldman Sachs shows that organizations are ramping up investment in AI, which could reach \$200 billion by 2025.<sup>17</sup> Figure 4 from our survey also highlights AI and generative AI as a key area for technology investment in 2024.

In our previous research on data-powered enterprises, we found that 50% of organizations base their decisions on data, rather than on intuition, personal judgment, or observation. Al supports operational decision-making, identifying patterns, and predicting scenarios that the decision-makers can then use as a focus for analysis and discussion. However, going forward, we are likely to see Al's increasing involvement in assisting critical decision-making – i.e., decisions that have a significant impact on the business, involve considerable resources, and carry significant risk (see Figure 6). Within the life sciences industry, for example, nearly half (47%) of critical decisions in the next five years are expected to involve the assistance of Al. As per recent estimates, already more

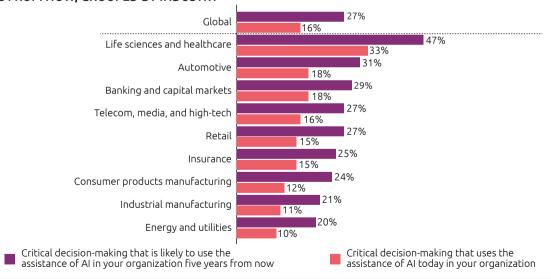
than 450 companies are pursuing Al-driven drug discovery.<sup>19</sup> Paul Hudson, CEO, Sanofi, adds: "Our ambition is to become

the first pharma company powered by AI at scale, giving our people tools and technologies that focus on insights and allow them to make better everyday decisions.<sup>20</sup>"

#### FIGURE 6.

AI will play a more prominent role in critical decision-making, with life sciences and healthcare leading the way

### PERCENTAGE OF CRITICAL DECISIONS MADE THROUGH THE ASSISTANCE OF AI – TODAY AND IN FIVE YEARS FROM NOW, GROUPED BY INDUSTRY



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.



## Generative AI offers an opportunity to ramp up innovation and productivity, boosting revenue

Generative AI is transforming the way we interact with technology. Machines are beginning to mimic human creative thought processes, synthesizing tailored content, contributing to product design, and supporting decision-making. This has significant implications for the way organizations work. A majority of business leaders in our research agree that it offers an immense opportunity in terms of innovation and new revenue streams (see Figure 7).

Clothing-service company Stitch Fix already uses AI
to prepare recommendations to customers and is
experimenting with DALL-E 2 to offer visualization of
clothing designs based on customers' color, fabric, and
style preferences.<sup>21</sup>

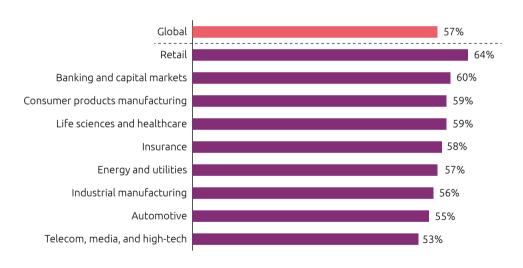
- Jeff McMillan, Head of Analytics, Data, and Innovation at Morgan Stanley Wealth Management, elaborates on how using generative AI is adding value: "Think of it as having our chief investment strategist, chief global economist, global equities strategist, and every other analyst around the globe on call all day, every day. We believe that is a transformative capability for our company."<sup>22</sup>
- In consumer products, Ferrero customized its jars for its popular Nutella chocolate spread using generative AI. Data scientists fed a database of patterns and colors into a generative AI algorithm, which rapidly produced 7 million distinct jar designs. These unique jars, branded as Nutella Unica, were sold all across Italy, reportedly selling out within a month.<sup>23</sup>

Moreover, business leaders see generative AI as an opportunity to enhance productivity, on average by 20%. According to our recent research on software-driven transformation, organizations expect generative AI to assist in writing one in every five lines of code in the next 12 months.<sup>24</sup>

#### FIGURE 7.

A majority of business leaders across sectors see generative AI as an opportunity to drive revenue and innovation

#### PERCENTAGE OF BUSINESS LEADERS SEEING GENERATIVE AI AS A VALUE PLAY\*, GROUPED BY INDUSTRY



\*We defined a "value play" as an opportunity to drive revenue and innovation.

Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

## Business leaders focus on a human-centric and -augmented approach to generative AI

A majority (56%) of business leaders emphasize that human judgment is more critical than ever in an AI-driven world, whereas 21% of business leaders do not believe this to be the case. Coca-Cola's generative AI advert Masterpiece is an example of the collaboration of AI and human intervention to achieve the desired outputs.<sup>25</sup> Generative AI cannot replace employees, but it can complement their skills and enhance productivity. It still requires supervision, monitoring, and testing. Therefore, nurturing employees' judgment<sup>26</sup> would become as crucial as any technical skill.

"Think of it as having our chief investment strategist, chief global economist, global equities strategist, and every other analyst around the globe on call all day, every day. We believe that is a transformative capability for our company."<sup>22</sup>

### **JEFF MCMILLAN**

Head of Analytics, Data, and Innovation at Morgan Stanley Wealth Management

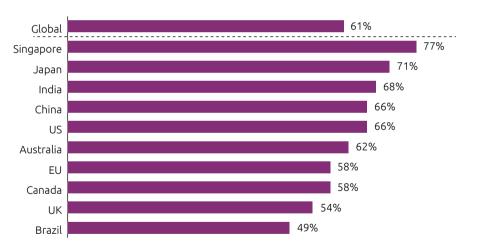
## Business leaders look to regulations to help them establish guardrails for generative AI

While generative AI carries vast potential, ethical and transparency concerns require clear regulation and new guidelines. In our research, 43% of organizations rate "lack of regulation" as a challenge to implementing and scaling generative AI. Recently, European Union officials have reached a provisional deal<sup>27</sup> on the EU AI act – which aims to classify AI usage based on risk level, prohibiting certain uses, and imposing stringent monitoring and disclosure requirements for high-risk applications. In fact, in our research, 61% of business leaders believe<sup>28</sup> that the EU's regulation- and guidelines-led approach to generative AI will reduce uncertainty (see Figure 8). Interestingly, 66% of US business leaders believe that the expected guidelines will reduce uncertainty, compared to 58% of EU business leaders.

#### FIGURE 8.

Organizations across APAC, the US, and the European Union concur that the EU's approach to regulating AI will reduce uncertainty

## PERCENTAGE OF BUSINESS LEADERS AGREEING TO THE STATEMENT, "THE EU'S REGULATION- AND GUIDELINES-LED APPROACH TO GENERATIVE AI REDUCES UNCERTAINTY," GROUPED BY LOCATION OF ORGANIZATIONAL HEADQUARTERS



Note: The survey was conducted before December 9, 2023, when the EU AI draft regulation was finally agreed upon by the European Parliament and the Council presidency.

Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

Along with country and regional regulations, many business leaders also advocate setting organizational guidelines for ethical, transparent, and sustainable use of generative AI. In our research, 64% of business leaders agree that self-regulation is critical to the responsible use of generative AI tools. More than two-thirds (67%) say they are developing such guidelines over the next 12–18 months.

Organizations also need to establish sustainability guidelines, in particular around highly carbon-intensive, albeit irregular, large-language-model (LLM) training and the general use of generative AI. Using a powerful AI model to generate 1,000 images produces roughly as much CO<sub>2</sub> as driving 4.1 miles in an average gasoline-powered car.<sup>29</sup>



of business leaders agree that self-regulation is critical to the responsible use of generative AI tools

## Key action areas

## Understand the systemic risk that AI poses and establish clear guidelines around usage

Our survey reveals that 22% of organizations are not planning to develop any kind of internal guidelines around the use of generative AI in the near future. A sizeable minority (21%) also think that human judgement is not exceedingly critical in an AI-driven world. Failure to recognize the need for human involvement and control in AI exposes a huge systemic risk.

Establishing organizational guardrails, training employees, adopting a human-centered approach to deployment, and embedding human oversight and user feedback play a critical role to foster responsible value generation through AI. To harness the full potential of AI and navigate the concomitant risks, it is important for organizations to:

- define a clear code of ethics for AI
- conduct regular audits and assessments of AI systems
- train employees in the ethical use of generative AI
- ensure availability of fair, high-quality datasets
- remain vigilant in regards to the ever-evolving realm of AI regulation
- be judicious in the selection of partners.

## Build trust and responsibility into AI systems

Owing to concerns around bias and opacity of results, Al systems have been the object of much mistrust and skepticism. Over half (51%) of business leaders cite a lack of clarity on the underlying data used to train generative Al programs as a challenge. In addition, there are other risks, such as:

- bias, skew, or discrimination arising from poor-quality training datasets
- generation of content based on copyrighted or unauthorized data

- inappropriate or inaccurate content, commonly termed AI "hallucinations"
- data leakage.

It is critical to build safeguards against these risks to increase trust towards AI among leaders, users, and regulators.

## Strike a balance between generative AI and human creativity

Organizations must recognize the distinct strengths of both AI and the human workforce, ensuring that technology augments human capabilities. For instance, in functions such as marketing, organizations should acknowledge AI's proficiency in data-driven tasks and content generation, while valuing human creativity in storytelling, understanding nuanced emotions, and making calls on matters of taste and sensitivity. Similarly, for software engineering, generative AI could assist in streamlining code creation, optimization, completion, testing, and debugging, allowing development teams to focus on supervision and more

complex business problems. At the same time, there is a need to ensure that there are proper guardrails to prevent the explosion of shadow IT in organizations – which can lead to potential security vulnerabilities, increased development costs, and reputational risks for organizations. "The potential for increased technical debt and orphan code is always a concern when delivery can be accelerated," confirms Tracy Daniels, CDO at Truist, a US financial-services organization<sup>30</sup>.

### Focus on sustainable AI

Sixty-two percent of business leaders in our research say they are conscious of the imperative to scale generative AI in a sustainable way. To this end, organizations must strategize to mitigate the environmental impact of power-hungry and emissions-heavy training of generative AI models. Organizations can work with partners to clearly lay out their generative AI strategy and approach, estimate the carbon impact of their models, and identify and execute initiatives such as choosing right-sized models, fine-tuning existing foundation models rather than training large models from scratch, participating in data ecosystems to reuse datasets and avoid redundant data collection, and using energy-efficient hardware and data centers.



## SUSTAINABILITY: PREPARING FOR THE FUTURE

## Climate change is an existential threat that organizations must address

Close to half (48%) of business leaders believe that climate change will cause the majority of operational disruptions in the coming decade (see Figure 9). Already, droughts linked to climate change have brought water levels to record lows along major transportation routes such as the Panama Canal, the Rhine and Danube rivers in Europe, and the Mississippi river in the US, causing significant logistical issues.<sup>31</sup> Business leaders expect such impacts to intensify.

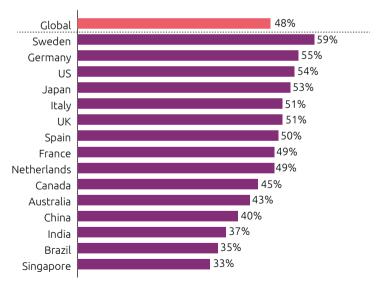
**48**%

of business leaders say that climate change will cause the majority of operational disruptions in the next decade

#### FIGURE 9.

Around half of business leaders expect climate change to be the main cause of operational disruption in the future

PERCENTAGE OF BUSINESS LEADERS WHO SAY THAT CLIMATE CHANGE WILL CAUSE THE MAJORITY OF OPERATIONAL DISRUPTIONS IN THE NEXT DECADE, GROUPED BY LOCATION OF ORGANIZATIONAL HEADQUARTERS



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

**61**%

of business leaders say that the lack of sustainable practices and processes will pose a long-term existential risk for their organizations

Further, sustainability is viewed as fundamental to organizations' long-term viability. More than six in ten (61%) business leaders say that the lack of sustainable practices and processes will pose a long-term existential risk for their organizations.

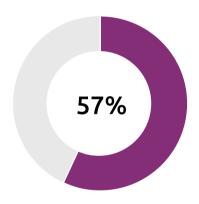
Growing awareness of the risks posed by climate change is driving investment. Our previous research showed that awareness of the worsening climate crisis is the top driver of corporate investment in climate tech for the next two years. <sup>32</sup> In addition, as we examine below, economic incentives are influencing the direction of investment.

## Economic incentives help drive sustainability and clean tech investments

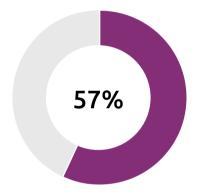
Our current research indicates the growing influence of economic incentives on the direction of investment. For instance, 57% of business leaders globally say that their organization is likely to increase investment in clean tech in the US over the next 2−3 years due to the Inflation Reduction Act (IRA). A similar proportion say that their organization is likely to increase investment in the EU due to the EU Green Deal Industrial Plan (see Figure 10). The IRA offers \$369 billion in incentives to organizations to ramp up clean tech, while the EU plans to allocate €578 billion (32.6% of its total budget) to climate-mitigation efforts.<sup>33</sup>

#### FIGURE 10.

Economic incentives are influencing the flow of investment in clean tech



of business leaders say that their organization will increase investment in clean tech in the US in the next 2–3 years due to the IRA.



of business leaders say that their organization will increase **investment in clean tech in the EU** in the next 2–3 years due to the **Green Deal Industrial Plan**.

Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=1,600 business leaders excluding respondents from the banking and capital markets, and insurance sectors.

## Organizations are questioning the macroeconomic growth paradigm

Our research shows that business leaders are beginning to recognize the limits to growth within planetary boundaries. Two-thirds (66%) say that the relentless pursuit of growth is incompatible with addressing the climate and ecological crisis, while 57% say that sustainability is not compatible with unfettered consumerism.

Further, business leaders foresee a future where growth ceases to be the guiding standard of economic activity. Thirty-eight percent believe that organizations are likely to enter an era of no growth due to the need for humanity to stay within planetary boundaries. The "Beyond Growth" conference hosted by the European Parliament from 15–17 May 2023 aimed to spark thinking about alternative economic models that prioritize sustainability and wellbeing over perpetual growth. <sup>34</sup> In line with this, our research indicates that business leaders are increasingly contemplating and engaging with the idea of a post-growth future.

## Key action areas

## Redesign business and operating models

While far from easy, implementing a new or refined business or operating model is the most effective way to ensure an organization is on the path to sustainability. This will need the support of the board of directors in order to implement drastic changes if they are necessary, especially in cases where revenue or margins are impacted.



of business leaders say that the relentless pursuit of growth is incompatible with addressing the climate and ecological crisis

## Explore the potential of data and technology to achieve sustainability goals

Data and technology are key to organizations achieving their sustainability goals. Climate technologies such as renewable energy, carbon capture, low-carbon hydrogen, alternative fuels, and climate-modelling software will play a significant role in reducing emissions and investment in climate tech will be important to reaching net zero and other climate goals. Three-quarters of executives in our recent research on climate tech said that their organizations would not be able to achieve their sustainability goals without climate tech.

## Encouraging the development of new skills

Organizations must also ensure they equip employees with the skills required to support a transition to a sustainable business model. Upskilling/reskilling of hard (e.g., carbon accounting, environmental science/engineering, and data analysis/visualization) and soft (e.g., leadership, innovation, communications, and design thinking) sustainability skills will be crucial.

### Secure access to finance

Organizations should tap into growing sources of public and private funding (government grants, subsidies and tax credits, VC funding, and debt financing) to fast-track their sustainability initiatives. Designing and scoping projects with eligibility for funding front of mind will be key.



# NEARSHORING AND FRIEND-SHORING: TACKLING SUPPLY CHAIN VULNERABILITIES

## Business leaders still see supply chain as an area of acute vulnerability

The COVID-19 lockdowns and the subsequent release of pent-up demand exposed the vulnerability of global supply chains, culminating in a significant loss of revenue and opportunity. Our previous year's research highlights this, with supply chain being the leading risk area according to 89% of organizations surveyed.

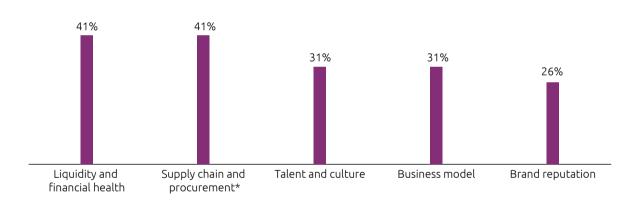
Over the past year, organizations have redesigned and invested in their supply chains, enhancing resilience to exogenous disruption. James Rowan, CEO, President, and Director of Volvo Cars, states: "Supply chain architecture, in general, is changing. This just in-time process that we've enjoyed for decades now, when there was frictionless trade across the world, that time has gone, and people are now rearchitecting the supply chain to make it more resilient."35

Supply chain risk has diminished: 42% of business leaders consider it a high risk this year, compared with 89% last year. Yet, organizations are acutely aware of the business and price sensitivity of supply chains. As shown in Figure 11, supply chain and procurement matches liquidity and financial health as the area most vulnerable to risk.

#### FIGURE 11.

Supply chain and procurement is a leading vulnerability according to business leaders

#### PERCENTAGE OF BUSINESS LEADERS STATING THE BELOW AS THE AREAS MOST VULNERABLE TO RISK



<sup>\*</sup>Question posed only to organizations with supply chain networks.

Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders; N=1,407 business leaders from organizations with supply chain networks.

"Supply chain architecture, in general, is changing. This just in-time process that we've enjoyed for decades now, when there was frictionless trade across the world, that time has gone, and people are now rearchitecting the supply chain to make it more resilient." 35

### **JAMES ROWAN**

CEO, President, and Director of Volvo Cars

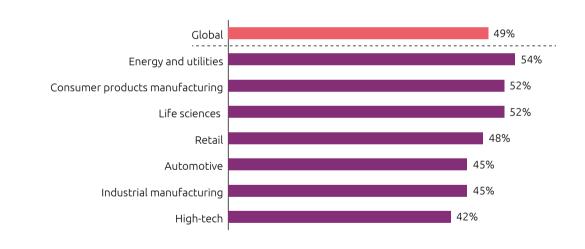
## Regulatory change and the search for alternatives to China are shifting approaches to supply chains

The pandemic and associated lockdowns have exposed over-reliance on Chinese suppliers. For example, the US relies on active pharmaceutical ingredients (APIs) from China for more than 75% of its vitamin B6, B12, B1, C, and nearly 70% of its vitamin E imports. India, the second-largest global exporter of generic pharmaceuticals, while regarded as a potential alternative supplier, also depends on China. According to the European Commission, India accounts for about 20% of global generic drug demand by volume, but it imports about 70% of its APIs from China<sup>36</sup>. Our survey shows that organizations from the energy and utilities sector are keenest to find alternative suppliers among emerging countries (see Figure 12).

#### FIGURE 12.

Energy and utilities leads the search for emerging-country suppliers

### PERCENTAGE OF BUSINESS LEADERS WHO ARE INVESTING IN OTHER EMERGING ECONOMIES TO REDUCE RELIANCE ON CHINA, GROUPED BY INDUSTRY



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=1,304 business leaders from organizations with supply chain networks, excluding organizations from China.

The technology decoupling of China and the US has led to the restriction of technology exports and sensitive technologies in the areas of semiconductors and AI. This has led 42% of our surveyed executives to re-evaluate their technology investments.

Along with the search for an alternative to China, there has been significant government influence on supply chain decisions, specifically in terms of "de-risking" strategies.<sup>37</sup> This phenomenon has three important aspects:

### • Regulations for sovereign manufacturing:

Governments feel that areas of national strategic importance, such as semiconductors, electric batteries, AI, and pharmaceuticals justify the development of sovereign manufacturing capacity. A good example of this is the European Chips Act<sup>38</sup> (ECA) and the US's CHIPS and Science Act,<sup>39</sup> which encourage localized semiconductor production in order to enhance supply chain resilience for national security reasons. The ECA is intended to double

Europe's share of the semiconductor market from 10% to 20% by 2030. Further, the US is leading the imposition of export controls on semiconductor manufacturing equipment<sup>40</sup> to counter the national security threat from China. More than half (54%) of business leaders believe that this trend of sovereign manufacturing will continue to grow, with respondents in Germany and Spain agreeing the most.

**52**<sup>%</sup>

of organizations are nearshoring their supply chains to meet stricter sustainability and ESG regulations

• Protecting key economic contributing industries:
Regulatory incentives pertaining to protecting and enabling the transition from internal combustion engine (ICE) vehicles to electric vehicles (EVs) strongly influence the development of automotive supply chains. For example, the United States-Mexico-Canada Agreement (USMCA)<sup>41</sup> states that, in order for a vehicle to be sold tariff-free in the region, at least 75% of its components should be manufactured in North America. Alongside

this, the IRA<sup>42</sup> provides tax credits for vehicles that source battery materials in North America, encouraging onshore investment. Such regulatory policies have made Mexico a nearshoring hub for North America across industries: according to the US Census Bureau, Chinese imports to the US fell by 24% through May 2023, with Mexico now being the US's leading trade partner.<sup>43</sup>

· Compliance requirements in environmental, social, and governance (ESG) regulations: Apart from these incentive-based regulations, new compliance-based and sustainability-oriented regulations will increase the cost of operating supply chains in lightly regulated countries (notably China) that lack transparency and traceability. In our survey, 52%<sup>47</sup> of organizations are nearshoring their supply chains to meet stricter sustainability and ESG regulations. These regulations include the EU's Corporate Sustainability Due Diligence Directive (CSDDD).44 the EU's new Circular Economy Action Plan, 45 and the US's Uyghur Forced Labor Prevention Act (UFLPA).46 The due diligence required to comply with regulations of this type adds to the overall compliance cost of procuring from offshore locations and, by extension, encourages nearshoring and friendshoring (reporting data can often be challenging to obtain and may not even exist in certain cases).

# Driven by these regulations and the need for resilience, nearshoring and friend-shoring are key strategies

Our research deep-dives into supply chains of the automotive and consumer products industries and highlights nearshoring trends:

- Our research on automotive supply chains indicates that, globally, there has been a 22% drop in offshore procurement in dollar value over the past two years. Europe leads with a 25% reduction.
- Similarly, our research on consumer products and retail supply chains indicates that 8 out of 10 consumer products and retail (CPR) organizations were investing in shifting from single to multiple sourcing, while 7 in 10 organizations are regionalizing or localizing their supplier bases.

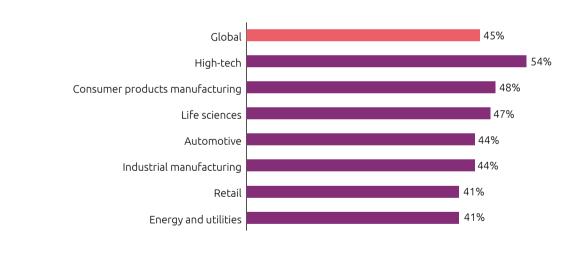
Our current research also highlights a nearshoring trend across industries. Nearly half  $(47\%)^{47}$  of respondents surveyed state that nearshoring a majority of their procurement is financially feasible. Upfront costs of supplier base redesign and relocation may be higher, but the overall costs associated with offshoring (including transportation, risk management, opportunity cost of lost sales, trips made by executives) mean that nearshoring and friend-shoring could be financially beneficial in the long run. Nearshoring can also reduce the need for working capital by reducing in-transit inventory.

Furthermore, nearly half (45%) of business leaders state that a significant portion of their sourcing/production will be friend-shored in future (see Figure 13). Among these, hightech leads the way, followed by consumer products and life sciences.

#### FIGURE 13.

Friend-shoring will represent a significant portion of sourcing/production going forward

### PERCENTAGE OF BUSINESS LEADERS WHO SAY THAT FRIEND-SHORING WILL REPRESENT A SIGNIFICANT PORTION OF THEIR SOURCING/PRODUCTION GOING FORWARD, GROUPED BY INDUSTRY\*



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=1,407 business leaders from organizations with supply chain networks..

#### Key action areas

# Harness technology and automation to enable more cost-effective nearshoring and friend-shoring

The adoption and advancement of technology and automation can make nearshoring a cost-effective strategy. A centralized technology team should ensure that all localized production sites leverage technology and automation as a global standard. It is essential to reduce the cost of technology adoption and leverage global expertise to address challenges among distributed production sites. Further, nearshoring requires strong demand planning and inventory management capabilities to ensure that localized production can address long-term or seasonal variations in

demand without the need for excess inventories or long lead times. Technologies such as AI and generative AI are key to optimizing supply chain planning and management.

### Design supply chains with a focus on visibility, transparency, and sustainability

Building new supply chains and manufacturing footprint is a rare event in any organization or industry. Organization should leverage this opportunity to build their new supply chains with visibility, transparency, and sustainability from the outset. Key issues such as building reverse logistics for a circular economy or monitoring carbon footprint need to be emphasized. This will enable organizations to cover risk from sustainability regulations while enabling them to monitor and control Scope 3 emissions, a critical area of concern.

## Supply chain leadership needs a mindset shift along with new skills and capabilities

Traditionally, supply chains were built on the basis of cost and capacity. Today, with the need for resilience and adapting to the trends of nearshoring and friend-shoring, supply chain leaders need to adopt more holistic strategic thinking. Broader geopolitical, economic, and consumer concerns along with sustainability must be prioritized along with cost and availability. Supply chain leaders need to have globalized thinking while addressing localized requirements, along with collaboration and adaptability.

#### Conclusion

Our research shows that growing optimism is likely to spur an increase in organizations' investments in 2024. Technology is a top investment priority for organizations, with AI and generative Al at the top of the list. At the same time, there is consensus on the importance of nurturing human judgment to co-ordinate and supervise an Al-driven world. Moreover, there is widespread acceptance of the crucial role played by regulation in ensuring that the benefits of AI can be realized in an ethical and socially responsible manner. The need to establish quardrails and develop a balanced, human-centric approach to AI adoption is crucial, as is the need to mitigate the environmental impact of adoption. Sustainability has also emerged as a priority for organizations for 2024. Climate change is viewed as a probable leading cause of operational disruptions in the future and a threat to the long-term viability of organizations. Further, organizations are acting to protect themselves against supply chain vulnerabilities. Nearshoring and friend-shoring of sourcing and production are also priorities going forward, prompted by shifts in industrial policy and ESG regulation. Redesigning supply chains for long-term resilience and harnessing technology to enable more cost-effective nearshoring and friend-shoring will be vital.

It is key to note that the three key investment trends examined in the report – the growing prominence of AI and generative AI; the focus on sustainability; and the pivot towards nearshoring and friend-shoring of manufacturing and supply chains – are interlinked. For instance, AI and generative AI can positively impact supply chains (e.g., by helping with transportation optimization, warehouse management, supply and demand planning, and supply chain troubleshooting) and help address sustainability goals (e.g., by enabling the rapid generation of novel ideas and concepts such as 3D structures of new carbon-neutral materials). At the same time, given the carbon-intensive nature of large language models, the environmental impact of generative AI needs to be factored into organizations' sustainability performance. Similarly, sustainability impacts need to be accounted for when designing supply chains for resilience. It is crucial that organizations consider these linkages to future-proof their business and operating models.

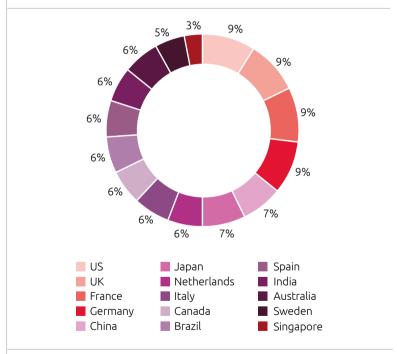
#### Research methodology

We carried out extensive research in an effort to understand the global economic climate and its impact on the investment landscape.

For this study, 2,000 respondents from firms with more than \$1 billion in annual revenue across 9 industries and 15 countries were surveyed. The respondents were at director level or above, spanning various functional areas, including general management, finance and risk, IT/technology, supply chain, sustainability, operations, and human resources. The executives who participated in the survey were responsible for/highly aware of their organization's investment plans and priorities. The distribution of respondents and their organizations is provided in the following figures.

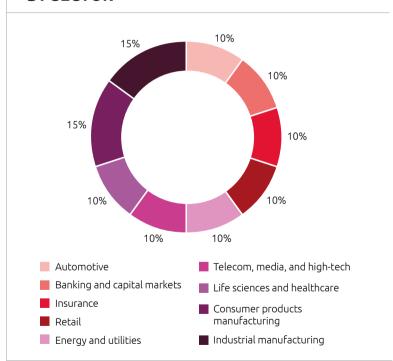
The study findings reflect the views of respondents to our online questionnaire for this research and are aimed at providing directional guidance. Please contact one of the Capgemini experts listed at the end of the report to understand specific implications.

#### PERCENTAGE OF ORGANIZATIONS BY HEADQUARTERS LOCATION



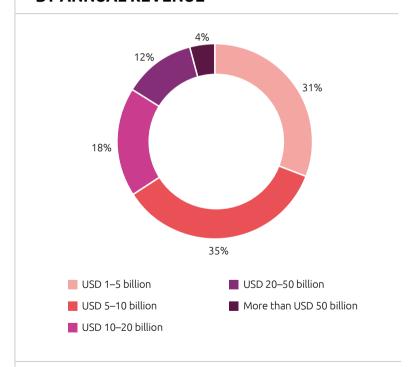
Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

#### PERCENTAGE OF ORGANIZATIONS BY SECTOR



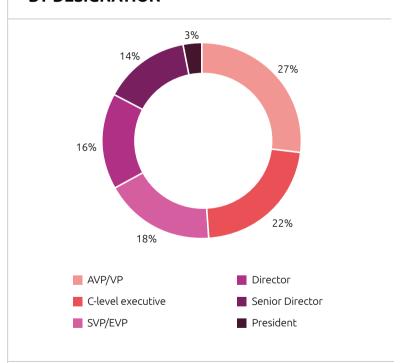
Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

#### PERCENTAGE OF ORGANIZATIONS BY ANNUAL REVENUE



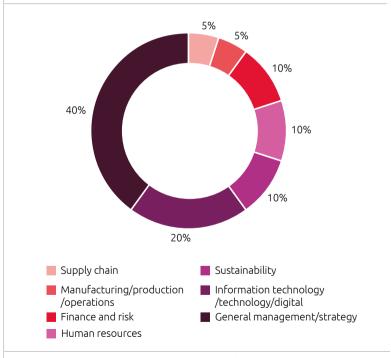
Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

#### PERCENTAGE OF BUSINESS LEADERS BY DESIGNATION



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders.

#### PERCENTAGE OF BUSINESS LEADERS BY FUNCTIONAL AREA



Source: Capgemini Research Institute, Global Investment Research Edition 2, November 2023, N=2,000 business leaders..

#### References

- 1. Capgemini Research Institute, Harnessing the value of generative Al: Top use cases across industries, July 2023.
- 2. Capgemini Research Institute, Intelligent Products and Services: Unlock the opportunity of a connected business, September 2022.
- 3. Capgemini Research Institute, Conversations for Tomorrow #6: Nurturing the future of work how organizations empower talent. December 2022.
- 4. Capgemini Research Institute, A World in Balance 2023: Heightened sustainability awareness yet lagging actions, November 2023
- Time Magazine, "Ikea's Jesper Brodin on AI, ditching the catalogue, and making 'disposable' furniture sustainable," June 2023
- Economic Times, "Tech companies slowly shift production away from China," September 2022.
- 7. Capgemini Research Institute, *Automotive supply chain*, September 2023.

- 8. Capgemini Research Institute, *Illuminating the path: Building resilient and efficient supply chains in the consumer products and retail industry*, October 2023.
- 9. Gartner, "Gartner forecasts worldwide IT spending to grow 8% in 2024," October 2023.
- 10. Capgemini Research Institute, *The art of software: The new route to value creation across industries*, November 2023
- 11. Fortune, "7 CEOs share how generative AI is reshaping business from booking travel to writing code," May 2023.
- 12. Capgemini Research Institute, Harnessing the value of aenerative Al: Top use cases across industries. July 2023.
- 13. Statista, "Estimated cost of cybercrime worldwide 2017-2028 (in trillion U.S. dollars)," November 15, 2023.
- 14. AllTech, "Agnidipta Sarkar, Group CISO at Biocon: Thought leaders interview series," March 21, 2023.
- SEC, "SEC adopts rules on cybersecurity risk management, strategy, governance, and incident disclosure by public companies," July 26, 2023.

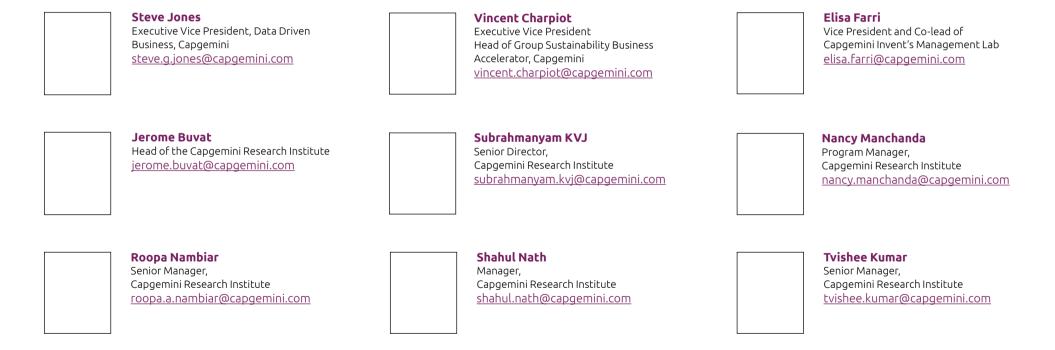
- Gartner, "Gartner survey revealed 34% of organizations are already using or implementing AI application security tools," September 18, 2023.
- 17. Goldman Sachs, "AI investment forecast to approach \$200 billion globally by 2025," August 1, 2023.
- 18. Capgemini Research Institute, *The data-powered enterprise*, November 2020.
- 19. BioPharma Trend, "10 publicly traded biotechs utilizing Al-based research platforms," December, 2023.
- 20. Sanofi, "Sanofi "all in" on artificial intelligence and data science to speed breakthroughs for patients," June 2023.
- 21. Harvard Business Review, "How generative AI is changing," November 2022.
- 22. Open Al, "Morgan Stanley wealth management deploys GPT-4 to organize its vast knowledge base," March 2023.
- 23. Entrepreneur, "How Generative AI will revolutionize the future of your brand," October 2023.

- Capgemini Research Institute, The art of software: The new route to value creation across industries, November 2023; Survey was conducted in June–July 2023.
- 25. Forbes, "The Amazing ways Coca-Cola uses generative Al in art and advertising," September 2023.
- 26. Harvard Business Review, "Good judgment is a competitive advantage in the age of AI," September 2023.
- 27. Council of the European Union, "Artificial intelligence act: Council and Parliament strike a deal on the first rules for AI in the world." December 9, 2023.
- 28. The survey was conducted in November 2023, before the provisional agreement on the EU AI act.
- 29. MIT Technology Review, "Making an image with generative Al uses as much energy as charging your phone," December 1, 2023.
- 30. The Wall Street Journal, "AI is writing code now. For companies, that Is good and bad," May 2023.
- 31. Bloomberg, "Panama Canal traffic is being throttled by climate change impact," November 2023; CNBC, "Shipping

- industry could lose \$10 billion a year battling climate change by 2050," October 2023.
- 32. Capgemini Research Institute, Climate tech: Harnessing the power of technology for a sustainable future, December 2023.
- 33. UNCTAD, "\$369 billion in investment incentives to address energy security and climate change," August 2022; European Commission, "Commission reports on EU policy initiatives to promote investments in clean technologies," October 2023.
- 34. Beyond Growth 2023 Conference, "Beyond Growth: Pathways towards Sustainable Prosperity in the EU," retrieved from https://www.beyond-growth-2023.eu/.
- 35. Fleet Europe, "The Automotive Supply Chain: the need for resilience and transparency," October 6, 2023.
- 36. Nikkei Asia, "The great medicines migration: How China took control of key global pharmaceutical supplies," April 2022.
- 37. CNBC, "'We are not decoupling:' G-7 leaders agree on approach to 'de-risk' from China," May 2023.
- 38. EU, European Chips Act, February 2022.

- 39. US Government, CHIPS and Science Act, August 2022.
- 40. Center for strategic and international studies, "Japan and the Netherlands announce plans for new export controls on semiconductor equipment," April 2023.
- 41. USMCA, November 2018.
- 42. US IRA, August 2022.
- 43. The Washington Post, "U.S. companies are buying less from China as relations remain tense," August 2023.
- 44. EU, Corporate Sustainability Due Diligence Directive, February 2022.
- 45. EU, A new circular economy action plan, March 2020.
- 46. US Government, Uyghur Forced Labor Prevention Act, December 2021.
- 47. N=1,407 business leaders from organizations with supply chain networks.

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