DASSAULT SYSTEMES

# R9 think Innovation

**A survey of 500 business leaders** on the current challenges and opportunities in consumer goods.

FORRESTER

A commissioned study conducted by Forrester Consulting on behalf of Dassault Systèmes, June, 2025.

# COVER LETTER

**They say you don't know you're in a revolution until it's over, but it's pretty clear to me when I look around that something's in the air.** AI is of course one of the main culprits here, with new deployments coming out seemingly every week, each offering dizzying new levels of generative power.

But it's not just AI. Consumers are changing. Businesses are changing. Settled political realities are changing. Yep, it's a revolution alright.

And that's not the only re- word around. Re-use. Re-cycle. Re-formulate. Re-think. Everywhere, radical new changes are forcing us to re-assess (there's another one!) our fundamental assumptions about how businesses work, what products consumers want, how we should design, make and sell those products, and how that all fits into our deepening understanding of planetary systems.

Of course, change is nothing new. What is new is the sheer rate of change we face today. And the walk back to the drawing board can be a long one – too long, if companies aren't careful.

But the same leaps in technology that are driving that need for change, can also help companies embrace it fast enough to keep pace with their customers, and close the gap between where they are, and where they need to be.

Virtual twins, for example, are right now giving leading innovators an incredible new way of testing, simulating and developing the next generation of consumer products, and doing so at unprecedented speed and scale – there are no rehearsals for the revolution, and solutions like these can be critical in achieving that critical "right-first-time" moment.

It's questions – and solutions – like this that my colleagues at Dassault Systèmes, and our partners at Forrester Research have set out to explore in this survey. In the following pages, we'll look at the whats, whys and hows of consumer production innovation in this revolutionary age, and ask just what it takes to make a market-leading rethinker.

**Benoit Dauchin**
Vice President, Consumer Packaged Goods & Retail and Home & Lifestyle Industries, Dassault Systèmes

# COVER LETTER

# CONT

# ENTS

# 01
## *Introduction*

**Introduction** Consumer product companies today need to rethink their businesses in order to keep up with the demands of a rapidly changing consumer landscape – but as our data shows, while these companies often have admirable ambitions, a range of factors are hampering effective change.

# 79%

**of decision-makers**
say consumers are changing
faster than they can keep up.

# EXECUTIVE SUMMARY

**Humans eras are often defined by the products with which we surround ourselves. If you travelled back in time 100 years, the first difference you would notice would be the products – the clothes people wore, the cars they drove, and the food they ate.**

**Consumer products companies are at the vanguard of shaping and reshaping our material world,** whether that means driving forward innovation with new products and services – or falling by the wayside as they are overtaken by trends beyond their control.

And that's as true for companies today as it ever was. Today's customers look for technological innovation in everything, from AI washing machines that manage their own energy use to cameras that automatically optimize photo lighting. Personalization is increasingly demanded across the board, from nutrition to clothes to cosmetics. Sustainable and ethical products are no longer a luxury, but a mandate.

Industry has always gone through these transformations, as technology and demographics reshape the commercial landscape. The companies that survive are the ones most able to rapidly rethink traditional assumptions – around what products they offer, yes, but also how they design and manufacture those products, how their businesses are managed, and how they speak to their customers.

So, how are today's consumer products companies faring? To better understand this, Dassault Systèmes and Forrester Consulting conducted a survey of **more than 500 senior decision-makers** across the consumer goods sector, assessing the factors impacting their business, the challenges they are struggling with, and the solutions they are pursuing.

**The answer is concerning. Worryingly, 79% of respondents say that consumer demands and preferences are changing faster than their organization can keep up.**

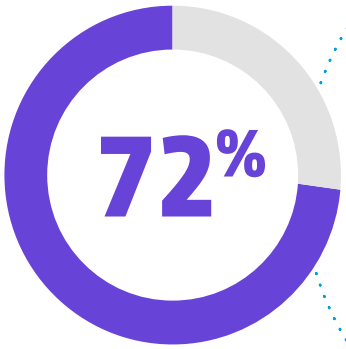
It's clear that a gap is opening up here. Companies know where they need to be, but their ability to rethink old products, processes, and frameworks at the speed the market demands is being complicated by several factors.

**The first is a technology gap** – Technological disruption was the most frequently highly rated challenge faced by today's consumer companies, with 73% of leaders saying that tech disruption will have a critical or high impact on their business in the next year.

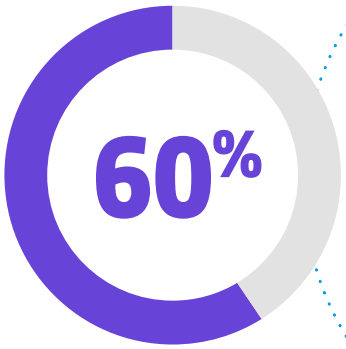
**The second is a human gap** – A misalignment between stakeholders was the most frequently prioritized factor respondents listed as hindering product delivery, with 60% saying it is either challenging or very challenging.

This human gap in turn complicates effective technological delivery – 75% of respondents say that organizational silos make it difficult to achieve a collaborative data-led approach to projects.

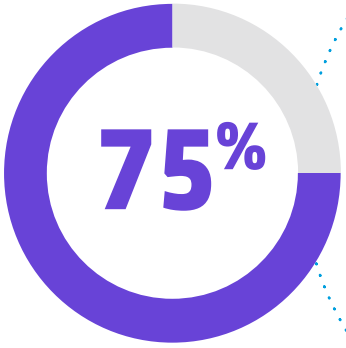
We have the necessary technological solutions to close this rethinking gap. But without human alignment, effective change remains out of reach. In this report, we will explore these themes in more detail, highlighting the trends shaping performance today, and exploring the key behaviors that define leading rethinkers, past and present.




**of respondents**
say that tech disruption will have a critical or high impact on their business in the next year




**of respondents**
say that a misalignment between stakeholders is either challenging or very challenging




**of respondents**
say that organizational silos make it difficult to achieve a collaborative data-led approach to projects

# METHODOLOGY

**Forrester Consulting surveyed 508 senior decision makers, representing consumer goods companies across the US, UK, Germany, France and Japan.**

Each participant answered 15 questions covering how well they feel their company is meeting consumer product expectations, the challenges it faces in doing so, and its strategies, priorities and planned use of technology to improve outcomes in this area.

The general consumer goods sector constituted 46% of our respondents; 32% of these are part of the personal care & cosmetics industry, 18% from household products, and 16% from clothing accessories and footwear. The remainder covered areas including furniture and home goods, luxury goods (such as watches and jewelry), sport and fitness equipment, toys, and pet care.

The combined food and beverages sector provided 31% of our respondents. The packaging materials sector, including packaging materials and chemicals used in the production of food and drink, provided 23% of our respondents.

In terms of value, 59% of respondents were from companies with revenues of between $500 million and $999 million; 32% from companies with revenues of between $1 billion and $5 billion; and the remaining 8% from companies with revenues of $5+ billion.

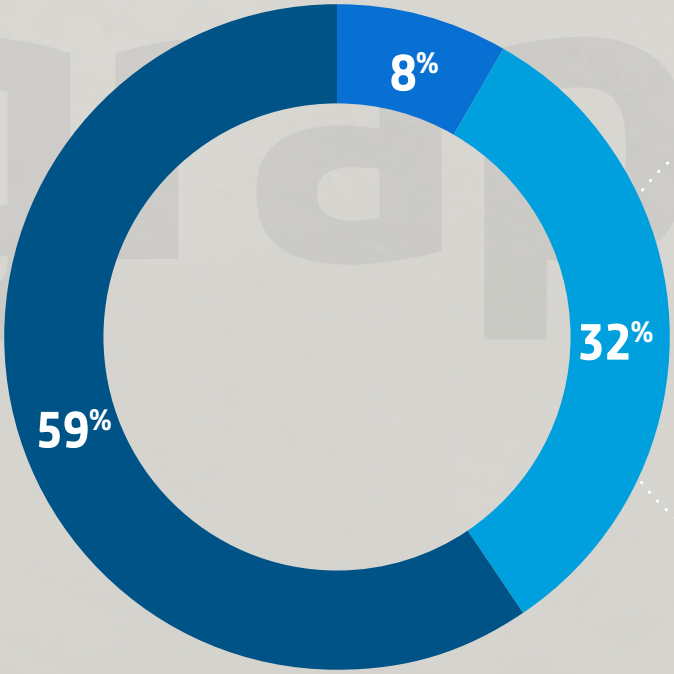
In terms of size, 13% of respondents were from companies with between 1,000 and 4,999 employees; 49% from companies with between 5,000 and 19,999 employees; and the remaining 12% from companies with 20,000+ employees.

In terms of seniority, 20% of the respondents were C-suite level, including CEOs, CTOs and CMOs; 26% were vice presidents; 25% were directors; and 30% were managers.

In terms of department, 25% of respondents were from IT departments; 25% were from manufacturing or production; 13% were from supply chain; and 12% were from marketing or advertising. The remaining 25% of respondents were from product teams, split evenly between research and development, product design, and product development functions.

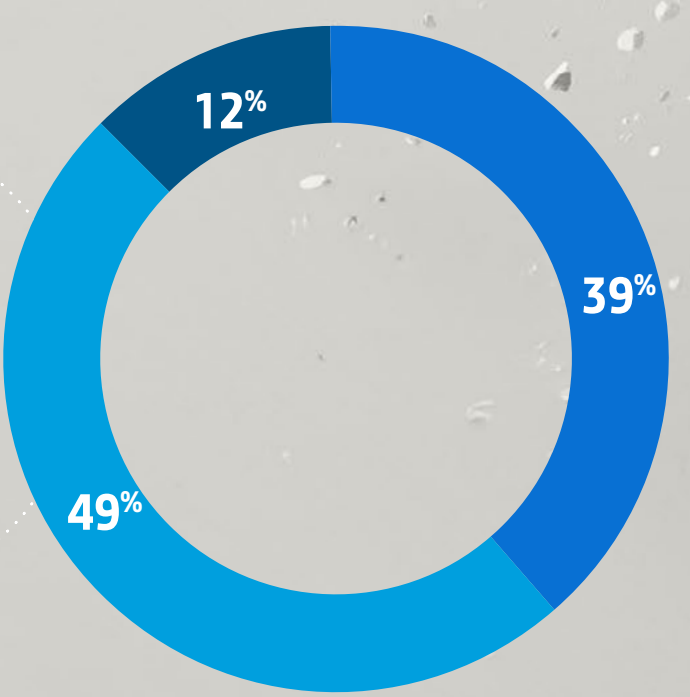
The study was conducted in February-March 2025.

Firmo-graphics




## COMPANY REVENUE

- $5B+
- $1B to $5B
- $500M to $999M

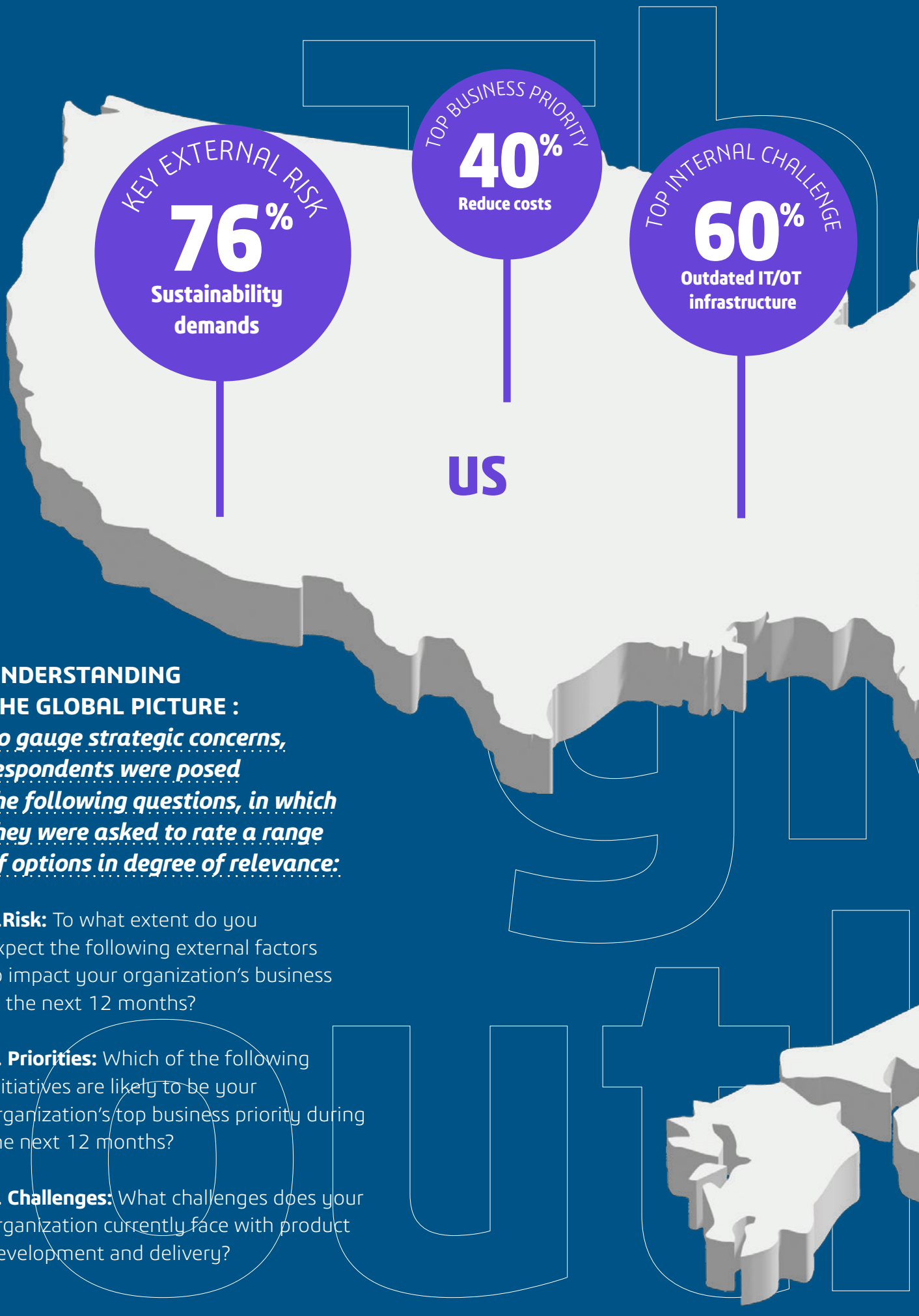



## COMPANY SIZE

- 1,000-4,999 employees
- 5,000-19,999 employees
- 20,000 or more employees

## INDUSTRY

| | |
|---|---|
| 46% | Consumer Goods |
| 31% | Food & Beverages |
| 23% | Packaging / Materials |



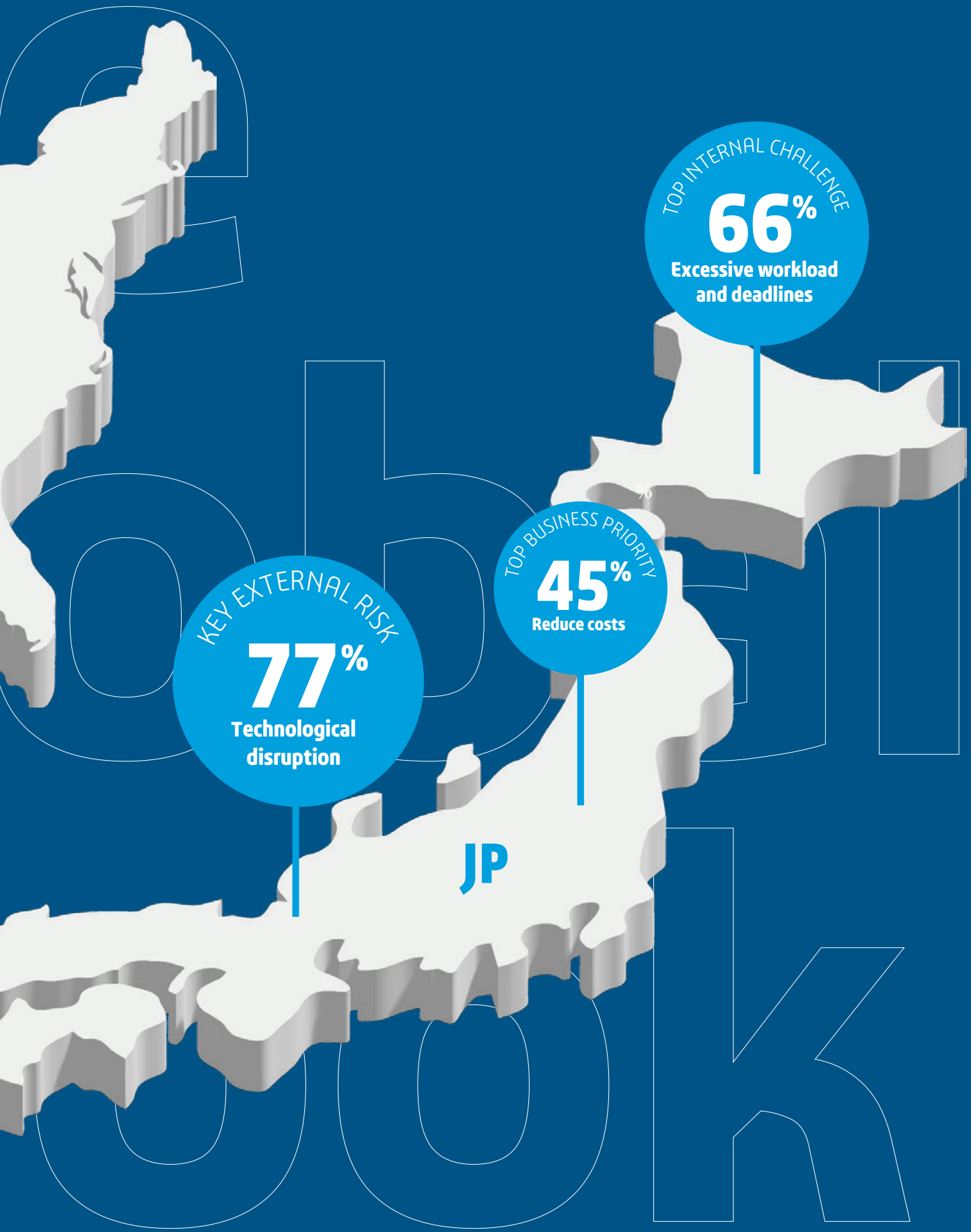

## UNDERSTANDING THE GLOBAL PICTURE :

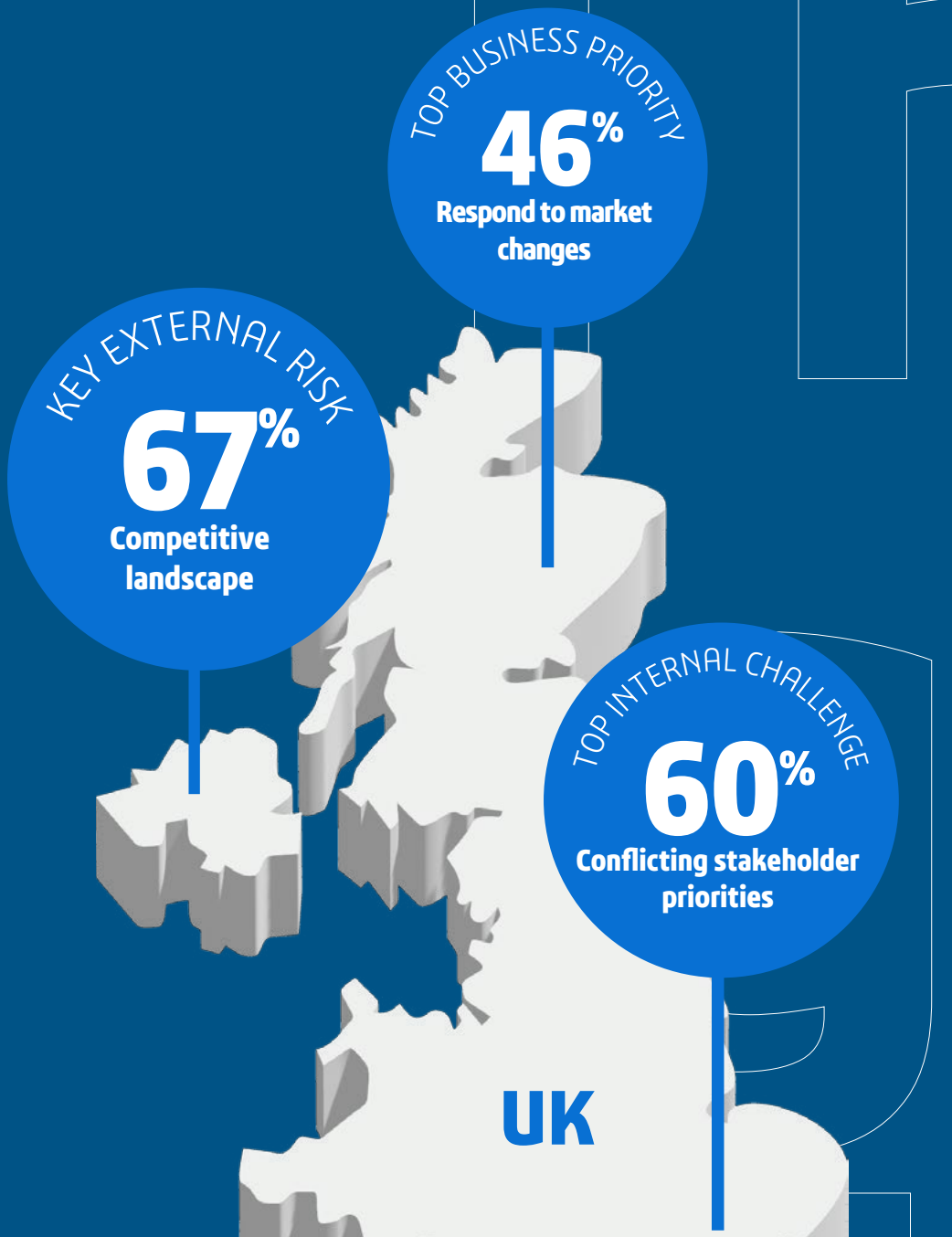
***To gauge strategic concerns, respondents were posed the following questions, in which they were asked to rate a range of options in degree of relevance:***

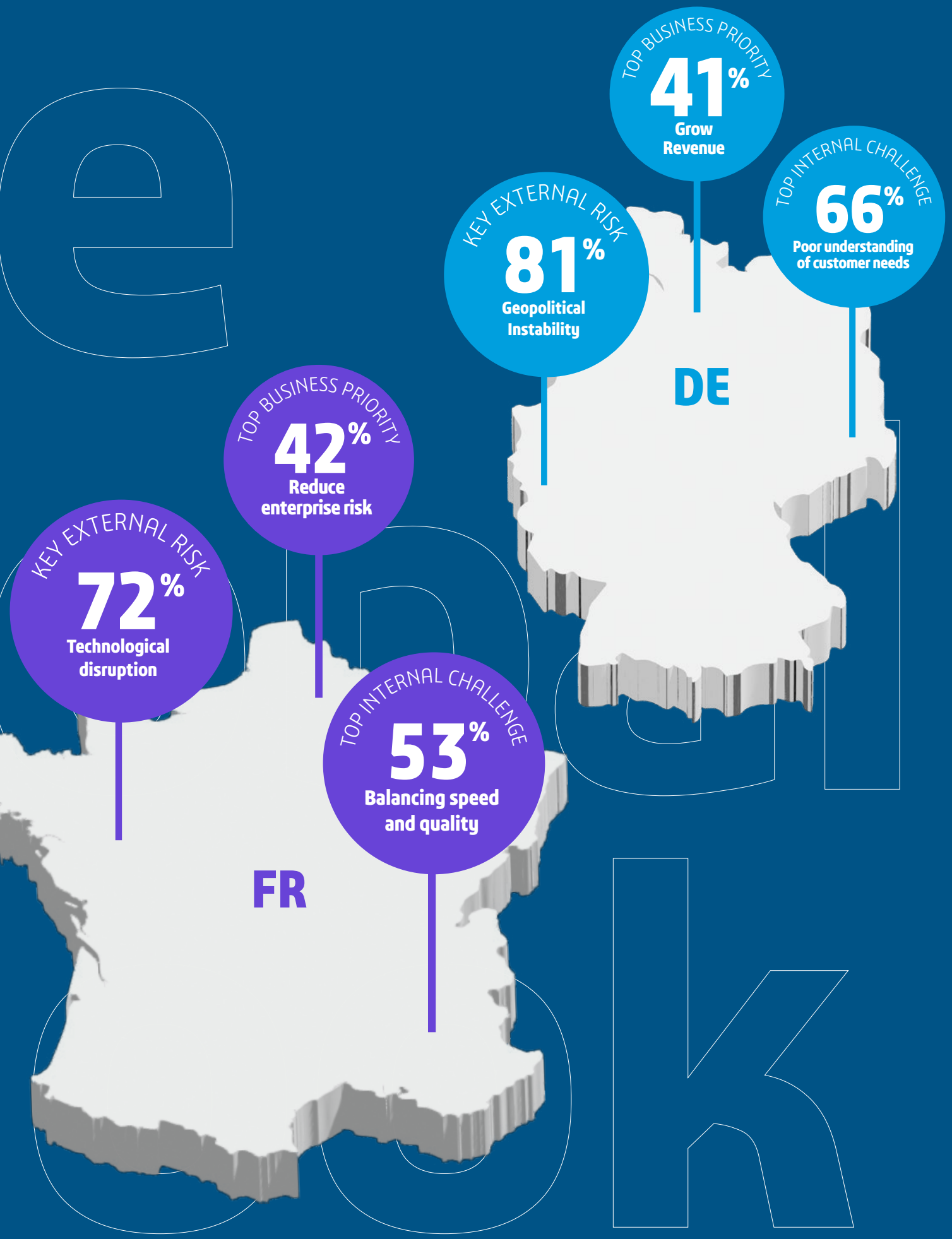
**1.Risk:** To what extent do you expect the following external factors to impact your organization's business in the next 12 months?

**2. Priorities:** Which of the following initiatives are likely to be your organization's top business priority during the next 12 months?

**3. Challenges:** What challenges does your organization currently face with product development and delivery?


TOP INTERNAL CHALLENGE
66%
Excessive workload and deadlines
TOP BUSINESS PRIORITY
45%
Reduce costs
KEY EXTERNAL RISK
77%
Technological disruption
JP


TOP BUSINESS PRIORITY
46%
Respond to market changes
KEY EXTERNAL RISK
67%
Competitive landscape
TOP INTERNAL CHALLENGE
60%
Conflicting stakeholder priorities
UK

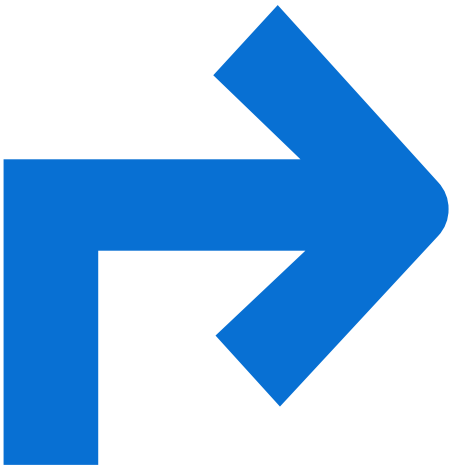

TOP BUSINESS PRIORITY
41%
Grow Revenue
KEY EXTERNAL RISK
81%
Geopolitical Instability
TOP INTERNAL CHALLENGE
66%
Poor understanding of customer needs
DE
TOP BUSINESS PRIORITY
42%
Reduce enterprise risk
KEY EXTERNAL RISK
72%
Technological disruption
TOP INTERNAL CHALLENGE
53%
Balancing speed and quality
FR

# 02

## *Rethinking Consumer Products*

# Rethinking Consumer Products

Understanding the pressures and opportunities that are transforming how leading consumer product companies serve their markets – from political uncertainty to technological change – is vital to effectively rethink approaches to product design, manufacturing and delivery.



## Great product development is defined by one thing: is this what my customer needs?

It's the philosophy that has stood behind some of the most iconic consumer products of all time, from the automobile to the iPhone. Consumers themselves are changing too: today's consumers are socially and environmentally conscious, they are digitally connected, and they are increasingly global: ***"There are seven billion people in the world, many of whom are enjoying rising living standards, and they are demanding that companies deliver on a whole new set of preferences,"*** says Ghassan Aboussouf, Director of Consumer Packaged Goods at Dassault Systèmes.

Consequently, companies are struggling to meet these changing needs – **79% of our respondents agreed or strongly agreed that their consumers' demands and preferences were changing faster than they could keep up.**

Business-as-usual won't cut it. Engaging these markets demands a rethink: a rethink around what products customers want, and how those products are developed, sourced, manufactured, and delivered.



A commissioned study conducted by Forrester Consulting on behalf of Dassault Systèmes, June, 2025.

*"There are seven billion people in the world, many of whom are enjoying rising living standards, and they are demanding that companies deliver on a whole new set of preferences."*

**Ghassan Aboussouf,**
Director of Consumer Packaged Goods & Retail at Dassault Systèmes.

## This rethink must start with identifying the problem.

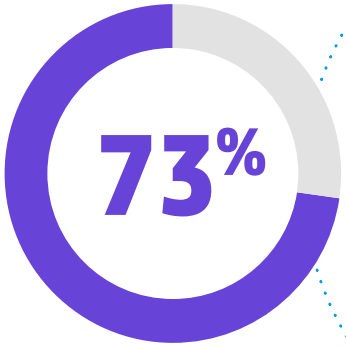
The challenges are consistent across industries, and respondents from sectors as diverse as household products, pre-packaged meals, toys, and luxury goods all identify similar factors impacting their ability to stay competitive.

**A lead cause is the demands of consumers themselves:** 68% of respondents say that they feel changing consumer preferences will critically impact their organization's business in the next 12 months.

One common request is for more digital products. But the way these demands manifest can often be contradictory: 76% of respondents either agree or strongly agree that consumers expect organizations to enhance existing products or services rather than frequently introducing new ones. But 75% feel consumers also want companies to launch new and unique products more often. Finding a balance between investment in new goods and services while improving the quality and performance of existing products is not easy.

**Personalization is another demand,** with 73% of respondents saying that offering more personalized products and services was a high or critical priority for them. For many, one-size-fits all products are no longer enough. ***"Consumers increasingly want customized items, and the companies that adapt most effectively to this are the ones that are likely to thrive,"*** says Ghassan.

The demand for personalization is not limited to products either: 72% of consumer goods company leaders list the customer experience itself as either a high or critical priority. In some cases, this is leading to a total re-imagination of product categories. **Japanese footwear brand ASICS, for example, has explored the use of 3D scanners at its flagship Harajuku store to automatically design shoes** – and even sock liners – personally shaped to customers' feet.

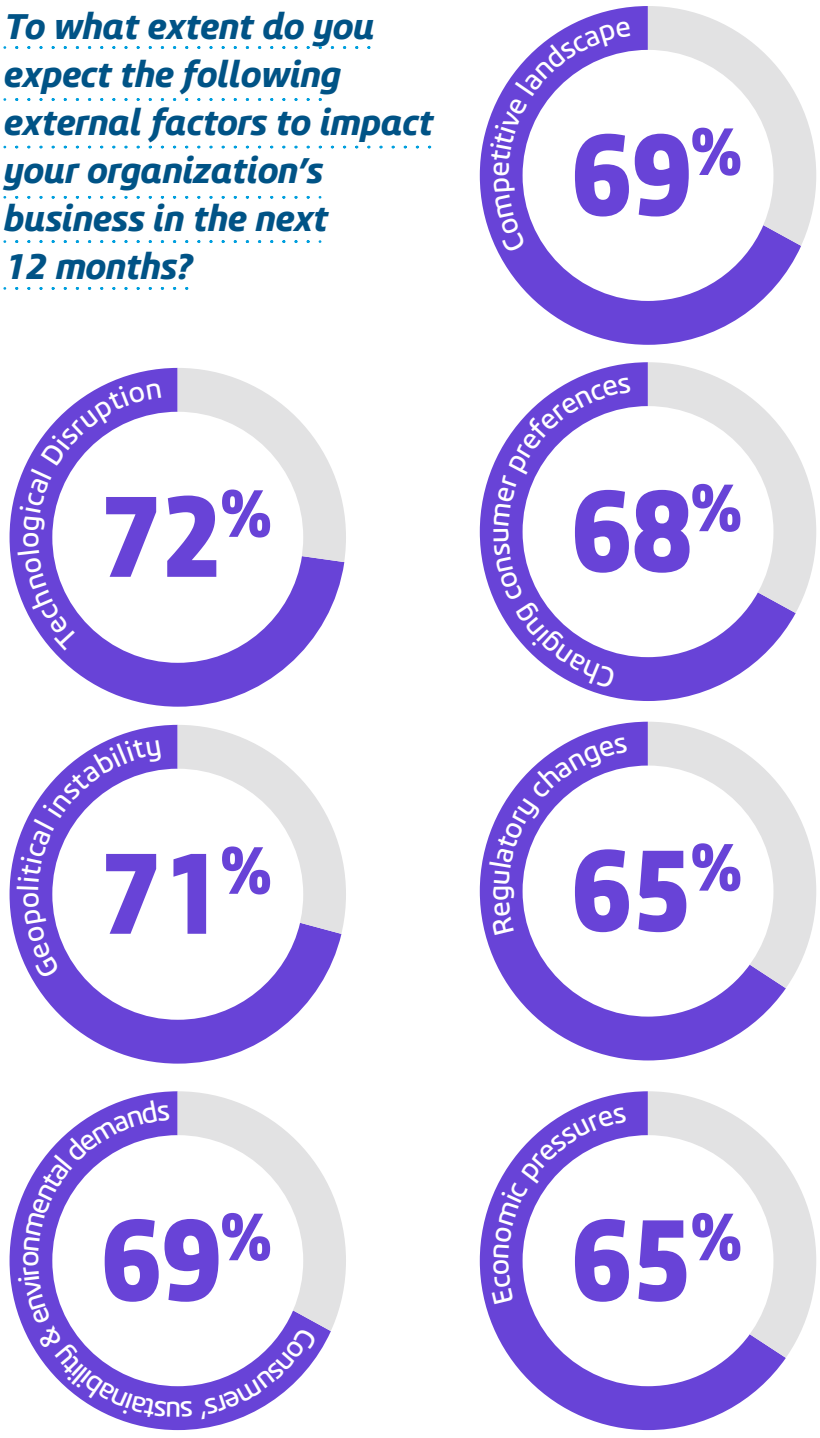



**of respondents** say that offering more personalized products and services is a high or critical priority for them


**of respondents say that they feel changing consumer preferences will critically impact their organization's business in the next 12 months.**

# External impacts

***To what extent do you expect the following external factors to impact your organization's business in the next 12 months?***




## Ethical concerns are also at play.

There is a growing desire for products to be eco-friendly. Almost seven in ten respondents (69%) say that consumer sustainability and environmental expectations will have a critical or high impact on their business in the next 12 months. In the US, that figure is 76% – despite (or perhaps because of) big changes in the political conversation around sustainability.

"Green" demands feature particularly prominently for respondents in the personal care & cosmetics sector (69%) and the food & beverage sector (77%), who both rate sustainability demands as among the top three most impactful external factors their businesses face.

The sustained commercial success of consciously green cosmetics and food brands like Lush or Ben & Jerry's show that rethinking the environmental and ethical footprint of both product and business can be a winning formula. But for many, as demands from regulators and consumers converge around greener objectives, rethinking products for sustainability isn't merely an option – indeed, 65% of respondents say that regulatory changes will have a critical or high impact on their business.

## However, consumer behavior doesn't exist in a vacuum.

From pandemics to war to political instability, the unexpected can shape business fortunes in ways that are unpredictable and seismic. When British Prime Minister Harold Macmillan was asked what the greatest challenges were to his government, his response was: ***"events, my dear boy, events".***

This is reflected in our findings – but regional differences can shape the prevalence of these threats. For example, while 71% of respondents on average say that they expect geopolitical instability, including shifting tariffs, to have either a critical or high impact on their business in the next 12 months, that figure rises to 81% among German respondents.

***"Being so close to the Ukraine-Russia conflict, means that German companies are exposed to the likes of fluctuating gas prices,"*** observes Ghassan. ***"Germany has limited options when it comes to producing energy, so the cost of everything goes up."***

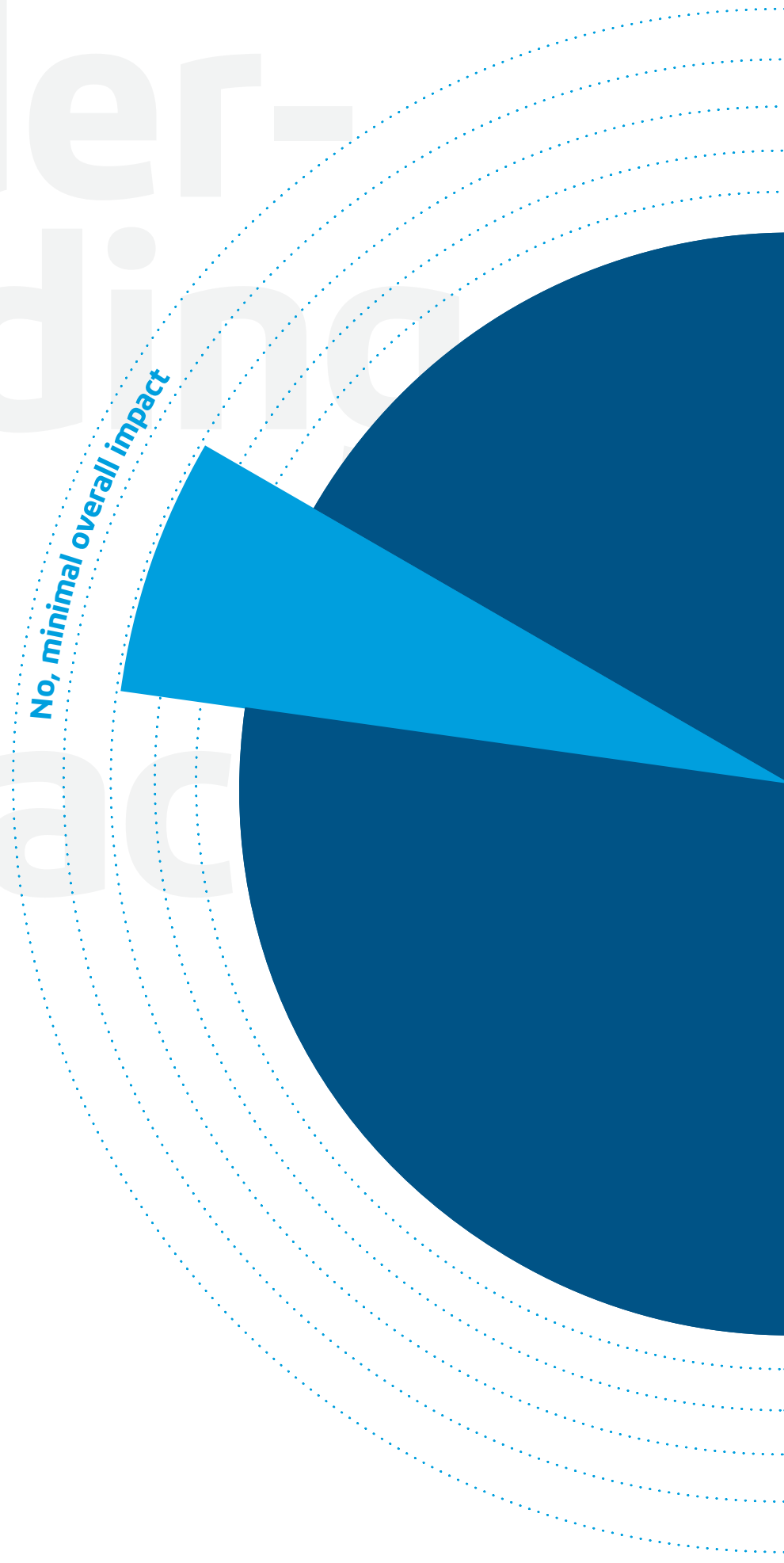
Different industries, too, can have different outlooks. Geopolitical risk was also rated particularly highly by respondents from food and beverage (80%) and agriculture (78%) – both sectors which can be particularly vulnerable to the impacts of conflict and disasters on not only their production but critical supply chains and distribution networks.

These impacts can mandate radical and sudden changes to product strategy: for example, **when the price of sugar shot up in the 1970s, Coca Cola chose to reformulate its recipes** to accommodate the more abundant and cost-effective corn syrup.

Macro-level events can also shape consumer behavior in other ways. For example, **the rise of remote working during the global COVID-19 pandemic meant huge changes for office furniture supplier Nowy Styl.** This forced them to rethink their portfolio to accommodate these new market realities, which involved designing more products targeted at home office arrangements.

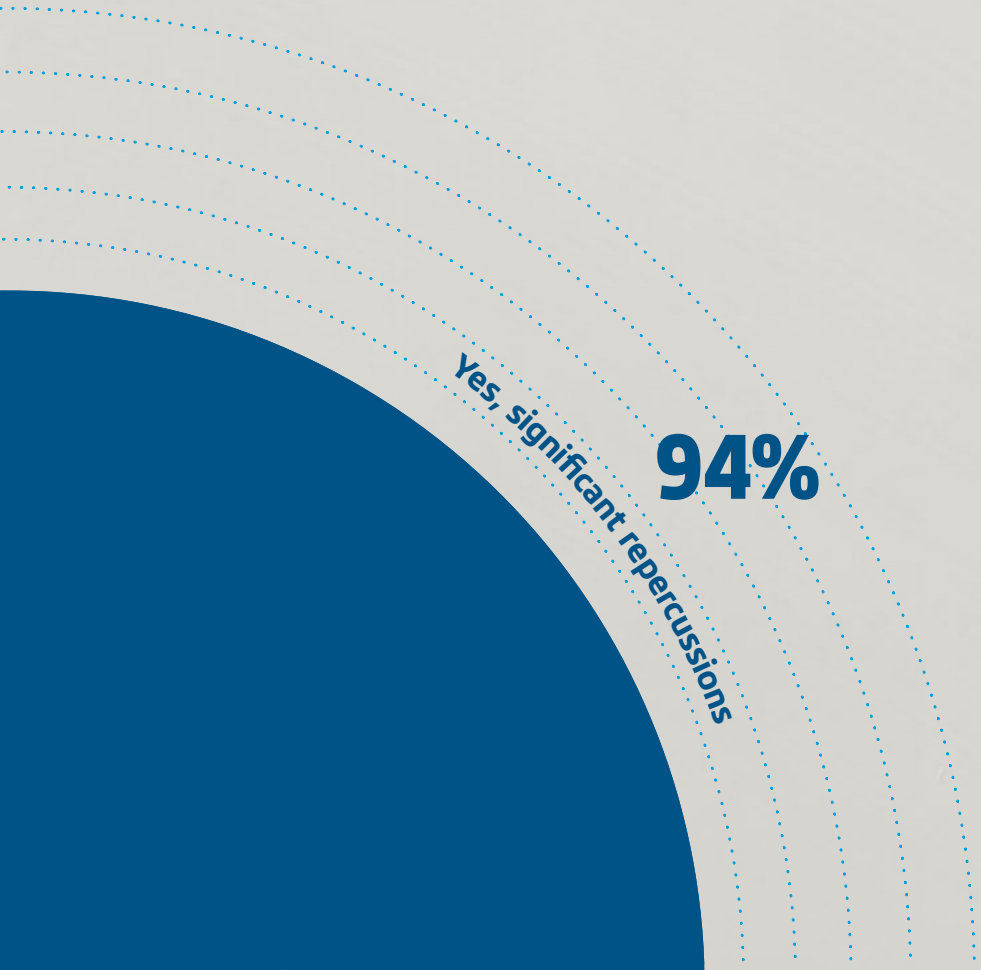
***If your organization struggled with challenges in the past, did you face significant repercussions?***

**6%**




**94% of respondents** say their organizations experienced significant repercussions due to the challenges they faced.

**Only 6% respondents** say it would have minimal overall impact – challenges were contained effectively.




## The consequences of failure can be severe.

The annals of commercial history are littered with the remains of businesses that failed to keep pace with change. Some businesses fail because they don't see the way the wind is blowing. Blockbuster's immobility in the face of online streaming remains the paradigmatic example.

Sometimes poor or rushed innovation can be almost as bad as doing nothing at all – 58% of respondents reported difficulties in balancing speed and quality in product delivery. And from the Apple Newton to the Google Glass, being first-to-market with a fantastically rethought product is only valuable if the market is ready for what you're selling.

Business leaders are familiar with the risks of failure: when asked about repercussions they had faced for failing to deal with past challenges, just 6% of respondents reported that previous challenges had been effectively contained. Meanwhile, 68% report increased costs or budget restraints, 63% report negative impacts on brand reputation or customer satisfaction, and 58% report missed market opportunities or lost competitive edge.

However, admitting you have a problem to overcome is just the first step. The challenge is to change – and this is where many companies struggle. ***"There is clearly a gap between what consumers and markets want and what companies can provide,"*** concludes Ghassan. ***"Companies can only deliver what they can afford to deliver. If they can't do it over a multiyear plan, one that ensures they stay relevant to the future, then that's a major concern."***

# 03

## *Realizing Technological Change*

# Realizing Technological Change

The need for consumer product companies to leverage today's technological breakthroughs has never been greater, whether that means developing more sophisticated offerings, or integrating process solutions for cutting-edge design and manufacturing operations.

## In total, 72% of respondents say that increasing the speed of innovation is either a critical or high priority for their company in the next 12 months..

From smarter home appliances to driverless vehicles, consumers everywhere are demanding more technology in their products.

But along with transforming end products, technology can also fundamentally reshape how companies design, engineer, manufacture and sell those products, and this is something recognized by our respondents – **more than 80% report that their organizations are willing to increase the budgets allocated to digital technologies.**

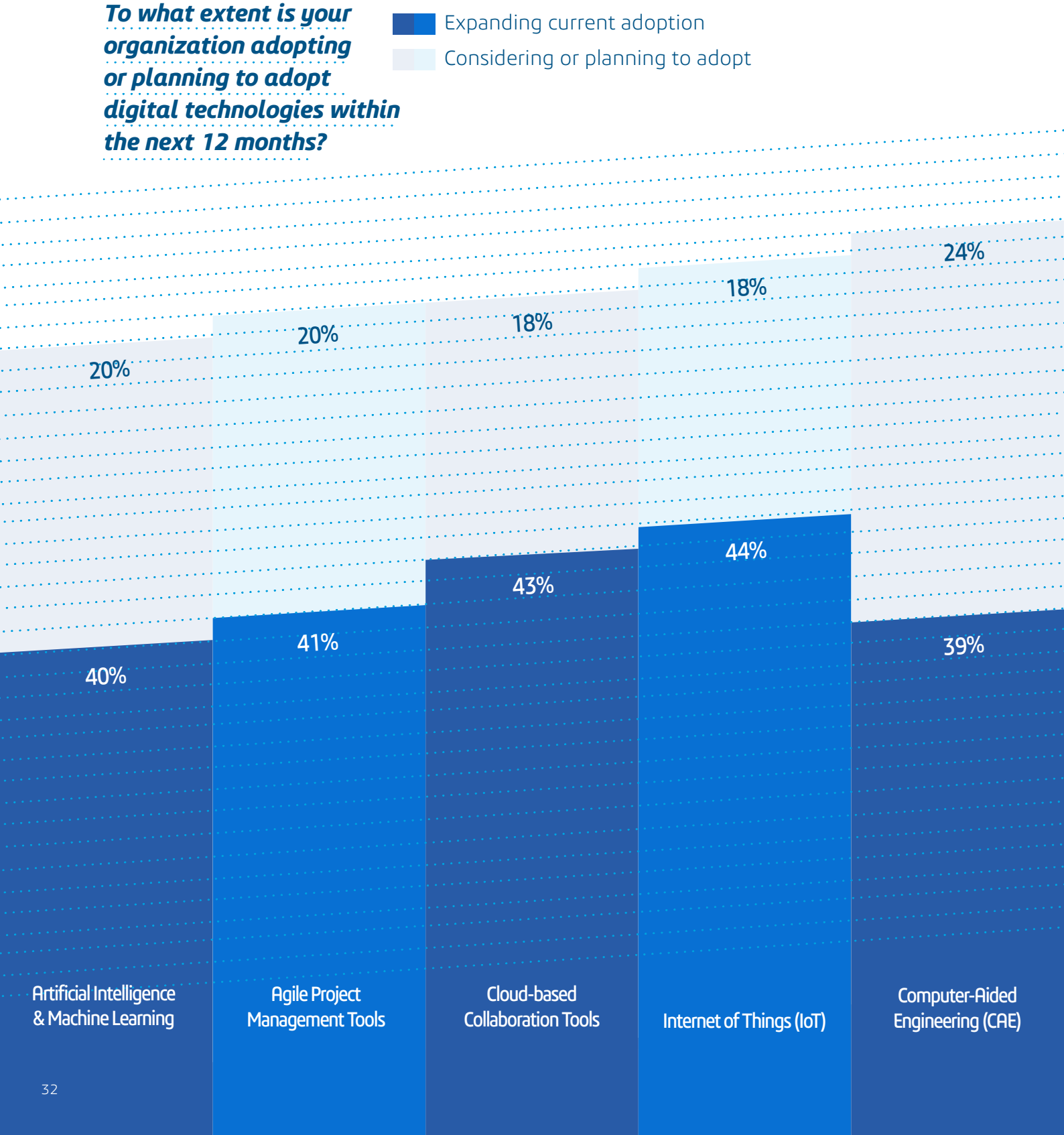
But what form does this innovation take? Sometimes the biggest leaps are not the end products themselves, but behind-the-scenes, operational ones.

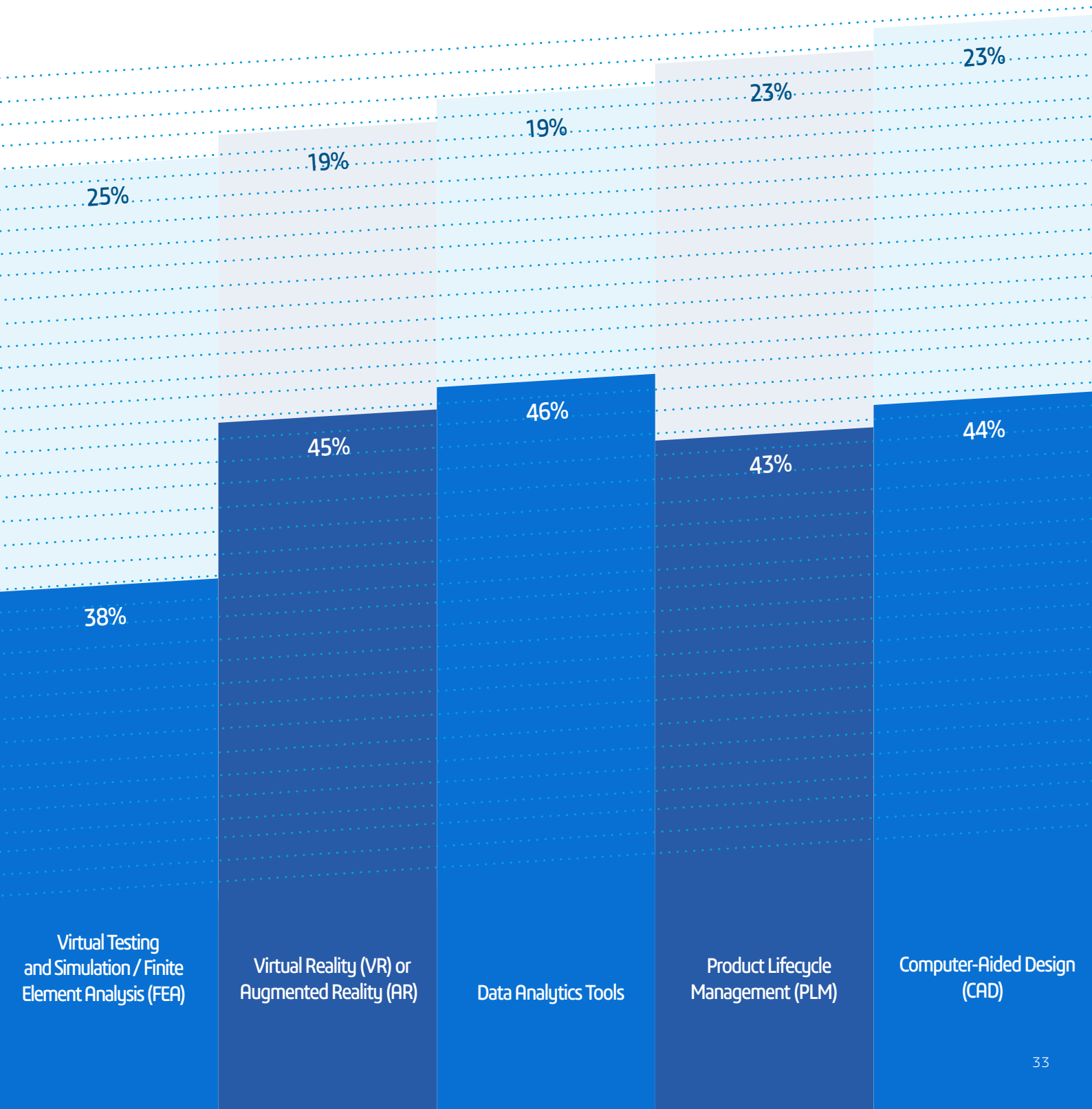
Take the filing cabinet: it barely seems like "technology" at all, but being able to store sheets of paper vertically, organize them alphabetically, and add or remove new information at will, enabled companies to undertake radical new approaches to how they engaged with information. It was in its sense, the computer of its day – indeed, modern computers still categorize information in files and folders. It all comes down to information: ***"Humans, no matter how talented, are limited by our biology,"*** says Annabelle Grauer, Home & Lifestyle Industry Business Value Consultant Director. ***"We can only hold so many thoughts in our heads at once. Digital technologies are all about expanding human capacity and empowering people to enhance their ability to store and manipulate data and increase the pace of innovation."***

***"Digital technologies are about empowering people to store and manipulate data and increase the pace of innovation."***

**Annabelle Grauer**
Home & Lifestyle Industry Business
Value Consultant Director

***To what extent is your organization adopting or planning to adopt digital technologies within the next 12 months?***




25%
38%
Virtual Testing and Simulation / Finite Element Analysis (FEA)
19%
45%
Virtual Reality (VR) or Augmented Reality (AR)
19%
46%
Data Analytics Tools
23%
43%
Product Lifecycle Management (PLM)
23%
44%
Computer-Aided Design (CAD)

## The most frequently prioritized technology was Computer Aided Design (CAD).

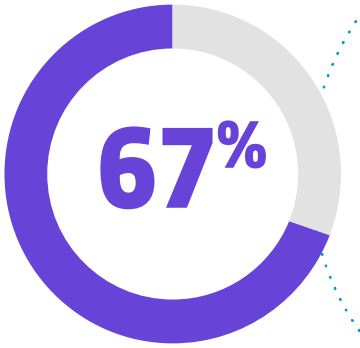
Over two thirds (67%) of poll respondents say that they are currently adopting or planning to adopt computer-aided design (CAD) into product delivery and development in the next 12 months.

Evolving from wartime efforts to automate and speed up design and manufacturing, CAD solutions have since become a mainstay of product innovation, helping teams work faster and smarter.

**CAD can even support the innovation of brand-new products:** Dyson's pioneering dual cyclone vacuum cleaners, for instance, involved components with complex geometries that would have been impossible to model without CAD. Enhanced technology at the backend led to a radically rethought product for the consumer.

As well as bringing new innovations to market, **CAD can help businesses rapidly respond to market changes** – something 74% of respondents rated as a critical or high business priority. Finnish company Metsä Board, for instance, faced a radical change to their business during the COVID-19 pandemic, where a surge in e-commerce let to unprecedented demands for robust, sustainable packaging. A rethink was in order.

In the past, the company had created physical prototypes of its paperboard products for testing. But this process was far too time-consuming for the task at hand. By allowing Metsä to test an almost unlimited number of products and materials in low-cost virtual environments, **CAD models helped accelerate time to market by 85%.**




**of respondents** are currently planning or expanding adoption of computer-aided design (CAD) technology

## Product-lifecycle management (PLM) is a critical priority for modern product businesses.

From design to end-of-life, organizing product information across its whole lifecycle has become increasingly important. **66% of respondents are currently planning or expanding adoption of new PLM technology.**

Again, it's all about speed: PLM was initially developed by American Motor Corporation, who, knowing they couldn't outspend their bigger and more well-funded rivals, developed smarter and faster to-market processes instead. They rethought their own operations, and PLM was born.

While CAD is about innovating products itself, **PLM helps businesses rethink how they develop, manufacture and deliver those products.**

A clear, well-planned, data-and-collaboration-driven approach can dramatically improve product development efficiency and costs. **It can also help manage sustainability outcomes** – something 75% of respondents identify as either high or critical priority.

Leading power tools brand Metabo, for instance, has used digital systems to help product designers, surface modelers, assembly designers and marketing teams work together in parallel to create a product draft.

This collaborative PLM approach allows the development of product design to unfold simultaneously with manufacturing, **helping Metabo move from prototype to an 80% complete product in less than six weeks.** Sales functions can even use PLM solutions to get a realistic image of a new tool in front of potential suppliers almost from inception, further cutting time-to-market.

# Industry Pressures

## TOP 3 EXTERNAL FACTORS IMPACTING BUSINESSES BY INDUSTRY:

***What challenges do you anticipate having the biggest impact on your business in the next 12 months?***

### Personal Care & Cosmetics


Technological disruption

Geopolitical instability

Consumers' sustainability and environmental demands

A commissioned study conducted by Forrester Consulting on behalf of Dassault Systèmes, June, 2025.

## Food & Beverage


## Packaging / Materials

## Data analytics is also seen as a valuable asset by company leaders.

Leveraging data is increasingly crucial to consumer goods companies, with 65% of respondents either expanding or planning the adoption of this technology.

In a world of complex, ever-shifting market dynamics, production planning is critical, but what qualifies as optimal can vary according to market conditions. How much inventory should you hold? Where are my customer orders? Do I have sufficient production capabilities to meet those orders?

**These aren't minor challenges, and handled poorly they can be disastrous**. When US electronics retailer Circuit City went bankrupt in 2009, a key culprit was the company's suboptimal inventory management – with too much capital tied up in backlogs, the firm was unable to buy new products or pay off existing debts.

Data analytics can clarify and simplify these questions and help businesses stay on top of their operations. When fluctuations in supply, price, and production capacity put pressure on scheduling capabilities, **companies can more confidently rethink operations on the go and reduce overall enterprise risk** – something 72% of respondents identify as high priority or critical priority.

Companies like household goods manufacturer Altaïr Group, for example, have turned to sophisticated data analytics solutions to resolve these challenges. Applications like master production scheduling have helped it achieve a 99% service rate by synchronizing planning and packaging, optimizing changeover times on the packaging lines, and continuously accounting for the availability of raw materials, lead times and storage constraints.

## Eagerness for new technology must be matched by preparedness.

Right across the board, consumer products companies are eagerly embracing a range of business technologies – 63% of respondents express an interest in virtual testing and simulation, 63% in finite element analysis (FEA), 62% in the Internet of Things, and 60% in AI/machine learning.

**But the technology must be integrated judiciously, if it is to improve business in the long term**. ***"When you identify a way to increase production by increasing the efficiency of a robotic arm, say, that's great,"*** says Ghassan. ***"But if you put that efficiency into place without scheduling enough new inventory or new parts, and you don't think of all the repercussions upstream, you won't realize the productivity and value gains you were hoping for. Indeed, new technology can quickly turn from a seeming advantage into a liability."***

Tellingly, responses to our poll suggest that **while there is enthusiasm for embracing new technology in the consumer-goods sector, there is also a lack of readiness.** While 74% of respondents say they feel their organization is successfully undertaking digital transformation, only 37% strongly agree, and only 38% say that they fully believe their organization is effectively leveraging data and analytics to improve decision making, product development and consumer experience.

**And crucially, this change needs to be handled by humans.** Technology without talent is inert – and as businesses across sectors deal with a growing skills shortage, as older workers retire and younger workers fail to emerge in significant numbers, a talent gap is growing. ***"I visited a factory in France, where only one company employee knew all about the planning processes involved in different types of production. He was about to retire in six weeks,"*** says Ghassan. ***"No one was able to do what he did. He was critical."***

# 04

## 04
## *Realigning Your People*

# Realigning Your People

From a lack of training to executive misalignment to organizational silos, personnel problems sit at the heart of companies' challenges, and resolving these issues is essential to ensuring that consumer product companies can rethink strategies effectively.

**"Technology is nothing. What's important is that you have faith in people, that they're basically good and smart, and if you give them the tools, they'll do wonderful things with them."**

That might be a surprising sentence coming from technology pioneer Steve Jobs, but it's one that chimes with what businesses are thinking. When asked what challenges their organization currently faced with product development and delivery, human-related ones consistently stood out.

**Of the 24 areas respondents were asked to evaluate, 3 of the 5 most frequently prioritized are people-related challenges.** Altogether, 9 of the 13 issues that 55% or more of participants cited as challenging or very challenging for product development related directly or indirectly to people – be they staff attitudes and abilities, or organizational issues.

**Frequently, this involves around the capacity of employees to do their job.** Among respondents, 58% complain of a lack of quality staff training, and the same number point to their company's failure to retain or recruit team members with enough expertise. Many leaders also cite reduced productivity due to high workloads or fast-paced deadlines as a challenge (57%).

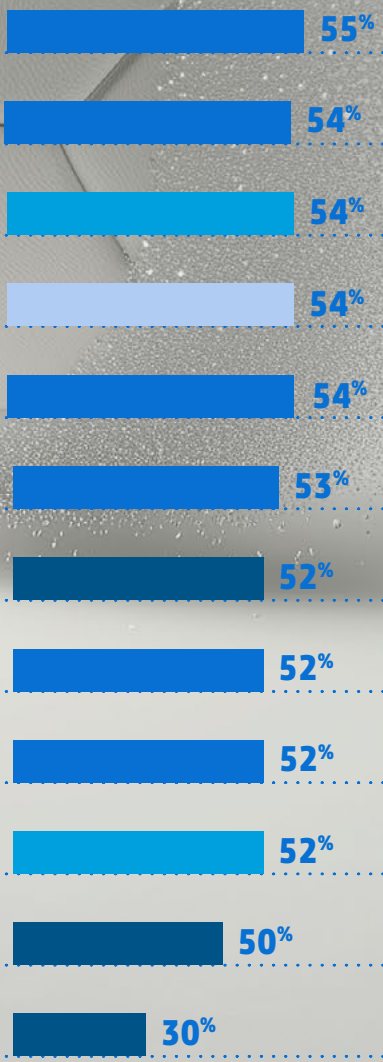
Inadequately addressing human capital can be costly – as automotive pioneer Henry Ford noted: ***"The only thing worse than training your employees and having them leave is not training them and having them stay."*** Conversely, rethinking how you address these challenges can become a competitive differentiator.

When faced by a mass product recall in 1894, the National Cash Register Company (who made the first mechanized tills), realized that to avoid these issues in the future, it needed to invest heavily in company skills and welfare. A company library, corporate schoolhouse followed soon after, along with the world's first HR department. By 1913, NCR dominated its market.

# Challenges

***What challenges does your organization currently face with product development and delivery?***

**Over half of respondents reported that their organizations are struggling with the complexities of modern product development and delivery. Key challenges include a lack of talent, organizational silos, and a weak culture of collaboration. Additionally, fast-changing market dynamics, regulatory requirements, and outdated infrastructure are significantly impacting these organizations.**



| | |
|---|---|
| 55% | Maintaining clear decision-making structures |
| 54% | Inefficient prototyping and user testing |
| 54% | Poor execution of agile hybrid methodologies |
| 54% | Difficulty in automating existing workflows |
| 54% | Managing strategy alongside budgets, tools and workforce |
| 53% | Ensuring sustainability and inclusivity |
| 52% | Collecting and verifying business-critical intelligence |
| 52% | Creating one source of truth for data |
| 52% | Balancing innovation and security in product design |
| 52% | Safeguarding intellectual property |
| 50% | Disconnected supply chain and workflows |
| 30% | Integrating data or digital twins into existing tech ecosystems |

# 75%

of respondents say their **organization's silos make it difficult to reuse data** throughout the product lifecycles.

## Sometimes problems are less about individual employees, and more about organizational coherence.

More than half of survey participants (55%) say that a resistance to prioritizing user needs over internal preferences and biases is either challenging or very challenging.

Where does this friction originate? Fragmentation is one problem: 55% of respondents say that siloed decision-making across design, engineering, manufacturing, marketing and other teams is a product development challenge, and 75% of respondents said that organizational silos make it difficult to reuse data throughout the product development lifecycle.

***"Two teams within the same company can speak completely different languages,"*** says Francois Barrovecchio, Home & Lifestyle Director, Strategic Planning at Dassault Systèmes, ***"They might call important product components by different names. They might use different reporting formats, such as email or Excel, or rely on ad-hoc one-to-one meetings."***

A lack of coordination can mean that vital project messages aren't shared with all stakeholders, tasks aren't completed, and important data is lost, overlooked, or applied incorrectly.

**This can have costly consequences.** Famously, the $125 million 1999 Mars Climate Orbiter burned up in orbit because of errors in its trajectory calculations – errors which originated in different teams using imperial and metric units. The same challenges continue to pose similar, if less dramatic, challenges to innovators in today's consumer products space.

## However, the most striking misalignment is not between departments, but between levels of management.

The most consistently prioritized challenge area among respondents is the **lack of a shared vision between the C-suite and other levels of management,** with 60% of respondents highlighting this as either challenging or very challenging.

The nature of this misalignment is illuminated by other findings. When asked how prepared their organization is to capitalize on future opportunities and navigate technological disruption, 43% of C-suite respondents say that they are very prepared. **But that figure consistently decreases as you go down the management hierarchy,** with 37% of vice presidents, 27% of directors, and just 23% of managers saying they are very prepared. One might assume that this is simply a case of senior-level optimism versus junior-level pessimism. But when asked if they agreed that their organizations have equipped teams with the necessary skills to thrive in an increasingly digital industry, outlooks were flipped, with 40% of managers say that they strongly agreed, compared to just 25% of C-suite executives.

Why this disagreement? ***"It might be that managers are too absorbed by individual topics, too focused on the day-to-day, to see how their work and the issues they face combine with that of other employees. Whereas more senior levels may be able to see how different capabilities can co-operate to tackle long-term challenges,"*** says Ghassan. ***"On the other hand, it may be the case that managers are better placed to understand the practical hurdles to implementation, or spot issues that the C-Suite might miss. In any case, the misalignment itself suggests challenges right at the heart of the innovation process.'"***

**Vertical misalignment matters.** Clearly, a company whose leadership cannot make their voice or vision heard is going nowhere fast. But at the same time, a company which has no channels for voices to percolate upwards can be leaving money on the table.

Sony's PlayStation, for example, has become one of the most iconic consumer products of the last half-century, but the company was initially hostile to moving into what it regarded as the faddish videogames market. It was only the persistence of junior employee Ken Katuragi that led to the console's eventual development.

These days, **leading innovators routinely consider these bottom-up channels.** Google's "20% Time" policy, for example, allows employees to allot 20% of their week for the development of personal projects, which has led to deployments like AdSense and Google News. Lego has taken the idea even further, with some of their most popular products designed by customers themselves, rather than employees.

Human gap

## OPTIMISM AROUND PREPARATION FOR DIGITAL TRANSFORMATION GROWS WITH SENIORITY:

***Percentage of respondents who said "I believe my organization is very prepared to take advantage of the future opportunities that technological disruption presents."***

**43%** of C-Suite

**37%** of Vice Presidents

**27%** of Directors

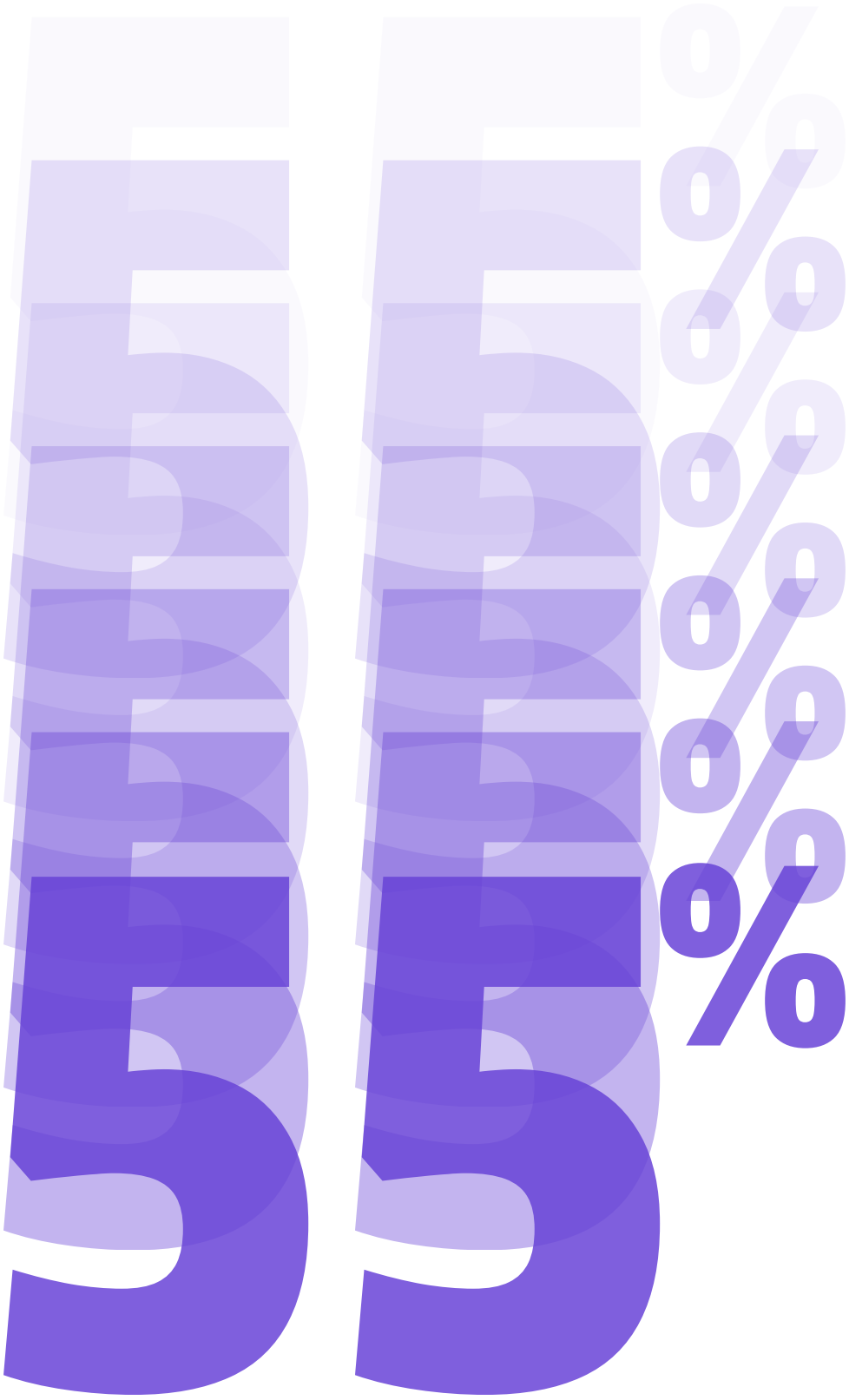
**23%** of Managers

**The challenges preventing effective innovation are considerable, but smart use of technology can help overcome them.**

Engineers at lawnmower manufacturer Ariens, for example, found that Dassault Systèmes SIMULIA Abaqus CAE (Computer Aided Engineering) software was not only invaluable for improving their design processes, but also in ensuring senior buy-in around new ways of working.

In particular, the images, animation and design simulations used by Abaqus helped demonstrate to Ariens' senior management the cost, time and other benefits of simulated product testing rather than old field-testing methods. This helped achieve the top-down clarity of vision and leadership support that can be vital for a project's success.

***"Teams need to bind themselves together with the likes of live data, where everything is on one platform and you are always viewing the latest information,"*** says Grauer. ***"If you manage workflow and validation well, you are more likely to get things right first time."***




**of respondents say that siloed decision-making across design, engineering, manufacturing, marketing and other teams is a product development challenge.**

# 05

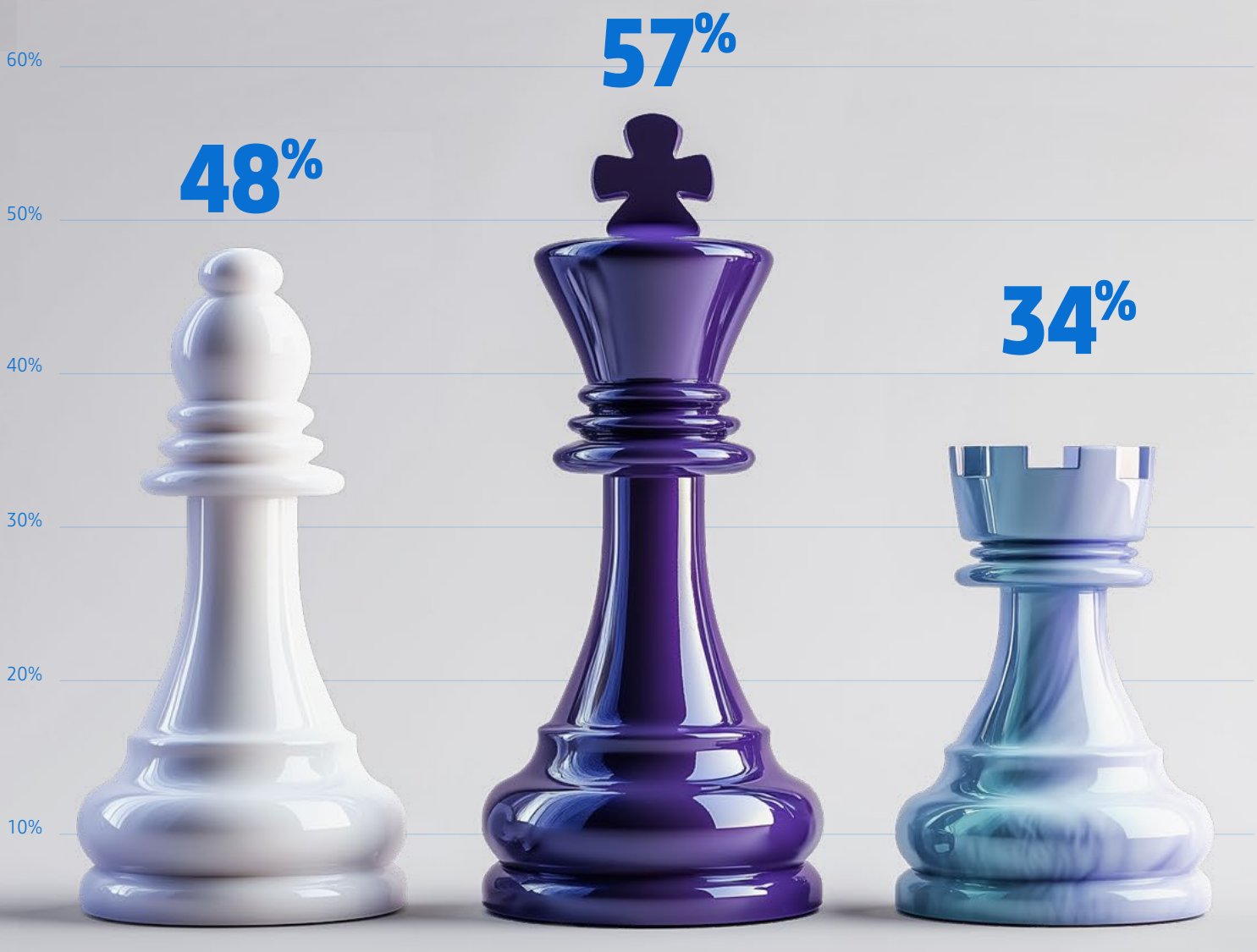
## *Resolving the Gap*

# Resolving the Gap

Virtual twins can provide consumer product companies with the critical power and insight necessary to unite their teams around a shared vision, closing the gap between strategy and execution, and helping deliver truly transformative consumer products and experiences.

# Strategic priorities

## TOP AREAS FOR COMPETITIVE ADVANTAGE:




Partnering with external technology providers or consultants

Enhancing collaboration through digital platforms and real-time data

Expanding R&D budgets and resources

## As we have seen, it is personnel questions above all that stand as obstacles to effective change.

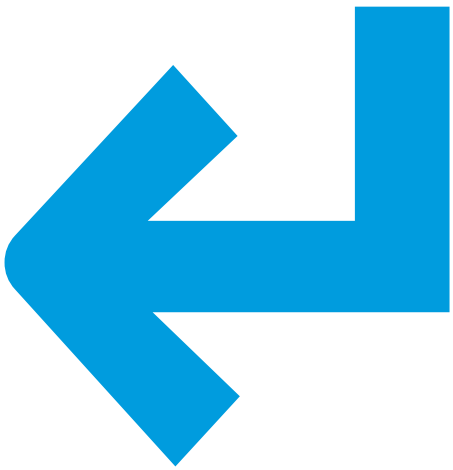
Consequently, resolving these organizational and personnel issues emerge as the most frequently prioritized target of technology deployment for companies.

For example, 74% of respondents say that improving collaboration between staff in different roles and departments would be a high priority or critical priority over the next year.

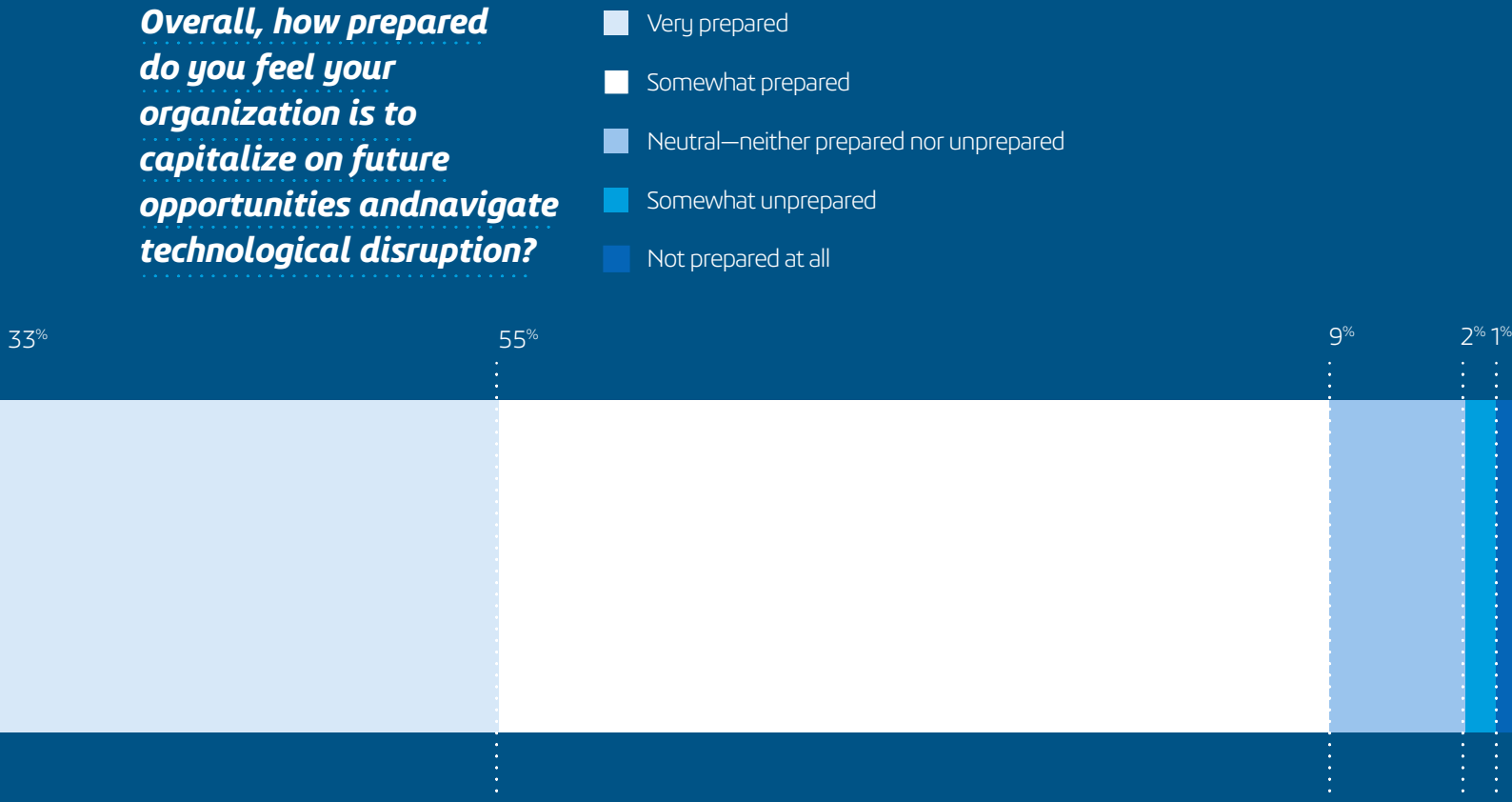
Similarly, when asked which areas of digital investment will provide the greatest competitive advantage over the next 24 months, the most popular response is enhancing collaboration through digital platforms, which 57% of leaders place in their top three choices.

This enthusiasm is also seen when participants are asked about their top three expectations around digital technology. Again, it is a personnel-based goal – enhancing collaboration between stakeholders – that respondents most frequently highlight, with 27% placing it in their top three responses.

**So, people, people, people. It's where firms in the consumer space see their biggest challenges, but also where they see their biggest opportunities for improvement**. And they aren't just talking big: 77% of leaders report that their organizations are already undergoing workforce transformation to address the issue.



**FUTURE OPPORTUNITIES:**
***Overall, how prepared do you feel your organization is to capitalize on future opportunities andnavigate technological disruption?***

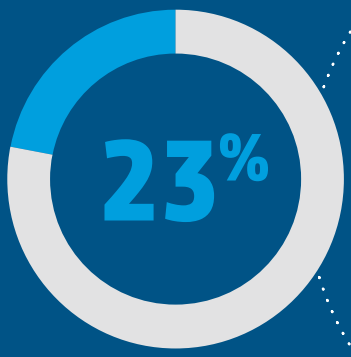



## But the question remains: what form will this improvement take?

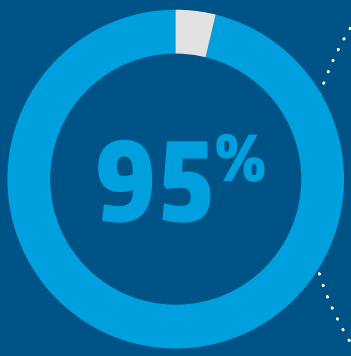
Well, when rethinking, it's always helpful to go back to the drawing board. In this case, that drawing board belongs to Sir John Herschel, who in 1842 found out that when he laid a chemically coated paper across a drawing and then exposed the whole thing to ultraviolet light and ammonia, he created a perfect copy of that drawing. Only now, instead of black lines on white paper, the copied image took the form of white lines on paper stained blue by chemical exposure. Literally a "blue print".

We are so familiar with the term, we forget how powerful original blueprints were. But by allowing product information to be perfectly copied and shared, with no loss of critical data, blueprints paved the way for the rapid scaling of advanced designs. Without blueprints, the second industrial revolution (and electricity grids, cars, and telecommunications networks) would have been unthinkable.

**What, then, is the blueprint of our own fourth industrial revolution?** The answer is the digital twin, which has emerged as a critical way of uniting stakeholders around a single source of truth, breaking down walls between silos, and harmonizing outlooks and approaches between teams.




**of respondents** say that they will increase their spend on digital twins by more than 10%




**of respondents** confirm digital twins as important to their organization's current product development process

Digital twins address exactly the key challenges our respondents raise. Indeed, 95% confirm digital twins as important to their organization's current product development process, and 63% say that they are either expanding their use of the technology in the next 12 months or are planning to adopt it.

This isn't just talk: 23% of companies say that they will increase their spend on digital twins by more than 10%. Only 9% said their spend would stay the same, and just 5% reported an intent to reduce their spend on digital twins.

Again, it's personnel-related issues that emerge as key target for this spend: most respondents (85%) said that employing digital twins will be a critical priority or high priority when it came to improving staff collaboration in the next year.

"Virtual twins give companies the capacity to not only look at the present of a product, but to look into the future, too."

**Francois Barrovecchio**
Home & Lifestyle Director,
Strategic Planning

## However, it's not the digital twin, but the virtual twin that represents the next step in advanced product delivery.

**Virtual twins,** which add predictive modelling and simulation capabilities to the digital twin, provide even more power, agility and speed to product development pipelines. They allow for the modelling and simulation of entire environments or systems, not just individual items.

When it comes to rethinking products or service lines, these added capabilities are invaluable. ***"Virtual twins give companies the capacity to not only look at the present of a product, but to look into the future, too,"*** adds Barrovecchio. ***"They can examine the lifecycle of an item or service and nurture it over time to ensure it is robust and evolves to meet changing customer needs."*** **These twins can cover a truly comprehensive range of processes and use cases.** Virtual twins of Supply Chains let teams optimize and test "what-if' scenarios in delivery and distribution. Manufacturing virtual twins allow teams to design the most efficient production processes and increase product quality throughout. Product virtual twins enable developers to experiment with a multitude of design changes to products or formulae, testing for efficacy and performance while monitoring cost. And we've already seen how virtual twins of packaging enable teams to test new materials and designs, while optimizing packaging weight dramatic savings in cost and material use, without compromising on quality.

Swiss bathroom fittings supplier Geberit demonstrates how several of these capabilities to solve the diverse needs of a single client. They used virtual twins provided by Dassault Systèmes to test how products would look and perform in different scenarios, while ensuring individual moving parts, such as rollers and latches, still worked effectively. But it was also able to wed those solutions to powerful collaboration capabilities, helping close that crucial organizational gap, and unite teams around a single vision.

In Geberit's case, all this enabled them to work at far greater speed than before. Using the virtual twin, teams could experiment with different materials and with more intricate designs, and engineers and designers were able to work together to boost sustainability, creating ceramic surfaces that reduce water consumption.

It even helped them work outside of their own organization. For example, being able to facilitate close collaboration between its own product developers and ceramic experts across Europe was indispensable when it came to building the necessary 3D models that allowed Geberit to launch new products using ultra-thin ceramics.

## Ultimately, if you want to close the gap between market expectations and what your company actually supplies, you need to have better information.

How can a new ingredient be used in different recipes? How durable will a stylish new e-Bike be in different riding environments and usage scenarios? What would happen to efficiency if a manufacturing facility was moved to another location? Virtual twins provide that information, rapidly, cost-effectively and sustainably.

Apple CEO Tim Cook once said that ***"a great product isn't just a collection of features. It's how it all works together."***

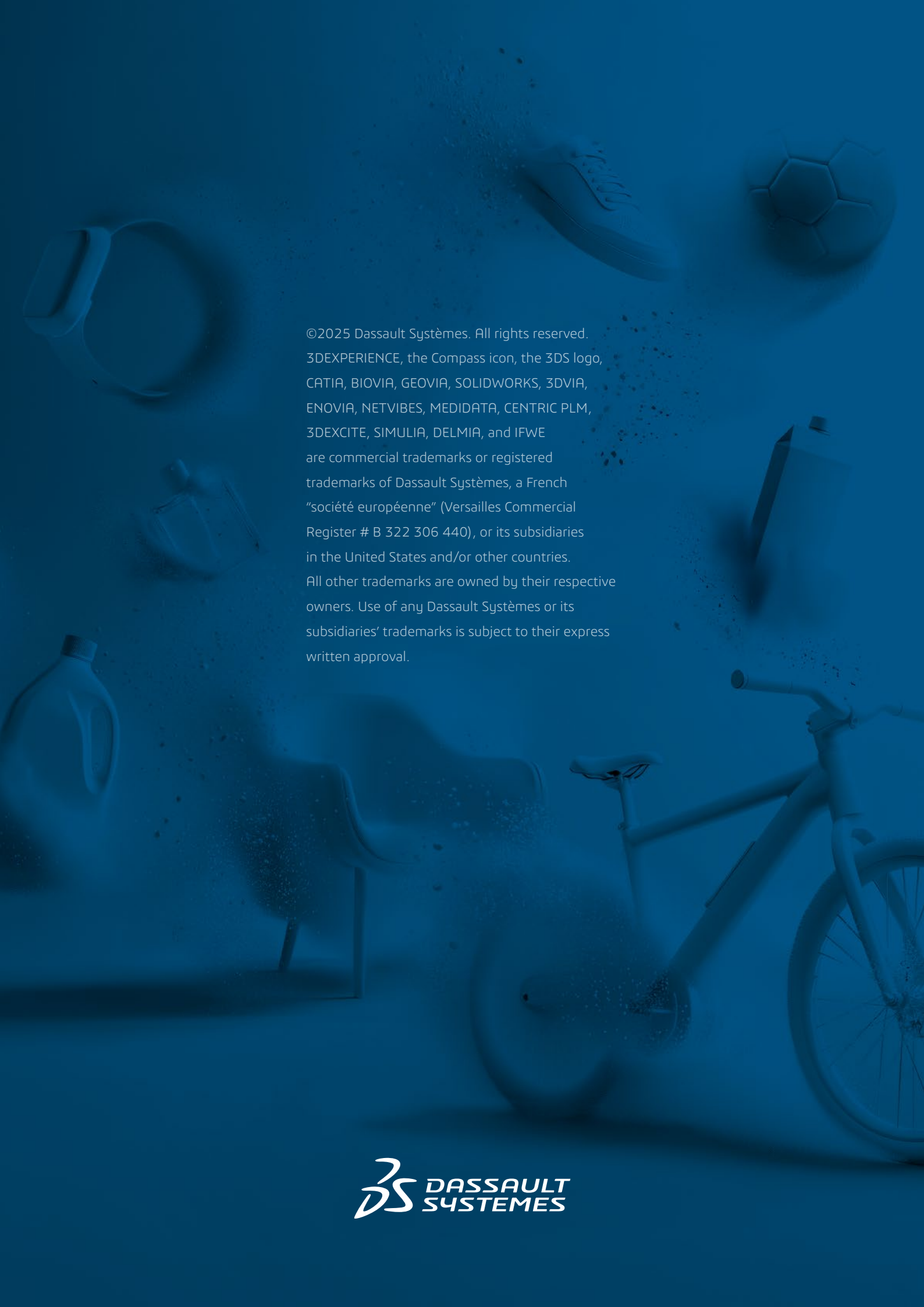
The same may be said about a great product developer, or a great product manufacturer. It's not a question of how sophisticated individual processes are, or how talented an individual team is. It's a question of how effectively those elements can align to deploy world-beating products at the speed the market demands.

Consumer products companies across industry sectors agree that consumers are moving ahead of them. They are similarly aligned around the power of technology to rethink existing products, services and business models, and to close to that gap between what they can deliver and when the consumer wants it.

Where gaps remain is within companies themselves – between management levels, between specialists, and between silos. With solutions like virtual twins positioned to help close those gaps, the sky is the limit when it comes to the next generation of incredible products and services.

***A great product isn't just a collection of features. It's how it all works together.***

**Tim Cook,**
Apple CEO





DASSAULT SYSTEMES