



# Technology Proficiency

The new imperative for business  
growth, leadership and agility

 **thoughtworks**

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An international study of C-suite  
decision-makers by ThoughtWorks

## Executive Summary

- Technology proficiency is more than knowing about the latest technology innovations: it describes a technology-enabled business culture that informs business strategy and everyday business planning conversations — using data and analytics, improving customer experience, product innovation, effectively using cloud technology, and investing in digital transformation programs.
- More than two-thirds of companies describe themselves as ‘technologically advanced’ — making full use of new technology across operational, customer-facing and internal parts of their business, to win new business, boost profitability, run efficient systems and attract the best talent.
- Internationally, 82% of businesses that describe themselves as technologically advanced anticipate their business will grow in the next six months. In contrast, only 39% of those enterprises that admit to being held back by their use of technology predict growth in the near future.
- Growing businesses are far more likely to put technology discussions on the boardroom agenda than companies reporting no growth at all.
- While most firms claim to be technologically proficient, many fail to use it to create competitive advantage. Across a range of criteria — including creativity and innovation, communication and collaboration, research fluency and problem-solving — less than one in two businesses said their technology proficiency gave them a tangible advantage over the competitors.
- Across all 12 countries surveyed, most business leaders said technology had a key role to play in business growth in 2021.
- Many of the enterprises surveyed displayed a skills gap between technology areas where directors were the most proficient and the technology areas that were a business priority.
- The top two attributes of tomorrow’s market leaders were technology-related. Almost half of the respondents (46%) said tomorrow’s leader brands ‘would make use of the latest technologies,’ while 44% said ‘technology would be at the heart of business thinking.’
- The most technologically proficient companies with tech-savvy business leaders were those enterprises most likely to believe that technology would define the brands that would be tomorrow’s market leaders.

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## Introduction

### **Businesses that invest in their technology proficiency are more likely to predict growth.**

Internationally, 82% of businesses that describe themselves as technologically advanced anticipate their business will expand and grow in the next six months. In contrast, only 39% of those enterprises that admit to being held back by their use of technology predict growth in the near future.

This new report from ThoughtWorks aims to give fresh insight into how C-suite decision-makers and business executives are using technology and data to modernize and grow at a time of significant change and uncertainty. Based on primary research conducted with 969 business decision-makers from 12 countries, this study assesses the level of proficiency, capability, and competence when it comes to business technology, and the bearing this has on business confidence, growth plans and long-term goals. The research found a direct link between an organization's technology proficiency and its likelihood to grow.

Technology proficiency is more than just having knowledge of the latest technology innovations: it describes a technology-enabled business culture that informs business strategy and everyday business planning conversations — using data and analytics, improving customer experience, product innovation, effectively using cloud technology, or investing in digital transformation programs. In a world where digital disruptors are gaining a foothold in almost every sector, established enterprises can only compete by ensuring technology becomes a core organizational competency.

- Technology proficiency today: technologically proficient businesses, where they are in the world and how proficiency delivers competitive advantage.
- Boardroom culture: how technology proficiency changes the boardroom conversation and helps technology to become an integral component of any board-level discussion.
- Business ambition and growth priorities for the year ahead: the perceived attributes of tomorrow's market leaders — and the role technology will play in enabling this.
- The priority investment areas for the year ahead: which areas ranked highest and how technology proficiency raises expectations.

This new research comes at a significant time. The pace of change in recent years has been rapid. Digital innovation, changing consumer habits, a renewed focus on sustainability, and increased globalization have created opportunities as well as challenges for many enterprises. Many of these global trends have been accelerated by the global health pandemic, which forced business leaders to look at new ways of running their businesses.

The expectation is that these far-reaching changes will become an established part of business life, even as the health emergency starts to recede. In this economic climate, business executives, managers and entrepreneurs will become more reliant than ever upon technology — data, software, systems, platforms and networks — to ensure their business remains competitive, and they can expand into markets and increase profitability.

As companies create new plans and strategies for the new era, ThoughtWorks teams around the world are helping business leaders to make informed decisions on emerging technology and to develop a corporate culture where technology, data and systems are core to strategic business thinking. We hope the findings of this new research study will help business leaders focus on what the trends and issues mean for their enterprise and what they need to do to prepare for the future.

## **Methodology**

The research in this report was commissioned by ThoughtWorks and was conducted by Maru Blue in February 2021 among a representative audience of 969 C-suite business decision-makers spanning 12 countries — USA, UK, Germany, China, Australia, India, Brazil, Singapore, Italy, Romania, Finland and Netherlands.

The choice of countries aligned with ThoughtWorks' global footprint.

By business size, 60% of respondents worked for organizations with more than 1,000 employees, referred to in this report as larger companies. The remainder of respondents were drawn from medium and smaller businesses, defined as those enterprises with less than 1,000 employees.

# Where we are now:

## Technology proficiency today

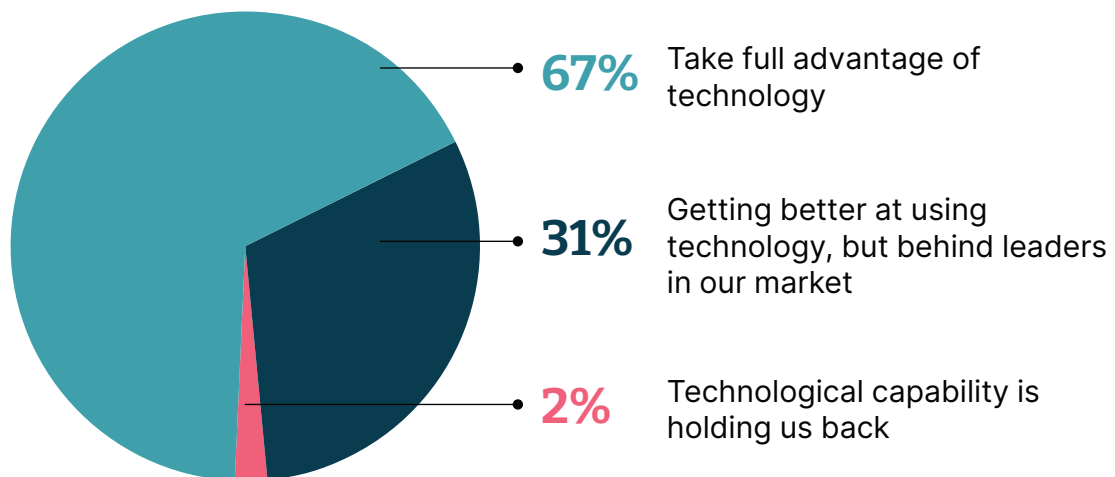
This chapter investigates how businesses are using technology today, and how this impacts future growth prospects, sector competitiveness and business confidence. The research looks at how companies around the world are using technology to compete across a number of key business areas and how frequently C-suite decision-makers discuss technology in management meetings.

### 1. Businesses switching on to technology possibilities

In an increasingly digital world, technology proficiency matters. Companies need more than awareness of the latest innovations; companies must understand how technological innovations can be applied across all areas of the business — utilizing data and analytics, improving customer experience, product innovation, effective use of cloud technology, or investing in digital transformation programs.

One of the positive findings from this study is that most enterprises now describe themselves as 'technologically advanced' — in other words, they are making full use of new technology across operational, customer-facing and internal parts of their business, to win new opportunities, boost profitability, run efficient systems and attract the best talent.

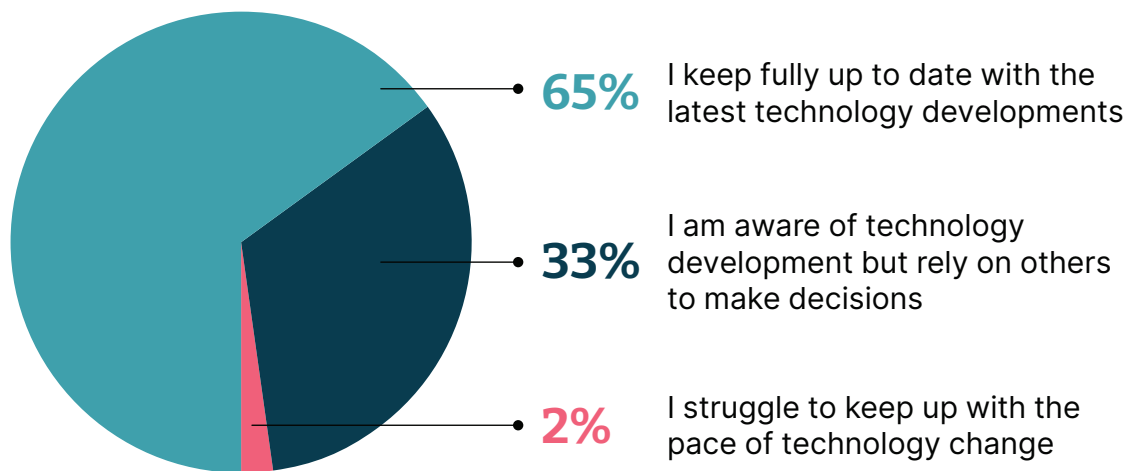
## Level of technology sophistication among businesses



On further examination, the research identified a clear link between a company's technological sophistication and the technological skills and knowledge of its leadership team. Business leaders were asked to rate their own knowledge and skills in this area — with a remarkably similar spread of results.



## Level of technology sophistication among business leaders



One of the most important findings in this research is the strong correlation between technology proficiency and business growth. Of those businesses that described themselves as technologically advanced, 82% anticipated their business would grow in the next six months. In contrast, among businesses that admitted being held back by their use of technology, just 39% were anticipating growth soon.

This trend is also evident in the knowledge and skills of senior executives and business leaders. If a company's senior team has proficient technology skills, they are more likely to have a buoyant growth forecast. In contrast, those who lack the skills to make decisions on technology for the business are twice as likely to report negative growth than those who are fully up to date and see this as a strategic business issue.

### 2. Where are the most technology-proficient companies?

The research findings suggest that companies worldwide are now prioritizing technology, although there are regional variations — with a far greater concentration of technology-proficient companies in the emerging economies of Asia, and in North and South America.

Companies in fast-growing economies such as China, India and Brazil — as well as the technology-focused U.S. — were more likely to see technology giving them a competitive edge over rivals in these various areas than were European companies.

In China, more than eight out of 10 companies described themselves as 'technology proficient, utilizing these applications across all areas of their business. In contrast, just over half of companies in Singapore claimed the same high level of technological sophistication.

Interestingly, the study also explored the personal technology proficiency of individual directors to see what proportion now considers technology to be a core part of their business outlook and how many keep up to date with the latest innovations in their sector.

By country, there was broad alignment between the personal technology proficiency of directors and the organization’s likelihood to be using their technology advantage to secure new business opportunities, run efficient systems and attract the best people. The consideration here is the importance for management teams to make technology central to their business thinking because this directly impacts the ability of their business to compete and grow.

## Where are the most tech-proficient companies?



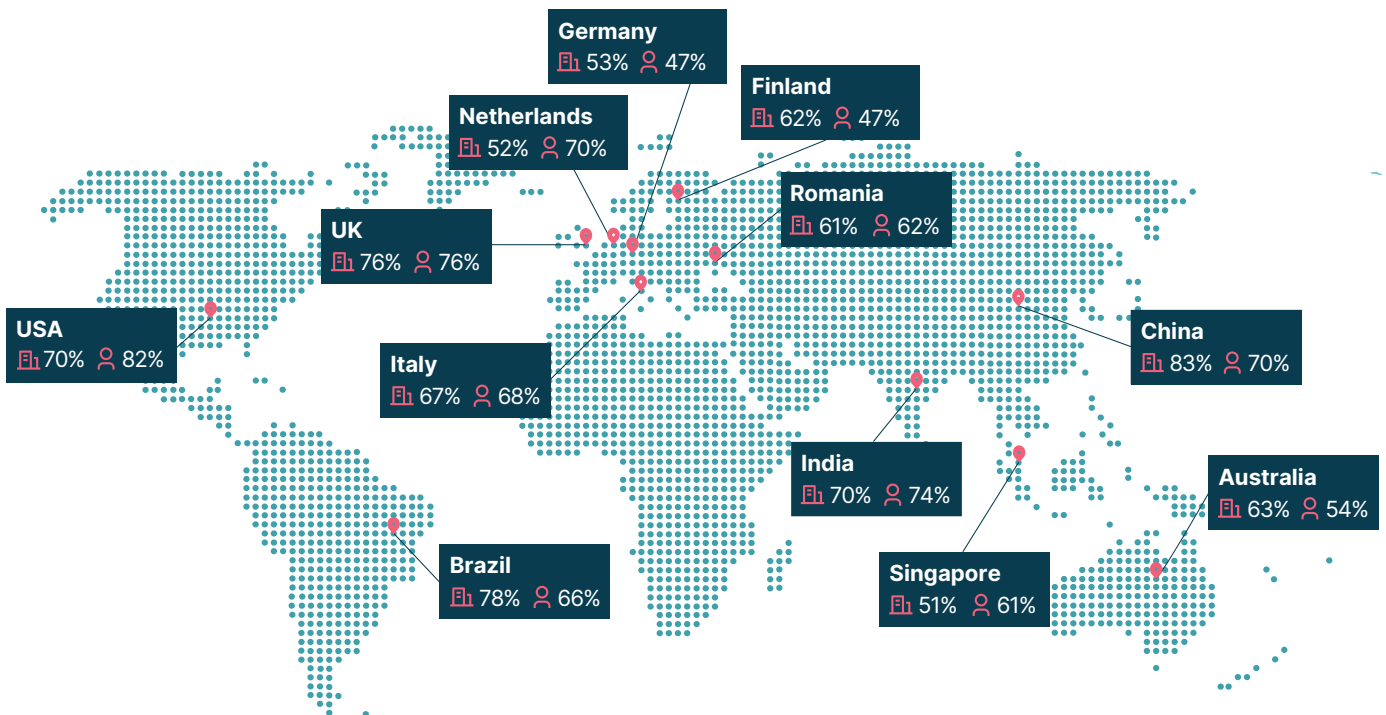
### Business proficiency

“We fully use our technology advantage to win business, run efficient systems and attract the best people”



### Personal proficiency

“I keep fully upto date with the latest technology developments and technology is central to my strategic and business thinking”



### 3. Using technology to build a competitive advantage

The relativity of technology proficiency is also important. While many firms claimed to be technologically proficient, many were failing to use it to achieve competitive advantage within their own business sector. Across a range of criteria — including creativity and innovation, communication and collaboration, research fluency and problem-solving — less than one in two businesses said their technology proficiency gave them a tangible advantage over the competitors.

These results suggest that technology is helping firms to keep up with the competition, but it is not always being utilized to give them a competitive edge. This may be because firms are adapting to technological changes as they happen, rather than using technology to help unlock the strategic answers on how a business will evolve longer-term and gain market share from its competitors.



## How does your organization's level of digital proficiency compare to competitor brands in your market?

	More advanced	On par with competition	Trailing competition
Creativity and innovation	49%	41%	10%
Communication and collaboration	46%	47%	7%
Research and information fluency	42%	48%	10%
Critical thinking, problem-solving and decision making	45%	46%	9%
Digital citizenship (the responsible use of technology by companies to engage with wider society)	37%	49%	12%
Technology operations and concepts	43%	48%	9%

### 4. The big conversation: technology in the boardroom

The research also examined how frequently technology is discussed in the boardroom. The findings suggest there is a clear correlation between how frequently technology issues are discussed at the board level and a company's growth prospects. Growing businesses were more likely to discuss technology at the board level on a monthly basis than firms with stagnant growth. Further, the proportion of respondents that only discussed technology 'every few months' broadly aligned with the percentage of companies that described their technology proficiency as 'improving but behind the competition.'

The most discussed technology issues were digital transformation — increasing agility, resilience and ability to compete — and driving growth through differentiated, customer-centric, digital experiences. Around one in two business leaders said these issues were discussed at least monthly (49% and 48% respectively). In addition, 46% of respondents talked about Enterprise Modernization each month — transforming their people processes and technology to modernize and create sustained change.

The alignment between how often technology is discussed in management meetings with growth prospects for the business underlines the need for enterprises to 'normalize' these conversations, and make sure all senior directors are conversant with and knowledgeable about technology developments in their areas, so technology moves beyond a stand-alone agenda item and is something that washes through the entire boardroom conversation.

This primary research also shows that companies struggling with technology are less likely to have board-level discussions around all these issues than proficient ones.

**63% of technology-proficient companies said they discussed technology issues relating to customer experience, product and design at least once a month.**

**Just 22% of companies, who are struggling with technology, discussed this issue monthly.**

A similar split applies when it comes to discussions on enterprise modernization, digital transformation, operations and data strategy, engineering and analytics.

These are not just circular arguments where businesses that describe themselves as ‘technology proficient’ are more likely to discuss these issues at regular board meetings. The evidence from this report suggests that these board-level discussions have real-world consequences, in terms of business growth and development.

## **Conclusion**

This research shows a clear and compelling correlation between the technological proficiency of a business and its growth prospects. However, it is noteworthy that many of the enterprises that rate themselves as technology proficient fail to exploit it for meaningful competitive advantage — and here may lay the difference between businesses that act tactically, reacting to change and those that embed technology at the heart of their business planning in how they harness technology to inform their critical thinking, problem-solving and decision-making.

This is a significant issue: the earlier that technology features in the business planning and problem-solving, the greater will be the value of its application and the tangible impact on staff, customers and suppliers. This research highlights the importance of tailor-made solutions for businesses. A generalized knowledge about technology and digital solutions may be insufficient to help a business thrive in a competitive market.

The findings also make clear that talking about technology matters. Boards that regularly discuss how technology can help improve all aspects of their business are better placed to make decisions that will improve competitiveness and help their agility at a time of unpredictable and changing economic conditions.

Technology is not just about hardware or software products that can be plugged in to solve a problem. It is about the culture of an organization — and that culture starts at the top. Today’s C-suite decision-makers need to be as well versed in data strategy, platform capability and engineering excellence, as they are in sales, marketing, and accounts. These will all have an influence on future business performance.

So, the technology solution is not just to update cloud capability for example. It is about looking in a more thoughtful way at the architecture of such services and how they can benefit the business.

# How technology can help businesses in a post-pandemic world

To contextualize the insights on technology proficiency, our research also explored business growth plans for the year ahead, the attributes of tomorrow's leader brands — and perceptions of the role that technology had to play. The findings underline both the in making technology proficiency a priority for the boardroom.

As we move into the new economic realities of a post-pandemic world, this research also shares a snapshot of specific issues facing businesses in different countries. Despite the onward march of globalization and the shared experience of a global pandemic, business growth priorities for the immediate future varied across the countries surveyed.

## 1. Business priorities for the year ahead

Given the financial strains caused by the pandemic, it is not surprising that companies across the globe are focused on the bottom line for the year ahead — with the three most frequently cited priorities being to improve operational efficiency, to grow the customer base and to increase profitability.

These three key priorities were mentioned by almost half of the business leaders taking part in this research.

The next most frequently cited set of priorities centered on improving employee and customer relations; with nearly one in four businesses stating they wanted to improve customer loyalty, attract talent to the business and improve staff morale.

As part of this research, ThoughtWorks also asked business leaders how they planned to achieve these goals. The research findings show the central role that technology will play in helping firms to navigate these challenges in the year ahead.

Across different countries — and different sectors — most companies surveyed said they will be 'heavily relying' on technology solutions to help them grow their business and remain competitive. A further third said there was an urgent need to modernize their systems, platforms, networks and other technology to deliver on core business goals.

## Business priorities for the year ahead

(Base: decision-makers across all the countries surveyed)

























	Priorities for the year ahead	% of companies that say they 'heavily rely' on technology to meet this goal	% of companies that say they need to urgently modernize technology to achieve this goal
Improving operational efficiency	49%	62%	36%
Growing customer base/market share	46%	59%	36%
Increasing profitability	45%	56%	39%
Improving customer loyalty	40%	56%	36%
Attracting the best talent	39%	52%	38%
Improving staff morale/development	39%	48%	42%
Improving executive/senior leaders' technology know-how and proficiency	37%	58%	37%
Launching into new markets	35%	53%	42%
Moving more of our business online	35%	54%	44%
Taking cost out of the business	34%	54%	43%
Launching new service lines	32%	57%	39%

### 2. Regional priorities

It was clear that these business priorities varied across different countries. For example, financial priorities resonated strongly in the fast-growing economies of India, China and Brazil. While every business aimed for financial success, some business leaders saw it as a result of looking after customers, modernizing operations, or launching outstanding services — while others saw profit as a primary goal in its own right.

'Increasing profitability' was cited as a key priority by 57% of Indian businesses and 51% of Chinese ones, compared to a global average of just 45%. Similarly, almost one in two (48%) Chinese businesses said launching into new markets would be a priority for the year ahead, while 42% of businesses in India also cited this as a goal for the next 12 months. In both cases, this was considerably higher than the global average figure of 35%.

## The number of business priority areas where technology had a critical role to play.

<b>Brazil</b>	 <b>82%</b> Enhancing staff morale and development  <b>78%</b> Improving operational efficiency
<b>USA</b>	 <b>83%</b> Taking cost out the business  <b>74%</b> Launching new service lines
<b>Italy</b>	 <b>78%</b> Improving senior leaders' technology proficiency  <b>78%</b> Improving operational efficiency
<b>UK</b>	 <b>79%</b> Improving senior leaders' technology proficiency  <b>71%</b> Improving operational efficiency
<b>Netherlands</b>	 <b>64%</b> Moving more of our business online  <b>57%</b> Launching new service lines
<b>Finland</b>	 <b>67%</b> Growing customer base/market share  <b>64%</b> Increasing profitability
<b>India</b>	 <b>69%</b> Attracting the best talent  <b>67%</b> Growing customer base/market share
<b>Germany</b>	 <b>65%</b> Growing customer base/market share  <b>61%</b> Launching new service lines
<b>Romania</b>	 <b>58%</b> Attracting the best talent  <b>56%</b> Improving senior leaders' technology proficiency
<b>Australia</b>	 <b>62%</b> Improving senior leaders' technology proficiency  <b>78%</b> Improving operational efficiency
<b>Singapore</b>	 <b>68%</b> Improving customer loyalty  <b>65%</b> Improving operational efficiency
<b>China</b>	 <b>53%</b> Launching new service lines  <b>53%</b> Improving operational efficiency

### **3. Using technology to deliver business goals**

Most businesses across the globe are relying on technology to deliver on key strategic priorities, be it boosting profitability, improving operational efficiency, developing new markets and products, or improving customer loyalty and staff retention.

The scale of reliance on technology is significant. Across all 12 countries surveyed, most business leaders said technology had a key role to play to help deliver on at least seven priority areas for business growth. In Brazil and the U.S., technology had a key role to play in virtually all the business goals mentioned. These results indicate that technology was seen to be synonymous with business growth.

The graphic below gives more details and highlights the business priority areas where business executives believe technology has a critical role to play.

### **4. Leadership and technology**

As well as looking at short-term business goals, this research asked C-suite decision-makers to predict the key attributes that would characterize tomorrow's leading brands.

Executives clearly saw technology as an essential attribute for the companies that will dominate the business landscape in years to come. Almost half of the respondents (46%) said these companies 'would make use of the latest technologies' while 44% said 'technology would be at the heart of business thinking.' These were the most popular answers given.

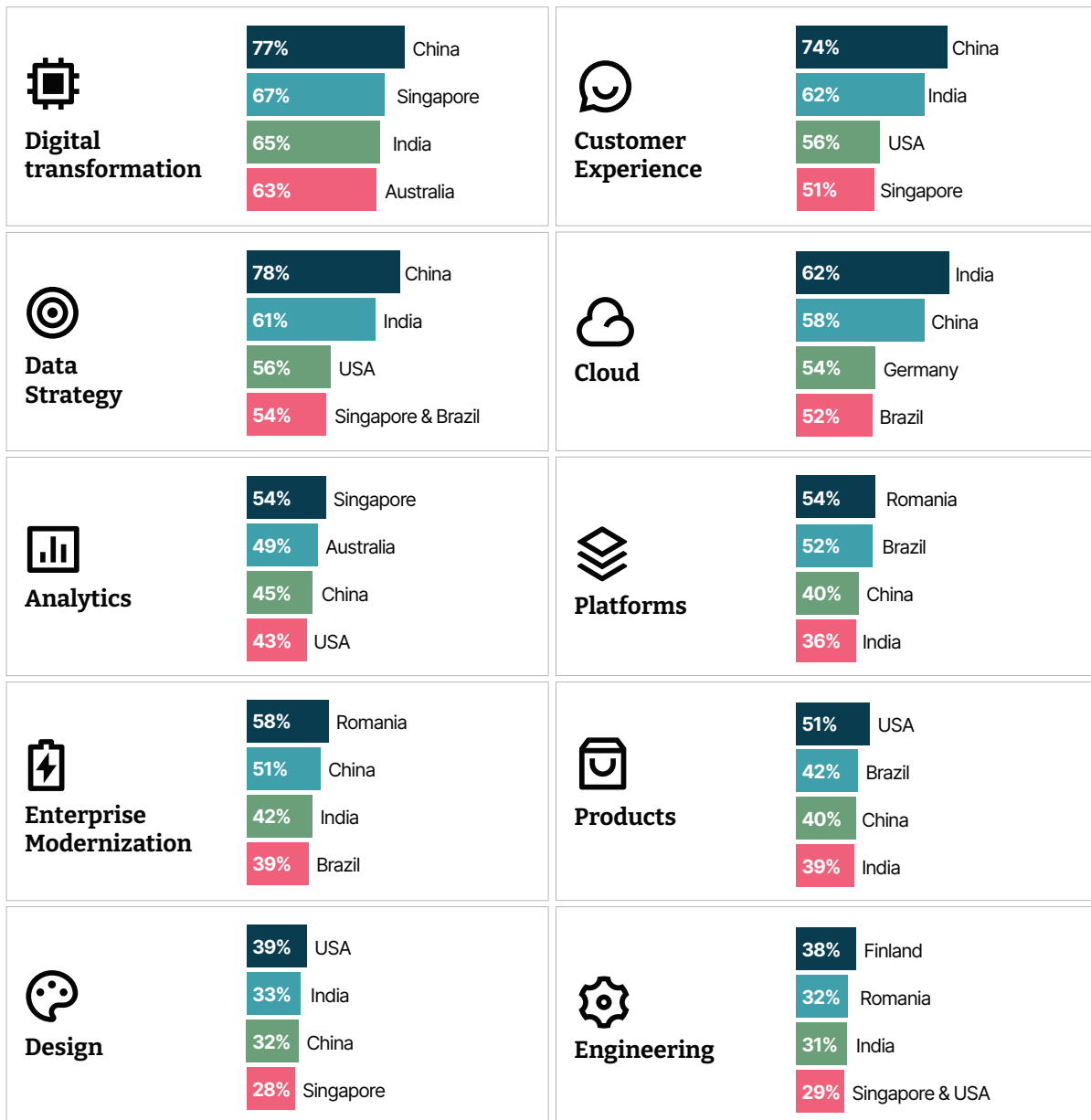
By comparison, just one in four respondents thought that tomorrow's leading brands would be the companies making the biggest profits. This trend was particularly pronounced among growing businesses and those already making full use of technology.

The research also looked at the areas of knowledge needed for tomorrow's business leaders. Again, technology was a key feature, with knowledge of data, software and new technology seen to be four times as valuable as skills such as driving profitable growth.

In fact, the CEO of the future is likely to have a range of technology skills. Business leaders today place six times as much value on these technology skills as they do on creative skills and language skills, and four times as much value as they do on marketing. The research shows that around 30% of the skillset of tomorrow's CEO will be technology-related in some way.



## Technology areas that need attention: Top responses by country.



## **Conclusion**

Businesses across the globe have very different growth priorities for the next 12 months although, looking further ahead, there is greater international consensus on what the market leaders of the future will look like.

Many business leaders expect technology to be critical to their ability to deliver on these various goals, enabling them to compete more effectively in a rapidly evolving corporate landscape.

Becoming a modern digital enterprise involves focusing on your business's individual priorities, and the way that technology can be utilized within your organization for maximum effect. This is not a one-size-fits-all approach, where simply plugging in the latest technology tools will solve a range of problems.

Companies positioned to thrive in the future place technology at the core of the business, by looking at how platform technology, smarter use of data, and more user-friendly customer experience can improve different aspects of their operations.

Technology innovation and modernization will help these businesses become more agile and proactive, enabling them to pull further ahead from their competition.

The perceived importance of technology in powering business growth underlines the need for business leaders to invest in technology proficiency, both on an organizational level and among key members of the leadership team. Embedding the knowledge and the conversations into the everyday working of a business will be key in helping enterprises to fulfill their true potential.

# Investing in technology:

This final chapter takes a more in-depth look at technology proficiency by examining the key technology applications businesses are focusing on for the year ahead to support growth plans. It also looks at how this technology investment varies in countries around the world.

## 1. Technology priorities for the year ahead

Looking to the year ahead, business leaders were asked which specific technology application they were prioritizing in order to support future business growth. The research also looked at whether the senior management team had the required skills set needed to ensure the business fully leveraged its technology investments.

The top technology priorities for business leaders in the year ahead were digital transformation, customer experience, data strategy and cloud.

A striking finding was the range of applications mentioned by firms from across the globe. Almost all the businesses included in this survey listed at least one of these applications as fundamental to supporting business growth in the year ahead, while more than a third of those surveyed (34%) picked five or more options, demonstrating the essential but varied role technology will play in supporting business growth around the globe.

In contrast, in many cases — such as digital transformation, customer experience and data strategy — the management team's technology proficiency lagged behind the needs of the business. Here a key pressure point emerged: the personal technology proficiency of decision-makers was strong in areas of technology that were not an urgent priority for businesses (such as design, engineering and products), whereas their proficiency failed to keep pace with the big priority areas for 2021, such as data strategy, cloud, customer experience and digital transformation.

Once again, technology-proficient companies were ahead of the game, more likely to invest across these technology areas than less proficient firms. For example, 52% of technology-proficient firms highlighted a need to invest in data strategy, compared to just 39% of enterprises that needed to improve their overall technology proficiency.

Regionally, companies based in the fast-growing economies of Asia and South America were far more likely to invest in technology in the next year than companies based in Europe. Businesses based in strong European economies, such as the UK, Germany, Italy and the Netherlands were far less likely to invest in digital infrastructure, data strategy, cloud computing and analytics than companies based in China, India, Brazil and the U.S. This relative lack of investment and reluctance to modernize in some countries could put some businesses at a disadvantage in a global economy looking to rebuild in a post-pandemic world.

## Which technology applications does your business need to focus on over the next 12 months in order to grow and prosper – by management team proficiency in this area.

	Business leaders who are fully up to date with technology	Business leaders who are 'aware' of the importance of technology but defer making a decision
Digital transformation	60%	49%
Customer experience	53%	43%
Data strategy	54%	38%
Cloud	54%	31%
Analytics	43%	33%
Platforms	39%	31%
Enterprise modernization	36%	31%
Products	36%	32%
Design	29%	22%
Engineering	27%	25%

### 2. Advantage lies with the biggest businesses

Companies employing more than 1,000 workers were most likely to be investing widely in technology to adapt and to innovate. These companies were also more likely to describe themselves as technology-proficient than smaller businesses (71% vs. 54%) and more likely to be anticipating growth in the next six months than small and medium-sized enterprises (71% to 65%).

Despite all the headlines in recent years about fintech start-ups using technology to 'disrupt' many industries, it is clear much of the investment flowing into digital transformation and enterprise modernization comes from larger corporations.

Size clearly is an advantage here, with larger enterprises more likely to have the financial and human resources to invest in these key areas that will drive future growth, as well as fostering the skills and knowledge among the senior team. Continuing to invest in new technology gives them the opportunity to realize the benefits of their scale, helping them in their attempts to consolidate their market position and increase future market share.

## Business priority areas: countries where technology had a critical role to play


 **Improving operational efficiency**  
Brazil 78% / Italy 78% / Australia 78% / UK 71% / Singapore 65% / China 53%

 **Taking cost out the business**  
USA 83%

 **Improving senior leaders' technology proficiency**  
UK 79% / Italy 78% / Australia 62% / Romania 56%

 **Enhancing staff morale and development**  
Brazil 82%

 **Launching new service lines**  
USA 74% / Germany 61% / Netherlands 57% / China 53%

 **Improving customer loyalty**  
Singapore 68%

 **Growing customer base / market share**  
Finland 67% / India 67% / Germany 65%

 **Increasing profitability**  
Finland 64%

 **Attracting the best talent**  
India 69% / Romania 58%

 **Moving more of our business online**  
Netherlands 64%

### Conclusion

These findings show some of the key technology applications that businesses across the globe think will support growth in the year ahead.

Digital transformation, enterprise modernization, designing better customer experiences, and devising a smarter data strategy are technology initiatives that can help companies build a competitive advantage.

The question for business leaders is not which single technology application will give them the edge over rivals but how many of these technology areas they can manage at once. Larger, more technology-proficient companies, and those in fast-growing economies, such as China, the U.S. and India, are more likely to be investing in a wider range of technology projects concurrently, and it is the scale of these modernization projects that will create tomorrow's market-leading brands.

## Conclusion

We believe that 2021 will be a significant year for technology and innovation. During the global pandemic, applications of technology and data kept businesses operating as employees worked from home. Technology has been at the heart of business activity, and this will only accelerate going forward. As businesses around the world prepare for a major realignment and rebuild required as people re-emerge from pandemic-related restrictions, technology will define tomorrow's market leaders.

In this new economic climate, business executives will become even more reliant on technology — hardware, software, systems, platforms and networks — to achieve their organization's growth plans in a changed world. This study of technology proficiency is, therefore, timely. The research spanning 12 countries underlines a close correlation between technology proficiency and business growth. There is also evidence that technology proficiency results in better business decisions being made — and more possibilities becoming visible.

Businesses that fully used their technology advantage were those most likely to predict growth for the year ahead. Business leaders that were up to speed with the latest technology developments discussed technology matters more frequently in management meetings. This aptitude and regularity of communication also drove expectations about business improvement and excellence: management teams that were most passionate about technology could see more areas where the application of technology could further improve business performance and efficiency.

Technology was once seen as a skill set that needed to be represented by a CIO in the boardroom. Today, technology is a culture, a way of thinking that the whole management team needs to embrace. Technology has become core to everyday business thinking and decision making; it is becoming the oxygen that modern businesses need to live, flourish and prosper. At ThoughtWorks, we are working with business leaders to look at different technology applications, to see them more as business-critical products: whether it is engineering excellence, customer experience, or data strategy. Thinking of these applications as products can help to focus the senior executive's attention on how each of them works, who will use it, and what its benefit might be across the organization.

This report provides a snapshot of business leader sentiment at a moment in time, a significant moment as the world starts the process of healing and readjustment after a global pandemic. The findings of this study can be appraised in conjunction with other ThoughtWorks publications that aim to help business leaders use technology to adapt, modernize and grow. For example, 'Decoder' demystifies tech jargon, representing key technology terms in the language of the boardroom, and the trends outlined in 'The Looking Glass' report have their roots in our ongoing research to track the big changes in the tech landscape.

At ThoughtWorks, our mission is to help businesses on this journey of evolution and enterprise modernization. Some businesses have creaking legacy systems that need to be tackled, other enterprises are creating growth plans based on the smart use of data, systems and platforms. Every organization needs technology proficiency at the heart of their business thinking to move forward. And at ThoughtWorks, we have the tools, the people and the expertise to help businesses prepare for tomorrow's world today.



# Appendix

## Additional tables

**Business priorities for the year ahead** (Base: decision-makers across all the countries surveyed)

	Priorities for the year ahead	% of companies that say they 'heavily rely' on technology to meet this goal	% of companies that say they need to urgently modernize technology to achieve this goal
Improving operational efficiency	49%	62%	36%
Growing customer base/market share	46%	59%	36%
Increasing profitability	45%	56%	39%
Improving customer loyalty	40%	56%	36%
Attracting the best talent	39%	52%	38%
Improving staff morale/development	39%	48%	42%
Improving executive/senior leaders' technology know-how and proficiency	37%	58%	37%
Launching into new markets	35%	53%	42%
Moving more of our business online	35%	54%	44%
Taking cost out of the business	34%	54%	43%
Launching new service lines	32%	57%	39%

## The number of business priority areas where the majority of executives said technology had a critical role to play

	No of areas	Top areas where technology had a critical role to play
Brazil	11	Enhancing staff morale and development (82%) & improving operational efficiency (78%)
USA	10	Taking cost out the business (83%) & launching new service lines (74%)
Italy	10	Improving senior leaders' technology proficiency (78%) & improving operational efficiency (78%)
UK	9	Improving senior leaders' technology proficiency (79%) & improving operational efficiency (71%)
Netherlands	9	Moving more of our business online (64%) & launching new service lines (57%)
Finland	9	Growing customer base / market share (67%) & increasing profitability (64%)
India	9	Attracting the best talent (69%), growing customer base/ market share (67%)
Germany	8	Growing customer base/ market share (65%) & launching new service lines (61%)
Romania	8	Attracting the best talent (58%) & improving senior leaders' technology proficiency (56%)
Australia	7	Improving senior leaders' technology proficiency (62%) & improving operational efficiency (78%)
Singapore	6	Improving customer loyalty (68%) & improving operational efficiency (65%)
China	3	launching new service lines (53%) & improving operational efficiency (53%)

## How does your organization's level of digital proficiency compare to competitor brands in your market?

	More advanced	On par with competition	Trailing competition
Creativity and innovation	49%	41%	10%
Communication and collaboration	46%	47%	7%
Research and information fluency	42%	48%	10%
Critical thinking, problem-solving and decision making	45%	46%	9%
Digital citizenship (the responsible use of technology by companies to engage with wider society)	37%	49%	12%
Technology operations and concepts	43%	48%	9%

### The essential attributes of tomorrow's leader brands

They will make use of the latest technology	46%
Technology will be at the heart of business thinking	44%
They will be agile, quick to respond and adapt	41%
They will show a deep understanding of customer needs in the services they design	38%
They will embrace change and uncertainty as an opportunity	32%
They will have a restless hunger to keep learning and improving	30%
They will champion ethical and social issues	27%
They will be big global brands	25%
They will make the biggest profits	25%
They will enrich society	24%
They will have a clear, human personality	23%
None of the above	1%

### Countries where businesses were most likely to rank their technology proficiency as ahead of the competition

	1st	2nd	3rd
Creativity and innovation	USA (63%)	Brazil (61%)	Netherlands (55%)
Communication and collaboration	Brazil (62%)	India (53%)	China (51%)
Research and information fluency	Brazil (58%)	China (54%)	Italy (50%)
Critical thinking/ decision making	India (60%)	Brazil (60%)	USA (54%)
Digital citizenship	USA (60%)	Brazil (59%)	China (52%)
Technology operations and concepts	Brazil (58%)	China (55%)	UK (55%) India (55%)

### The essential attributes of tomorrow's leading brands – top three responses by country

	Top country choice	2nd country choice	3rd country choice
UK	Technology at the heart of business proposition - <b>54%</b>	Deep customer understanding - <b>40%</b>	Full use of latest technology - <b>41%</b>
USA	Full use of latest technology - <b>41%</b>	Technology at the heart of business proposition - <b>40%</b>	Big profits - <b>40%</b>
Germany	Technology at the heart of business proposition - <b>42%</b>	Full use of latest technology - <b>41%</b>	Agility - <b>36%</b>
China	Full use of latest technology - <b>62%</b>	Agility - <b>55%</b>	Technology at the heart of business proposition - <b>48%</b>
Australia	Agility - <b>53%</b>	Deep customer understanding - <b>47%</b>	Full use of latest technology - <b>46%</b>
India	Technology at the heart of business proposition - <b>57%</b>	Full use of latest technology - <b>56%</b>	Deep customer understanding - <b>56%</b>
Brazil	Technology at the heart of business proposition - <b>54%</b>	Full use of latest technology - <b>52%</b>	Deep customer understanding - <b>44%</b>
Singapore	Technology at the heart of business proposition - <b>50%</b>	Agility - <b>49%</b>	Full use of latest technology - <b>46%</b>
Italy	Full use of latest technology - <b>41%</b>	Agility - <b>39%</b>	Champion ethical issue - <b>35%</b>
Romania	Full use of latest technology - <b>54%</b>	Technology at the heart of business proposition - <b>48%</b>	Change as opportunity - <b>46%</b>
Finland	Agility - <b>46%</b>	Change as opportunity - <b>42%</b>	Deep customer understanding - <b>41%</b>
Netherlands	Agility - <b>43%</b>	Full use of latest technology - <b>42%</b>	Technology at the heart of business proposition - <b>33%</b>

### Business areas to focus more attention on in the next 12 months order to grow and prosper – by the level of technology proficiency

Areas to invest in further this year	% identified by companies who fully use technology advantage	% identified by companies who state need to improve technology-proficiency
Customer experience	52%	43%
Data strategy	52%	39%
Cloud	51%	35%
Platforms	37%	33%

**Where are the most technology-proficient companies?**

	<b>Business proficiency:</b> We fully use our technology advantage to win business, run efficient systems and attract the best people	<b>Personal proficiency:</b> I keep fully up to date with the latest technology developments and technology is central to my strategic and business thinking
China	83%	70%
UK	76%	76%
USA	75%	82%
India	70%	74%
Netherlands	70%	52%
Italy	67%	68%
Brazil	66%	78%
Australia	63%	54%
Finland	62%	47%
Romania	61%	62%
Germany	53%	47%
Singapore	51%	61%

**Which technology applications does your business need to focus on over the next 12 months in order to grow and prosper – by management team proficiency in this area?**

	<b>Percentage of businesses that say they need to focus on this area</b>	<b>The management team's technology-proficiency rated as good in this area</b>
Digital transformation	56%	44%
Customer experience	49%	45%
Data strategy	48%	40%
Cloud	46%	36%
Analytics	40%	36%

	Percentage of businesses that say they need to focus on this area	The management team's technology-proficiency rated as good in this area
Platforms	36%	32%
Enterprise modernization	34%	31%
Products	34%	41%
Design	27%	32%
Engineering	26%	31%

**Which applications of technology, if any, does your business need to focus more attention on in the next 12 months in order to grow and prosper?**

	Business leaders who are fully up to date with technology	Business leaders who are 'aware' of the importance of technology but defer making a decision
Digital transformation	60%	49%
Customer experience	53%	43%
Data strategy	54%	38%
Cloud	54%	31%
Analytics	43%	33%
Platforms	39%	31%
Enterprise modernization	36%	31%
Products	36%	32%
Design	29%	22%
Engineering	27%	25%



**Which applications of technology, if any, does your business need to focus more attention on in the next 12 months in order to grow and prosper? Results by business size.**

	Up to 250 employees	251-999	1000+
Digital transformation	37%	54%	60%
Customer experience	33%	49%	52%
Data strategy	29%	47%	52%
Cloud	25%	44%	50%
Analytics	28%	37%	43%
Platforms	35%	35%	36%
Enterprise modernization	23%	33%	37%
Products	32%	34%	35%
Design	24%	26%	27%
Engineering	18%	22%	29%
<b>Technology operations and concepts</b>	<b>2.85</b>	<b>3.81</b>	<b>4.2</b>

**Percentage of businesses that discuss technology issues at least monthly in management meetings – by business growth outlook**

	Business is growing	Business growth stagnant
Enterprise modernization, (includes platforms and cloud)	49%	34%
Digital transformation and operations	52%	40%
Customer experience, product and design	51%	36%
Data strategy, engineering and analytics	53%	31%
Shortage of available talent	42%	33%

### Technology areas that need attention in this year: countries where businesses are most likely to rank each technology as a priority

	1st	2nd	3rd	4th
Digital transformation	China (77%)	Singapore (67%)	India (65%)	Australia (63%)
Customer experience	China (74%)	India (62%)	USA (56%)	Singapore (51%)
Data strategy	China (78%)	India (61%)	USA (56%)	Singapore & Brazil (54%)
Cloud	India (62%)	China (58%)	Germany (54%)	Brazil (52%)
Analytics	Singapore (54%)	Australia (49%)	China (45%)	USA (43%)
Platforms	Romania (54%)	Brazil (52%)	China (40%)	India (36%)
Enterprise modernization	Romania (58%)	China (51%)	India (42%)	Brazil (39%)
Products	USA (51%)	Brazil (42%)	China (40%)	India (39%)
Design	USA (39%)	India (33%)	China (32%)	Singapore (28%)
Engineering	Finland (38%)	Romania (32%)	India (31%)	Singapore/USA (29%)

### How frequently various technology issues are discussed at management meetings?

	Monthly (or more frequently)	Every few months	Once or twice a year	Never
Transforming our people process and technology to modernize and create sustained change (Enterprise modernization, platforms and cloud)	46%	37%	16%	2%
Evolving our organization and deliver digital transformation that increases our agility resilience and ability to compete (Digital transformation and operations)	49%	36%	14%	1%
Driving growth through differentiated, customer-centric, digital experiences (Customer experience, product and design)	48%	38%	12%	2%
Harnessing the tools, practices and mindset to become a data-driven organization (Data strategy, engineering and analytics)	47%	38%	12%	3%
Issues around the shortage of available talent	39%	41%	17%	3%

**Who is talking about technology? Table showing the percentage of companies that discuss these issues at a board level on at least a monthly basis**

	Enterprise modernization	Digital transformation & ops	Cust Exp, product & design	Data	Shortage of talent	% of companies forecasting growth
Brazil	68%	71%	68%	66%	48%	82%
USA	52%	56%	54%	55%	47%	89%
Romania	53%	46%	49%	51%	46%	57%
Netherlands	45%	48%	46%	54%	40%	71%
India	42%	42%	51%	44%	47%	86%
UK	44%	46%	48%	49%	39%	76%
Italy	49%	47%	44%	47%	35%	62%
Germany	43%	42%	51%	43%	40%	62%
Australia	37%	57%	45%	38%	42%	65%
China	39%	48%	42%	49%	26%	73%
Singapore	37%	34%	38%	41%	32%	59%
Finland	37%	43%	33%	28%	32%	68%

Thoughtworks is a global technology consultancy that integrates strategy, design and engineering to drive digital innovation. We are 10,000+ people strong across 48 offices in 17 countries. Over the last 25+ years, we've delivered extraordinary impact together with our clients by helping them solve complex business problems with technology as the differentiator.

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