

Markets of Tomorrow Report 2023: Turning Technologies into New Sources of Global Growth

INSIGHT REPORT

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Executive summary

The advent of the Fourth Industrial Revolution has led to wide-ranging opportunities from advanced technologies for business and government. In recent decades these technologies have often failed to deliver the promised game-changing results for the benefit of society, but there is growing evidence that dynamic governments and purpose-driven businesses are willing to shape a new era of public-private cooperation. A proactive approach and greater strategic planning are now required in order to create the “markets of tomorrow” that meet key societal needs.

Governments have the potential to serve as “investors of first resort” to crowd in wider private-sector interest and investment in technologies and sectors with the highest potential to build the markets of tomorrow. This kind of process could be seen during the pandemic, but there is a growing need to build on these ad hoc moves with more strategic, rather than crisis-driven, investment and incentives to build new markets.

To develop a more nuanced overview of the technologies and sectors that are set to shape the markets of tomorrow, this report draws on more than 12,000 responses to the World Economic Forum’s Executive Opinion Survey. Carried out in more than 120 economies, the survey asked respondents about three key aspects of the markets of tomorrow: Which technologies are the strategic priority? Which sectors are most likely

to generate new markets? What are the main obstacles to the growth of new markets?

Globally, agricultural technologies were viewed as the most important strategic priority, followed by education and workforce development technologies, and then power storage and generation. When asked about the sectors where their chosen technologies might unleash new markets, respondents cited information and technology services first, reflecting the central importance of the Fourth Industrial Revolution to the markets of tomorrow. The agriculture sector came second, and the energy sector third. Finally, respondents were asked to select the three most frequently cited market bottlenecks, they answered with: skills and talent, infrastructure and initiative from the public sector.

These findings can be interpreted as a strong signal that the private sector would welcome a proactive public sector and that closer alignment on long-term strategic goals could unlock untapped potential for market creation. Recent policy developments suggest this kind of public-sector dynamism may already be on an upswing. This bodes well for the co-creation of new markets, which ultimately rest on a shift towards dialogue and symbiotic public-private partnership, fuelled by the need to solve the most pressing problems. It is hoped that this report can serve to encourage some of that much-needed dialogue and partnership.

Introduction

Could the third decade of the 21st century mark the beginning of a new era of public-private economic cooperation?

Against the backdrop of an increasingly contested geoeconomic world order, governments in many countries are restructuring industrial policies to serve well-defined strategic purposes.¹ This is in line with historical precedent, as times of crisis or uncertainty tend to see governments take the lead in prioritizing specific problems and marshalling the actors and resources required to solve them.

In parallel, businesses are becoming more purpose-driven in their approach to markets, driven by investor movements prioritizing environmental, social and governance (ESG) investing as well as by public pressure.

This twin trend has the potential to underpin a new era of public-private convergence on addressing the most important problems facing humanity, with governments taking more initiative on market co-creation and businesses taking more responsibility for orienting their products and services towards social and environmental outcomes. However, more proactive and strategic planning is needed to create the “markets of tomorrow” to solve the most important national, regional and global problems.

In this report, which builds on earlier Forum work in this area,² data from the global Executive Opinion Survey sheds light on three key questions: Which technologies have the highest strategic importance around the world? Which sectors enable the growth of new markets? And what are the bottlenecks obstructing the growth of new markets to act on these strategic priorities? The answers to these questions provide an outline map of purpose-driven market opportunities around the world and a starting point for in-depth multistakeholder dialogue and action at the national level.

The report contains two sections. The first discusses the key findings of the research: the top technologies, the most important enabling sectors, and the key bottlenecks to market creation. Technologies related to economic foundations – agriculture, education and energy – feature prominently, while the information and technology services sector plays the largest role in enabling the growth of new markets. The key bottlenecks relate to talent, infrastructure and public-sector initiative. There is significant variation across economies at different income levels. The second chapter of the report provides a wider overview of the markets of tomorrow data, with profiles covering the top ten technologies, sectors and obstacles and a selection of G20 economies.

1

Purpose-driven market creation

The advent of the Fourth Industrial Revolution has led to wide-ranging opportunities from advanced technologies for business and government. Yet, in many cases, these technologies fail to deliver the often-promised game-changing results for the benefit of society, and the 2000-2020 era has been defined by a productivity paradox.

Over the last two decades, investment has tended to concentrate in digital frontier technologies promising high returns rather than in sectors that may generate immediate societal benefits, such as agriculture, education or healthcare. The pandemic has highlighted the risk of under-investment in societal building blocks and has led to some improvement in related investment flows. However, there is still much to do; for example, current investment levels are still far from where they need to be to meet the Sustainable Development Goals (SDGs).³ This situation is most pronounced in developing economies, where potential benefits of redirected investment flows may be even higher.

Governments have the potential to serve as “investors of first resort” to crowd in wider private-

sector interest and investment in technologies with the highest potential to build the “markets of tomorrow”, markets that address key societal needs. Over the course of the pandemic and recent geopolitical turmoil, many governments have exercised their fiscal power in supporting vaccine development and distribution, securing energy supplies and boosting food security.

There is a growing need to build on this with more strategic, rather than crisis-driven, investment and incentives to build new markets that enhance societal resilience and lay the foundations for future growth.

To develop a more nuanced overview of the technologies of national importance and the potential markets they may create and to understand the obstacles that hinder these new markets, new data was gathered through the World Economic Forum’s Executive Opinion Survey, carried out in more than 120 economies. The sections below outline the key results in these three areas. Results should be interpreted within the wider context of each economy and are designed to serve as a basis for further local and global dialogue.

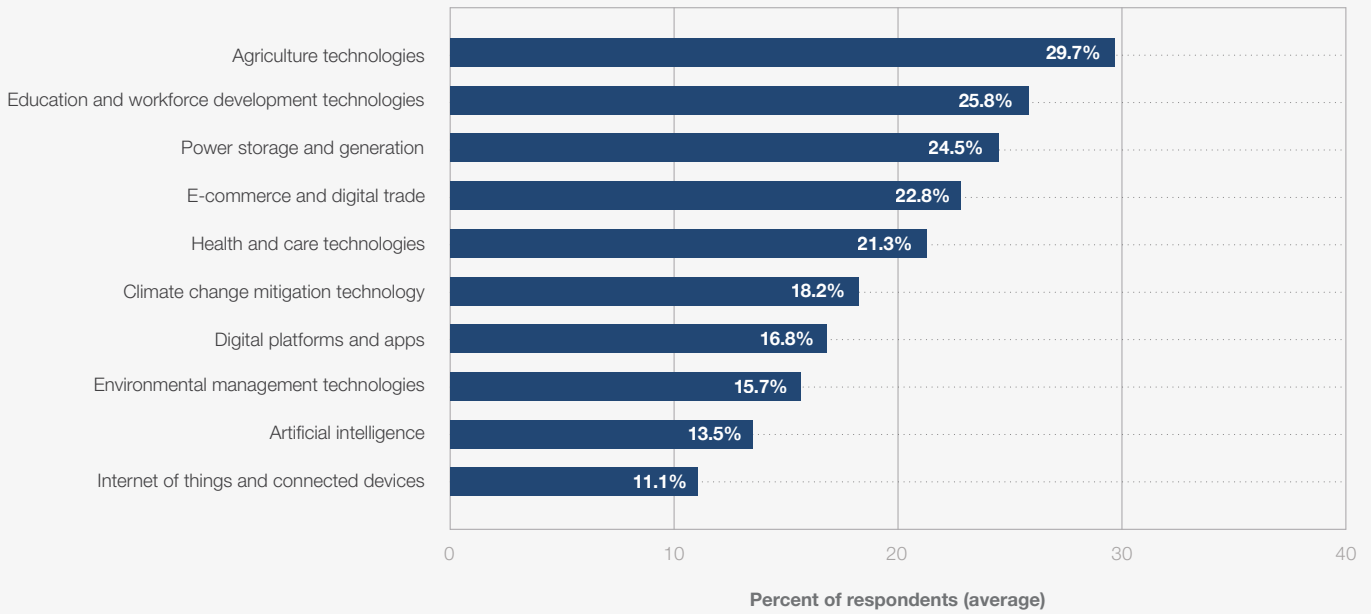
1.1 Technological priorities

The starting point for this analysis of the “markets of tomorrow” is a better understanding of the strategic priorities confronting economies across the world. In other words, the markets of tomorrow should be motivated by a clear sense of purpose, responding to clear strategic needs. A technology lens was applied to this, by asking businesses the following question: “Which technologies are of strategic importance for your country in the next 10 years?” At a time of rapid technological advance, it might have been expected that frontier technologies would be prominent on a 10-year time horizon, but the top three technologies globally relate to more foundational economic underpinnings: agriculture, education and energy (Figure 1).

Figure 2 provides an initial overview of which technology was cited most frequently in each economy. In total, agriculture topped the list of strategic priorities in 44 economies, and its regional

clustering is prominent in both Sub-Saharan Africa and in Latin America. In Africa, numerous economies are on a trajectory towards increasing reliance on agricultural imports, leaving the region increasingly exposed to volatility in global food prices,⁴ as well as to the growing impact of climate change on domestic crop yields.⁵ Latin America, by contrast, boasts the world’s highest level of net food exports, and agriculture is an important driver of growth and employment.⁶ So, while businesses in both regions see it as a strategic priority to use technology to increase agricultural productivity, the underlying economic conditions differ significantly. Elsewhere in the global map of top strategic priorities, there is greater heterogeneity than in Africa and Latin America. Every economy surveyed returned a unique list of priorities, so even where economies may share a highest-ranked technology in common, there are other important economy-level differences.

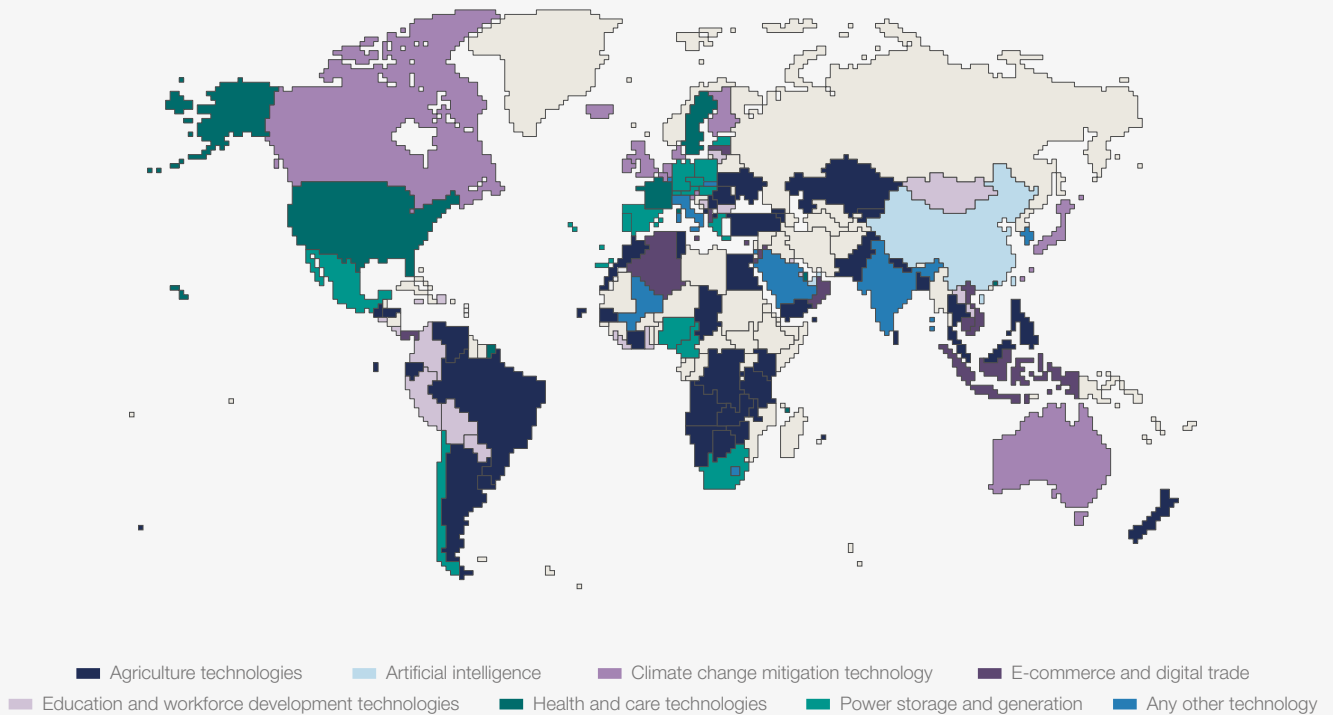
FIGURE 1 | Global top ten technologies of strategic importance



Source
Executive Opinion Survey 2022.

Note
Respondents were asked to provide up to three choices for technologies, sectors and obstacles. As a result, percentages displayed do not add up to 100.

FIGURE 2 | The technology of highest strategic importance in each economy



Source
Executive Opinion Survey 2022.

Looking more closely at the three top technologies globally, the current backdrop for **agriculture** is particularly challenging. Even before the war in Ukraine disrupted crucial supply chains, the Food and Agriculture Organization (FAO) was cautioning that levels of global hunger had reached new records in 2021, with nearly 193 million people in acute food insecurity across 53 territories.⁷ Moreover, the need for greater use of agricultural technology is highlighted by the fact that achieving the SDG-2 objective of zero hunger while remaining within Paris Agreement emissions targets would require an estimated increase of 28% in global agricultural productivity over the next decade. This is more than three times the productivity increase recorded in the last decade.⁸ The technological advances that might help to bridge this gap will differ between economies, and the category of “agricultural technologies” is broad. It includes basic techniques such as mechanization and irrigation – it is worth noting that a country like Nigeria only had 1% of its arable land irrigated as recently as 2014⁹ – through to more cutting-edge developments, such as precision agriculture¹⁰ or the use of agricultural drones.¹¹ According to the Organisation for Economic Co-operation and Development (OECD), investment in agricultural technologies could be expanded significantly. In 2018-2020, only 17% of budgetary support for agriculture across 54 economies studied was spent on research and innovation. This share could be doubled without requiring any net additional resources if governments reduced market-distorting agricultural support.¹² Moreover, the gains from investment in technology are potentially very significant. For example, Ghana’s investment in technology contributed to a sharp acceleration in agricultural output growth between 2014 and 2017, from 2.9% to 8.1%.¹³

The second-most cited technological priority in the survey is in the field of **education and workforce training**, underlining the strategic importance of education, skills and talent to businesses and governments alike as economies evolve, particularly in response to the digital transformation. Accordingly, digital tools are central to this technology category, and in 2020 the International Labour Organization (ILO) highlighted the significance of the following five technologies: ubiquitous computing, collaboration technologies, extended reality, artificial intelligence and blockchain.¹⁴ In many developing economies, the rollout of digital educational technologies will be conditional on first making progress on enabling technologies and infrastructure. For example, Ethiopia’s Education Development Plan for 2020-2030 highlights the need for high-speed connectivity as well as improved digital policies and standards.¹⁵

The COVID-19 pandemic has exacted a significant cost in terms of lost education in places where online alternatives to in-person schooling were not available when schools closed across much of the world for public health reasons.¹⁶ Consequently, the pandemic has intensified the

pace of educational technologies being rolled out.¹⁷ However, the underlying drivers of this process are more structural in character, relating to the need to prepare students for labour markets in which digital skills are increasingly indispensable. Respondents prioritizing educational technologies in the survey tend to also have concerns about whether the education system in their economy meets the needs of a competitive economy, reflecting the potential for education technologies to help these economies “leapfrog” in the field of skills development.

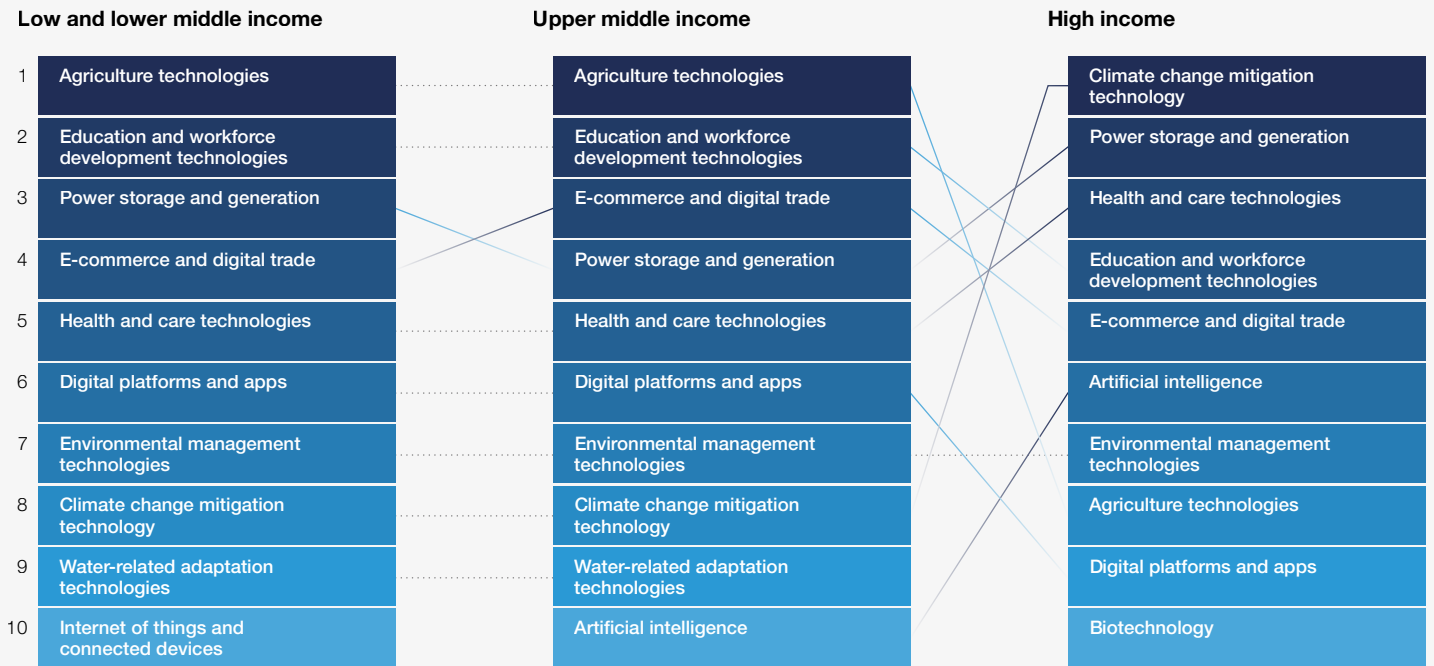
The **power storage and generation technology** category takes the third spot in the global ranking. While the energy disruptions triggered by the war in Ukraine may have elevated the immediate salience of these technologies (particularly in Europe, where they were the top priority in ten economies), their growing prominence reflects the ongoing and increasingly urgent process of transitioning to a low-carbon energy system. The International Energy Agency (IEA) estimates that clean energy investment is going to have to triple under a net zero 2050 scenario.¹⁸ It also estimates that energy flexibility (i.e. the capacity to keep supply and demand in balance) will have to quadruple. Technologies for storage and flexibility are key to the global energy transition because they are the limiting factor for integrating renewables into the energy grid.¹⁹ At present, 90% of grid-scale storage is accounted for by pumped-storage hydropower, with grid-scale batteries providing the remaining 10%.²⁰ Looking at battery technologies more broadly, there is evidence of significant investment in innovation. Research conducted by the IEA and European Patent Office points to an average annual increase of 14% between 2005 and 2018 in global patenting activity related to batteries and other electricity storage technologies. That is four times the average rate of increase across all technology fields.²¹

Disaggregating the economies surveyed into four income groups (low and lower-middle, upper-middle and high), there is strong consistency across them. On average, four of the top five technologies are the same in all three groups. The top eight technologies are the same across the low and lower-middle and upper-middle groupings (Figure 3), with the top of the rankings broadly mirroring the overall global prioritization of foundational technologies discussed above. In the upper-middle income category, e-commerce and digital trade moves into third position, highlighting the transformative potential of digital technologies as economies move up the value chain.

The main difference in the technology results across the four income levels relates to climate change mitigation technologies, which ranks first in the high-income economies and eighth in the other three groups. This is unsurprising given one of the defining tensions in global climate negotiations relates to less-developed economies wanting more time to prioritize growth and development before being required to make the same kind of emissions reductions as their richer peers.

FIGURE 3 | Top ten technologies of strategic importance, by income group

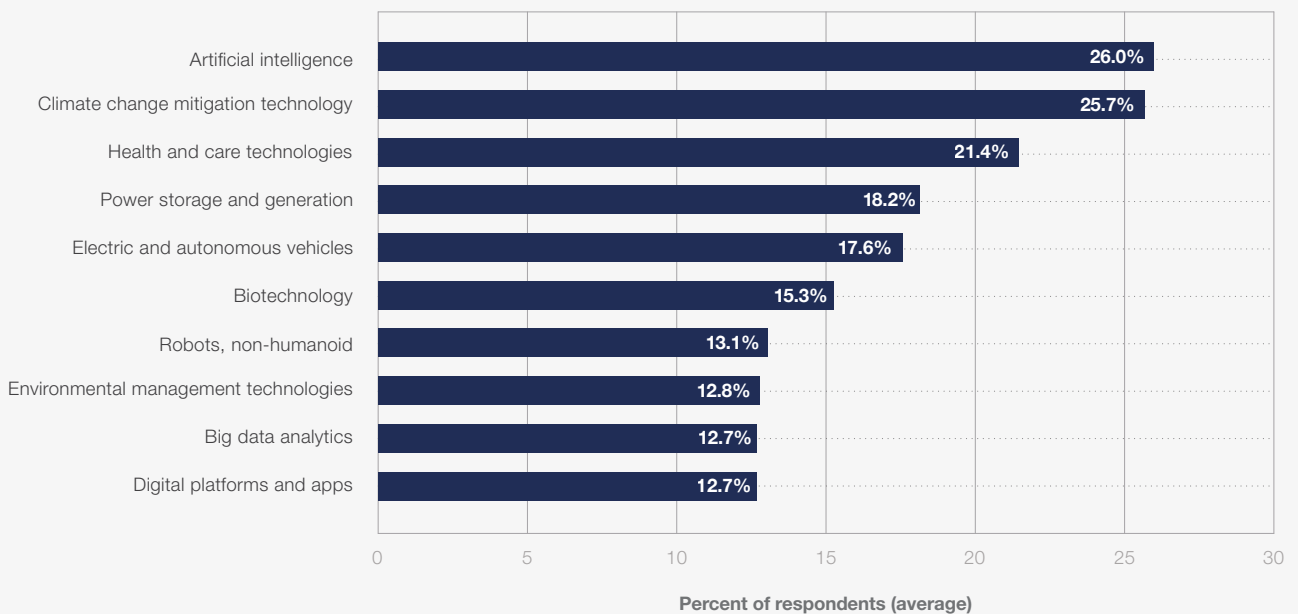
Which technologies are of strategic importance for your country in the next 10 years?



Source
Executive Opinion Survey 2022.

FIGURE 4 | Top ten technologies of strategic importance in five high-innovation economies

US, Japan, China, Germany, South Korea



Source
Executive Opinion Survey 2022.

Finally, when sorting the findings of the survey by innovation capacity (see Figure 4), it can be seen that the top five economies for innovation (four of which are also high-income economies) have climate mitigation technologies as their number

two priority.²² The top technological priority in the high-innovation economies is artificial intelligence, a finding that resonates strongly at a time when artificial intelligence (AI) technologies appear poised to make another leap forward.²³

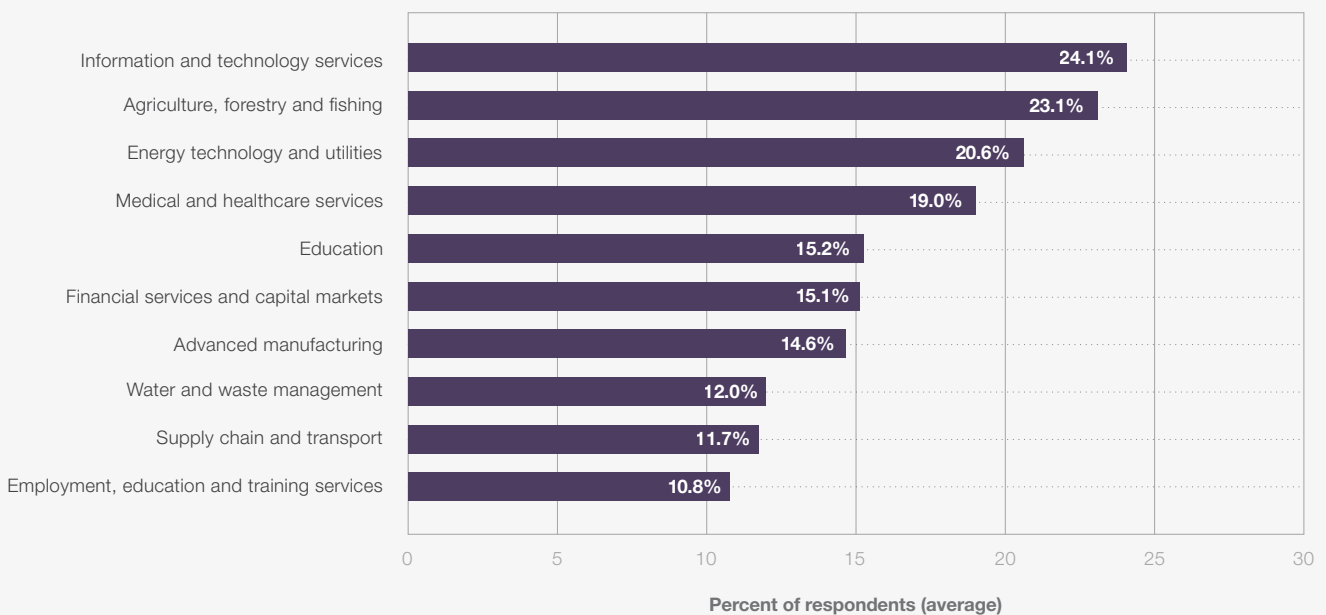
1.2 Sectoral opportunities

After asking respondents to select the technologies of greatest strategic importance in their countries, they were asked to choose the sectors in which their selected technologies were “most likely to enable the creation of new markets”. The results show a significant overlap with responses to the technology question (Figure 5), with the sectoral equivalents of the top three global technology domains – agriculture, energy and education – featuring in the global top five for sectoral market opportunities.

First place among the sectoral opportunities is taken by information and technology services, reflecting the central importance of the Fourth Industrial Revolution to the markets of tomorrow. It is also in line with the fact that a range of digital technologies were cited by respondents as being strategic priorities even if they didn’t break into the global top three: including e-commerce and digital trade, digital platforms, artificial intelligence and the internet of things.

Looking at the sectoral data disaggregated by income group, the information and technology services category features prominently in all, but with a pattern of increasing salience as income levels rise: IT services rank third for low income and lower-middle income economies, second in upper-middle income economies and first in the higher-income category (Figure 6). By contrast, across the low, lower-middle and upper-middle income categories, the agriculture sector ranks first, a pattern that is evident in the global map of top sectoral opportunities (Figure 7). Another sectoral divergence that arises across income levels is in manufacturing. The low- and middle-income categories see significantly greater market opportunities in consumer goods production than do their high-income peers (seventh rank respectively compared to 19th), whereas advanced manufacturing ranks fourth in high-income economies but ninth and tenth in the two lower-income categories.

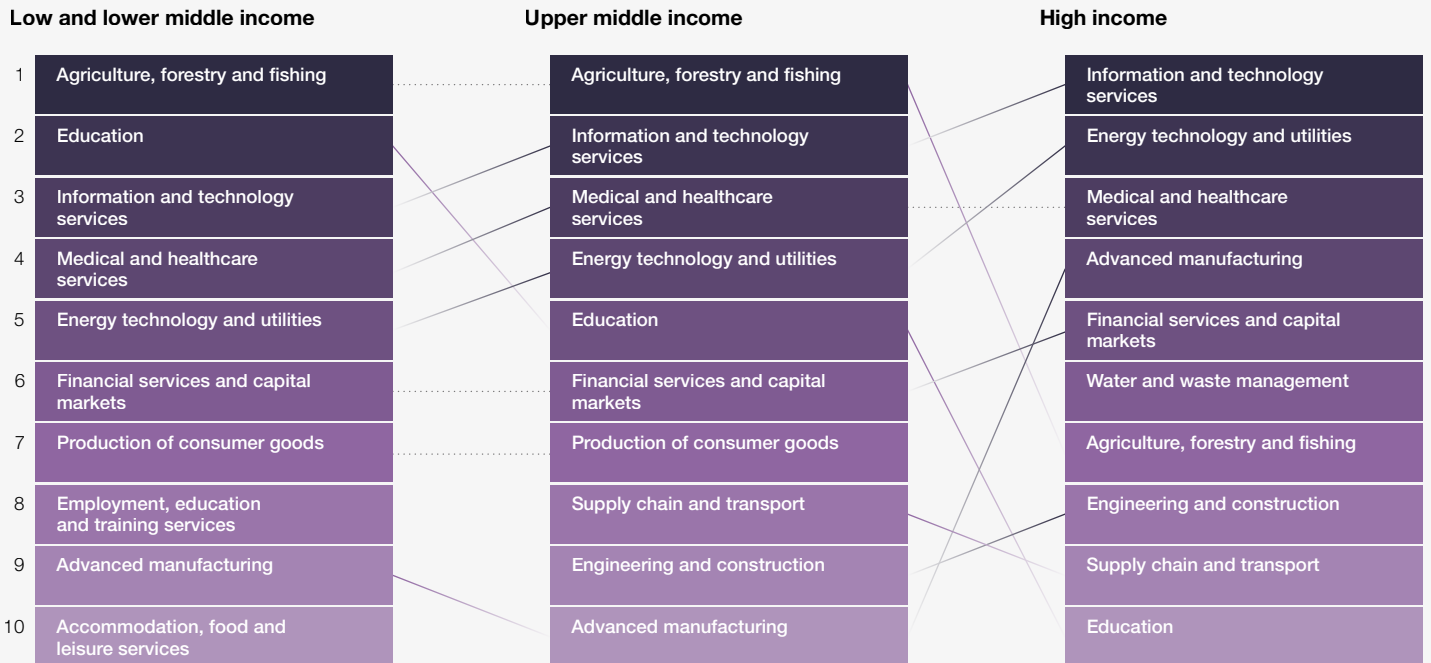
FIGURE 5 Global top ten sectors where new market creation is most likely



Source
Executive Opinion Survey 2022.

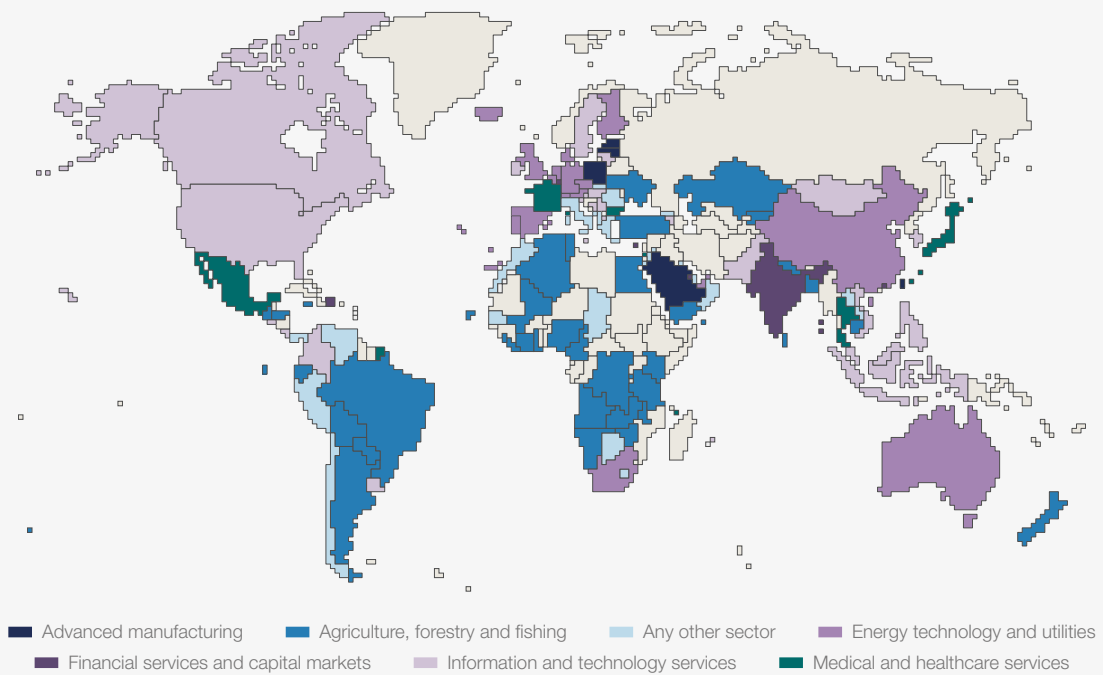
FIGURE 6 | Top ten sectors for market creation, by income group

In which sectors are these technologies most likely to generate new market opportunities?



Source
Executive Opinion Survey 2022.

FIGURE 7 | The top sector for market creation in each economy



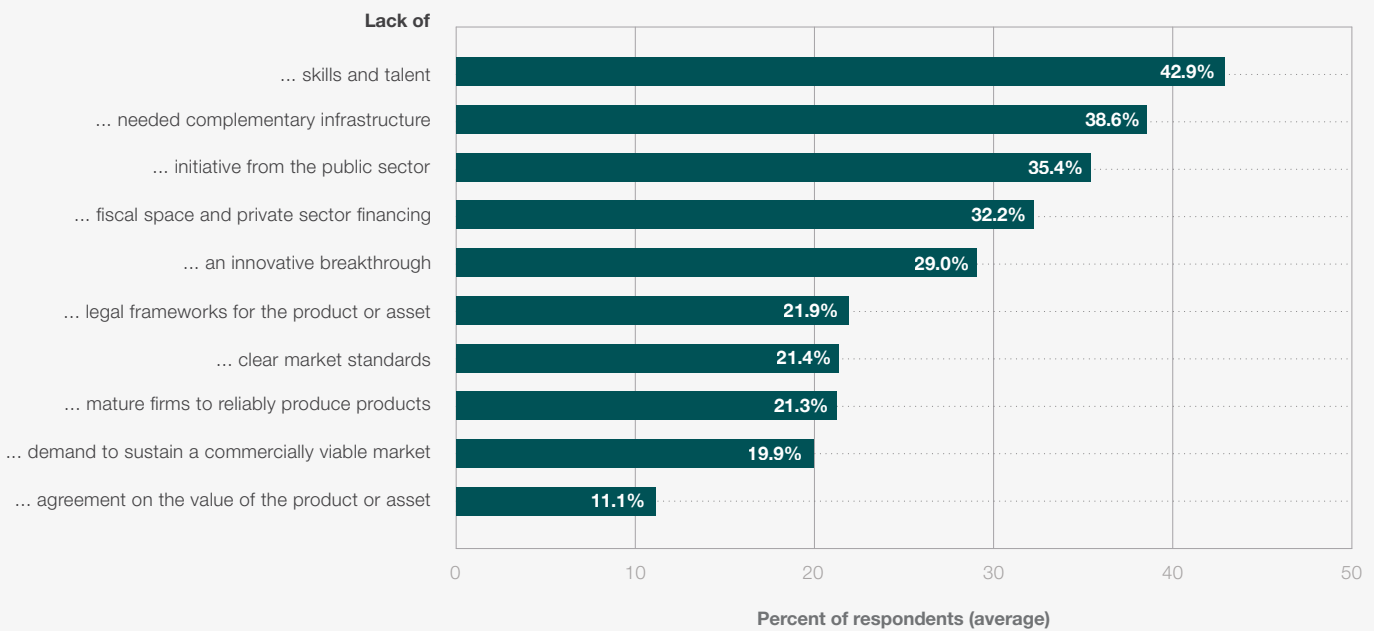
Source
Executive Opinion Survey 2022.

1.3 Market bottlenecks

Having asked respondents to identify priority technologies as well as the sectors in which they are likely to cultivate new markets, they were also asked to identify the main obstacles to market creation. Globally, the top three results were: skills and talent, infrastructure and a lack of public sector initiative. The full top ten is listed in Figure 8, and Figure 9 provides a global map of the most prominent bottleneck in each economy.

Regional clustering patterns emerge again. In North America and Europe, concerns about skills and talent stand out, while respondents in Latin America highlight a lack of infrastructure. In a range of economies in Sub-Saharan Africa, financial constraints (fiscal space and private sector financing) are prominent, while in Asia and Oceania, respondents cite a lack of innovative breakthroughs as an obstacle to market creation.

FIGURE 8 Global top ten obstacles to the growth of new markets

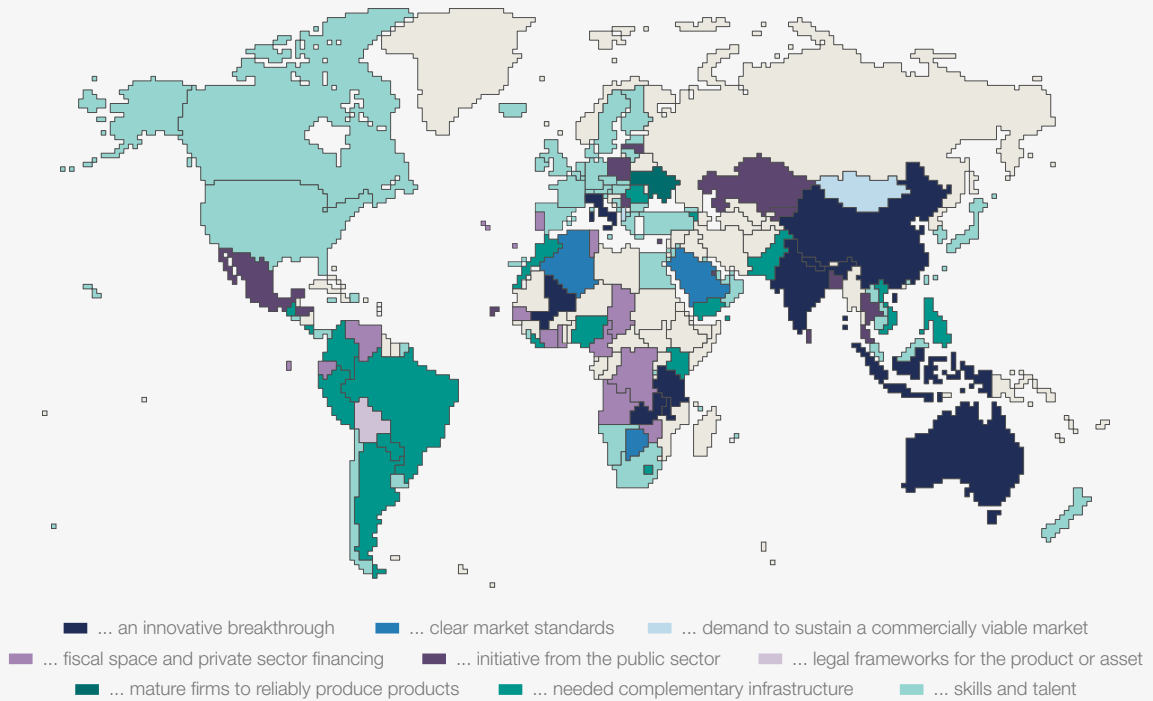


Source
Executive Opinion Survey 2022.

When the global results are again disaggregated by economies' income level, there are some notable differences (Figure 10). The low- and lower-middle-income categories rank infrastructure and finance as the two most significant obstacles to market creation, whereas in high-income economies, these are skills and talent and public sector initiative, respectively. Interestingly, the "lack of an innovative

breakthrough" option does not rank in the top three in any of the three income groups, which suggests that adoption and diffusion of existing technologies are viewed as more of a problem than a lack of new inventions. However, there are notable economy-level results on this dimension: the lack of innovative breakthroughs is cited as the number one obstacle in both China and India.

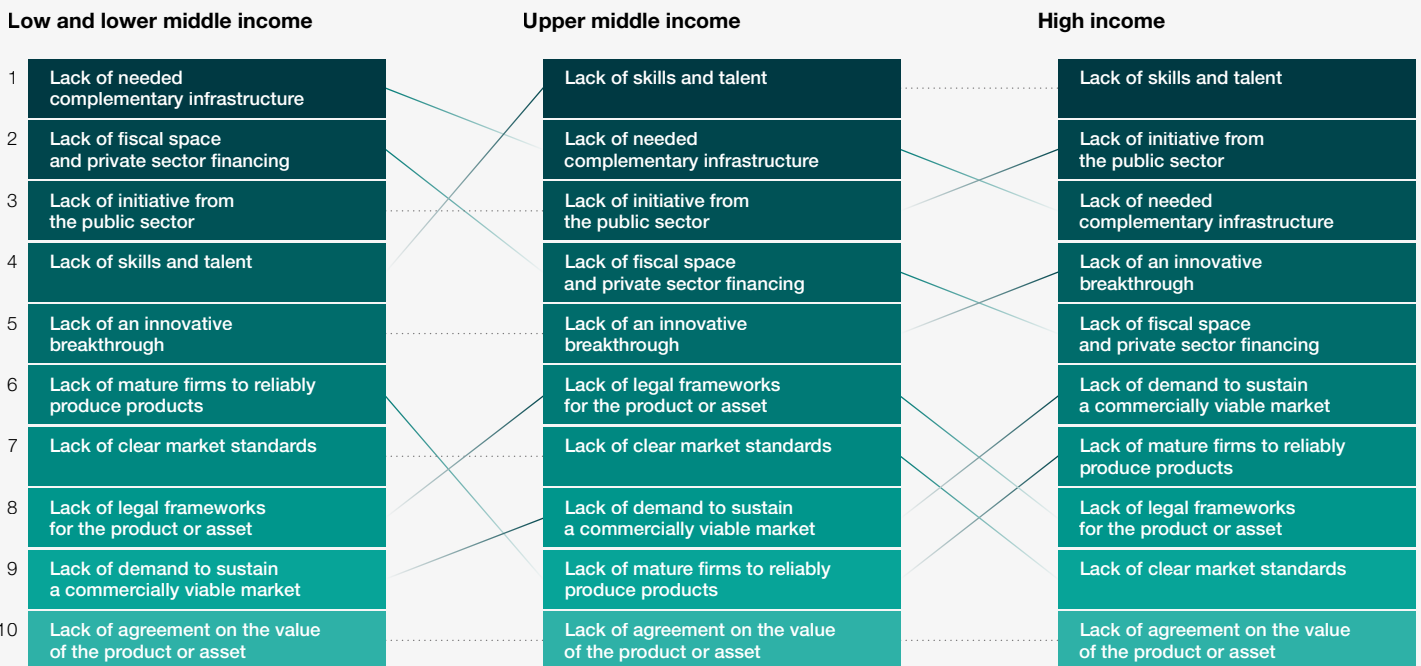
FIGURE 9 | The most significant obstacle to the growth of new markets in each economy



Source
Executive Opinion Survey 2022.

FIGURE 10 | Top ten obstacles to the growth of new markets, by income group

Which existing bottlenecks could hinder the growth of these markets in your country?



Source
Executive Opinion Survey 2022.

Considering each of the top three global obstacles, in turn, the pattern of **skills and talent** cited in higher-income economies is very prominent. The economies with the strongest response on this obstacle are among the world's richest: Luxembourg, Switzerland and Singapore. They are also relatively small countries, which points to concerns about the size of the domestic labour market. This possibility is strengthened if viewing the bottleneck results alongside respondents' perceptions of domestic educational and labour market conditions. Interestingly, economies highlighting talent bottlenecks are ahead of the global average on most questions related to skills and work. However, there is a notable exception to this pattern on questions relating to access to skills in the local labour market and to the ease of hiring foreign labour, where these economies slip below the global average. This is likely to be an area where there are synergies between economies, with digital technologies increasingly easing the process of sourcing skills and talent from a global labour pool, and there is evidence that this is happening to a greater extent than before as a result of the pandemic.²⁴ It also points to the need for greater domestic investment in enabling the talent that can convert technologies into successful markets, as well as wider international cooperation on transferring the lessons of technology use and building the markets of tomorrow.

The second global obstacle relates to the **infrastructure** required to unlock market creation. This bottleneck is particularly prominent in Latin America and the Caribbean where respondents in 18 of the 20 economies surveyed cited infrastructure among the top three bottlenecks. The region needs to invest an estimated 3.1% of gross domestic product (GDP) each year until 2030 if it is to expand and maintain the infrastructure necessary to meet the SDGs.²⁵ In that context, public-private collaboration already has an important role to play and the Brazilian Investment Partnerships Program (IPP) is a prominent

example that has mobilized significant private resources for infrastructure development in a country economy where respondents cite this as the greatest bottleneck for market creation.²⁶ Across Africa and the Middle East, more than half of the economies surveyed place infrastructure in the top three bottlenecks. The African Development Bank estimates Africa's infrastructure investment gap at more than \$100 billion per year and underlines the potential of public-private partnerships to close it.²⁷ Precise estimates of growth opportunities foregone are difficult to obtain, but it is undisputed that infrastructure is a key foundation on which new markets can be built.

The third most frequently cited obstacle relates to the importance of the **public sector** in the creation of new markets. In total, 77 economies in the survey cited a lack of public sector initiative in the top three of their list of bottlenecks. This suggests that progress on this dimension could unlock significant economic gains. Arguably, this is an inflection point for the global economy on this question, with a recalibration of the relationship between the public and private sectors more likely than has been the case for decades. There is little consensus yet as to what the future of economic growth will look like, but an increasing number of voices argue that it will involve a stronger role for governments in creating and maintaining markets. In part, this reflects the confluence of two mega-trends: the growth of state-led models of capitalism in economies such as China; and the ebbing of the free-market strand of western capitalism, which is evident in a country like the US enacting strongly interventionist new policies such as the Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act.²⁸ Different economies are certain to resolve the balance of public and private collaboration in different ways, but the basic principle is full of possibility and, if used wisely, may unleash the economic benefits that stem from a dynamic, enabling public sector and from a reinvigorated ethos of public-private collaboration.²⁹

1.4 Conclusion

It is hoped that the research findings summarised in this report will inform discussion and action around charting new pathways for economic growth and transformation and underpinning an era of intensified public-private collaboration on market co-creation.

These findings present some clear initial signals on the potential for deploying ubiquitous and emerging technologies for public good. On technological priorities, the results highlight the need to ensure that technology is being deployed to meet key societal needs, with respondents stressing the importance of agriculture, education and energy. These three domains also featured prominently when respondents were asked to identify the sectors where their chosen technologies would enable market creation, but the top global result here was the information and

technology services category. On market bottlenecks, the three most frequently cited were talent, infrastructure and the need for public sector initiative.

The findings from leading executives around the world can be interpreted as a strong signal from the private sector that a dynamic public sector would be welcome as a means of unlocking untapped potential for market creation. The evidence of new approaches to industrial and investment policy around the world suggest that this kind of public-sector dynamism may be on an upswing. This may augur well for the markets of tomorrow, which will ultimately rest on a shift towards identifying and solving the key strategic challenges in different national contexts and building dialogue and symbiotic partnerships between public and private sectors, fuelled by the need to solve the most pressing problems.

Data in focus

This chapter of the report presents the data in the form of technology, sector and obstacle world maps, as well as economy-level data for a select number of G20 economies. No two economies are alike, and strategic technology priorities, enabling sectors and obstacles to market creation differ. The patterns identified in the first chapter are complemented with a more granular perspective to allow readers to dig deeper and gain additional insights.

There are four sections in chapter 2. In the first, the global picture is presented for the top ten strategically important technologies. Technology maps illustrate regional patterns for each technology and are accompanied by lists showing the ten economies in which each technology is cited most frequently as a strategic priority. For example, in this section, it is possible to observe where health and care technologies matter, how the strategic divide on climate change mitigation technology manifests itself and where respondents see the greatest future role for artificial intelligence.

In the second section, there is a similar data presentation relating to the sectors viewed as offering the most potential for market creation. Again, there are maps for each of the top ten sectors, as well as lists displaying the ten economies where each of these sectors is afforded

the most importance. From these, patterns can be seen in the global results, such as the fact that the information and technology services sector is cited on all continents as being likely to enable the growth of new markets, while the financial services and capital markets sectors rank more highly in South Asia than elsewhere.

In the third section, the most likely bottlenecks hindering the growth of new markets are presented in a similar fashion. Among other things, the section highlights the demand for skills and talent in high-income economies while also giving a clear overview of the economies in need of infrastructure upgrades or additional fiscal space.

In the final section of chapter 2, the top technologies, sectors and obstacles are reported for a select number of G20 economies. Each of these rankings is different and points towards unique opportunities. This section sheds light on the priorities within economies and on the differences between them.

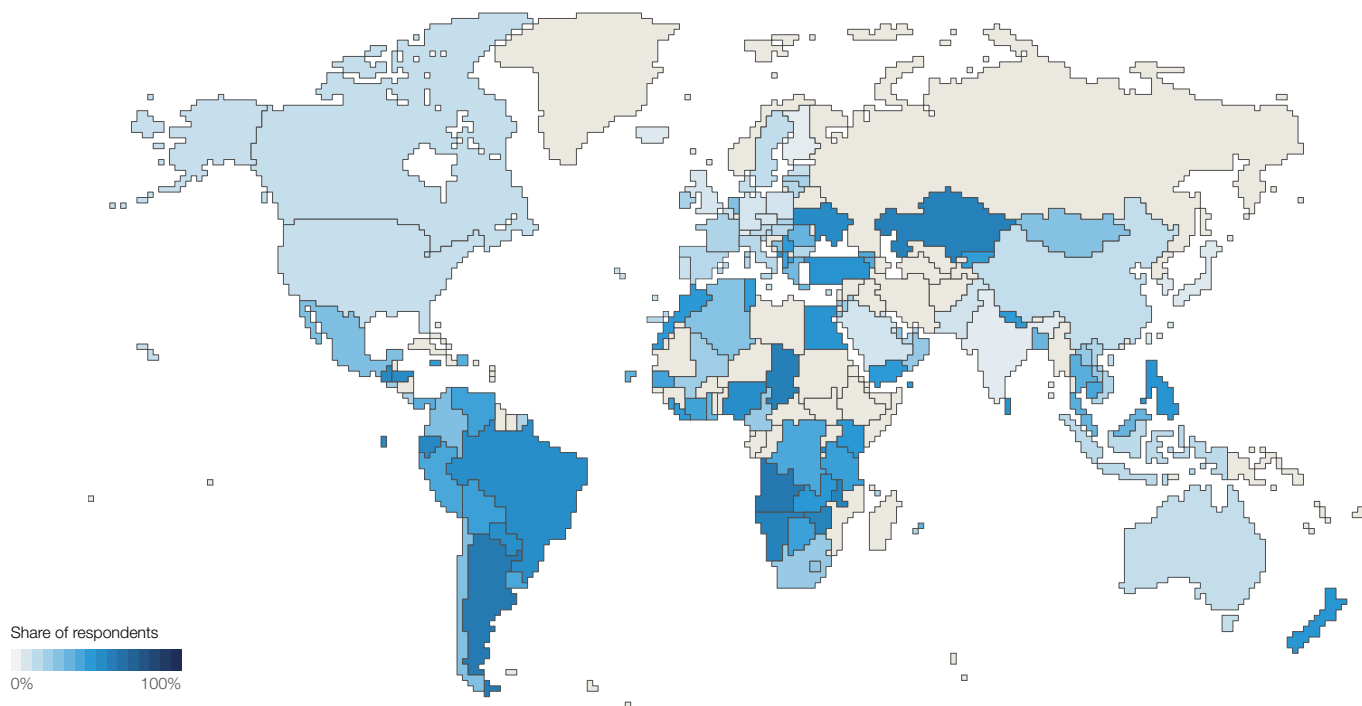
These data can serve as a first overview, providing initial direction and helping identify patterns for further investigation. The results highlight a clear need for further consultations and research at the economy level as well as dialogue to help navigate trade-offs and align investment goals with national priorities.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Agriculture technologies

WORLD AVERAGE **29.7%**



Top ten economies

citing agriculture technologies as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Angola	61.7%		+19.0%	Lower middle income		+24.6%
2	Argentina	61.1%		+20.7%	Upper middle income		+22.6%
3	Chad	58.5%		+15.8%	Low income		+12.8%
4	Kazakhstan	58.3%		+11.3%	Upper middle income		+19.9%
5	Namibia	57.6%		+14.9%	Upper middle income		+19.2%
6	Zimbabwe	56.9%		+14.2%	Lower middle income		+19.8%
7	Malawi	56.5%		+13.8%	Low income		+10.8%
8	Guatemala	55.1%		+14.7%	Upper middle income		+16.6%
9	Ecuador	54.3%		+14.0%	Upper middle income		+15.9%
10	Rwanda	53.4%		+10.7%	Low income		+7.7%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

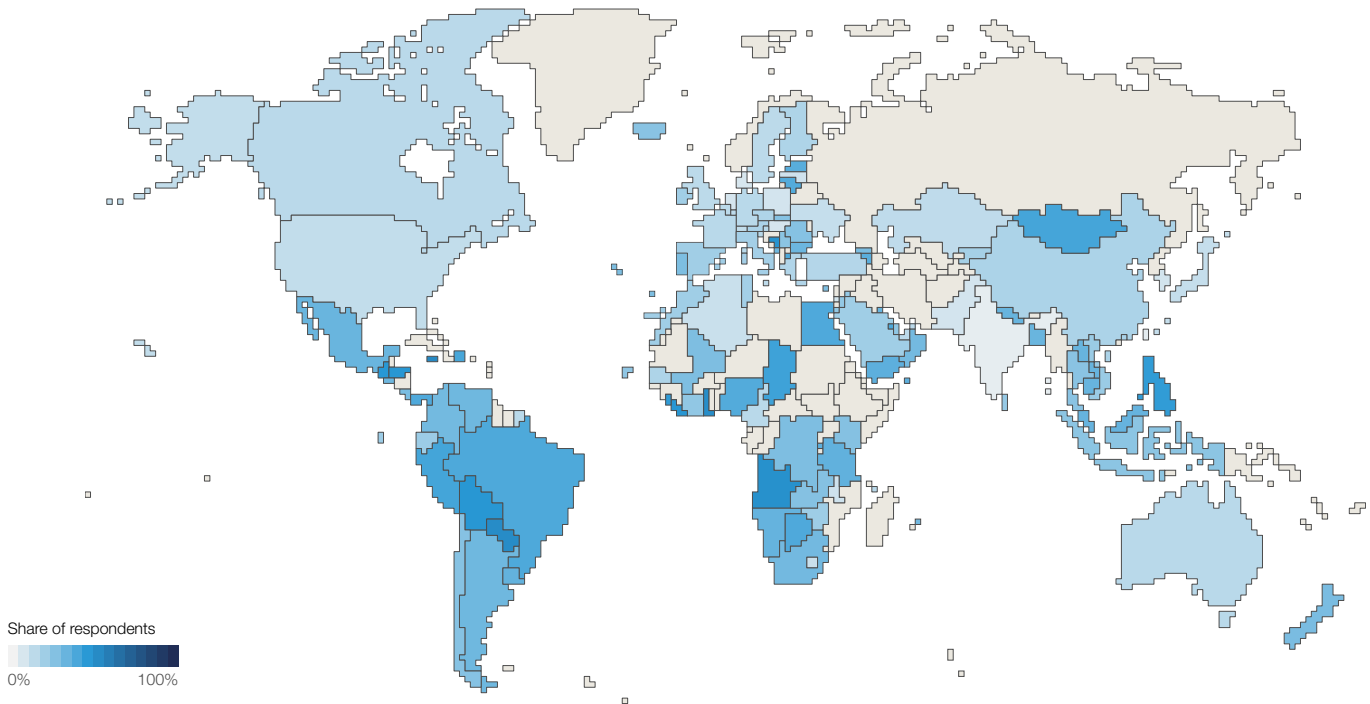
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Education and workforce development technologies

WORLD AVERAGE **25.8%**



Top ten economies

citing education and workforce development technologies as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Jamaica	54.1%		+16.9%	Upper middle income		+21.5%
2	Paraguay	52.6%		+15.5%	Upper middle income		+20.1%
3	Ghana	52.2%		+21.4%	Lower middle income		+24.7%
4	Angola	50.6%		+19.8%	Lower middle income		+23.1%
5	Bosnia and Herzegovina	49.4%		+29.1%	Upper middle income		+16.8%
6	Liberia	48.1%		+17.4%	Low income		+14.9%
7	Honduras	47.8%		+10.6%	Lower middle income		+20.2%
8	Bolivia (Plurinational State of)	47.7%		+10.6%	Lower middle income		+20.2%
9	Guatemala	47.2%		+10.0%	Upper middle income		+14.7%
10	Sierra Leone	45.6%		+14.8%	Low income		+12.4%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

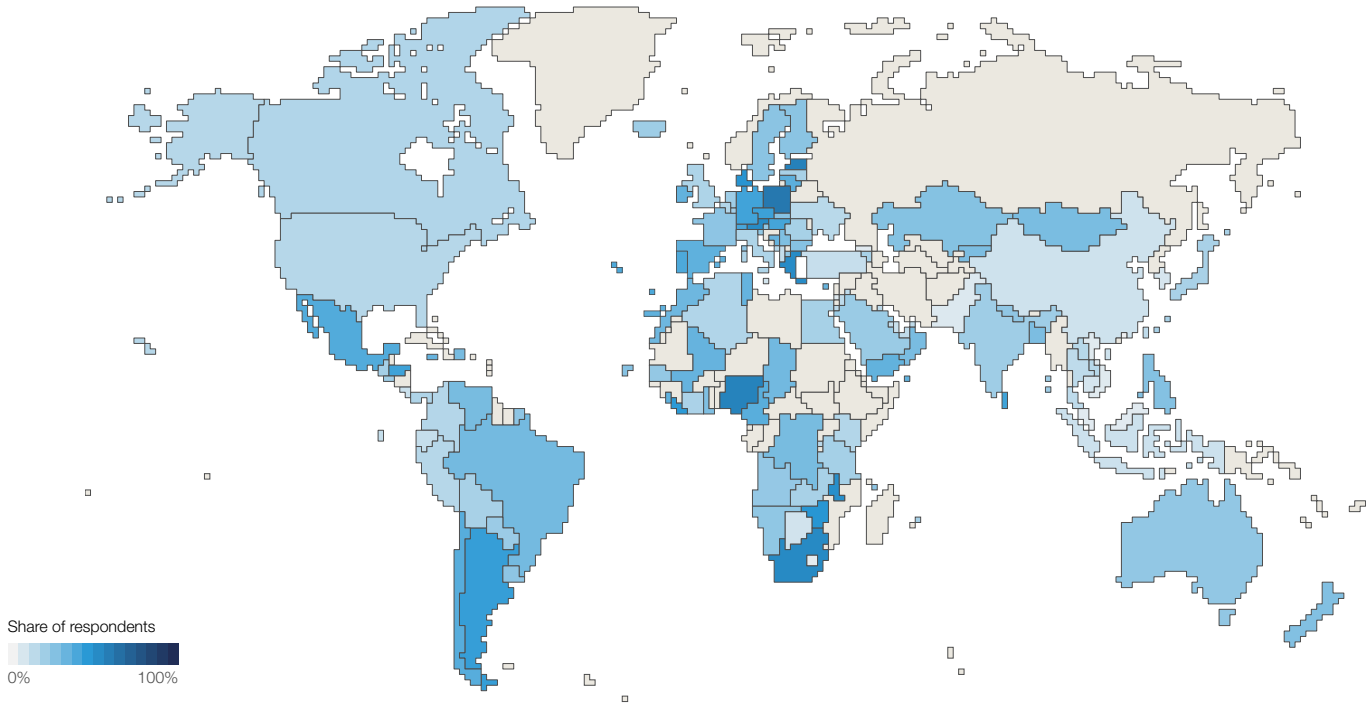
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Power storage and generation

WORLD AVERAGE **24.5%**



Top ten economies

citing power storage and generation as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Poland	62.2%		+32.3%	High income		+36.4%
2	Estonia	57.9%		+28.0%	High income		+32.1%
3	Nigeria	57.0%		+28.3%	Lower middle income		+33.4%
4	South Africa	53.8%		+25.2%	Upper middle income		+33.2%
5	Greece	53.2%		+23.3%	High income		+27.4%
6	Austria	53.0%		+23.1%	High income		+27.2%
7	Malawi	51.1%		+22.5%	Low income		+18.5%
8	Denmark	48.7%		+18.8%	High income		+22.9%
9	Zimbabwe	48.0%		+19.4%	Lower middle income		+24.5%
10	Barbados	46.4%		+20.9%	High income		+20.6%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

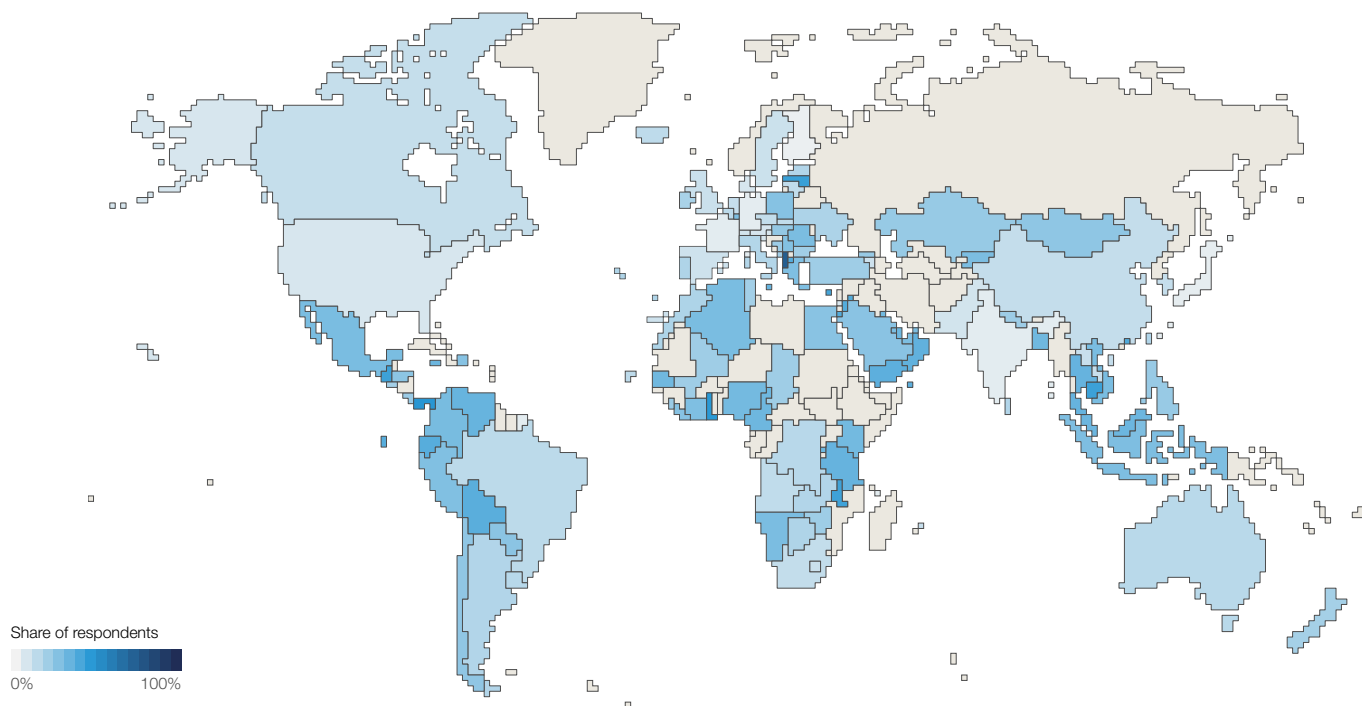
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

E-commerce and digital trade

WORLD AVERAGE **22.8%**



Top ten economies

citing e-commerce and digital trade as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Albania	74.7%		+54.8%	Upper middle income		+48.1%
2	Trinidad and Tobago	48.6%		+20.0%	High income		+29.4%
3	Panama	48.0%		+19.3%	High income		+28.8%
4	Ghana	46.7%		+22.9%	Lower middle income		+22.8%
5	Latvia	43.6%		+23.7%	High income		+24.5%
6	Kosovo*	43.3%		+23.4%	Upper middle income		+16.7%
7	Cambodia	42.9%		+20.7%	Lower middle income		+19.0%
8	Guatemala	42.7%		+14.1%	Upper middle income		+16.1%
9	Malawi	42.4%		+18.6%	Low income		+17.2%
10	Cyprus	41.0%		+21.1%	High income		+21.9%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

Source: Executive Opinion Survey 2022.

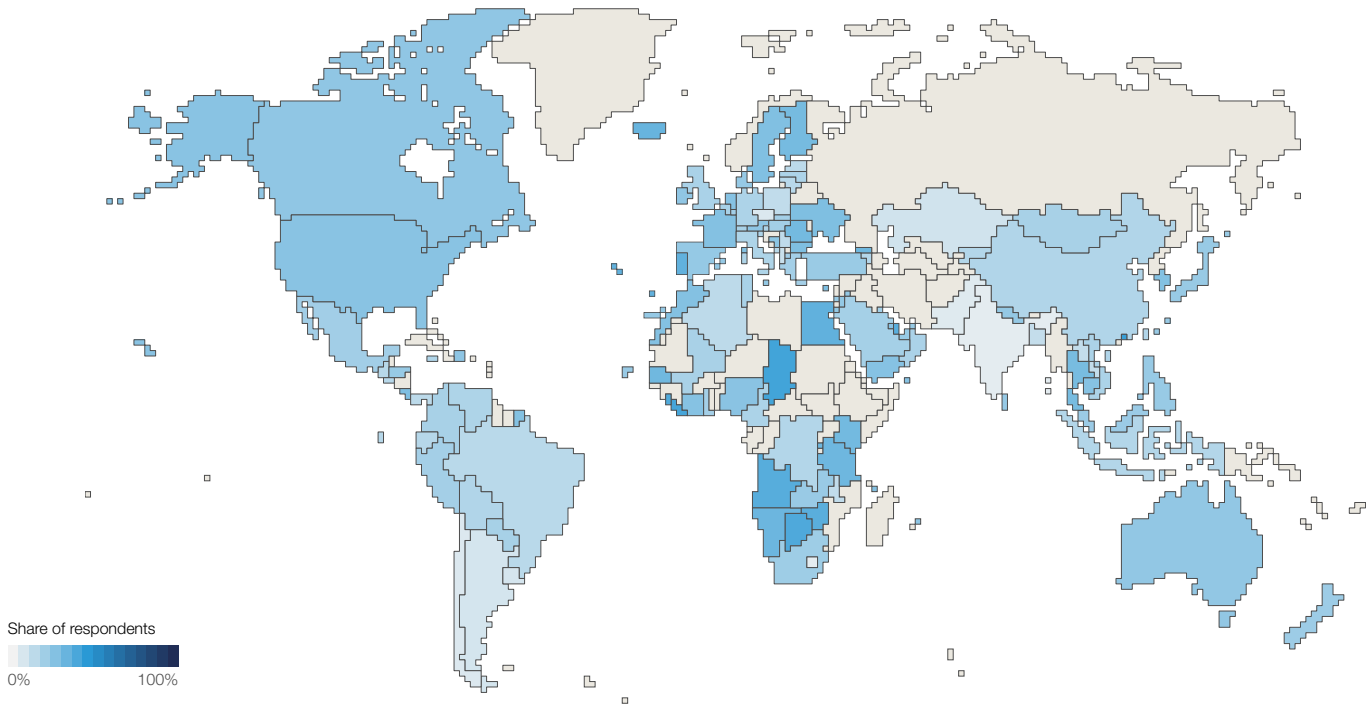
*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Health and care technologies

WORLD AVERAGE **21.3%**



Top ten economies

citing health and care technologies as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Hong Kong SAR, China	43.9%		+21.6%	High income		+22.7%
2	Chad	41.5%		+14.8%	Low income		+14.2%
3	Liberia	40.7%		+14.0%	Low income		+13.4%
4	Botswana	38.8%		+12.0%	Upper middle income		+18.6%
5	Sierra Leone	38.6%		+11.9%	Low income		+11.3%
6	Angola	37.0%		+10.3%	Lower middle income		+16.3%
7	Qatar	36.5%		+13.2%	High income		+15.2%
8	Zimbabwe	36.3%		+9.5%	Lower middle income		+15.6%
9	Portugal	34.8%		+14.0%	High income		+13.5%
10	Egypt	34.7%		+11.4%	Lower middle income		+14.0%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

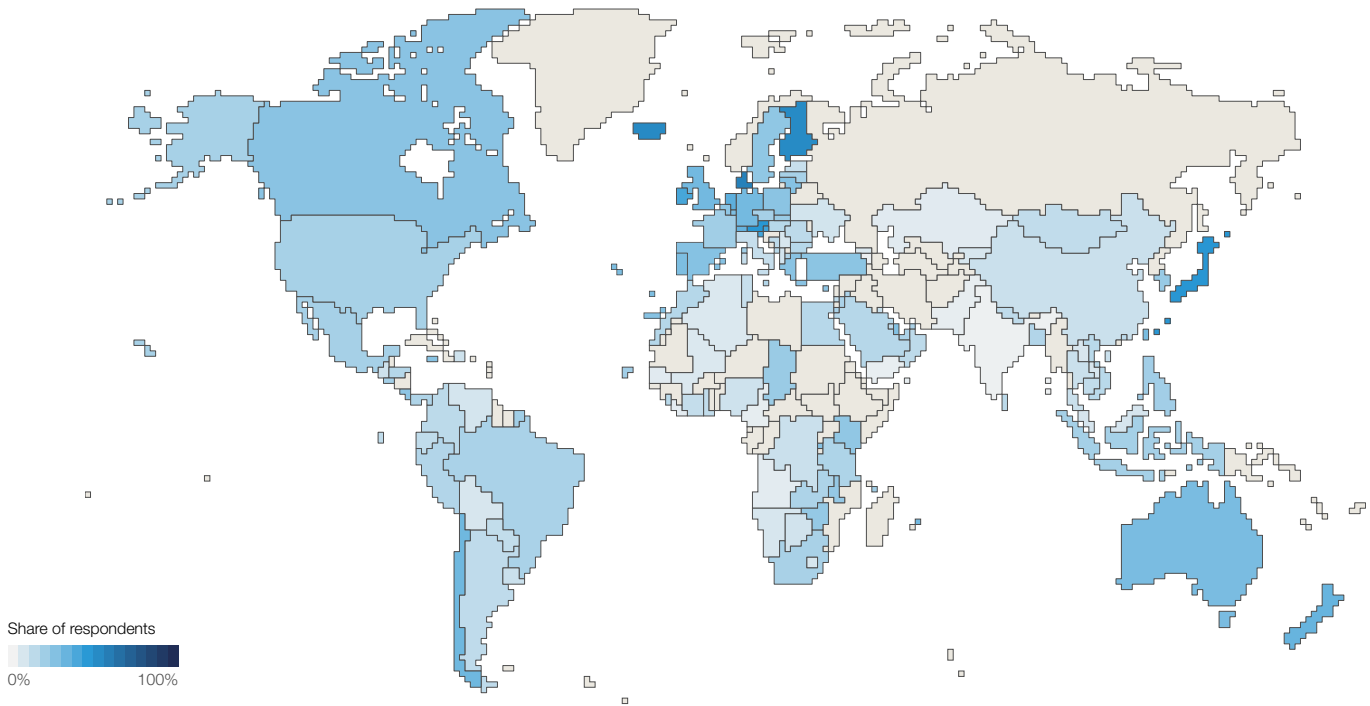
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Climate change mitigation technology

WORLD AVERAGE **18.2%**



Top ten economies

citing climate-change mitigation technology as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Barbados	60.7%		+42.4%	High income		+34.1%
2	Denmark	57.9%		+32.7%	High income		+31.3%
3	Iceland	53.8%		+28.7%	High income		+27.3%
4	Finland	53.3%		+28.2%	High income		+26.8%
5	Japan	48.0%		+28.3%	High income		+21.4%
6	Austria	47.8%		+22.6%	High income		+21.3%
7	Slovenia	41.6%		+16.4%	High income		+15.0%
8	Ireland	40.6%		+15.4%	High income		+14.0%
9	Netherlands	35.7%		+10.5%	High income		+9.1%
10	Switzerland	33.8%		+8.6%	High income		+7.2%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

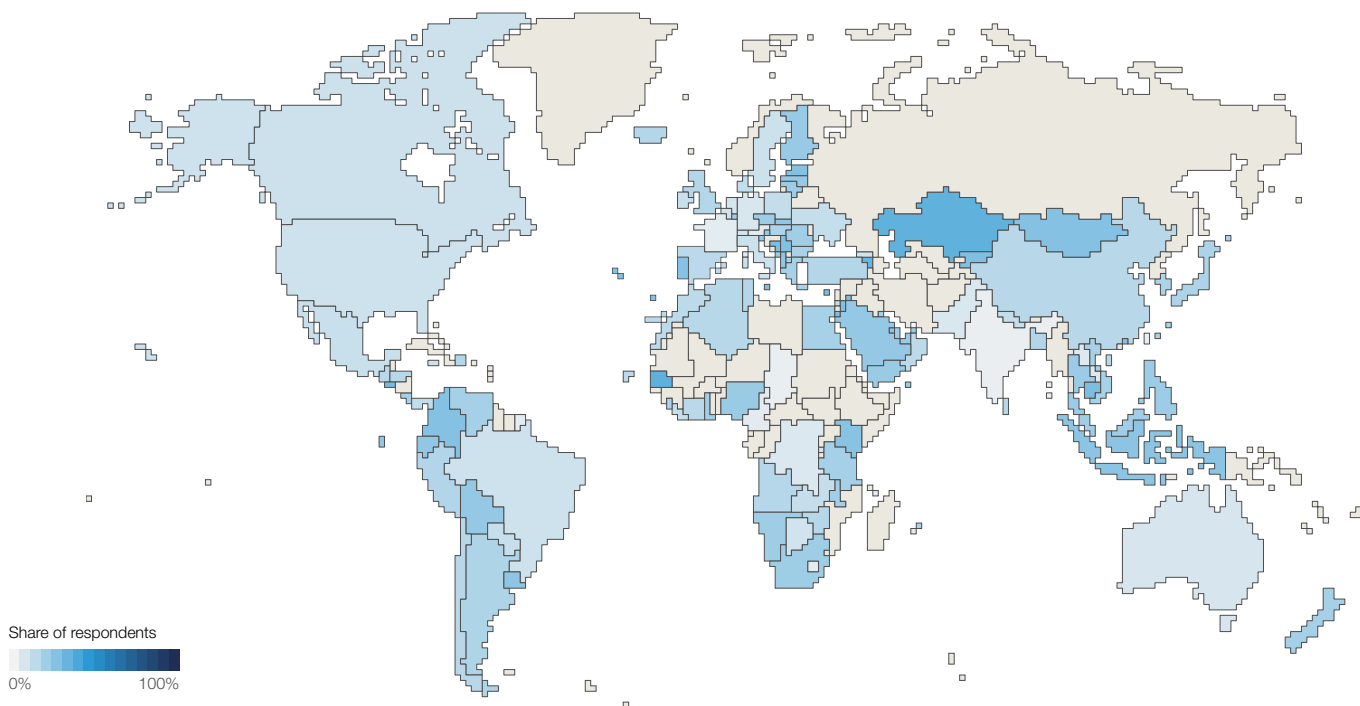
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Digital platforms and apps

WORLD AVERAGE **16.8%**



Top ten economies

citing digital platforms and apps as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Senegal	35.4%		+20.6%	Lower middle income		+18.5%
2	Kazakhstan	34.7%		+13.1%	Upper middle income		+15.3%
3	Armenia	33.3%		+11.7%	Upper middle income		+14.0%
4	Kosovo*	33.3%		+15.6%	Upper middle income		+14.0%
5	El Salvador	30.2%		+13.7%	Lower middle income		+13.2%
6	Bosnia and Herzegovina	28.6%		+10.8%	Upper middle income		+9.2%
7	Cambodia	28.6%		+11.0%	Lower middle income		+11.6%
8	Cyprus	28.2%		+10.5%	High income		+12.4%
9	Malta	28.2%		+10.5%	High income		+12.4%
10	Jordan	27.5%		+8.8%	Upper middle income		+8.2%

Region

Central Asia	Middle East and North Africa
East Asia and the Pacific	North America
Europe	South Asia
Latin America and the Caribbean	Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

Source: Executive Opinion Survey 2022.

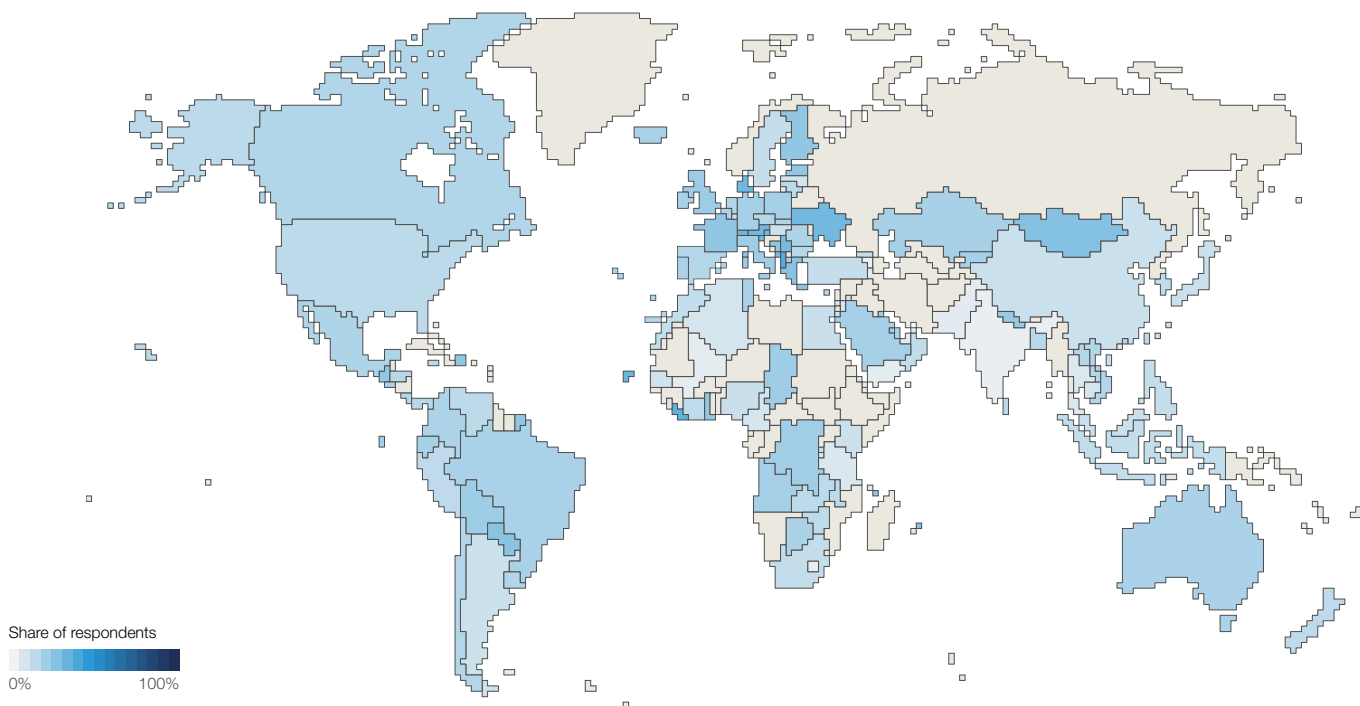
*This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Environmental management technologies

WORLD AVERAGE **15.7%**



Top ten economies

citing environmental management technologies as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Albania	36.7%		+17.2%	Upper middle income		+20.3%
2	Liberia	35.2%		+20.7%	Low income		+21.3%
3	Cape Verde	32.6%		+18.1%	Lower middle income		+18.6%
4	Switzerland	32.5%		+13.0%	High income		+15.8%
5	Denmark	31.6%		+12.1%	High income		+14.9%
6	Austria	31.3%		+11.8%	High income		+14.7%
7	Ukraine	31.0%		+15.8%	Lower middle income		+17.0%
8	Slovenia	30.3%		+10.8%	High income		+13.7%
9	Serbia	29.8%		+10.3%	Upper middle income		+13.4%
10	Montenegro	29.3%		+9.8%	Upper middle income		+12.8%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

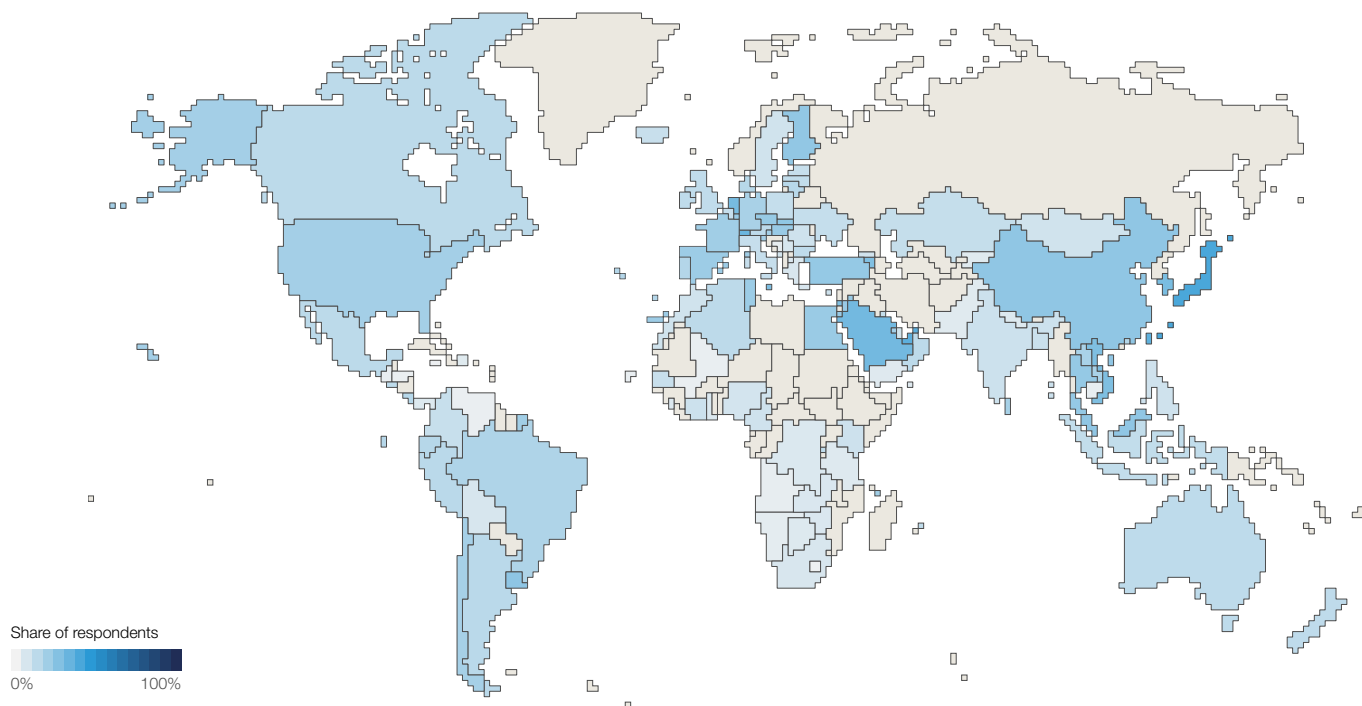
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Artificial intelligence

WORLD AVERAGE **13.5%**



Top ten economies

citing artificial intelligence as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Japan	40.0%		+19.6%	High income		+21.7%
2	United Arab Emirates	35.8%		+17.6%	High income		+17.5%
3	Taiwan, China	35.2%		+14.8%	High income		+17.0%
4	Singapore	34.4%		+14.1%	High income		+16.2%
5	Switzerland	32.5%		+17.7%	High income		+14.2%
6	Saudi Arabia	30.7%		+12.5%	High income		+12.4%
7	Netherlands	29.8%		+15.0%	High income		+11.5%
8	South Korea	29.0%		+8.6%	High income		+10.7%
9	Malta	28.2%		+13.5%	High income		+9.9%
10	Israel	28.0%		+9.9%	High income		+9.8%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	Lower middle income
East Asia and the Pacific	North America	Upper middle income	High income
Europe	South Asia		
Latin America and the Caribbean	Sub-Saharan Africa		

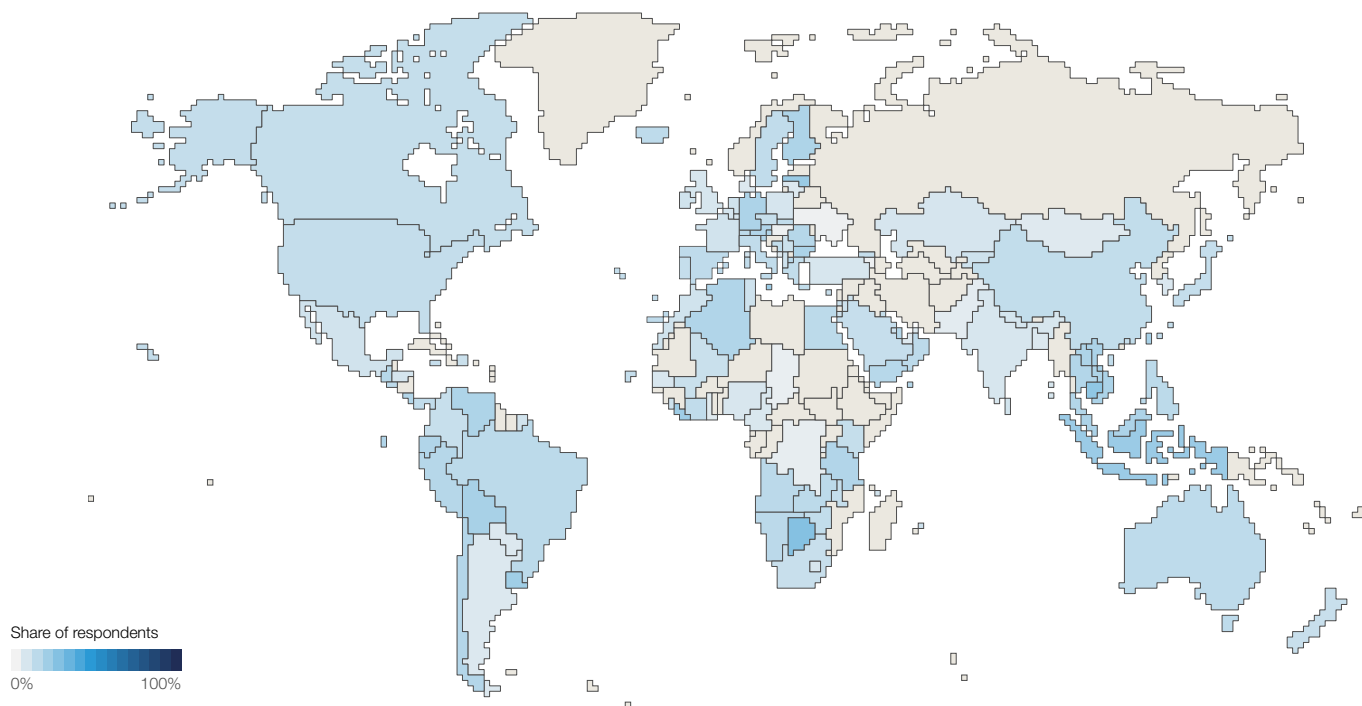
Source: Executive Opinion Survey 2022.

Overview of the most-cited technologies

Which technologies are of strategic importance for your country in the next 10 years?

Internet of things and connected devices

WORLD AVERAGE **11.1%**



Top ten economies

citing internet of things and connected devices as a strategic priority

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Botswana	26.5%		+16.2%	Upper middle income		+15%
2	Cambodia	23.8%		+9.9%	Lower middle income		+13.2%
3	Latvia	21.3%		+9.9%	High income		+10.0%
4	Indonesia	21.2%		+7.3%	Lower middle income		+10.6%
5	Malta	20.5%		+9.2%	High income		+9.3%
6	Liberia	20.4%		+10.1%	Low income		+10.7%
7	Uruguay	20.0%		+8.1%	High income		+8.8%
8	Bolivia (Plurinational State of)	18.2%		+6.2%	Lower middle income		+7.6%
9	Taiwan, China	18.2%		+4.3%	High income		+6.9%
10	Viet Nam	17.2%		+3.3%	Lower middle income		+6.6%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

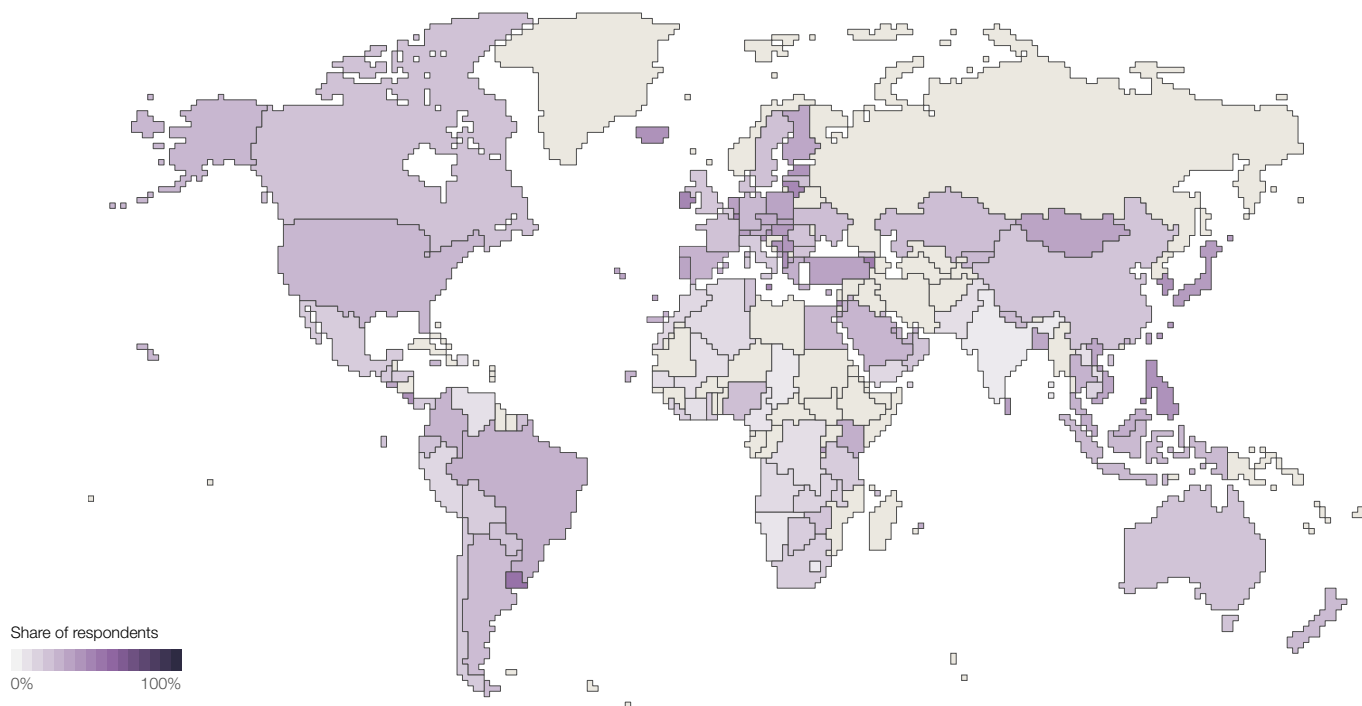
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Information and technology services

WORLD AVERAGE **24.1%**



Top ten economies

where information and technology services are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Uruguay	54.9%		+32.2%	High income		+25.5%
2	Armenia	50.8%		+23.2%	Upper middle income		+26.5%
3	Ireland	46.2%		+16.1%	High income		+16.8%
4	Malta	45.9%		+15.8%	High income		+16.5%
5	Lithuania	45.1%		+14.9%	High income		+15.6%
6	Luxembourg	44.2%		+14.0%	High income		+14.7%
7	Albania	41.8%		+11.6%	Upper middle income		+17.5%
8	Israel	41.6%		+19.6%	High income		+12.1%
9	Iceland	41.0%		+10.9%	High income		+11.6%
10	South Korea	41.0%		+13.3%	High income		+11.5%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

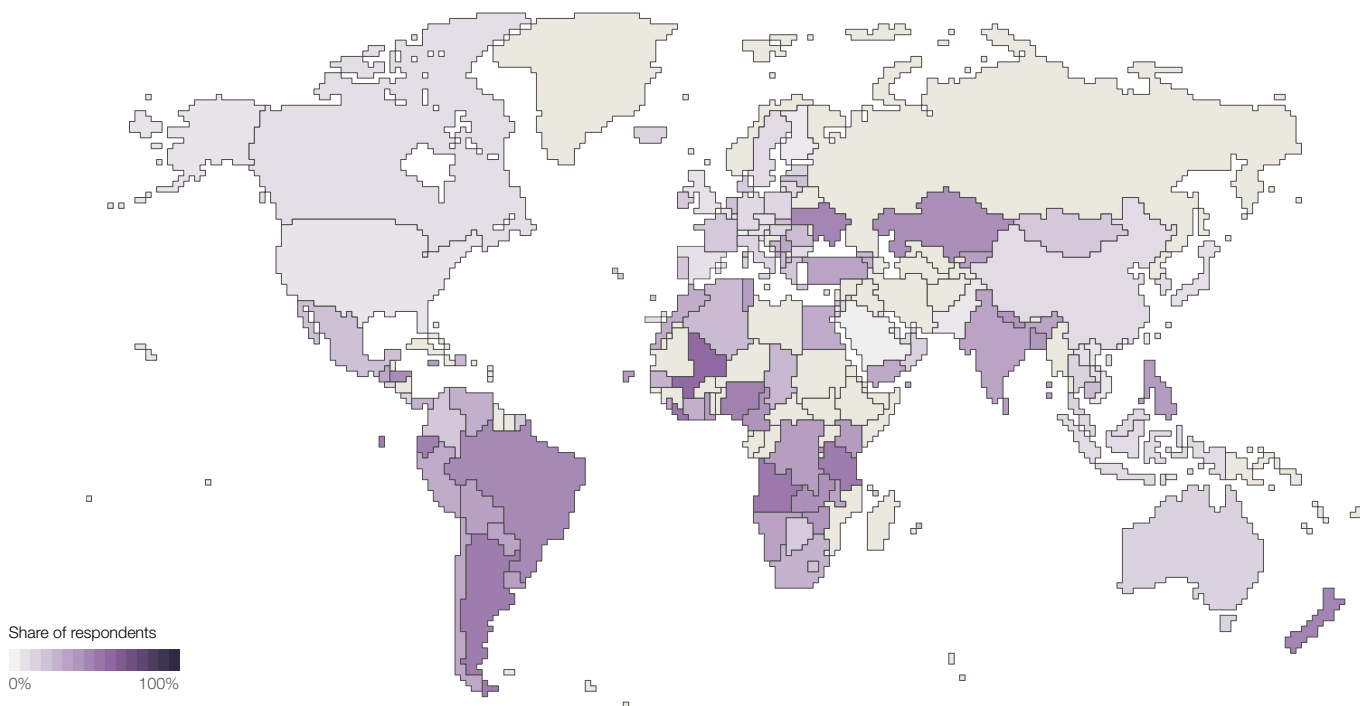
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Agriculture, forestry and fishing

WORLD AVERAGE **23.1%**



Top ten economies

where agriculture, forestry and fishing are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Mali	58.6%		+22.3%	Low income		+19.7%
2	Liberia	53.7%		+17.4%	Low income		+14.8%
3	Angola	52.2%		+15.9%	Lower middle income		+21.2%
4	Argentina	50.5%		+19.5%	Upper middle income		+24.6%
5	United Republic of Tanzania	50.5%		+14.2%	Lower middle income		+19.5%
6	Ecuador	48.8%		+17.7%	Upper middle income		+22.8%
7	Nigeria	48.1%		+11.8%	Lower middle income		+17.1%
8	Ukraine	47.0%		+12.1%	Lower middle income		+16.0%
9	New Zealand	46.8%		+33.1%	High income		+33.6%
10	Brazil	44.8%		+13.7%	Upper middle income		+18.9%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	
East Asia and the Pacific	North America	Lower middle income	
Europe	South Asia	Upper middle income	
Latin America and the Caribbean	Sub-Saharan Africa	High income	

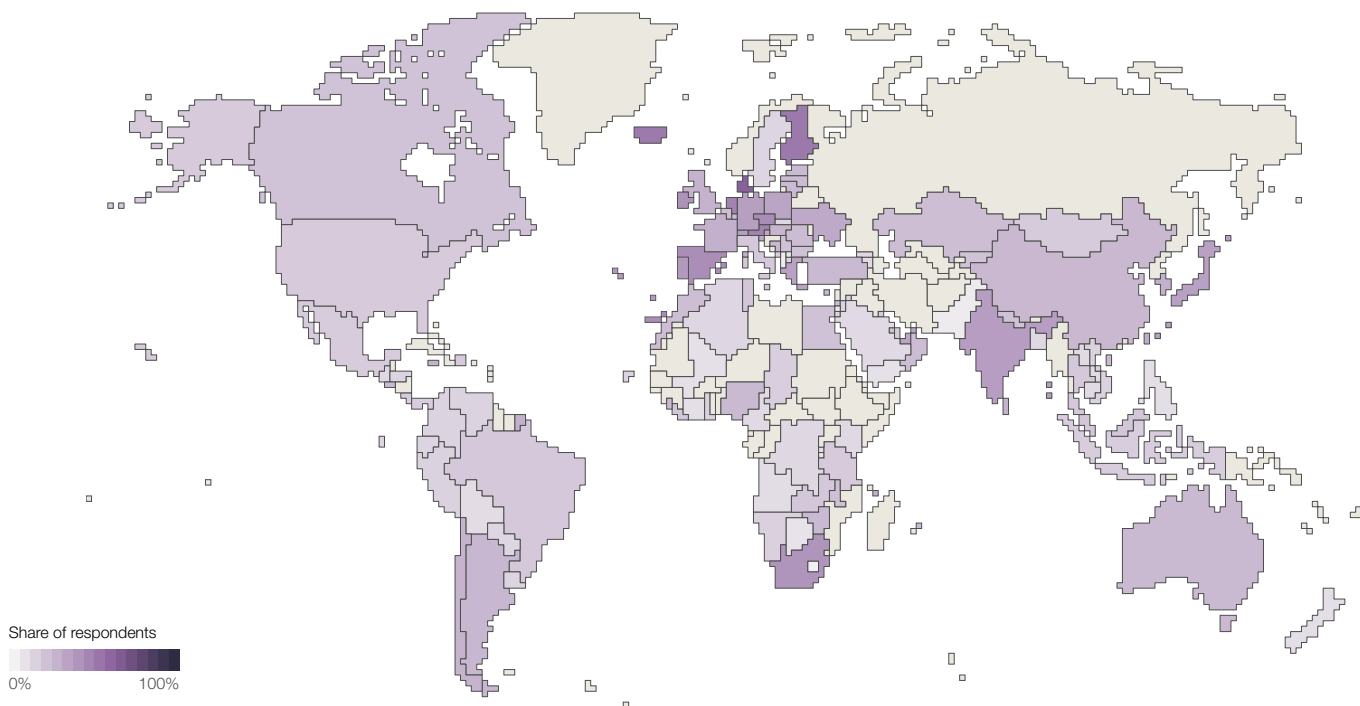
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Energy technology and utilities

WORLD AVERAGE **20.6%**



Top ten economies

where energy technology and utilities are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Denmark	63.2%		+34.6%	High income		+35.9%
2	Finland	51.7%		+23.2%	High income		+24.4%
3	Iceland	51.3%		+22.8%	High income		+24.0%
4	Austria	47.7%		+19.2%	High income		+20.5%
5	Netherlands	47.6%		+19.0%	High income		+20.3%
6	Czechia	43.5%		+15.0%	High income		+16.3%
7	Spain	42.7%		+14.2%	High income		+15.5%
8	Ireland	40.9%		+12.3%	High income		+13.6%
9	South Africa	40.0%		+24.6%	Upper middle income		+23.2%
10	Portugal	38.0%		+9.5%	High income		+10.8%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	
East Asia and the Pacific	North America	Lower middle income	
Europe	South Asia	Upper middle income	
Latin America and the Caribbean	Sub-Saharan Africa	High income	

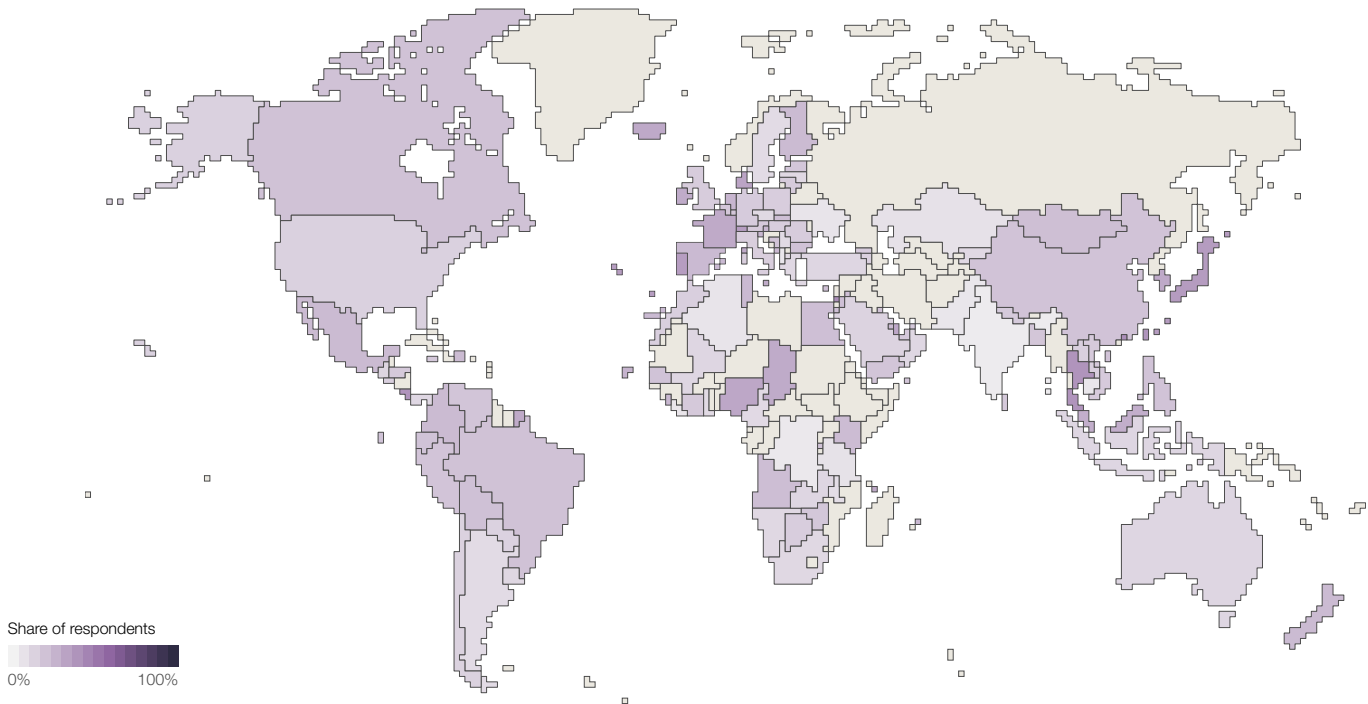
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Medical and healthcare services

WORLD AVERAGE **19.0%**



Top ten economies

where medical and healthcare services are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Israel	42.9%		+22.5%	High income		+20.7%
2	Hong Kong SAR, China	42.3%		+17.4%	High income		+20.2%
3	Taiwan, China	40.0%		+15.1%	High income		+17.9%
4	Costa Rica	39.8%		+21.1%	Upper middle income		+21.4%
5	Thailand	39.7%		+14.8%	Upper middle income		+21.3%
6	Japan	36.4%		+11.5%	High income		+14.2%
7	Switzerland	36.0%		+16.0%	High income		+13.9%
8	Portugal	35.9%		+15.9%	High income		+13.7%
9	Singapore	35.8%		+10.9%	High income		+13.6%
10	Denmark	32.9%		+12.9%	High income		+10.7%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	Lower middle income
East Asia and the Pacific	North America	Upper middle income	High income
Europe	South Asia		
Latin America and the Caribbean	Sub-Saharan Africa		

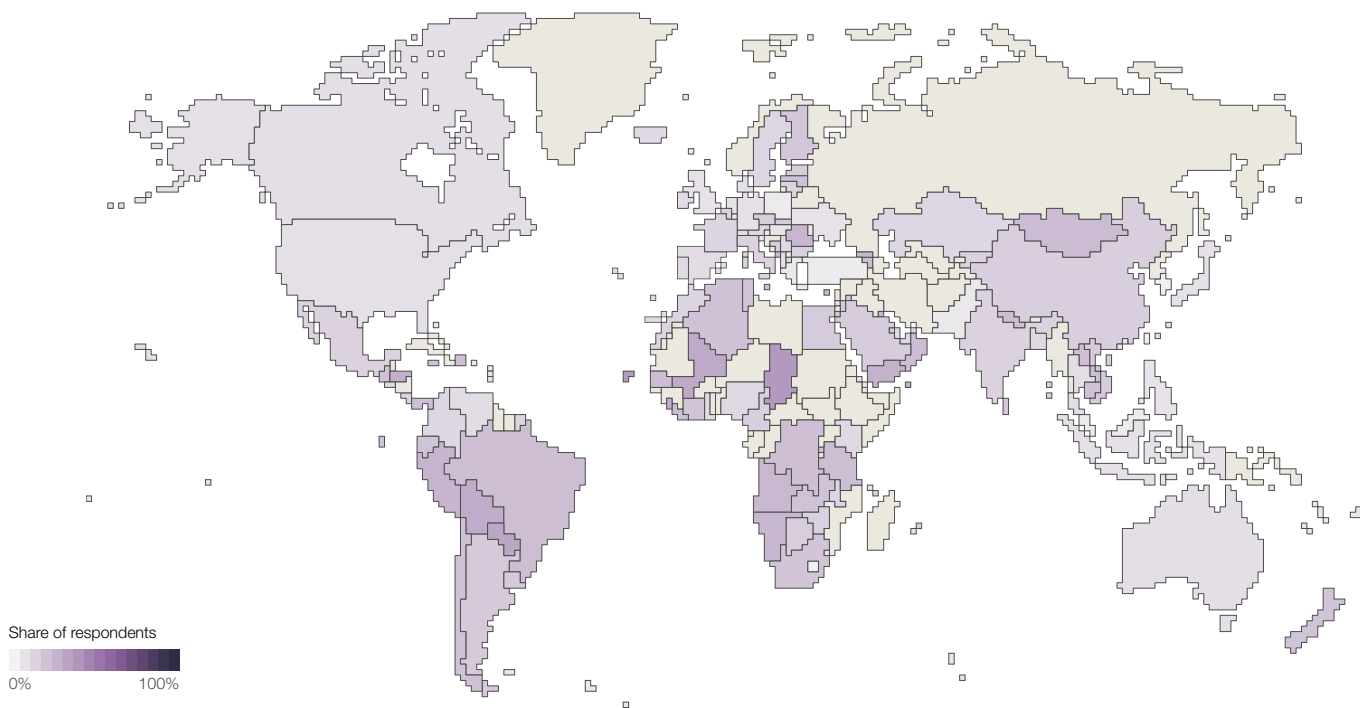
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Education

WORLD AVERAGE **15.2%**



Top ten economies

where the education sector is likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Chad	37.6%		+17.9%	Low income		+13.1%
2	Cape Verde	37.0%		+17.3%	Lower middle income		+20.5%
3	Paraguay	32.0%		+13.4%	Upper middle income		+15.4%
4	Mali	31.0%		+11.3%	Low income		+6.5%
5	Bolivia (Plurinational State of)	29.5%		+11.0%	Lower middle income		+13.1%
6	Sierra Leone	28.8%		+9.1%	Low income		+4.3%
7	Honduras	27.9%		+9.4%	Lower middle income		+11.5%
8	Yemen	27.4%		+10.4%	Low income		+2.9%
9	Peru	25.8%		+7.3%	Upper middle income		+9.2%
10	Romania	25.2%		+12.5%	High income		+13.2%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

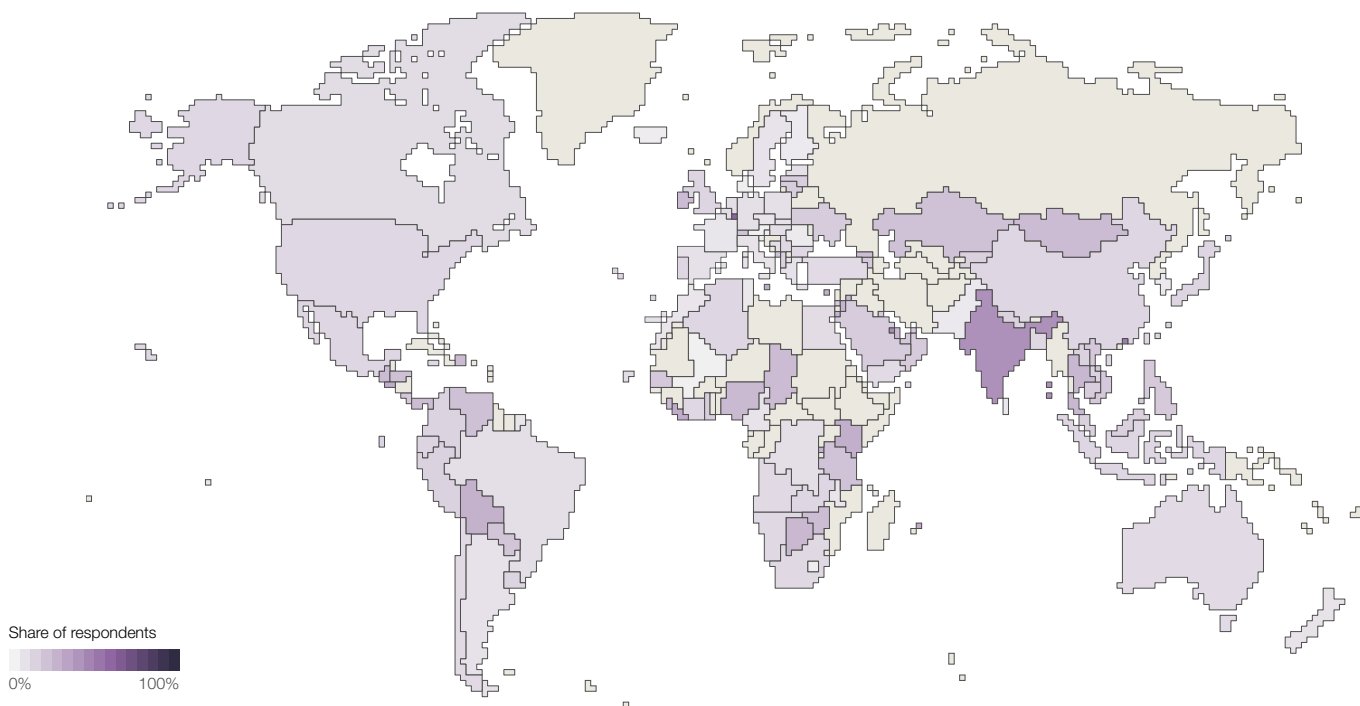
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Financial services and capital markets

WORLD AVERAGE **15.1%**



Top ten economies

where financial services and capital markets are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Luxembourg	60.5%		+49.0%	High income		+45.8%
2	Hong Kong SAR, China	51.0%		+33.9%	High income		+36.3%
3	Bahrain	43.7%		+27.1%	High income		+29.0%
4	India	41.4%		+26.5%	Lower middle income		+26.0%
5	Barbados	35.7%		+17.8%	High income		+21.0%
6	Singapore	30.1%		+13.0%	High income		+15.4%
7	Malta	29.7%		+18.3%	High income		+15.0%
8	Mauritius	29.7%		+13.6%	Upper middle income		+14.4%
9	Liberia	29.6%		+13.5%	Low income		+14.2%
10	El Salvador	29.5%		+11.6%	Lower middle income		+14.1%

Region

Central Asia	Middle East and North Africa
East Asia and the Pacific	North America
Europe	South Asia
Latin America and the Caribbean	Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

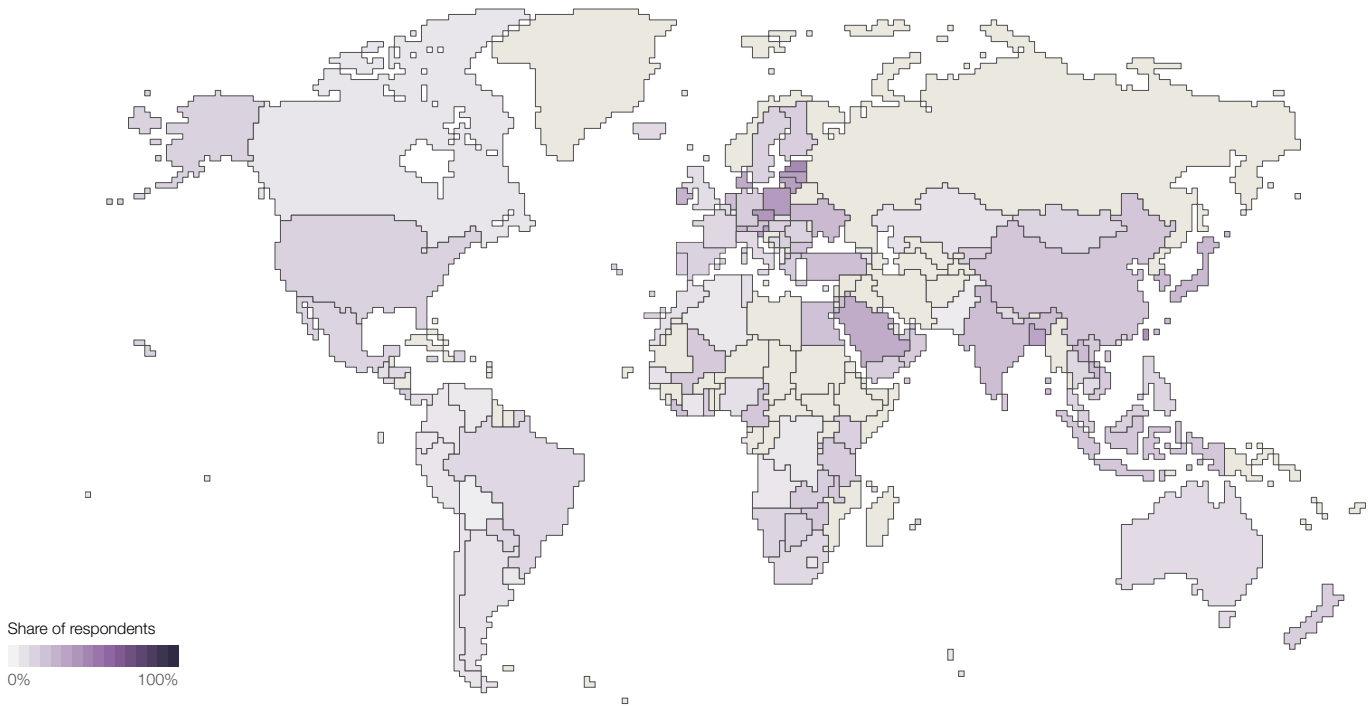
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Advanced manufacturing

WORLD AVERAGE **14.6%**



Top ten economies

where advanced manufacturing is likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Estonia	44.7%		+26.5%	High income		+27.1%
2	Taiwan, China	41.2%		+22.8%	High income		+23.6%
3	Czechia	38.8%		+20.6%	High income		+21.2%
4	Poland	37.3%		+19.1%	High income		+19.7%
5	Slovenia	35.2%		+17.0%	High income		+17.6%
6	Lithuania	35.2%		+16.9%	High income		+17.6%
7	Latvia	34.8%		+16.6%	High income		+17.2%
8	Singapore	34.1%		+15.7%	High income		+16.5%
9	Bangladesh	32.9%		+16.0%	Lower middle income		+19.9%
10	Denmark	30.3%		+12.0%	High income		+12.7%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

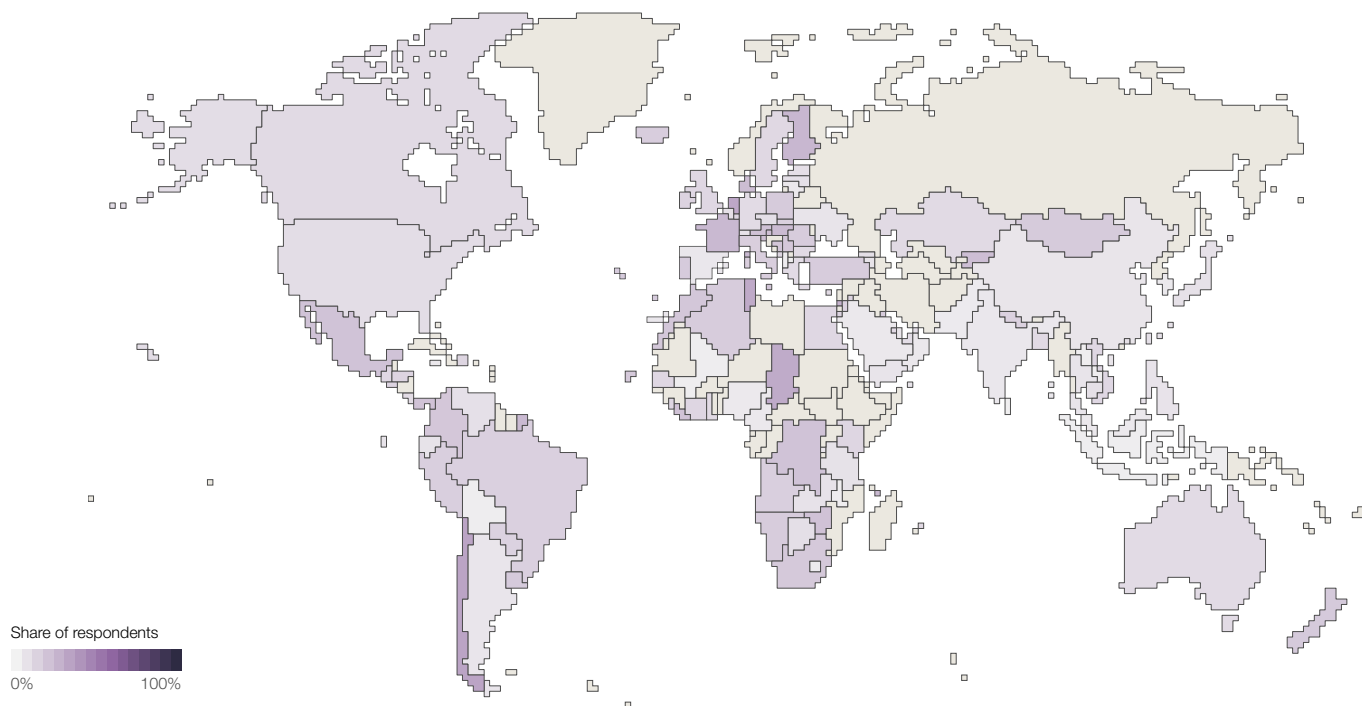
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Water and waste management

WORLD AVERAGE **12.0%**



Top ten economies

where water and waste management are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Chile	33.0%		+19.5%	High income		+19.1%
2	Netherlands	31.7%		+18.1%	High income		+17.9%
3	Tunisia	30.3%		+17.1%	Lower middle income		+19.7%
4	Chad	30.1%		+18.5%	Low income		+18.5%
5	Barbados	28.6%		+15.2%	High income		+14.7%
6	Israel	27.3%		+14.2%	High income		+13.5%
7	Finland	25.0%		+11.4%	High income		+11.2%
8	France	24.1%		+10.5%	High income		+10.2%
9	Hungary	23.1%		+9.5%	High income		+9.3%
10	Denmark	22.4%		+8.8%	High income		+8.5%

Region

Central Asia
East Asia and the Pacific
Europe
Latin America and the Caribbean

Middle East and North Africa
North America
South Asia
Sub-Saharan Africa

Income group

Low income
Lower middle income
Upper middle income
High income

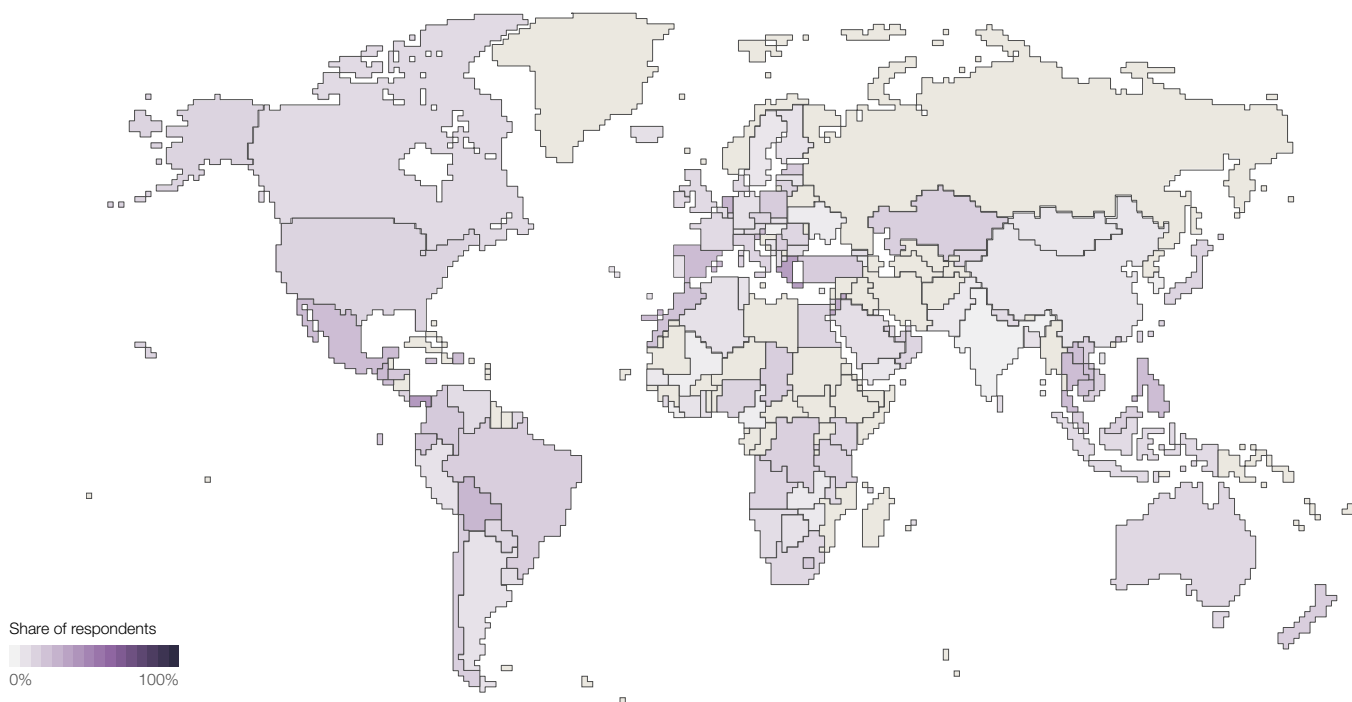
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Supply chain and transport

WORLD AVERAGE **11.7%**



Top ten economies

where supply chain and transport are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Panama	37.8%		+21.2%	High income		+25.7%
2	Greece	35.5%		+24.5%	High income		+23.5%
3	Jordan	30.0%		+18.4%	Upper middle income		+17.2%
4	Netherlands	26.8%		+15.9%	High income		+14.8%
5	Bolivia (Plurinational State of)	25.0%		+8.4%	Lower middle income		+13.7%
6	Guatemala	23.6%		+7.0%	Upper middle income		+10.8%
7	Spain	22.7%		+11.8%	High income		+10.7%
8	Dominican Republic	22.4%		+5.9%	Upper middle income		+9.6%
9	Philippines	22.2%		+8.2%	Lower middle income		+10.9%
10	Mexico	22.1%		+5.5%	Upper middle income		+9.3%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

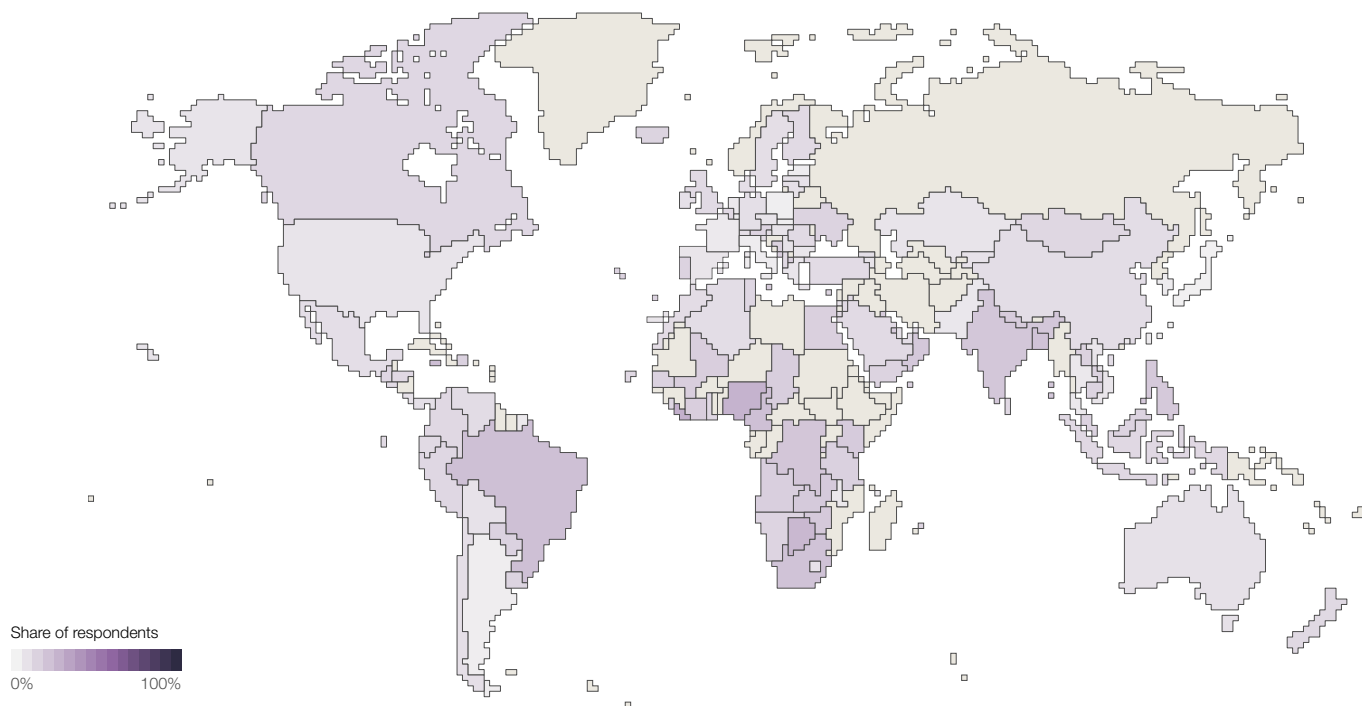
Source: Executive Opinion Survey 2022.

Overview of the most-cited sectors

In which sectors are these technologies most likely to generate new market opportunities?

Employment, education and training services

WORLD AVERAGE **10.8%**



Top ten economies

where employment, education and training services are likely to generate new market opportunities

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Liberia	27.8%		+12.1%	Low income		+12.5%
2	Nigeria	26.6%		+10.9%	Lower middle income		+13.7%
3	Botswana	24.5%		+8.8%	Upper middle income		+13.1%
4	Jamaica	21.9%		+10.5%	Upper middle income		+10.5%
5	Cameroon	21.2%		+5.6%	Lower middle income		+8.4%
6	Brazil	21.2%		+9.8%	Upper middle income		+9.8%
7	Bangladesh	20.0%		+6.1%	Lower middle income		+7.2%
8	Trinidad and Tobago	20.0%		+8.6%	High income		+11.7%
9	South Africa	20.0%		+4.3%	Upper middle income		+8.6%
10	Democratic Republic of the	18.6%		+2.9%	Low income		+3.3%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

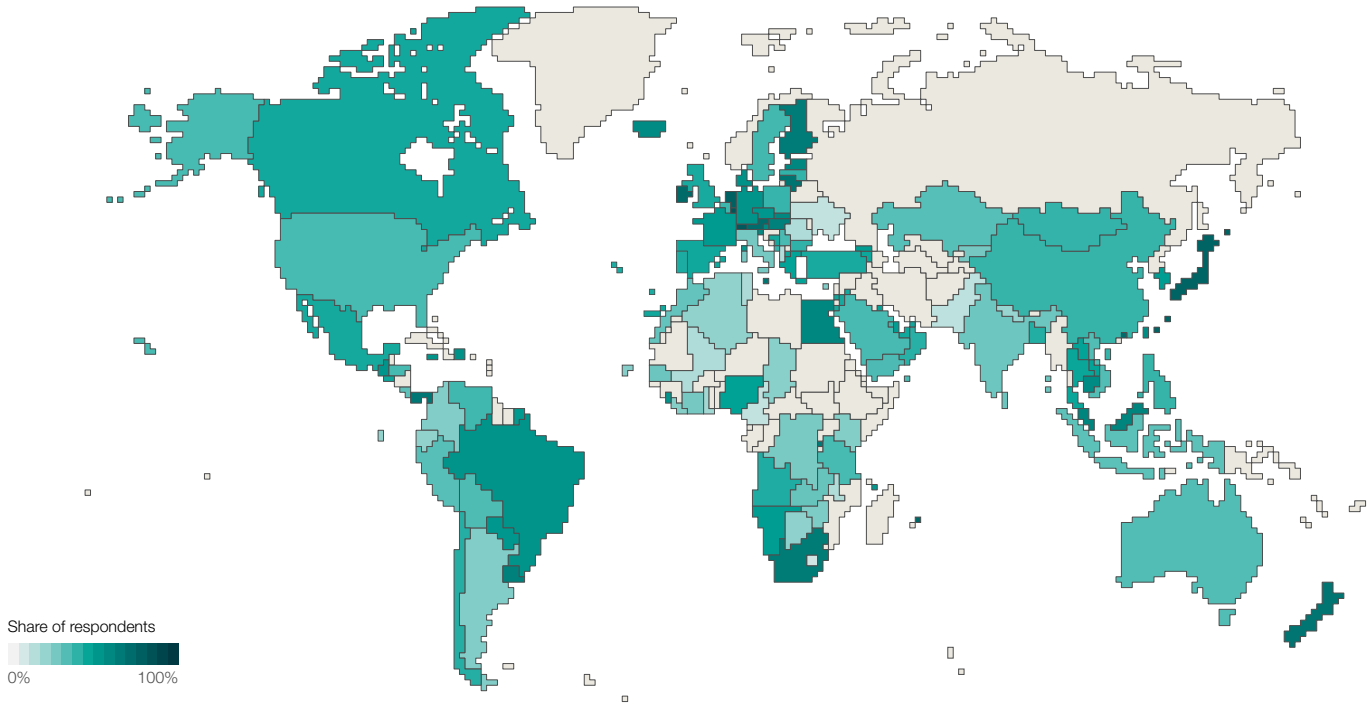
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of skills and talent

WORLD AVERAGE **42.9%**



Top ten economies

where a lack of skills and talent is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Luxembourg	84.6%		+34.3%	High income		+31.6%
2	Switzerland	82.4%		+32.1%	High income		+29.3%
3	Singapore	79.7%		+27.4%	High income		+26.6%
4	Netherlands	78.9%		+28.7%	High income		+25.9%
5	Japan	77.8%		+25.5%	High income		+24.8%
6	Mauritius	76.3%		+43.5%	Upper middle income		+33.7%
7	Ireland	74.5%		+24.2%	High income		+21.4%
8	Austria	72.7%		+22.5%	High income		+19.7%
9	Hong Kong SAR, China	72.7%		+20.5%	High income		+19.7%
10	Lithuania	69.8%		+19.5%	High income		+16.7%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	Lower middle income
East Asia and the Pacific	North America	Upper middle income	High income
Europe	South Asia		
Latin America and the Caribbean	Sub-Saharan Africa		

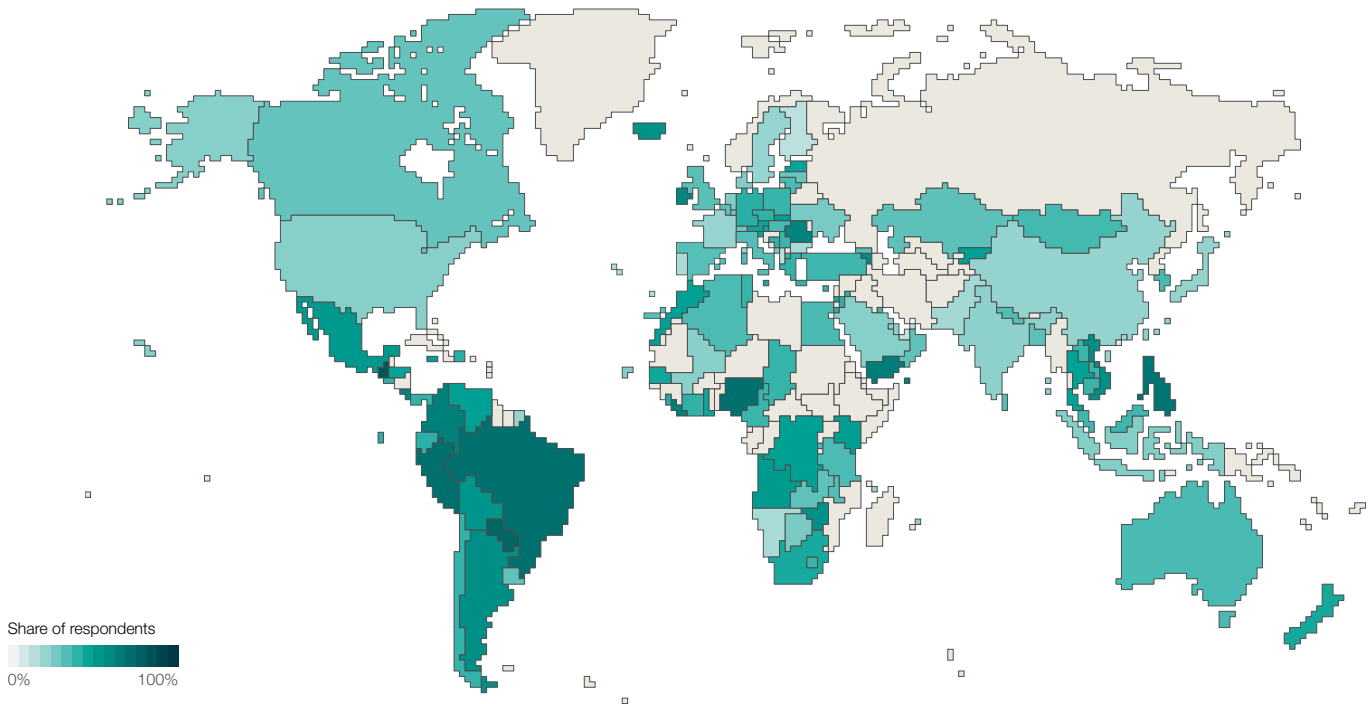
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of needed complementary infrastructure

WORLD AVERAGE **38.6%**



Top ten economies

where a lack of needed complementary infrastructure is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Guatemala	85.0%		+31.3%	Upper middle income		+42.7%
2	Paraguay	76.9%		+23.2%	Upper middle income		+34.6%
3	Nigeria	71.8%		+31.9%	Lower middle income		+30.9%
4	Brazil	71.8%		+18.1%	Upper middle income		+29.5%
5	Peru	71.3%		+17.5%	Upper middle income		+28.9%
6	Philippines	69.3%		+33.9%	Lower middle income		+28.4%
7	Liberia	64.7%		+24.8%	Low income		+22.4%
8	Yemen	64.2%		+29.4%	Low income		+21.9%
9	Colombia	63.7%		+10.0%	Upper middle income		+21.4%
10	Costa Rica	62.5%		+8.8%	Upper middle income		+20.2%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	Lower middle income
East Asia and the Pacific	North America	Upper middle income	High income
Europe	South Asia		
Latin America and the Caribbean	Sub-Saharan Africa		

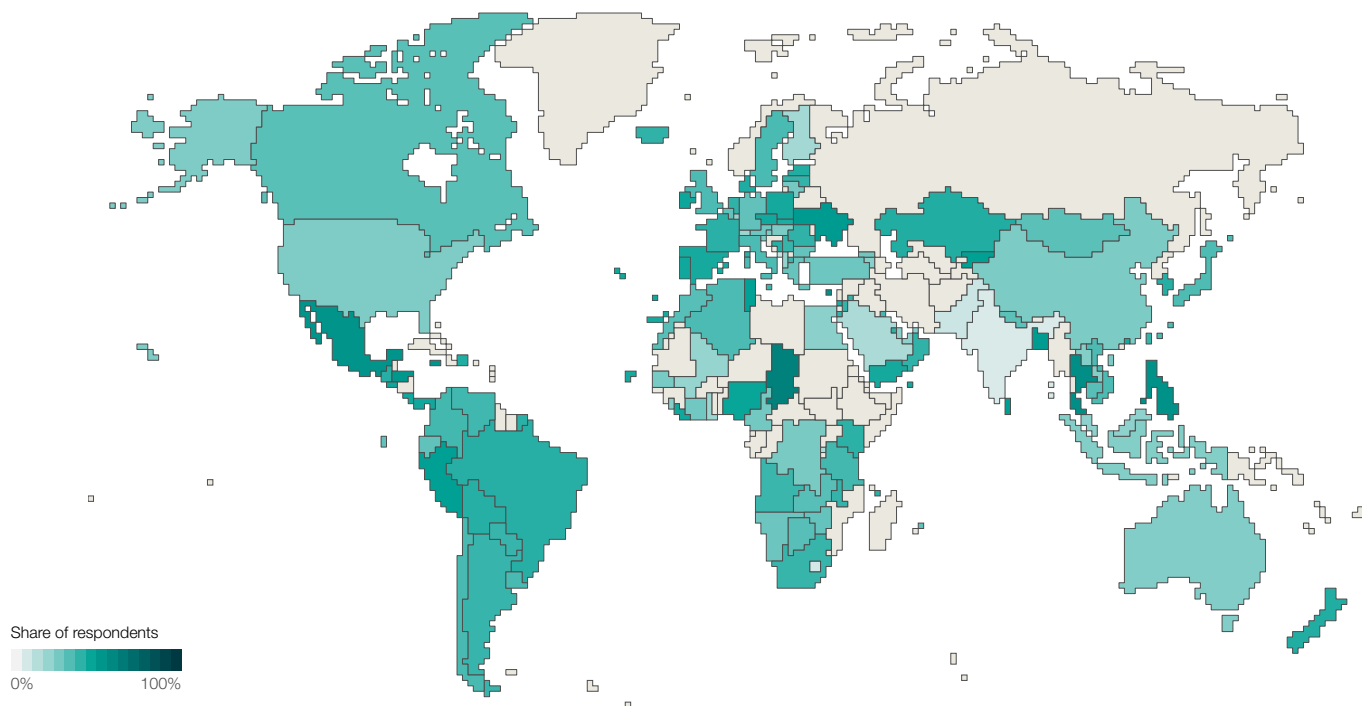
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of initiative from the public sector

WORLD AVERAGE **35.4%**



Top ten economies

where a lack of initiative from the public sector is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Trinidad and Tobago	66.7%		+22.1%	High income		+30.8%
2	Chad	63.4%		+31.4%	Low income		+29.2%
3	Barbados	59.3%		+14.7%	High income		+23.3%
4	Thailand	56.9%		+22.7%	Upper middle income		+20.9%
5	Philippines	56.0%		+21.8%	Lower middle income		+21.5%
6	Cyprus	55.1%		+20.4%	High income		+19.2%
7	Mexico	54.4%		+9.9%	Upper middle income		+18.4%
8	Jamaica	54.3%		+9.8%	Upper middle income		+18.3%
9	Honduras	53.1%		+8.5%	Lower middle income		+18.6%
10	Ukraine	51.0%		+14.3%	Lower middle income		+16.5%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

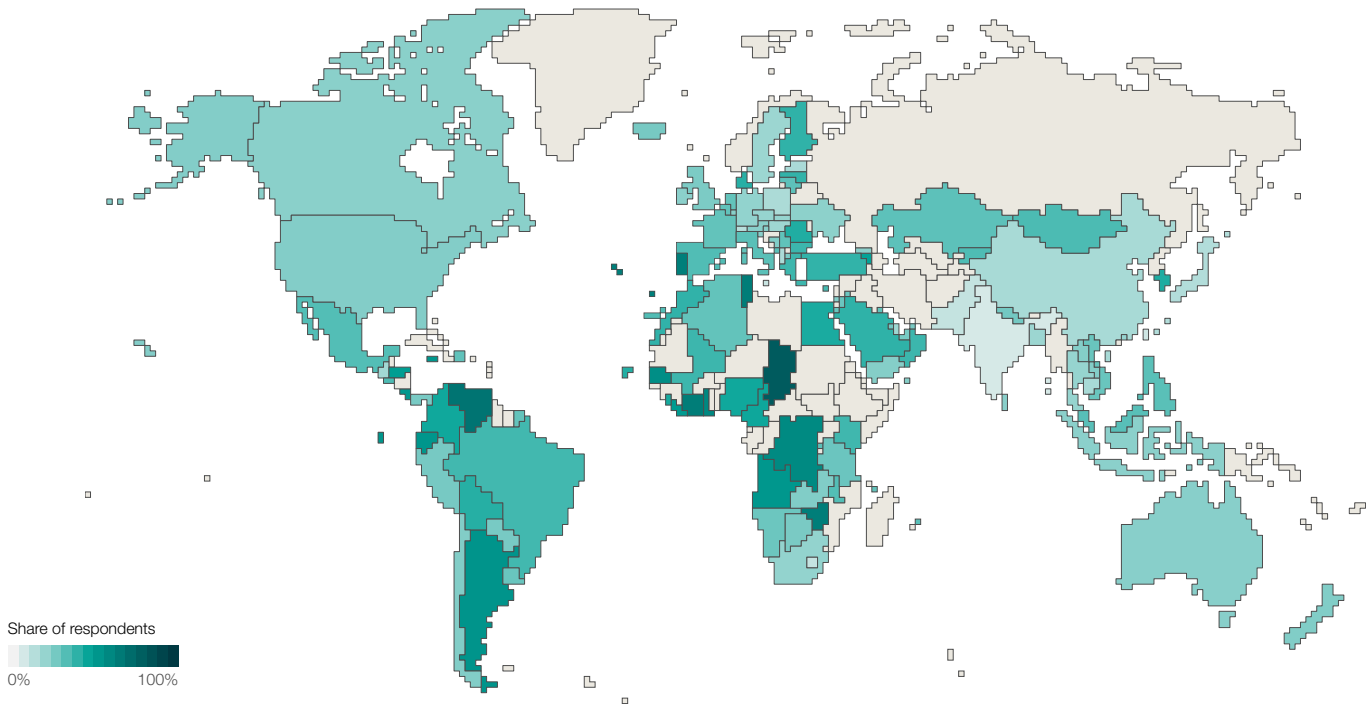
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of fiscal space and private sector financing

WORLD AVERAGE **32.2%**



Top ten economies

where a lack of fiscal space and private sector financing is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Chad	81.7%		+39.2%	Low income		+38.8%
2	Venezuela, Bolivarian Republic	69.4%		+30.4%	n.a.		
3	Côte D'Ivoire	65.4%		+22.9%	Lower middle income		+29.5%
4	Tunisia	65.3%		+31.9%	Lower middle income		+29.4%
5	Zimbabwe	64.6%		+22%	Lower middle income		+28.7%
6	Portugal	64.3%		+36.4%	High income		+37.0%
7	Ghana	60.0%		+17.5%	Lower middle income		+24.1%
8	Democratic Republic of the	59.1%		+16.5%	Low income		+16.2%
9	Senegal	57.1%		+14.6%	Lower middle income		+21.2%
10	Argentina	54.2%		+15.2%	Upper middle income		+22.0%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	
East Asia and the Pacific	North America	Lower middle income	
Europe	South Asia	Upper middle income	
Latin America and the Caribbean	Sub-Saharan Africa	High income	

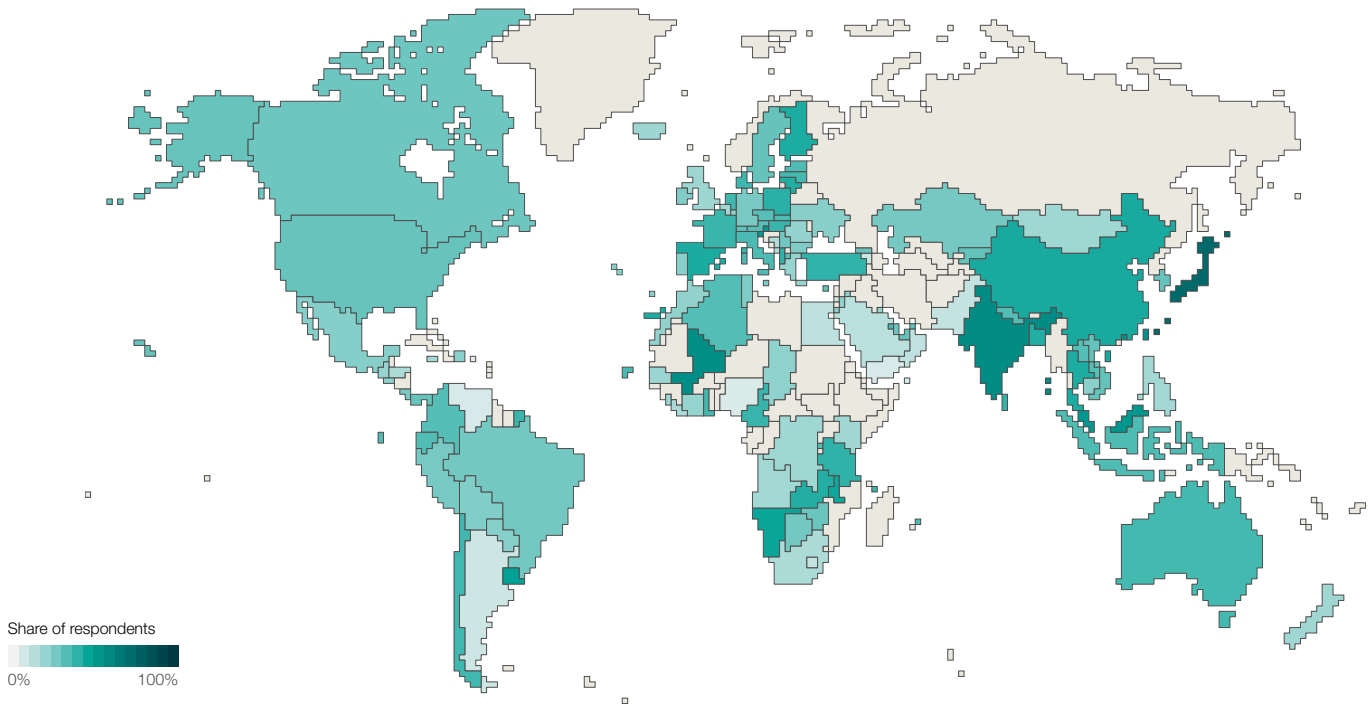
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of an innovative breakthrough

WORLD AVERAGE **29.0%**



Top ten economies

where a lack of an innovative breakthrough is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Japan	74.7%		+35.8%	High income		+42.8%
2	Singapore	59.9%		+20.9%	High income		+28.0%
3	India	58.5%		+21.7%	Lower middle income		+32.3%
4	Mali	57.3%		+29.3%	Low income		+28.6%
5	Hong Kong SAR, China	55.6%		+16.6%	High income		+23.6%
6	Taiwan, China	55.3%		+16.3%	High income		+23.4%
7	Slovenia	52.9%		+22.2%	High income		+20.9%
8	Malaysia	52.3%		+13.3%	Upper middle income		+24.3%
9	Uruguay	47.7%		+23.8%	High income		+15.8%
10	Namibia	46.4%		+18.4%	Upper middle income		+18.4%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	
East Asia and the Pacific	North America	Lower middle income	
Europe	South Asia	Upper middle income	
Latin America and the Caribbean	Sub-Saharan Africa	High income	

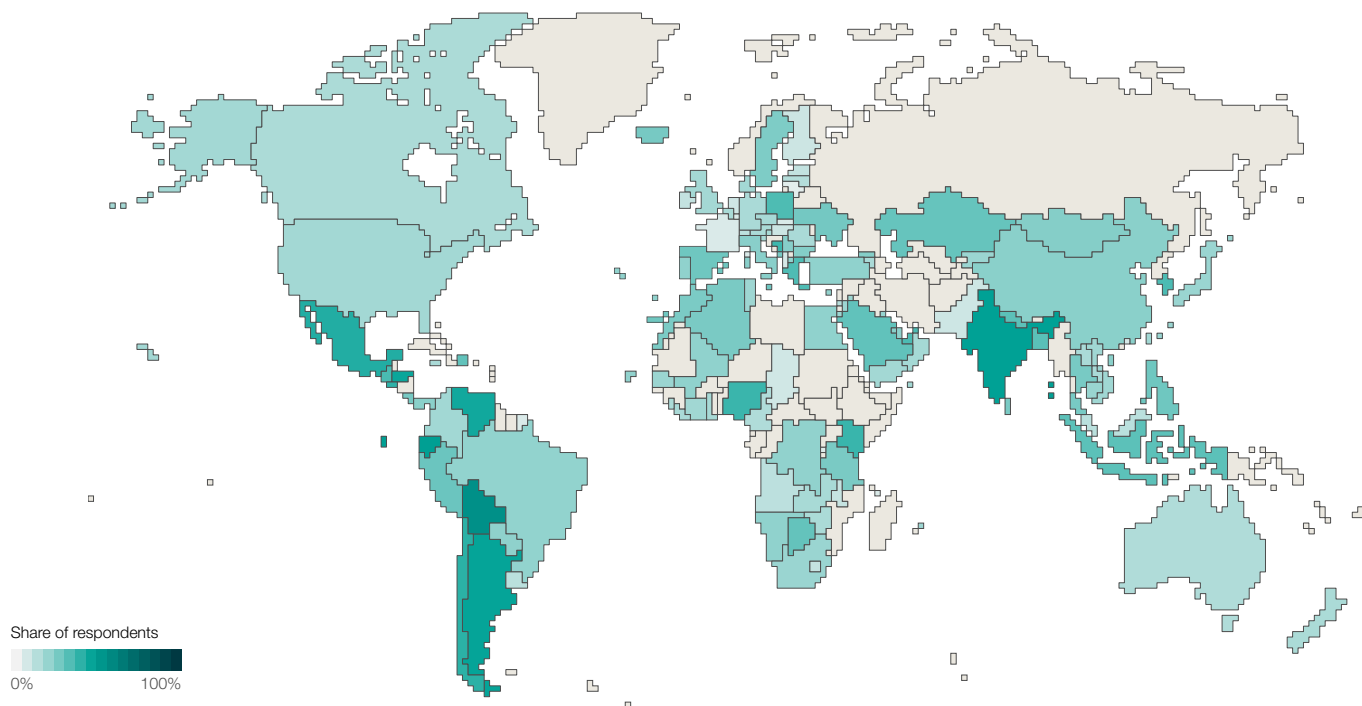
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of legal frameworks for the product or asset

WORLD AVERAGE **21.9%**



Top ten economies

where a lack of legal frameworks for products or assets is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Bolivia (Plurinational State of)	56.1%		+23.1%	Lower middle income		+30.6%
2	Ecuador	49.3%		+16.3%	Upper middle income		+24.0%
3	India	48.5%		+19.2%	Lower middle income		+23.0%
4	Argentina	47.0%		+14%	Upper middle income		+21.7%
5	Honduras	45.9%		+12.9%	Lower middle income		+20.4%
6	Venezuela, Bolivarian Republic	44.9%		+11.9%	n.a.		
7	Mexico	42.2%		+9.2%	Upper middle income		+16.9%
8	Chile	40.5%		+7.5%	High income		+22.0%
9	El Salvador	40.0%		+7.0%	Lower middle income		+14.5%
10	Kenya	38.1%		+19.4%	Lower middle income		+12.6%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

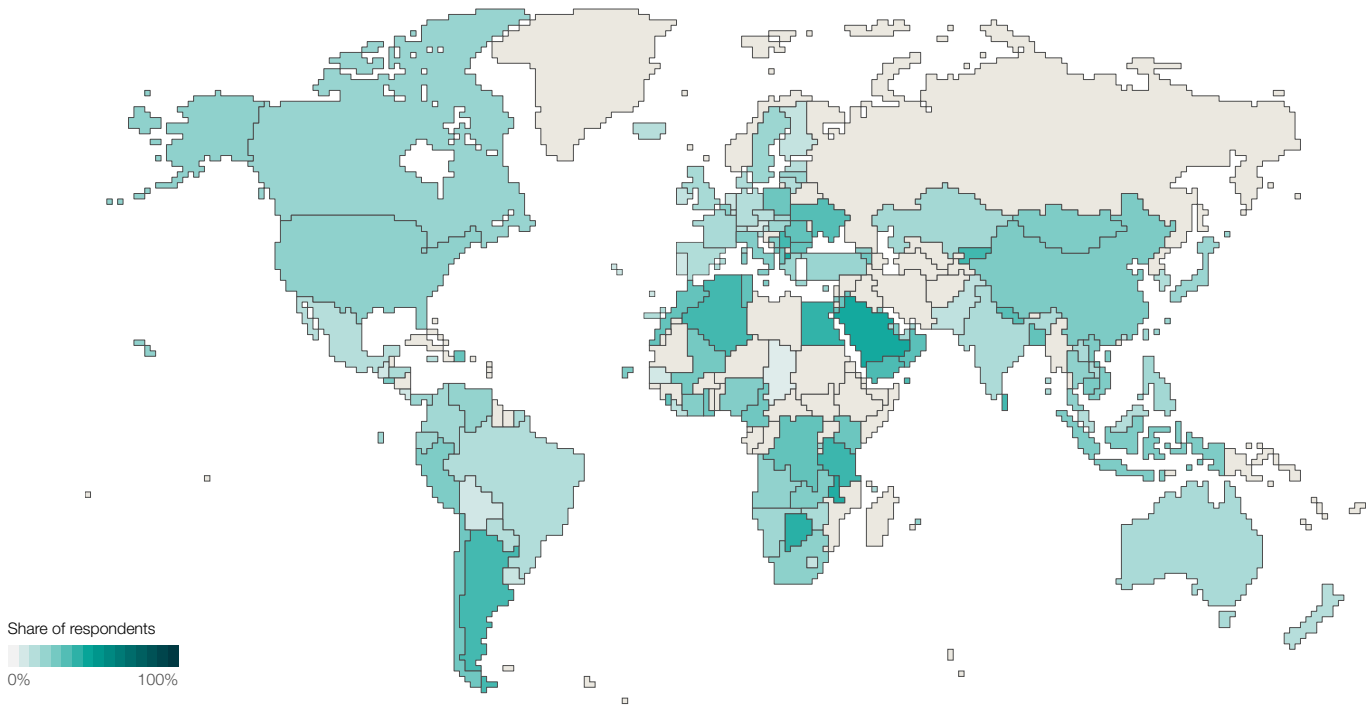
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of clear market standards

WORLD AVERAGE **21.4%**



Top ten economies

where a lack of clear market standards is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Saudi Arabia	44.6%		+15.2%	High income		+26.9%
2	North Macedonia	43.8%		+24.8%	Upper middle income		+20.8%
3	Malawi	42.2%		+18.7%	Low income		+17.4%
4	Botswana	40.9%		+17.4%	Upper middle income		+17.9%
5	Egypt	39.4%		+10.0%	Lower middle income		+14.7%
6	United Republic of Tanzania	37.6%		+14.1%	Lower middle income		+13.0%
7	Kyrgyzstan	36.7%		+10.7%	Lower middle income		+12.1%
8	Algeria	36.4%		+7.0%	Lower middle income		+11.7%
9	Sri Lanka	36.4%		+11.2%	Lower middle income		+11.7%
10	Serbia	36.2%		+17.2%	Upper middle income		+13.3%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	
East Asia and the Pacific	North America	Lower middle income	
Europe	South Asia	Upper middle income	
Latin America and the Caribbean	Sub-Saharan Africa	High income	

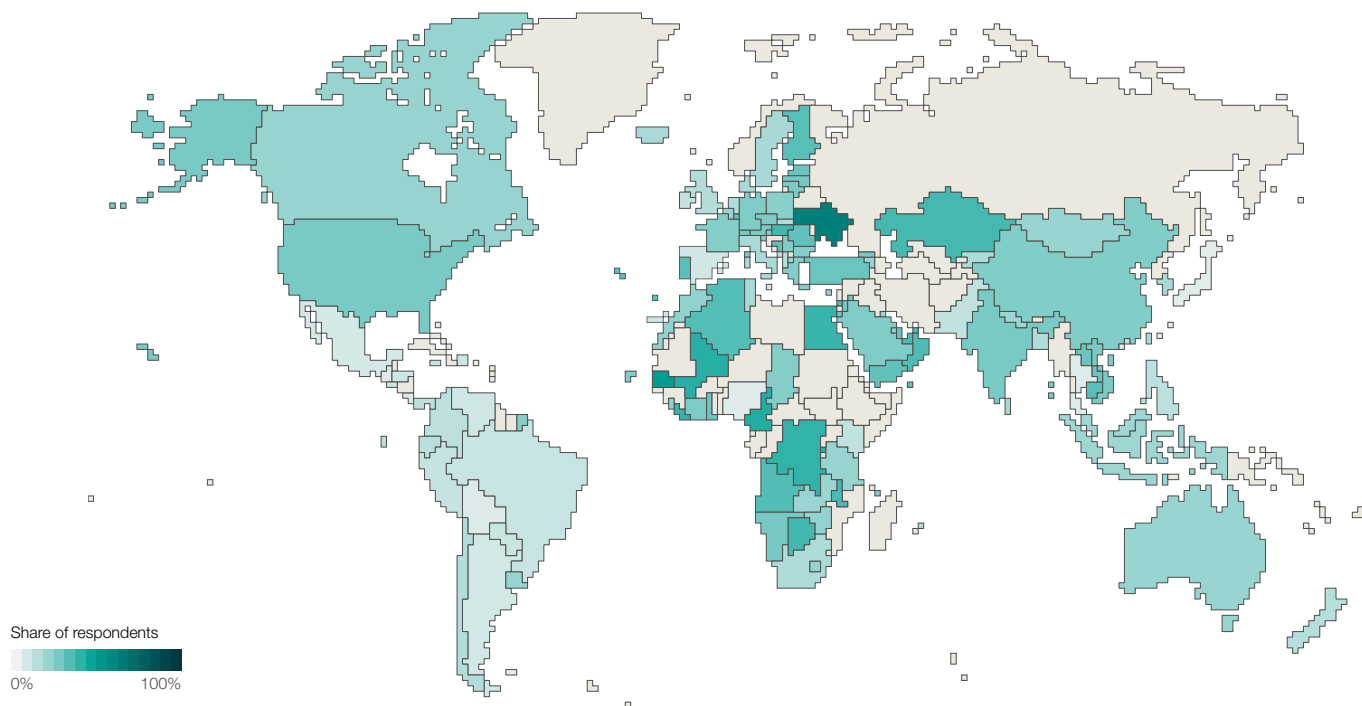
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of mature firms to reliably produce products

WORLD AVERAGE **21.3%**



Top ten economies

where a lack of mature firms to reliably produce products is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Ukraine	64.0%		+32.3%	Lower middle income		+41.0%
2	Senegal	50.0%		+22.6%	Lower middle income		+27.0%
3	Cameroon	42.4%		+15.0%	Lower middle income		+19.4%
4	Mali	41.3%		+13.9%	Low income		+9.0%
5	Rwanda	40.9%		+13.5%	Low income		+8.6%
6	Democratic Republic of the	39.4%		+12.0%	Low income		+7.1%
7	Liberia	39.2%		+11.8%	Low income		+6.9%
8	Egypt	38.3%		+10.3%	Lower middle income		+15.3%
9	Hungary	36.6%		+14.9%	High income		+15.9%
10	Botswana	36.6%		+9.1%	Upper middle income		+19.1%

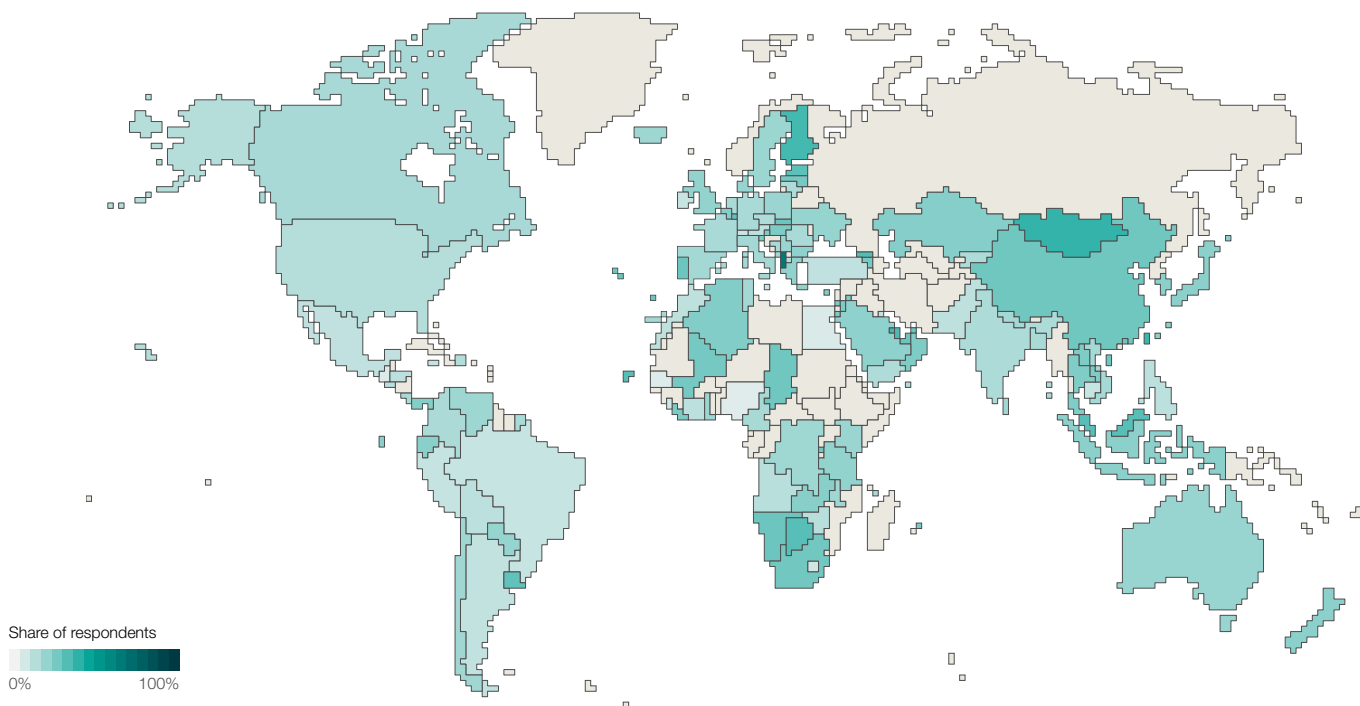
Region		Income group	
Central Asia	Middle East and North Africa	Low income	Lower middle income
East Asia and the Pacific	North America	Upper middle income	High income
Europe	South Asia		
Latin America and the Caribbean	Sub-Saharan Africa		

Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of demand to sustain a commercially viable market WORLD AVERAGE **19.9%**



Top ten economies

where a lack of demand to sustain a commercially viable market is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	Albania	66.7%		+45.8%	Upper middle income		+45.8%
2	Singapore	39.0%		+13.9%	High income		+17.3%
3	Mongolia	38.9%		+13.8%	Lower middle income		+22.9%
4	Taiwan, China	37.6%		+12.6%	High income		+16.0%
5	Bahrain	36.5%		+14.9%	High income		+14.8%
6	Finland	36.2%		+15.3%	High income		+14.5%
7	Qatar	34.5%		+12.9%	High income		+12.9%
8	Georgia	33.8%		+12.2%	Upper middle income		+12.9%
9	Cape Verde	32.6%		+13.0%	Lower middle income		+16.6%
10	Malaysia	32.3%		+7.3%	Upper middle income		+11.4%

Region	Income group
Central Asia	Low income
East Asia and the Pacific	Lower middle income
Europe	Upper middle income
Latin America and the Caribbean	High income
Middle East and North Africa	
North America	
South Asia	
Sub-Saharan Africa	

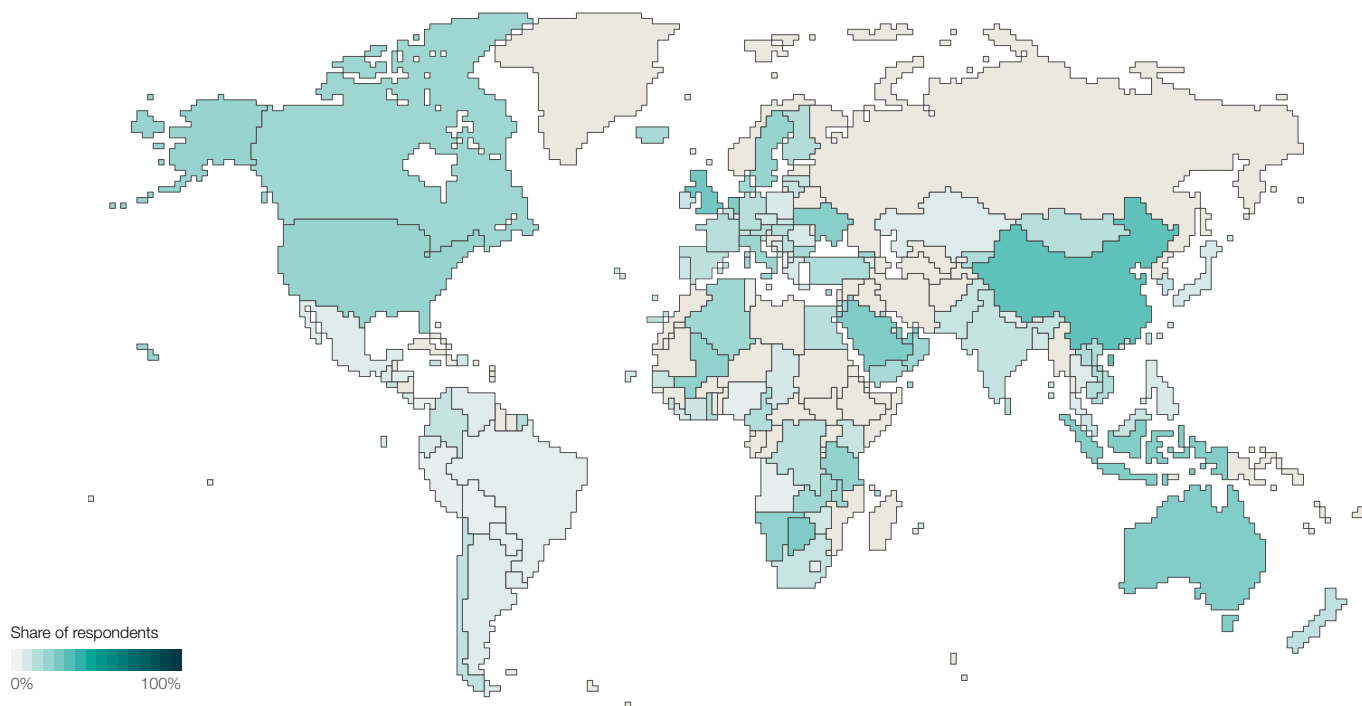
Source: Executive Opinion Survey 2022.

Overview of the most-cited bottlenecks

Which existing bottlenecks could hinder the growth of these markets in your country?

Lack of agreement on the value of the product or asset

WORLD AVERAGE **11.1%**



Top ten economies

where a lack of agreement on the value of new products or assets is the most likely bottleneck

Rank	Economy	Share of respondents	Compare with regional average		Income group	Compare with income group average	
			0%	100% Diff.		0%	100% Diff.
1	China	31.1%		+18.1%	Upper middle income		+21.3%
2	United Kingdom	27.6%		+16.3%	High income		+15.3%
3	Botswana	24.7%		+13.5%	Upper middle income		+15.0%
4	Saudi Arabia	24.6%		+9.0%	High income		+12.3%
5	Australia	24.1%		+11.1%	High income		+11.8%
6	Indonesia	23.7%		+10.7%	Lower middle income		+13.2%
7	Netherlands	23.7%		+12.4%	High income		+11.4%
8	Qatar	23.6%		+8.0%	High income		+11.4%
9	United Arab Emirates	23.2%		+7.6%	High income		+10.9%
10	Ukraine	23.0%		+9.6%	Lower middle income		+12.5%

Region		Income group	
Central Asia	Middle East and North Africa	Low income	
East Asia and the Pacific	North America	Lower middle income	
Europe	South Asia	Upper middle income	
Latin America and the Caribbean	Sub-Saharan Africa	High income	

Source: Executive Opinion Survey 2022.

Overview of selected G20 economies' top technologies

Percentage of respondents by country

Technology	ARG	AUS	BRA	CAN	CHN	DEU	FRA	GBR	IDN	IND	ITA	JPN	KOR	MEX	SAU	TUR	USA	ZAF
3D and 4D printing and modelling	0	3.5	0.4	3.3	2.8	3.4	5.8	6.6	1.2	15.1	4.8	0	1.0	0	0	1.1	4.6	1.3
Agriculture technologies	61.1	11.6	51.6	11.2	11.8	7.2	16.3	6.6	12.9	3.8	14.3	5.0	5.0	27.8	8.0	49.5	10.6	21.8
Artificial intelligence	13.7	12.8	16.4	13.4	24	17.9	19.8	12.1	11.8	9.3	10.7	40.0	29.0	13.4	30.7	22.6	19	6.4
Augmented and virtual reality	1.1	5.8	2.5	4.7	7.7	2.9	0	4.4	3.5	20.9	2.4	3.0	11.0	0	1.3	1.1	7.6	3.8
Big data analytics	8.4	3.5	8.2	9.1	21.1	5.8	10.5	12.1	8.2	8.8	7.1	11.0	16.0	6.2	12.0	8.6	9.5	10.3
Biodiversity protection technologies	2.1	5.8	7.4	8.7	5.3	5.8	7	6.6	7.1	2.5	6.0	2.0	0	4.1	1.3	6.5	6.8	2.6
Biotechnology	25.3	10.5	13.5	7.2	11.0	14.5	17.4	9.9	3.5	7.1	14.3	12.0	29.0	4.1	4.0	5.4	9.9	1.3
Climate change mitigation technology	12.6	29.1	17.6	25.4	9.8	30.4	19.8	30.8	18.8	1.1	10.7	48.0	22.0	18.6	14.7	24.7	18.3	17.9
Cloud computing	3.2	12.8	3.7	6.5	13.4	4.8	4.7	14.3	5.9	0.8	10.7	2.0	1.0	6.2	13.3	3.2	10.3	1.3
Cryptocurrencies	3.2	2.3	0.8	6.2	2.0	3.9	2.3	8.8	5.9	0.3	7.1	1.0	2.0	3.1	0	6.5	10.6	6.4
Digital platforms and apps	16.8	7	9	9.1	14.2	6.3	3.5	15.4	24.7	1.9	9.5	17.0	17.0	10.3	22.7	15.1	8.7	20.5
Distributed ledger technology	2.1	2.3	1.2	3.3	4.1	2.9	2.3	5.5	8.2	3.3	7.1	3.0	1.0	4.1	2.7	4.3	4.9	3.8
E-commerce and digital trade	15.8	14.0	13.1	11.2	11.4	3.4	3.5	9.9	28.2	3.6	15.5	3.0	11.0	28.9	25.3	20.4	6.8	11.5
Education and workforce development	31.6	14.0	38.9	13.8	17.1	14	14.0	13.2	24.7	3.0	19	11.0	8.0	33.0	20.0	15.1	11.8	30.8
Electric and autonomous vehicles	4.2	10.5	10.2	17	17.9	16.9	20.9	14.3	5.9	1.4	10.7	16.0	28.0	10.3	9.3	15.1	9.1	2.6
Encryption and cybersecurity	1.1	9.3	3.7	12.3	4.1	9.2	7.0	13.2	5.9	1.1	7.1	6.0	6.0	6.2	33.3	5.4	12.5	2.6
Environmental management technologies	9.5	17.4	18.0	15.9	9.8	18.8	23.3	20.9	11.8	1.9	20.2	10.0	12.0	16.5	18.7	10.8	13.3	11.5
Health and care technologies	7.4	23.3	13.9	23.9	15.9	16.9	26.7	17.6	15.3	3.3	16.7	22.0	27.0	19.6	18.7	21.5	25.5	20.5
Internet of things and connected devices	5.3	12.8	13.1	11.2	11.8	16.9	8.1	6.6	21.2	6.6	11.9	11.0	6.0	8.2	10.7	6.5	11.4	10.3
Nanotechnology	4.2	4.7	3.3	6.2	7.3	3.4	3.5	5.5	8.2	1.4	13.1	4.0	9.0	2.1	1.3	5.4	3.4	0
New materials	1.1	9.3	6.6	4.0	13.8	5.3	8.1	2.2	5.9	43.4	8.3	8.0	8.0	1.0	1.3	1.1	6.5	5.1
Power storage and generation	44.2	23.3	30.3	15.9	8.9	42.0	24.4	16.5	9.4	20.3	16.7	18.0	7.0	38.1	21.3	10.8	14.8	53.8
Quantum computing	0	4.7	0.4	3.6	5.7	3.4	10.5	5.5	2.4	32.4	6.0	15.0	5.0	0	2.7	1.1	6.1	1.3
Robots, humanoid	1.1	4.7	0	3.3	5.3	1.4	1.2	4.4	5.9	41.8	2.4	6.0	10.0	2.1	1.3	6.5	4.9	3.8
Robots, non-humanoid	2.1	1.2	4.5	6.5	14.2	7.7	4.7	3.3	5.9	45.3	6.0	17.0	18.0	4.1	2.7	5.4	8.4	2.6
Satellite services and space flight	1.1	3.5	0.8	4	14.2	3.4	4.7	6.6	4.7	0.5	6.0	2.0	7.0	0	4	7.5	7.2	2.6
Text, image and voice processing	0	1.2	0.4	3.3	2.8	2.9	5.8	0	2.4	6.3	4.8	1.0	0	0	1.3	1.1	3.0	2.6
Water-related adaptation technologies	9.5	5.8	6.1	9.1	3.3	8.7	5.8	9.9	5.9	10.4	19.0	3.0	3.0	24.7	1.3	14.0	8.4	25.6
Other	1.1	2.3	0.8	3.3	0.4	1.4	2.3	0	1.2	0.3	1.2	2.0	1.0	3.1	0	0	1.5	0

Source: Executive Opinion Survey 2022.

Overview of selected G20 economies' top sectors

Percentage of respondents by country

Sectors	ARG	AUS	BRA	CAN	CHN	DEU	FRA	GBR	IDN	IND	ITA	JPN	KOR	MEX	SAU	TUR	USA	ZAF
Accommodation, food and leisure services	5.4	4.8	4.1	3.3	6.3	0.5	1.3	4.5	10.7	16.6	11.3	1.0	6.0	8.4	15.7	11.8	4.4	4.0
Advanced manufacturing	6.5	9.6	11.2	5.2	18.6	15.9	11.4	9.0	17.9	21.8	10.0	24.2	23.0	12.6	30.0	21.5	13.5	10.7
Agriculture, forestry and fishing	50.5	13.3	44.8	8.6	9.7	10.8	17.7	6.7	9.5	33.4	12.5	7.1	9.0	21.1	1.4	33.3	6.0	26.7
Arts, entertainment and recreation	0	1.2	1.7	4.5	7.2	3.1	1.3	3.4	9.5	6.9	7.5	3.0	28.0	1.1	12.9	1.1	3.6	1.3
Automotive and aerospace	4.3	4.8	2.9	8.2	14.3	15.9	20.3	11.2	7.1	7.2	7.5	23.2	32.0	21.1	7.1	21.5	8.7	5.3
Business support and premises maintenance	2.2	3.6	2.1	4.5	8.0	2.1	2.5	6.7	10.7	18	5.0	1.0	1.0	1.1	4.3	1.1	6.3	0
Care and social work services	1.1	7.2	1.2	8.9	9.7	11.3	6.3	5.6	6.0	14.4	2.5	20.2	11.0	6.3	1.4	2.2	7.5	2.7
Chemical and advanced materials	3.2	6.0	3.7	4.8	10.5	19.5	5.1	9.0	0	4.1	5.0	12.1	13.0	1.1	4.3	4.3	5.6	5.3
Education	17.2	8.4	22.0	8.2	15.2	7.2	12.7	6.7	7.1	13.8	13.8	7.1	1.0	13.7	15.7	3.2	7.5	18.7
Electronics	3.2	3.6	4.6	11.5	11.8	7.2	10.1	7.9	11.9	13.8	18.8	14.1	3.0	6.3	2.9	4.3	9.5	5.3
Employment, education and training services	2.2	7.2	21.2	11.2	8.9	8.2	3.8	10.1	10.7	18.2	2.5	1.0	3.0	8.4	10.0	9.7	6.0	20.0
Energy technology and utilities	24.7	24.1	17.8	19.7	24.5	35.4	27.8	27.0	15.5	35.9	17.5	34.3	28.0	15.8	10.0	23.7	16.7	40.0
Engineering and construction	11.8	7.2	12	9.7	5.9	20.0	7.6	7.9	1.2	1.1	6.3	6.1	3.0	6.3	8.6	10.8	13.1	9.3
Extraterritorial organizations and bodies	1.1	1.2	0	1.9	1.3	0.5	0	1.1	3.6	19.3	6.3	0	2.0	0	1.4	0	3.6	2.7
Financial services and capital markets	6.5	9.6	8.3	9.3	11.8	7.7	5.1	12.4	11.9	41.4	6.3	12.1	4.0	11.6	15.7	9.7	11.1	10.7
Government and public sector	6.5	10.8	5.0	9.3	7.6	7.2	7.6	4.5	8.3	0.8	6.3	6.1	0	4.2	17.1	4.3	8.3	8.0
Information and technology services	22.6	19.3	27.4	20.1	19.0	24.1	20.3	18.0	23.8	3.3	16.3	36.4	41.0	15.8	25.7	33.3	25.0	14.7
Insurance and pensions management	0	2.4	0.8	4.8	9.7	2.1	0	6.7	2.4	0	5.0	1.0	2.0	2.1	1.4	1.1	4.4	1.3
Media and publishing	0	4.8	1.2	3.7	5.9	3.1	5.1	9.0	3.6	0.6	2.5	0	3.0	0	5.7	3.2	6.0	4.0
Medical and healthcare services	9.7	12.0	20.3	20.1	19.8	16.4	30.4	15.7	11.9	3.0	15.0	36.4	31.0	23.2	12.9	11.8	13.9	10.7
Mining and Metals	14.0	16.9	6.6	8.6	4.6	1.0	3.8	1.1	4.8	5.0	7.5	1.0	0	7.4	5.7	5.4	7.1	17.3
Non-profit organizations, prof. bodies and unions	0	4.8	0	4.5	4.2	3.1	5.1	3.4	15.5	2.2	5.0	0	0	3.2	0	2.2	4.8	1.3
Oil and gas	35.5	15.7	5.0	13.0	8.0	4.1	5.1	12.4	3.6	2.8	7.5	2.0	2.0	7.4	14.3	0	9.5	9.3
Personal care, well-being and repair services	7.5	7.2	4.6	8.6	7.6	5.6	10.1	13.5	8.3	0.3	7.5	10.1	33.0	5.3	4.3	4.3	6.3	4.0
Production of consumer goods	19.4	7.2	14.5	8.2	8.0	4.1	7.6	6.7	13.1	0	8.8	4.0	0	20.0	12.9	9.7	7.9	8.0
Real estate	1.1	4.8	0.8	4.8	3.8	1.0	0	3.4	6.0	0	6.3	1.0	1.0	3.2	4.3	2.2	2.8	1.3
Rental, reservation and leasing services	0	2.4	0	2.6	3.4	2.6	1.3	4.5	3.6	1.4	1.3	2.0	3.0	2.1	1.4	1.1	2.8	0
Research, design and business management	5.4	8.4	5.4	7.1	3.4	6.2	11.4	6.7	6.0	0.6	6.3	0	5.0	3.2	10.0	9.7	6.7	1.3
Retail and wholesale of consumer goods	5.4	9.6	8.7	6.7	5.1	4.6	5.1	5.6	8.3	1.7	8.8	2.0	1.0	8.4	4.3	10.8	6.7	6.7
Supply chain and transport	6.5	10.8	14.9	10.0	5.1	7.2	10.1	10.1	9.5	1.1	12.5	12.1	2.0	22.1	8.6	16.1	12.7	10.7
Telecommunications	8.6	9.6	8.3	10.8	5.5	5.6	5.1	19.1	9.5	2.5	10.0	9.1	3.0	10.5	14.3	5.4	6.7	5.3
Water and waste management	5.4	9.6	14.1	10.0	5.5	9.7	24.1	11.2	2.4	4.7	15.0	7.1	4.0	20.0	4.3	16.1	8.7	17.3

Source: Executive Opinion Survey 2022.

Overview of selected G20 economies' obstacles to market creation

Percentage of respondents by country

Lack of ...	ARG	AUS	BRA	CAN	CHN	DEU	FRA	GBR	IDN	IND	ITA	JPN	KOR	MEX	SAU	TUR	USA	ZAF
... skills and talent	24.1	33.7	54.2	44.7	38.7	54.1	51.3	43.7	31.6	28.3	26.7	77.8	50.0	44.4	35.4	43.8	35.5	65.8
... needed complementary infrastructure	56.6	34.9	71.8	30.2	20.3	41.0	19.7	32.2	23.7	21.8	33.3	20.2	35.7	52.2	23.1	37.1	23.1	43.8
... initiative from the public sector	38.6	24.1	41.4	32.1	25.2	30.6	40.8	34.5	23.7	5.6	34.7	34.3	41.8	54.4	15.4	28.1	24.8	38.4
... fiscal space and private sector financing	54.2	22.9	36.6	22.5	16.2	20.8	30.3	25.3	22.4	6.4	32	14.1	42.9	33.3	40.0	39.3	24.0	20.5
... an innovative breakthrough	8.4	36.1	26.9	28.2	43.7	25.7	38.2	18.4	34.2	58.5	34.7	74.7	29.6	23.3	12.3	39.3	29.8	15.1
... legal frameworks for the product or asset	47.0	14.5	20.7	15.3	22.5	15.8	5.3	17.2	31.6	48.5	22.7	19.2	34.7	42.2	30.8	21.3	17.4	19.2
... clear market standards	36.1	15.7	14.1	19.5	25.2	13.7	15.8	16.1	25.0	15.1	24.0	19.2	14.3	13.3	44.6	19.1	21.5	21.9
... mature firms to reliably produce products	7.2	19.3	9.3	19.8	24.3	24.6	23.7	13.8	18.4	26.1	16.0	4.0	16.3	6.7	24.6	29.2	26.0	15.1
... demand to sustain a commercially viable market	10.8	19.3	9.7	16.4	27.9	15.8	15.8	20.7	22.4	15.1	17.3	22.2	22.4	11.1	21.5	11.2	13.6	27.4
... agreement on the value of the product or asset	4.8	24.1	3.5	18.3	31.1	13.1	13.2	27.6	23.7	10.1	18.7	6.1	10.2	4.4	24.6	14.6	19.8	9.6

Source: Executive Opinion Survey 2022.

Selected G20 economies

ARG	Argentina	IND	India
AUS	Australia	ITA	Italy
BRA	Brazil	JPN	Japan
CAN	Canada	KOR	South Korea
CHN	China	MEX	Mexico
DEU	Germany	SAU	Saudi Arabia
FRA	France	TUR	Türkiye
GBR	United Kingdom	USA	United States of America
IDN	Indonesia	ZAF	South Africa

Appendices

A1 Methodology

This report draws on the data collected through the World Economic Forum's Executive Opinion Survey 2022. Conducted annually in collaboration with the Forum's Partner Institutes Community, the Survey captures the perceptions of senior business executives from around the world about socio-economic development in their country. The dataset used for this report includes **12,036** responses from **126** economies.³⁰ Cross-country and group averages have been calculated as simple averages without reweighting. The boundaries shown in this map do not imply official acceptance or endorsement by the World Economic Forum.

The report outlines in detail the results of the following three questions:

"Which technologies are of strategic importance for your country in the next 10 years? (Please select the top three)"

3D and 4D printing and modelling
Agriculture technologies
Artificial intelligence (e.g. machine learning, neural networks)
Augmented and virtual reality
Big data analytics
Biodiversity protection technologies
Biotechnology
Climate change mitigation technology (alternative energy, greenhouse gases, transport, buildings)
Cloud computing
Cryptocurrencies
Digital platforms and app
Distributed ledger technology (e.g. blockchain)
E-commerce and digital trade
Education and workforce development technologies
Electric and autonomous vehicles
Encryption and cyber security,
Environmental management technologies (pollution abatement, recycling)
Health and care technologies
Internet of things and connected devices
Nanotechnology
New materials (e.g. nanotubes, graphene)
Power storage and generation
Quantum computing
Robots, humanoid
Robots, non-humanoid (e.g. industrial automation, drones)
Satellite services and space flight
Text, image and voice processing
Water-related adaptation technologies (e.g. conservation, availability)
Other (please, fill)

"In which three sectors are these technologies most likely to generate new market opportunities?"

Accommodation, food and leisure services
Advanced manufacturing
Agriculture, forestry and fishing
Arts, entertainment and recreation
Automotive and aerospace
Business support and premises maintenance services
Care and social work services
Chemical and advanced materials
Education
Electronics
Employment, education and training services
Energy technology and utilities
Engineering and construction
Extraterritorial organizations and bodies
Financial services and capital markets
Government and public sector
Information and technology services
Insurance and pensions management
Media and publishing
Medical and healthcare services
Mining and metals
Non-profit organizations, professional bodies and unions
Oil and gas
Personal care, well-being and repair services
Production of consumer goods
Real estate
Rental, reservation and leasing services
Research, design and business management services
Retails and wholesale of consumer goods
Supply chain and transport
Telecommunications
Water and waste management

"Which are the top three constraints with the potential to hinder the growth of new markets in your economy? (Please select the top three)"

Lack of an innovative breakthrough
Lack of mature firms to reliably produce products
Lack of demand to sustain a commercially viable market
Lack of clear market standards
Lack of agreement on the value of the product or asset
Lack of legal frameworks for the product or asset
Lack of needed complementary infrastructure
Lack of fiscal space and private sector financing
Lack of skills and talent
Lack of initiative and financing from the public sector

A2 Partner institutes

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Albania

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Algeria

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Angola

Jobartis

Argentina

IAE Business School, Universidad Austral

Armenia

Economy and Values Research Center

Australia, Belgium, Canada, Indonesia, Italy, Sweden, United Kingdom, United States

Dynata

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Austrian Institute of Economic Research (WIFO)

The Bahamas

The Government and Public Policy Institute, University of the Bahamas

Bahrain

Bahrain Economic Development Board

Bangladesh

Centre for Policy Dialogue (CPD)

Barbados

University of West Indies

Benin

Institut de Recherche Empirique en Economie Politique (IREEP)

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INCAE Business School

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Ecuador

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Egypt

Egyptian Center for Economic Studies (ECES)

Estonia
Estonian Institute of Economic Research (EKI)

Finland
ETLA Research Institute of the Finnish Economy

France
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Georgia
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Germany
Institute for Innovation and Technology within the VDI/VDE Innovation + Technik GmbH

Ghana
Association of Ghana Industries

Greece
SEV Hellenic Federation of Enterprises

Guatemala
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Latvia
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Lesotho
Private Sector Foundation of Lesotho (PSFL)

Liberia, Sierra Leone
GQRDOTCOM (GQR)

Lithuania
Innovation Agency Lithuania

Luxembourg
Chamber of Commerce of Luxembourg

Malawi
Malawi Confederation of Chambers of Commerce
and Industry

Malaysia
Malaysia Productivity Corporation

Mali
Mali Applied and Theoretical Economics Research
Group (GREAT)

Malta
Competitive Malta, Foundation for National
Competitiveness

Mauritius
Economic Development Board

Mexico
Instituto Mexicano para la Competitividad (IMCO)

Mexico
Ministry of the Economy

Mongolia
Open Society Forum (OSF)

Montenegro
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Namibia
Institute for Public Policy Research (IPPR)

Nepal
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* This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo declaration of independence.

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University of Amsterdam

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BusinessNZ

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Nigerian Economic Summit Group (NESG)

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National Office for Competitiveness

Pakistan

Mishal Pakistan

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Philippines

Makati Business Club (MBC)

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Romania

Association for Women Entrepreneurship
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Studies (HIDS)

Yemen

Yemeni Business Club (YBC)

Zambia

University of Zambia

Zimbabwe

National Competitiveness Commission

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Endnotes

1. Key examples are the Infrastructure Investment and Jobs Act and the Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act in the US, but one can also point to initiatives such as the EU's Horizon 2020 programme. See: Cincera, M., Frietsch, R., Lejten, J., Montalvo, C., Pelle, A., Rammer, C., Renda, A., Schubert, T., Veugelers, R., «The Impact of Horizon 2020 on Innovation in Europe», *Intereconomics*, 2015, pp. 4-30; US Government, *H.R.4346. 117th Congress (2021-2022): Supreme Court Security Funding Act of 2022*, 2022, <https://www.congress.gov/bill/117th-congress/house-bill/4346>; US Government, *H.R.3684 - 117th Congress (2021-2022): Infrastructure Investment and Jobs Act*, 2021.
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