WORLD ECONOMIC FORUM

The Global Competitiveness Report

SPECIAL EDITION 2020

How Countries are Performing on the Road to Recovery

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World Economic Forum

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Preface

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The combined health and economic shocks of 2020 have impacted the livelihoods of millions of households, disrupted business activities, and exposed the fault lines in today's social protection and healthcare systems. The crisis has also further accelerated the effects of the Fourth Industrial Revolution on trade, skills, digitization, competition and employment, and highlighted the disconnect between our economic systems and societal resilience.

In this moment, it is crucial to not only reflect on how best to return to growth, but also, how to build back better economies that improve outcomes for people and the planet. This special edition of the Global Competitiveness Report provides the basis to support such deeper reflection, providing policymakers with priorities across three timeframes: those priorities that emerged from before the crisis, those priorities that are critical for the shorter term revival, and those priorities that are essential for longer term transformation for better outcomes on shared prosperity and sustainability in the future.

Since 1979 the Global Competitiveness Report series has aimed to broaden the views of policymakers, business and the public on looking beyond growth alone to enhance economic productivity and broader resilience. In this Special Edition, at this turbulent time for the global economy, we pause comparative country rankings on the Global Competitiveness Index. Instead we take a fundamental look at how economies should think about revival and transformation as they recover and redesign their economic systems to enhance human development and compatibility with the environment.

The Report provides pathways for leaders to take proactive steps to embed transformative policies, bold investments and new ventures into the recovery. Such an approach requires courageous vision and a nuanced balance between the short and long term. At the World Economic Forum's New Economy and Society Platform, the home of The Global Competitiveness Report, provides an ecosystem for such actors. Over 200 leaders from government, business and civil society work together to shape a new vision, design new standards and drive scalable, collaborative action on four deeply interconnected areas: 1) economic growth, revival and transformation; 2) work, wages and job creation; 3) education, skills and learning; and 4) diversity, inclusion, equity and social justice. By combining insight, standards and action the Platform serves as an accelerator for leaders championing emerging solutions, pilots and partnerships. We invite like-minded leaders to join us to co-shape the new solutions highlighted in this report, working together with the urgency and ambition that the current context demands of us.

We want to express our gratitude to the core project team involved in the production of this report: Roberto Crotti and Kusum Kali Pal, as well as their colleagues who supported the development of the new concepts for future transformation: Silja Baller, Sophie Brown, Attilio di Battista, Guillaume Hingel, and Vesselina Stefanova Ratcheva. Our deep gratitude goes to our network of Partner Institutes, which help administer the Executive Opinion Survey, whose results provide invaluable data.

We hope this Special Edition of the Global Competitiveness Report will serve as a call to action to engage in the visionary and bold leadership required to build a new economic agenda for growing, productive, sustainable and inclusive economies that provide opportunities for all. This historic moment demands nothing less.

Executive Summary

The 2020 special edition of *The Global Competitiveness Report (GCR)* series comes out at a very difficult and uncertain historical moment. The outbreak of the COVID-19 pandemic has not only led to a global health crisis and deep economic recession—deeper than the downturn during the 2008–2009 financial crisis—but has also created a climate of profound uncertainty about the future outlook.

At this pivotal moment, there are growing calls for "building back better". While the immediate priority is to respond to the health crisis, this moment in time also offers a unique opportunity to reflect on the fundamental drivers of growth and productivity that have degraded since the financial crisis. It is also a moment to determine how we may shape our economic systems in the future so that they are not just productive but also lead to environmental sustainability and shared prosperity.

The *Global Competitiveness Report* series has since its first edition aimed to prompt policy-makers beyond short term growth and to aim for long-run prosperity. The 2019 edition of the *Global Competitiveness Report* showed how declining trends in fundamental aspects of productivity have been masked by long-standing accommodative monetary policy but have remained bottlenecks for strengthening economic development.

This unusual moment calls for innovative and much-needed shifts in policy. Therefore, in 2020 the long-standing Global Competitiveness Index (GCI) rankings have been paused. Instead, this special edition is dedicated to elaborating on the priorities for recovery and revival, and considering the building blocks of a transformation towards new economic systems that combine "productivity", "people" and "planet" targets. In 2021, the report will revert to a benchmarking exercise that will provide a new compass for the future direction of economic growth.

This special edition analyses historical trends on factors of competitiveness as well as the latest thinking on future priorities. It provides recommendations against three timelines: a) those priorities that emerge from the historical analysis before the health crisis; b) those priorities needed to restart the economy, beyond immediate responses to the COVID-19 crisis, while embedding people and planet into economic policies (revival over the next 1-2 years); and c) those priorities and policies needed to reboot economic systems in the longer run to achieve sustainable and inclusive prosperity in the future (transformation over the next 3-5 years).

Recommendations and timeframes are grouped into four broad areas of action: 1) reviving and transforming the enabling environment, 2) reviving and transforming human capital, 3) reviving and transforming markets, and 4) reviving and transforming the innovation ecosystem. An initial assessment of countries on readiness for transformation is also provided that converts key priorities into quantitative measures for 37 economies.

The key findings of the report are summarized below.

Reviving and transforming the enabling environment

– Before the COVID-19 crisis, a long-standing issue had been the ongoing and consistent erosion of institutions, as shown by declining or stalling checks and balances and transparency indicators. Against this backdrop, in the revival phase governments should prioritize improving long-term thinking capacity within governments and enhance mechanisms to deliver public services, including greater digitalization of public services. In the transformation phase, governments should work to ensure that public institutions embed strong governance principles and to regain public trust by serving their citizens.

– A second area of concern before the 2020 pandemic was high levels of debt in selected economies as well as widening inequalities. The emergency and stimulus measures have pushed already high public debt to unprecedented levels, while tax bases have continued eroding or shifting. To respond to these issues, in the revival phase, the priority should be on preparing support measures for highly indebted low-income countries and plan for future public debt deleveraging. In the longer run (transformation phase) countries should focus on shifting to more progressive taxation, rethinking how corporations, wealth and labour are taxed. This will require both national reforms and setting an international cooperative framework.

– Before the COVID-19 crisis, despite the significant expansions of ICT access, ICT availability and use remained far from universal. The COVID-19 crisis has accelerated digitalization in advanced economies and made catching up more difficult for countries or regions that were lagging before the crisis.

To address this challenge, in the revival phase, countries should upgrade utilities and other infrastructure as well as closing the digital divide within and across countries for both firms and households. In the transformation phase, the priority should be on upgrading infrastructure to broaden access to electricity and ICT, while, at the same time, accelerating energy transition.

Reviving and transforming human capital

– For several years before the crisis, skills mismatches, talent shortages and increasing misalignment between incentives and rewards for workers had been flagged as problematic for advancing productivity, prosperity and inclusion. Because of the pandemic and subsequent acceleration of technology adoption, these challenges have become even more pronounced and compounded further by permanent and temporary losses of employment and income. To address these issues, countries should focus in the revival phase on gradually transitioning from furlough schemes to new labour market opportunities, scaling up reskilling and upskilling programmes and rethinking active labour market policies. In the transformation phase, leaders should work to update education curricula and expand investment in the skills needed for jobs in "markets of tomorrow", and in parallel rethink labour laws for the new economy and use new talent management technologies to adapt to the new needs of the workforce.

– The COVID-19 crisis has highlighted a second issue: how healthcare systems' capacity has lagged behind increasing populations in the developing world and ageing populations in the developed world. To respond to this trend, countries should in the revival phase expand health system capacity to manage the dual burden of current pandemic and future healthcare needs. In the longer run (transformation) there should be an effort to expand eldercare, childcare and healthcare infrastructure and innovation.

Reviving and transforming markets

– Over the past decade, while financial systems have become sounder compared to the pre-financial crisis situation, they continued to display some fragility, including increased corporate debt risks and liquidity mismatches. In addition, access to finance, despite efforts to increase inclusion in recent years (including through fintech applications), is not sufficiently widespread. Against this backdrop, countries should in the revival phase prioritize reinforcing financial markets stability, while starting to introduce financial incentives for companies to engage in sustainable and inclusive investments. In the transformation phase, the attention should shift to create incentives to direct financial resources towards long-term investments, strengthening stability while continuing to expand inclusion.

– Pre-crisis, there was increasing market concentration, with large productivity and profitability gaps between the top companies in each sector and all others; and the fallout from the pandemic and associated recession is likely to exacerbate these trends. To address this issue, countries should in the revival phase strike a balance between continuing measures to support firms and prevent excessive industry consolidation with sufficient flexibility to avoid keeping "zombie-firms" in the system. In the transformation phase, countries should rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally. As a complementary policy, countries should facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration.

– A third trend that has emerged in this area is the ongoing reduction on trade openness and the international movement of people, now vastly stalled due to the pandemic. In both the revival and transformation phases, countries should lay the foundations for better balancing the international movement of goods and people with local prosperity and strategic local resilience in supply chains.

Reviving and transforming the innovation ecosystem

– In this area, a paradox had recently emerged: a positive evolution of entrepreneurial culture in the past decade, but the creation of new firms and breakthrough technologies had stalled. Technology has lagged especially in the capacity to delivering solutions to energy consumption, emissions and meeting the demand for inclusive social services. To manage these complexities, countries should in the revival phase expand public investments in R&D, incentivize venture capital and R&D in private sector, and promote the diffusion of existing technologies that support the creation of new firms and employment in "markets of tomorrow". In the longer run (transformation) countries should create incentives that favour patient investments in research, innovation and invention, support the creation of new "markets of tomorrow" and incentivize firms to embrace diversity, equity and inclusion to enhance creativity.

Assessing readiness for economic transformation

In aggregating the 11 priorities that emerge from this analysis for the economic transformation phase, the report provides a preliminary measure of countries' "transformation readiness". This novel framework uses the latest available statistics to measure where countries stand today in this process. This exercise covers a small set of countries (37), measuring only those priorities for economic transformation rather than the complete set of factors needed to drive productivity, sustainability and shared prosperity.

The aim of this exercise is three-fold. First, it maps the areas of priority against available data points in an effort to better define the actions and/or policies needed to "build back better" economies that are productive, sustainable and inclusive. Second, it provides a snapshot of the current situation in each of the 37 countries, assessing the extent to which many countries today are on the way towards transforming their economies. Third, it highlights where the key data gaps lie in assessing current national policies and performance.

While noting that the available statistics are insufficient to measure all aspects for achieving economic transformation, the results show that no country is yet fully ready to transform. Among the currently measurable policies, however, the 'Nordic model' stands out as the most promising in shifting towards a productive, sustainable and inclusive economic system.

Assessing resilience and crisis disruptions through business sentiment

The impact of the current health crisis had a profound impact on the perception of business leaders, captured by the Executive Opinion Survey. Perceptions in some areas indicated that progress critically stalled or declined during the crisis, while in others there was a marked improvement compared to previous trends. The top 5 areas that experienced the most movement downward in advanced economies were Competition in network services, Collaboration between companies, Competition in professional services, Competition in retail services, and Ease of finding skilled employees; while in emerging economies these were Business costs of crime and violence, Judicial independence, Organized crime, Extent of market dominance, and Public trust of politicians.

The top 5 areas that experienced the most upward movement were Government's responsiveness to change, Collaboration within a company, Venture capital availability, Social safety net protection, and Soundness of banks in advanced economies; and Collaboration within a company, Government's responsiveness to change, Efficiency of train services, Venture capital availability, and Country capacity to attract talent in emerging economies.

The Executive Opinion Survey also helps to identify some common features that helped countries better manage the impact of the pandemic on their economy and their people. Based on the assessment of business leaders i) economic digitization and digital skills; ii) safety nets and financial soundness; iii) governance and planning; and iv) health system and research capacity have contributed to countries' resilience to the health crisis.

	Trends and Crisis Impact *From the financial crisis to the pandemic crisis*	**Revival** *Priorities for the next 1-2 years*	**Transformation** *Priorities for the next 3-5 years*
Reviving and transforming the enabling environment	There has been a consistent erosion of institutions across regions, including weaker checks and balances and less transparency.	Improve the long-term thinking capacity within governments and mechanisms to deliver public services and support policy interventions digitally.	Ensure public institutions embed strong governance principles and a long-term vision and build trust by serving their citizens
	ICT access and use have been improving globally but remain far from universal, and the COVID-19 crisis has made catching up more difficult for developing economies while deepening advanced economies' digitalization.	Upgrade utilities and other infrastructure. Prioritize closing the digital divide within and across countries for both firms and households	Upgrade infrastructure to accelerate the energy transition and broaden access to electricity and ICT.
	Emergency and stimulus measures have pushed already high public debt to unprecedented levels, against a backdrop of shifting tax bases.	Prepare support measures for highly-indebted, low-income countries and plan for future public debt deleveraging.	Shift to more progressive taxation, rethinking how corporations, wealth and labour are taxed, nationally and in an international cooperative framework.
Reviving and transforming human capital	Talent shortages have become more pronounced, underpinned by outdated education systems. There is a particular shortfall in digital skills and other skills of the new economy as technology disrupts labour markets.	Scale up reskilling and upskilling in emerging skills, combined with active labour market policies.	Update education curricula and expand investment in the skills needed for jobs and "markets of tomorrow".
	There are misaligned incentives and rewards for workers.	Manage a gradual transition from furlough schemes to new labour market opportunities.	Rethink labour laws and social protection for the new economy and the new needs of the workforce.
	Health services, infrastructure and talent have lagged behind two dominant demographic trends: increasing population in the developing world and ageing populations in the developed world.	Expand health system capacity to manage the dual burden of current pandemic and future healthcare needs.	Expand eldercare, childcare and healthcare infrastructure, access and innovation for the benefit of people and the economy.
Reviving and transforming markets	Financial systems after the 2007–2008 crisis have become sounder but continue to have some sources of fragility, including increased corporate debt risks and liquidity mismatches, and are not sufficiently inclusive.	Ensure stable financial markets, a sound financial system and expand access and inclusion. Create financial incentives for companies to engage in sustainable and inclusive practices and investments.	Increase incentives to direct financial resources towards long-term investments, strengthen stability and expand inclusion.
	Market concentration has been on an increasing trend in advanced economies, with large productivity and profitability gaps between the top companies and all others in each sector. Trade openness and the international movement of people have been on a declining trend since the financial crisis.	Lay the foundations for better balancing the international movement of goods and people with local prosperity and strategic local resilience in supply chains.	Rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally. Facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration.
Reviving and transforming the innovation ecosystem	Entrepreneurial culture has strengthened in the past decade but has not resulted fully in the creation of new firms. There is a lack of sustained creation of breakthrough technologies and, where there has been innovation, it has not been widely successful at delivering solutions to increasing energy consumption, managing emissions and meeting the demand for inclusive social services.	Expand public investments in R&D, and incentivize venture capital, R&D in private sector and the diffusion of existing technologies that support the creation of new firms and employment in "markets of tomorrow".	Incentivize and expand patient investments in research, innovation and invention that can create new "markets of tomorrow". Incentivize firms to embrace diversity, equity and inclusion to enhance creativity.

Introduction

The deep economic recession triggered by COVID-19 continues to have profound economic and social consequences. Since the outbreak of the pandemic, unemployment rates have rapidly increased in most developing and advanced economies, and poverty rates have begun to rise again, reversing the gains achieved over the past few decades. According to the latest estimates, the economic and health crisis triggered by COVID-19 is expected to push between 88 million and 115 million more people into extreme poverty in 2020.[1] When looking at working hour losses experienced by the global economy, 245 million full-time jobs are expected to be lost globally by the end of 2020, which amounts to a loss of the productive capacity of 8.6% of the global workforce.[2] The crisis has also revealed the inadequacies of existing infrastructure and policies, ranging from social protection systems to healthcare.

The global economic outlook for 2021 is highly dependent both on the evolution of the pandemic and on the effectiveness of the recovery strategies of governments. In this unique context, we aim to explore how countries can expand their focus beyond a return to growth and to consider how to "build back better" in this special edition of the *Global Competitiveness Report Special Edition 2020*. The report looks at priorities for economies across three timeframes: those of the last decade as revealed by timeseries data on factors of competitiveness, those that are critical for economic revival as revealed by the crisis and those that could help embed a transformation that may lead to better outcomes for productivity, shared prosperity and sustainability.

There have been unprecedented fiscal, monetary and regulatory policy measures that have provided households and businesses with emergency income and cashflow support, with governments deploying close to $12 trillion globally since the beginning of the global pandemic. As existing support measures begin to expire in several countries, it is paramount to set in place the structural reforms that can support economies as they transition onto a path of recovery. It may be tempting to consider the rebound in GDP that several economies are experiencing as lockdowns measures are lifted as a sign of a swiftly achievable recovery. Instead, the road towards economic recovery will be long, asymmetric and asynchronous across different economies, and can be proactively shaped and managed for optimal outcomes for productivity, people and the planet.

The World Economic Forum has long been at the forefront of looking beyond GDP as the key benchmark of success, espousing longer-term and holistic thinking through the *Global Competitiveness Index*, emphasizing equality in the economy through the Gender Gap index, assessing economies against inclusion criteria through the Inclusive Growth Index and promoting the concept of socioeconomic mobility in the economy through the Global Social Mobility Index. Most recently, the Dashboard for a New Economy framework aims to promote an expanded set of targets that focuses on prosperity, people, planet and institutions.

The *Global Competitiveness Report Special Edition 2020* series has, since its first edition, aimed to move focus beyond the growth-only paradigm and has been central at pointing out the need for public-private collaboration. The Global Competitiveness Index (GCI) contained in the report has continued to evolve along with the latest economic thinking, the needs of society and technological developments. The Global Competitiveness Index 4.0—launched in 2018—incorporates a wide-ranging focus on a broad range of factors of productivity. That year, we demonstrated that in the longer run there is a win-win-win between driving growth, creating better functioning societies and enacting measures to improve the environment. In 2019, we used a GCI timeseries to show that, despite the massive injection of liquidity by central banks since the financial crisis, improvements in the factors of productivity had stalled.

This year's special edition aims to support the recovery strategies of policy-makers, calling for a holistic approach, encompassing several policy areas and establishing synergies across different reform objectives. The special edition does not provide country rankings, due to missing data from various international organizations as well as the need for new thinking regarding the economic recovery after the COVID-19 shock. Instead this edition takes into account the unique context and priorities emerging from the pandemic as well as the priorities that had already become clear before the crisis, such as the need for combining productivity with better outcomes for people and the planet. As such, it lays the foundations for a new direction to support policy-makers and other leaders to define how to "build back better".

This report is structured around six sections. The first four sections analyse past and current trends by broad thematic areas that are the key building blocks of an economy: Enabling Environment, Human Capital, Markets, and Innovation Ecosystem. Within each of these thematic areas, priorities are presented for policy-makers to consider in order to

develop productive, shared prosperity-enhancing and environmentally compatible economic systems. These priorities are organized into three timeframes: i) the past 12 years, assessing the evolution of key drivers of sustainable and inclusive productivity since the financial crisis, including the short-term shock impact of the COVID-19 crisis; ii) the next two years (revival), which looks at priorities to restart the economy while embedding criteria for longer-term productivity, inclusion and sustainability beyond immediate responses to the COVID-19 crisis; iii) the next 3-5 years (transformation), which looks at the priorities for economic systems that fully integrate social and environmental targets into policy design. The fifth section of the report presents a first attempt to assess countries' readiness to achieve future transformation across all four thematic areas.The sixth section, through the lense of the Executive Opinion Survey, examines the disruptions caused by the crisis and identifies common elements of countries' resilience.The report draws upon the Executive Opinion Survey, a key tool to provide the opinion of business leaders on their economies. We supplement this analysis with publicly available data from international organizations. For economic systems to be geared towards delivering positive outcomes in the form of better productivity, shared prosperity and working within planetary boundaries, our tools, metrics and benchmarks of success must also change. As we look to 2021, we will further develop on the foundations provided in this special edition to further refine a new 'compass' for future economic growth.

Section 1
Enabling Environment

1

Enabling Environment

An economy's enabling environment encompasses both formal and informal institutions; utilities and infrastructure such as transport, energy, water and telecommunications; as well as the framework conditions set by monetary and fiscal policy, and more broadly, public finances.

With worsening social and economic polarization and the looming threat of climate change, the economic foundations created by well-functioning institutions, a stable macroenvironment and high-quality infrastructure will be critical. However, the quality of a country's enabling environment will not only have to be assessed on its ability to support growth and productivity, but also on the ability to transform the economy to achieve environmental and shared prosperity targets.

This section lays out key trends in institutions, infrastructure and the macro environment, and proposes emerging priorities for short- and longer-term policy interventions to direct the economy towards productive, sustainable and inclusive outcomes.

Section 1.1 uses historical data to highlight trends in the institutional environment, infrastructure (both physical and ICT) and macro environment, and identifies vulnerabilities for future prosperity. Section 1.2 provides a set of priorities for policy interventions over the next two years, to set up the type of governance structures and incentives that could revive sustainable and inclusive growth past the COVID-19 crisis. Section 1.3 offers policy recommendations for the longer run (3-5 years) to hardwire social and environmental targets into governance structures, macro-economic policies and infrastructure development.

1.1 What are the enabling environment-related priorities that emerged in the past decade?

The following trends emerge for the enabling environment from the data collected since the Global Financial Crisis of 2007–2009.

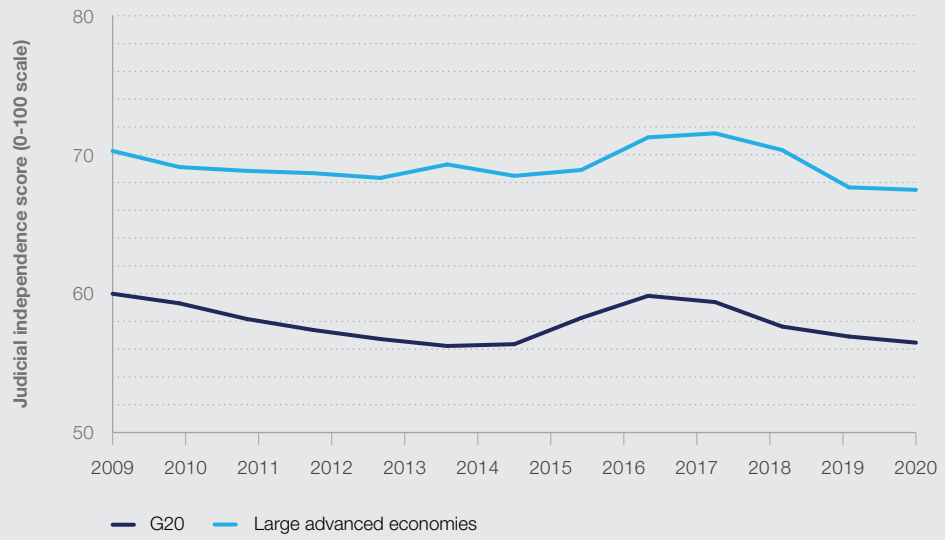
There has been a consistent erosion of institutions across regions, including weaker checks and balances and less transparency.

Well-functioning formal and informal institutions are critical, both for guiding long-term economic progress and ensuring effective short-term crisis responses. The data from the Executive Opinion Survey suggests that business leaders see significant deterioration in important features of institutional quality over the past decade.

The perception of judicial independence declined by about 4.6% in G20 economies since the Global Financial Crisis (Figure 1.1). Similarly, the efficiency of legal framework in challenging regulations indicator, which measures the extent to which companies can effectively settle disputes with public authorities, declined by 7.9% in G20 economies from 2009–2020 (Figure 1.2).

FIGURE 1.1

Trends in judicial independence in G20 economies and in large advanced economies, 2009–2020



Source

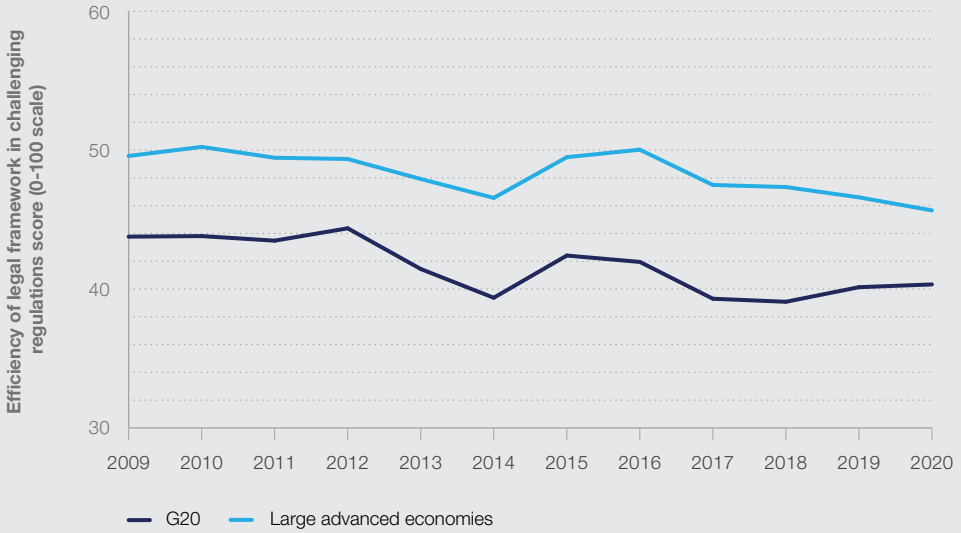
World Economic Forum, Executive Opinion Survey (various editions). See Appendix B for details.

Note

Large advanced economies Include Australia, Canada, Germany, France, United Kingdom, Italy, Japan, Republic of Korea and United States. The G20 economies included in the data set are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russian Federation, Saudi Arabia, South Africa, Turkey, United Kingdom and United States. The Judicial independence indicator corresponds to the response to the survey question "In your country, how independent is the judicial system from influences of the government, individuals, or companies?" [0 = not independent at all; 100 = entirely independent].

FIGURE 1.2

Trends in the efficiency of legal frameworks in challenging regulations in G20 and in large advanced economies, 2009–2020



Source

World Economic Forum, Executive Opinion Survey (various editions). See Appendix B for details.

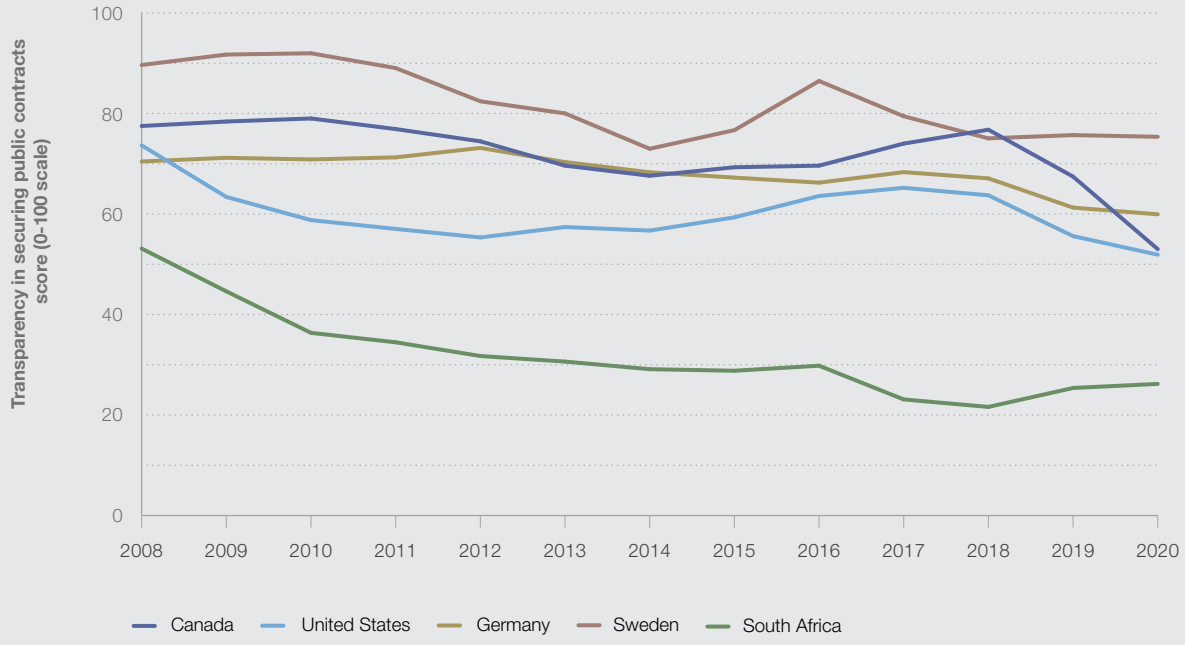
Note

Large advanced economies include Australia, Canada, Germany, France, United Kingdom, Italy, Japan, Republic of Korea and United States. The G20 economies included in the data set are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Republic of Korea, Mexico, Russian Federation, Saudi Arabia, South Africa, Turkey, United Kingdom and United States. The Efficiencey of legal framework in challenging regulations indicator corresponds to the response to the survey question "In your country, how easy is it for private businesses to challenge government actions and/or regulations through the legal system?" [0 = extremely difficult; 100= extremely easy].

The second aspect of institutional quality where business leaders' perceptions have remained persistently low globally or declined is transparency. For instance, in some advanced and emerging countries, transparency in securing public contracts has been on a declining trend (Figure 1.3). More generally, the transparency gap—as measured by the Corruption Perception Index (CPI)—between the best and the lowest performers is large: to date, 31 points (on a 0–100 scale) separate the average score of the 10 most transparent countries from the average of the least transparent ones, and 10 points separate the average score of advanced economies from the average score of emerging and developing countries.

Persistent transparency gaps affect citizens' trust in institutions. As shown in Figure 1.4, public trust of government and transparency go hand in hand in the majority of OECD countries. The COVID-19 crisis happened at a moment when, in several economies, trust in the credibility of political leaders was already low. However, the pandemic has also offered an opportunity for governments to regain trust by implementing emergency measures in speedy and transparent ways, and public policies that set countries on a new trajectory of shared prosperity.

FIGURE 1.3 **Trends in transparency in securing public contracts, selected economies, 2008–2020**



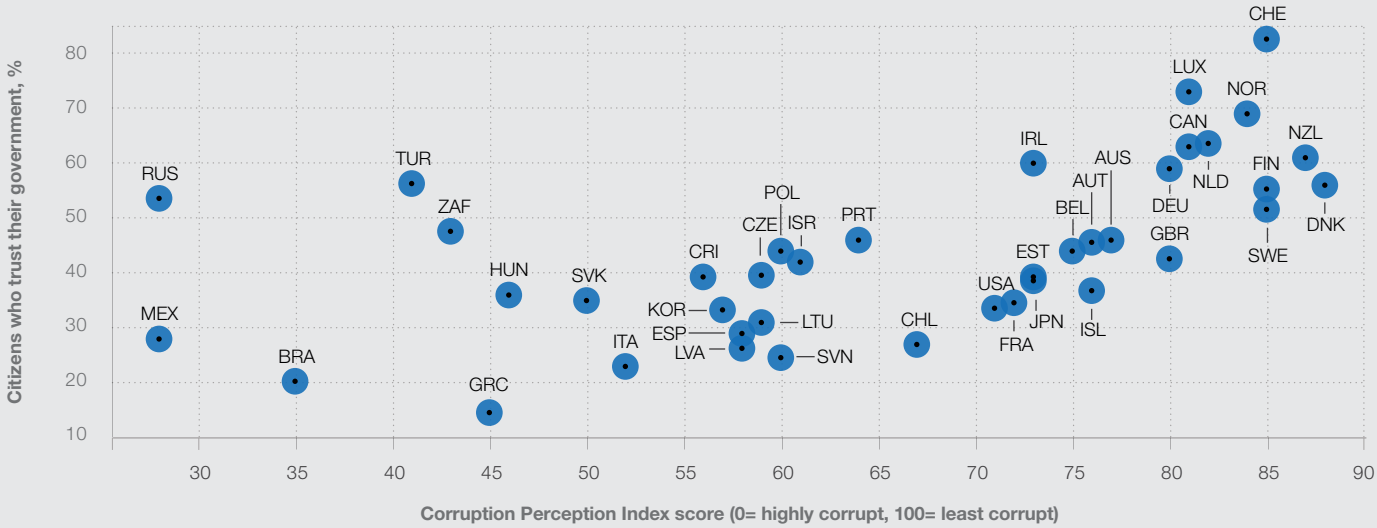
Source

World Economic Forum, Executive Opinion Survey (various editions). See Appendix B for details.

Note

The Transparency in securing public contracts indicator corresponds to the response to the survey question "In your country, how common is it for companies to make undocumented extra payments or bribes in connection with awarding of public contracts and licences? [0 = very common; 100 = never occurs]".

FIGURE 1.4 **Trust in government and Corruption Perception Index, selected economies**



Source

Author calculations based on OECD, OECD Data, "Trust in government" indicator, https://data.oecd.org/gga/trust-in-government.htm, accessed 25 September 2020; and Transparency International, Corruption Perception Index (2019).

Notes

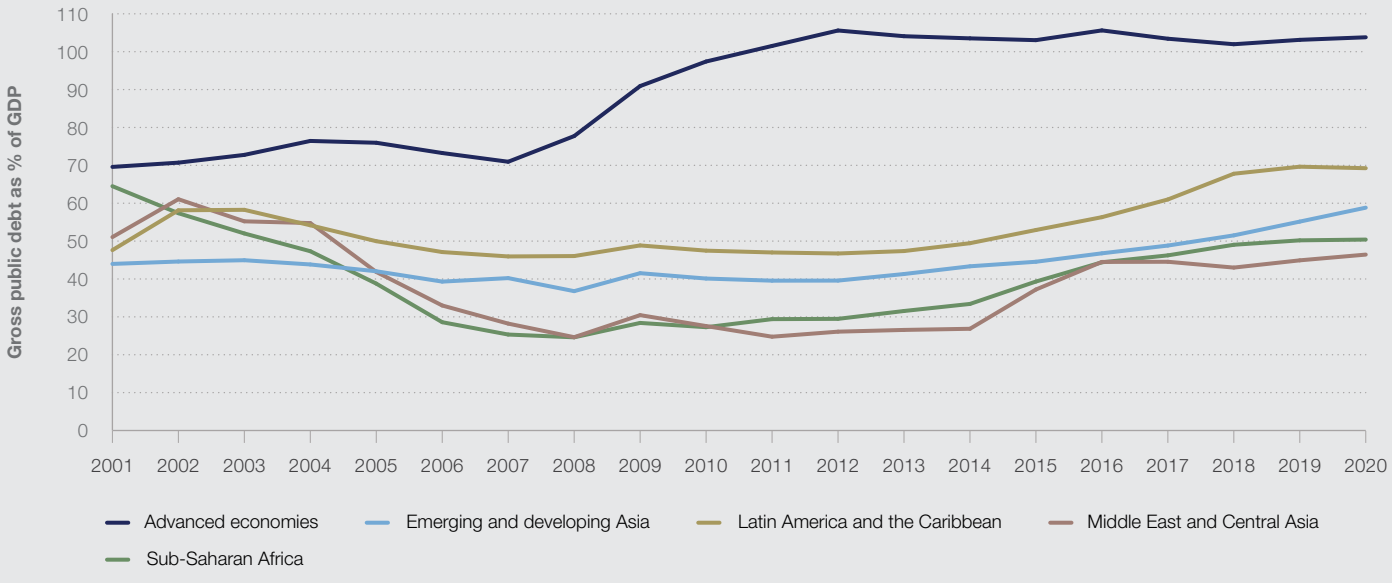
Data set includes the following economies: Greece, Chile, Spain, Brazil, Finland, Slovenia, Mexico, United States, Australia, Belgium, Italy, South Africa, Denmark, France, Costa Rica, Luxembourg, Turkey, Sweden, United Kingdom, Estonia, Austria, Latvia, New Zealand, Canada, Netherlands, Russia, Republic of Korea, Hungary, Czech Republic, Portugal, Israel, Lithuania, Japan, Ireland, Iceland, Germany, Slovakia, Switzerland and Poland.

Emergency and stimulus measures have pushed already high public debt to unprecedented levels, against a backdrop of shifting tax bases.

The importance of maintaining budget discipline and macro-economic resilience during boom years becomes evident during crises, when public sector expenditure is crucial to keep the economy afloat.

Debt levels were already high before the crisis, relative to past decades. In advanced countries, efforts to respond to the 2008 global financial crisis and slow growth have kept debt levels to GDP 20% higher than pre-2008. In developing countries, debt-to-GDP ratios increased by 10-15% since the end of the commodity super-cycle in 2014 (Figure 1.5).

FIGURE 1.5 **Gross public debt-to-GDP ratios by region, 2001–2020**



Source

International Monetary Fund, *World Economic Outlook Database*, October 2019.

Note

Advanced economies as well as regional groups are defined according to International Monetary Fund *World Economic Outlook Database* classification.

In the wake of the COVID-19 crisis and the subsequent, necessary policy responses, advanced economies' debt-to-GDP ratios are expected to surge from 105.2% in 2019, to 122% by the end of 2020; in emerging G20 countries, from 54.2% to 63.3%; and in low-income, developing countries, from 43% to 47.4%.[3] As some countries entered the health crisis with already high debt levels and slowing growth, fiscal space has partially reduced the size of deficit-spending programmes. This has been further exacerbated by shifting and partially shrinking tax bases due to slower growth, profit-shifting by multinational firms, and relatively low levels of progressivity in households' taxation compared to the past.[4]

An increasing public-debt burden presents new challenges for future growth, potential debt sustainability challenges and financial instability, especially in developing countries. It also challenges current tax systems and calls for a review of tax structures. Further, in countries where trust in institutions is declining, there may be doubts about the efficacy of public spending of the large amounts being mobilized to stabilize the economy in th current crisis.

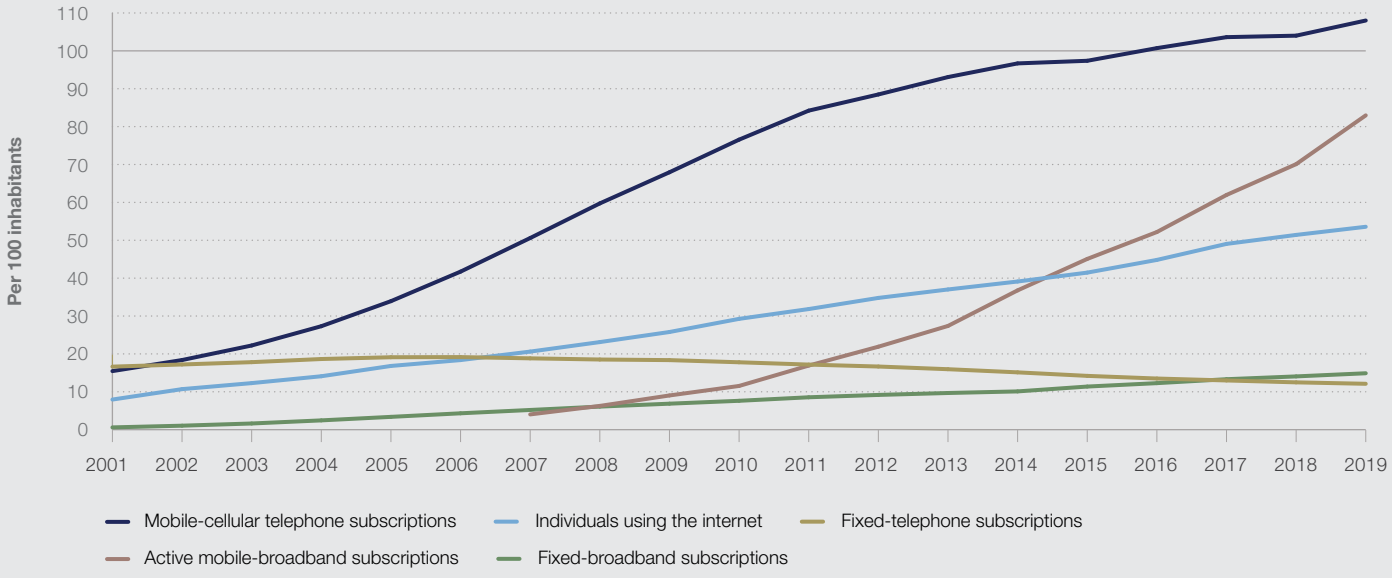
ICT access and use have been improving globally but remain far from universal, and the COVID-19 crisis has made catching up has become more difficult for developing economies while deepening advanced economies' digitalization.

Digitalization has advanced at a fast rate in the past decades. Globally, internet users doubled since 2010, surpassing 50% of the world population[5]; and every sector of the economy has seen a fast uptake of digital technologies (Figure 1.6). Despite this progress, however, large gaps in ICT adoption remain, and the digital divide—the disparity between those who have adequate access to ICT and those who do not—is still on the rise. Only 53.6% of the global population is using the internet and only 14.9% of the population has an active fixed-broadband subscription.[6]

Digital divides also persist within countries. Large shares of households or companies have not yet integrated into the digital economy. In the United States and Europe, 10% of fixed broadband subscribers can only use low-speed (below 10 Mbps) internet service and 30% of broadband subscriptions can use only internet connections below 30 Mbps.[7] In emerging and developing countries, digital exclusion is extreme: 95% of the offline population lives in these countries. Households that can access fixed broadband subscriptions are a minority (11.2%), and over one-half of all households can only use basic fixed-broadband connections, where speed is below 10 Mbps. In addition, electricity access in low-income countries is limited or unstable, further reducing the possibility to build a digital economy.[8]

With the outbreak of the COVID-19 pandemic the expansion of the digital economy has further accelerated in both advanced and emerging economies. Notably, the volume of e-commerce transactions has fast-tracked in several countries.

FIGURE 1.6 **Trends in Global ICT development, global average, 2001-2019**



Source

ITU World Telecommunication /ICT Indicators database (http://www.itu.int/ict/statistics).

For instance, in the United States, e-commerce has climbed by 24% in one year (July 2019-July 2020), after having increased by an average of 10% per year from 2010 to 2019. Globally, the number of e-learning courses has risen steeply, as over 1.2 billion children are out of schools due to COVID-19 measures this year.[9] Remote working, telemedicine, videoconferencing and online entertainment have all been on the rise since the beginning of the pandemic.

These trends are expected to continue in the next years, widening the gaps between digitalization leaders and followers, both across and within countries and across and within industries or companies.

1.2 What are the priorities for the enabling environment to lead to the revival of economies?

Improve the long-term thinking capacity within governments and mechanisms to deliver public services and support policy interventions digitally.

Perceptions by business leaders of forward-thinking and future preparedness by governments have been on an improving trend in a number of countries before the pandemic, but have flattened out this year, and overall their level remains low. There has been progress by governments in creating the frameworks for the private sector to advance the adoption of digital technologies and to implement environmental, social and governance standards; yet, overall, the preparedness and long-term vision of governments must improve to prepare for new challenges and proactive efforts at transformation towards more productivity, shared prosperity and sustainability.

Governments will also need to upgrade their own processes and services. It became apparent during the crisis that governments which had built out the digital delivery of public services were much better placed to disburse emergency funding to distressed companies and households. The Chinese government, for example, was able to build on Ant Financials' vast network to support millions of SMEs through the first wave of lockdowns.[10]

Long-term thinking by governments will further need to involve a deliberate shift to measuring economic success beyond GDP growth. A dashboard that considers people, planetary (environmental) and institutional targets on a par with growth objectives will need to be anchored in budget processes and become an integral part of a new narrative of economic performance.[11]

Prepare support measures for highly-indebted, low-income countries and plan for future public debt deleveraging.

The management of macro-economic sustainability in the recovery phase and in the next few years will determine if the growth trajectory will be burdened by debt and vicious cycles marked by public finance weakness and slower growth. Among most advanced countries, debt affordability is currently not at risk; but it seems inevitable that to finance COVID-19 policy responses related to taxation will have to increase in the future. Long-term prosperity will significantly depend on how public budget and fiscal policies are managed (e.g. how efficiently recovery packages are implemented and the maturity structure and composition of public debt) as well as on the structural capacity to grow more rapidly.

Developing countries, however, are in a significantly weaker position as some of them are already highly indebted—and highly-indebted countries tend to attain lower investment and productivity levels during recovery periods.[12] These countries will need the support of the international community and multilateral financial institutions to prevent defaults or situations where the cost of debt service diverts significant resources from economic and social policies budgets.[13] For instance, debt standstill arrangements that flatten the curve of debt rescheduling can help.[14]

Upgrade utilities and other infrastructure.

In order to close existing gaps, the world will need to invest $3.7 trillion, or 4.1% of global annual GDP a year, into infrastructure from 2017 to 2035—and 54% of this funding can be attributed to the needs of Asia. However, there is a projected shortfall of $5.5 trillion of infrastructure spending globally between 2017 and 2035, and this further varies regionally.[15]

The IMF estimates that allocating an additional 1% of GDP to public investment could create approximately 7 million jobs directly, and 20 million jobs indirectly worldwide. Maintaining and, where possible, expanding investments in transport, healthcare, housing, digitalization and energy transition would not only improve competitiveness, but also create more employment while preparing countries to become more resilient and sustainable.[16]

Effective infrastructure governance and management will be key to improving the efficiency of fund disbursement. To date, inefficient planning, allocation and implementation of infrastructure projects account for 30%-50% of expenditure losses; thus, countries could maintain their infrastructure budgets by streamlining and improving these processes.[17] Similarly, stronger frameworks for project selection, fiscal planning, comprehensive budgeting, fair procurement practices, project oversight and monitoring of public assets may contribute to building better infrastructure at a lower cost.

Prioritize closing the digital divide within and across countries for both firms and households

The impact of the pandemic crisis should serve as a wake-up call for countries that need to embrace the digitalization process, incentivize companies to move towards digital business models, and invest in ICT development and digital skills.

Two immediate implications follow for reviving economies. First, the technology frontier will move ahead faster than before: private sector spending on technology is only momentarily retracting in 2020, but it is expected rebound strongly in 2021 and companies are expected to almost double their investments dedicated to digital transformation initiatives in the next three years.[18] Economies that have been able to upgrade their ICT infrastructure and expand the adoption of digital technologies will be better equipped for the recovery phase, and those that are lagging behind could allocate parts of stimulus packages and policy action to this domain.

Second, digital transformation must occur hand in hand with human capital and legal framework developments. As technological advancements proceed, an economy's productivity gains rest upon the capacity of companies and households to take advantage of the opportunities offered by new technologies. At the same time, legal codes need to catch up with the digital world and provide certain and simple rules for digital business models (e.g. e-commerce, sharing economy, fintech).

Few countries are already advanced on all aspects (Table 1.1), and even countries where ICT is broadly diffused (e.g. Korea and Japan) may need to adapt their business organizational models accordingly in the next phase of economic revival.

TABLE 1.1

Top ten countries on ICT adoption, flexible work arrangements, digital skills and digital legal framework

	ICT adoption		Flexible work arrangements		Digital skills		Digital legal framework	
1	Korea, Rep.	93.7	Netherlands	82.7	Finland	84.3	United States	78.0
2	United Arab Emirates	92.3	New Zealand	77.7	Sweden	79.5	Luxembourg	77.4
3	Hong Kong SAR	90.2	Switzerland	75.8	Estonia	77.9	Singapore	76.5
4	Sweden	89.7	Estonia	75.0	Iceland	77.6	United Arab Emirates	72.5
5	Japan	88.3	United States	74.2	Netherlands	77.3	Malaysia	70.0
6	Singapore	88.1	Luxembourg	73.6	Singapore	77.3	Estonia	69.3
7	Iceland	87.8	China	73.6	Israel	76.5	Sweden	67.9
8	Norway	84.7	Australia	72.9	Denmark	74.7	Finland	67.7
9	Qatar	83.9	Finland	72.5	Saudi Arabia	74.1	Germany	67.3
10	Lithuania	83.8	Denmark	72.4	Korea, Rep.	73.0	Netherlands	65.5

Source

World Economic Forum, Executive Opinion Survey 2019-2020 and International Telecommunication Union (ITU), WTDS 2020 database.

Note

All scores are expressed on a 0-100 scale. ICT adoption is the average of the following indicators obtained from ITU: "Internet users% of adult population"; "mobile-cellular telephone subscriptions per 100 pop"; the ratio of "Fibre internet subscriptions per 100 p." to "Fixed broadband Internet subscriptionsper 100 pop."; the ratio of "Mobile-broadband subscriptions per 100" to "mobile-cellular telephone subscriptions per 100 pop". Flexible work arrangements: Response to the survey question "In your country, to what extent do companies offer flexible working arrangements (e.g., virtual teams, remote working, part-time employment)? 1=Not at all; 7=to a great extent. Digital skills refers to the response to the survey question "In your country, to what extent does the active population possess sufficient digital skills (e.g., computer skills, basic coding, digital reading)? 1=Not at all; 7=To a great extent. Digital legal framework refers to the response to the survey question "In your country, how fast is the legal framework of your country adapting to digital business models (e.g. e-commerce, sharing economy, fintech, etc.)?" [1 = not fast at all; 7 = very fast].

1.3 What are the priorities for the transformation of enabling environments?

Ensure public institutions embed strong governance principles and regain trust by serving their citizens.

Reform will need to go further than simply re-establishing more efficient versions of earlier frameworks for the institutional environment. For example, some historical institutional structures were deeply unfair to certain groups and need to be reformed more fundamentally in addition to improving overall institutional quality, legal certainty and judicial independence. Substantive institutional improvements will also go some way towards re-establishing trust between citizens and governments. The crisis has opened up an opportunity for governments to strengthen trust further. Those that acted swiftly and transparently to protect their populations, such as New Zealand, saw significant improvements in trust levels, while those which mismanaged the crisis lost credibility and the trust of their citizens.

Upgrade infrastructure to accelerate the energy transition and broaden access to electricity and ICT.

Infrastructure development in the future will need to embed sustainability and broad-based access criteria. For example, climate change mitigation requires rapid shifts in energy mix towards renewable energy sources. This not only requires stronger and wider political commitment (both in terms of funds and regulations), but also involves changes to urban planning, broadening access to green public spaces and upgrading public transport, as well as greater protection of biodiversity and natural habitats outside of urban spaces.

Similarly, wider access for all members of society to infrastructure will in some cases require longer term changes to enhance inclusion, including changes in market structure to expand competition. For example, the average price of the fixed-broadband basket (5 GB) is at least 20 times higher in emerging market and developing economies than in advanced economies, and the price that customers pay for a fixed-broadband basket is more than one-sixth of their salary.[19] More efforts are needed to improve affordability, expanding inclusion of companies and households into the digital economy.

Shift to more progressive taxation, rethinking how corporations, wealth and labour are taxed, nationally and in an international cooperative framework.

Discussions over changes to national and international tax architectures have gained a new urgency in the post-COVID economy, which is marked by significantly higher public debt levels and exacerbated historical inequalities. The crisis presents an opportunity to fundamentally rethink both tax structures and the set-up of social welfare, and adapt both to the realities of the Fourth Industrial Revolution.

Such a shift entails an international agreement on the taxation of digital activity as well as new approaches to addressing gains in wealth at the top end of the distribution by means of more progressive marginal income, wealth or capitals gains taxes. The nature of public spending on social security systems, too, will have to be upgraded from providing intermittent support to individuals in times of crisis to fostering capabilities and connections across and within communities over the lifecycle.

Section 2
Human Capital

2

Human Capital

Human capital—the capabilities and skills of individuals and populations—is a key driver of economic prosperity and productivity. It can be developed by ensuring individuals are able to sustain good health, and they are in possession of in-demand skills and capabilities. The value of human capital is realized in the labour market through productive employment, and it is developed through education during the first two decades of an individual's life as well as through mid-career training investments. Finally, a set of preconditions aligns incentives between workers and businesses—maintaining a tight connection between pay and productivity, meritocracy in pay and professionalization in firm management as preconditions for wider workforce productivity.[20] The challenges posed by the COVID-19 pandemic have reaffirmed the need to move beyond simply providing basic access to education and health. There is also a need to shift to active labour market policies and business practices that integrate education and health with mid-career training opportunities which match the needs of the labour market, safety nets for times of workforce disruption and workforce management underpinned by merit-based practices.

This section focuses on these aspects jointly. Section 2.1, using historical data, shows trends in education, skills and access to health, highlighting ongoing challenges that required policy attention even before the pandemic. Section 2.2 provides a set of priorities for policy interventions for broadening the human capital framework to encompass safety nets, education and training, and health to support economic growth revival in the short term (1-2 years), while making sure that no one is left behind. Section 2.3 offers policies recommendation for the longer run (3-5 years) to ensure that a reskilling revolution takes place, that health systems are reformed and that labour laws and safety nets deliver widespread, inclusive prosperity in the future.

2.1 What were the human capital-related priorities emerging from the past decade?

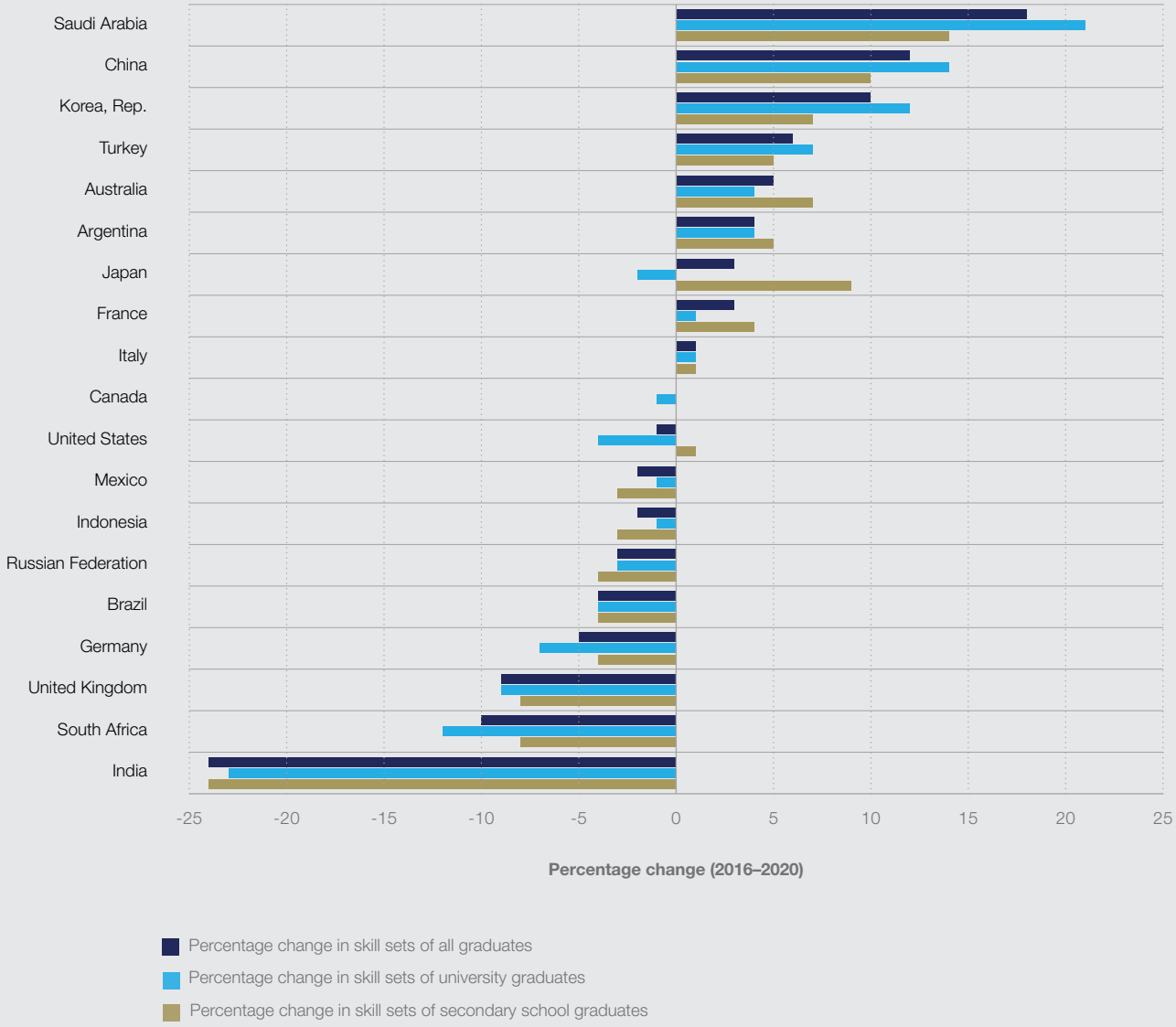
Talent shortages have become more pronounced, underpinned by outdated education systems.

Over the past decade, human capital development across advanced economies has stagnated, although a number of developing economies have made investments in basic upgrading of education and training systems. Across developed and developing economies, talent gaps remain large, local education systems are increasingly outdated and there are limits to international mobility. For example, relative to 2008, the ability to import talent has dropped by 17% percent in advanced economies and 12% in emerging economies.

The adequacy of local secondary education systems to meet the needs of employment is rated at 59 points (out of 100) in advanced economies and 42 points (out of 100) in emerging and developing economies. A number of large economies have seen downward trends in adequacy of skill sets of all graduates in recent years (among them, India, South Africa, United States and Germany) while others such as Korea, Rep, Saudi Arabia, Turkey and China have improved their scoring (Figure 2.1).

FIGURE 2.1

Percentage change in the skill sets of graduates, 2016–2020, G20 economies, disaggregated by level of education



Source

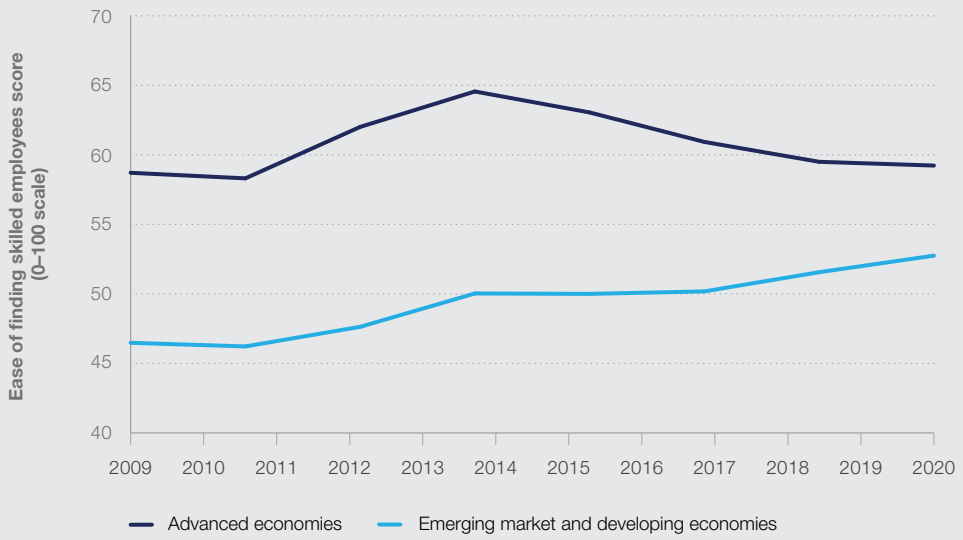
World Economic Forum, Executive Opinion Survey, 2016-2020 editions.

Similarly, the adequacy of tertiary education to meet the needs of employment is rated at 68 points (out of 100) in advanced economies and 55 points (out of 100) in emerging and developing economies. In the aggregate, these figures have seen little change over the past years. The tertiary education systems that are rated as best placed to deliver to the needs of employers are those of Switzerland (82), Singapore (79), Finland (79) and Chile (71). In contrast the following countries trail behind: Ethiopia (37), India (39), Brazil (45), Japan (59), Italy (62), and United Kingdom (63). Tanzania and China are among the best improved, while India, Ethiopia and the United States have seen the largest decline.

As a result, the ability to find skilled employees has declined across advanced economies by 7% relative to 2016, while improving across developing economies by 3%. As presented in Figure 2.2, business leaders across geographies continue to report difficulties when searching for individuals who can fill vacancies in their enterprises and over time the trends in emerging and developing economies have converged to a similarly low base.

FIGURE 2.2

Trends in ease of finding skilled employees in advanced economies and in emerging markets and developing economies, 2009–2020



Source

World Economic Forum, Executive Opinion Survey (various editions). See Appendix B for details.

Note

Values of emerging market and developing economies are based on a constant sample of 84 economies; values of advanced economies are based on a constant sample of 36 economies covered in every edition since 2009. The Ease of finding skilled employees indicator (1–100 scale) corresponds to the response to the survey question "In your country, to what extent can companies find people with the skills required to fill their vacancies?" [0 = not at all; 100 = to a great extent].

There is a particular shortfall in digital skills and other skills of the new economy as technology disrupts labour markets.

As new technologies are adopted by enterprises globally, skills shortages in digital skills and the skills needed for the jobs of tomorrow are set to become more pronounced as populations have switched to remote work during the COVID-19 pandemic.

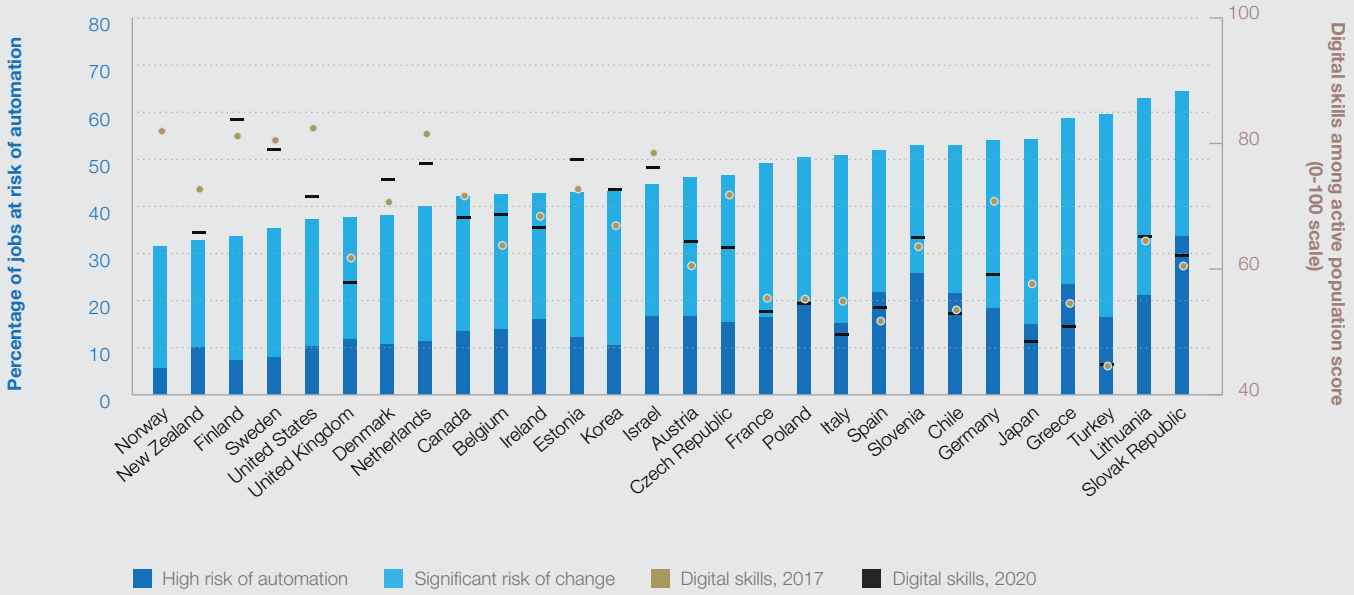
The World Economic Forum's *Future of Jobs Report 2020* has projected that technological change is set to displace a range of skills in the labour market while driving greater demand for a new set of core skills such as analytical thinking, creativity and critical thinking as well as skills in the use and design of technologies ("digital skills"). While such changes are still likely to result in a net positive employment outlook in the midterm, there is significant additional disruption and stagnation in the labour market due to the COVID-19 recession.[21]

Since 2017 (when data was first available for this indicator) the perception of businesses on digital skills have, on average, decreased by 3.4% among advanced economies and increased by 1.8% among emerging and developing economies, while developing and emerging economies score 49 (out of 100) and advanced economies score 67 (out of 100). The largest improvements have been in Egypt, Bulgaria, Saudi Arabia and Tanzania while the United States, Norway, South Africa, Germany and Japan have seen the largest decline of digital skills relevance.

The lack of adequate digital skills not only hampers the diffusion of ICT but also exacerbates the risk of job losses related to automation. As shown in Figure 2.3, in OECD countries, at least 14% of all jobs are at "high risk" of automation and 32% of all jobs are at "significant risk" of automation. In 16 of 27 OCED countries digital skills scores have declined over the past four years, making it more difficult for workers to transition to new roles.

FIGURE 2.3

Digital skills among active population and % of jobs at risk of automation, selected economies



Source

Author calculations based on World Economic Forum, Executive Opinion Survey (various editions). See Appendix B for details; and OECD, Putting faces on the jobs at risk of automation, Policy Brief on the Future of Work, 2018.

Note

The Digital skills among active population indicator (0-100 scale) corresponds to the response to the survey question "In your country, to what extent does the active population possess sufficient digital skills (e.g. computer skills, basic coding, digital reading)?" [0 = not all; 100 = to a great extent]. The extent to which a job is considered at risk of automation is based on the percentage of tasks within an occupation that can be automated. A job is considered as being at a "high risk of automation" if 70% of tasks required to do this job can be automated. A job is considered as being at a "significant risk of change" if 50 to 70% of the task required to do this job can automated.

There are misaligned incentives and rewards for workers.

Among developed economies, pay is increasingly de-coupled from the overall productivity of workers, driven in part by high rates of technological adoption, yet resulting overall in an increasing polarization of wages between workers employed in different professions. In addition, as tracked by the Executive Opinion Survey over the past decade, there has been a gradual erosion of meritocracy in labour markets across economies, a decline in the assessment of professional management and lower evaluations of the ability of firms to promote and develop diverse talent. For instance, business leaders reviewed meritocracy assessment downward by 3% on average, 12% in the United States, 14% in Sweden and 23% in Brazil.

A key emerging priority of the last decade has been the reallocation of the current workforce into emerging professions in tandem with relevant reskilling and upskilling. In this context, the persistent erosion of meritocracy, as well as the new challenges posed by the COVID-19 pandemic, call for governments to support both businesses and workers in the transition to the new world of work and improve quality, wages and standards of work in the new economy.

Health services, infrastructure and talent have lagged behind two dominant demographic trends, increasing population in the developed world and ageing populations in the developing world.

Average life expectancy has jumped by four years since 2010, and by nine years since 1990. The most significant progresses have been achieved in low- and middle- income (developing) economies. In these countries, life expectancy has increased by 5.62 years since the start of this century.

This progress is largely due to improved sanitation across developing economies as well as, more broadly, to the emergence of new medical technologies. Such positive figures mask persistent under-investment in health system capacity which has become more apparent during the COVID-19 pandemic.

The gap between the demand and supply of health personnel remains large. According to World Health Organization estimates, healthcare services in high-income economies are set to experience a shortfall of 78,000 professionals by 2030. In developing and emerging economies, despite a 15% increase in the average number of physicians per capita between 2000 and 2017, there is still a shortage of doctors to meet a rapidly growing demand.[22]

2.2 What are the priorities for human capital development in the short-term revival of economies?

Manage a gradual transition from furlough schemes to new labour market opportunities.

Holistic labour market policies will be needed to support the transition of the cohort of individuals whose employment has been supported by government-funded furlough schemes or through other emergency support measures. In the coming year these schemes will have to give way to other, less temporary policy measures.

With a significant rise in unemployment in the COVID-19 context and risk of further expansion of those figures, the labour market will benefit form a new cohort of policies which support workers' income and health needs in the short term, but also power their re-allocation to new jobs and professions in the short- to medium-term.

Job creation measures such as funding small and medium-sized enterprises and new entrepreneurial clusters, as well as creating a cohort of new, quality-focused apprenticeships collectively focused on the professions of the future, could further ease the transition to the new labour market.

Individual efforts to undertake an investment in mid-career reskilling and upskilling can be motivated by government programmes but also by employers' commitments to training, fair wage practices and merit-based management practices. These behaviours by firms can signal to workers who are exploring both short-cycle and fundamental training that their efforts will not be wasted, and they will be rewarded on the basis of investments they make in their human capital.

Scale up reskilling and upskilling in emerging skills, combined with active labour market policies.

A revival in the development of human capital and the functioning of labour markets across economies requires focused efforts to renew training systems across various age and experience cohorts, with an emphasis on the skills needed for emerging jobs. This update is urgently needed in secondary education to ensure that future generations of young people enter the labour market with job-ready skills. However, talent shortages will remain endemic until there is substantial escalation in mid-career re-skilling and upskilling programmes as many of the individuals who need further reskilling and upskilling are beyond school age and current members of the workforce.

Specific policy efforts will need to target reskilling and upskilling for those who are at greatest risk of job displacement or are currently displaced. For example, unemployment services aimed at those out of work can encompass both income support schemes to maintain living standards during times of hardship and access to relevant retraining opportunities mapped to emerging jobs and skill sets to empower future labour market re-allocation. For example, in the past year, the Danish Ministry of Employment provided furloughed workers with an increase on typical unemployment benefits under the condition that they pursue upskilling and reskilling. Other governments, in Singapore and France for example, have provided workers with funded skills accounts for completing additional training. New technologies can support this process, mapping career trajectories and identifying personalized training opportunities with unprecedented granularity.

Expand health system capacity to manage the dual burden of current pandemic and future healthcare needs.

The events of the past year have further revealed that health systems remain under-funded and under-staffed. In the short to medium term, investments will need to be focused on expanding personnel and capacity to manage the potential of COVID-19 resurgence as well as to deploy a future vaccine. In parallel, countries have already started to, and should continue to adapt their prevention strategies, improving public health messaging, developing greater expertise, implementing new monitoring mechanisms and supporting the safe development of telemedicine.[23] These adjustments, together with stronger international collaboration and communications, will contribute to lay the groundwork for greater resilience in the future. In addition, developing economies will need support in funding and deploying their COVID-19 vaccine response as well as strengthening the resilience of their healthcare systems. Weak links in the management of chronic and infectious diseases wreak havoc on local economies and hold global economic consequences as revealed by the COVID-19 pandemic.

2.3 What are the priorities for empowering human capital to drive the long-term transformation of economies?

Beyond the immediate-term revival of human capital in the new economy, the following priorities cover the next steps required to drive a wholesale transformation across economic systems.

Update education curricula and expand investment in the skills needed for jobs in markets of tomorrow.

With a medium-term time horizon, it is possible to map and define the skills needed to drive the markets of tomorrow, to develop new and cutting-edge knowledge, and to engage in the production of frontier technologies. To create such a transformation towards the jobs of tomorrow, economies must fundamentally upgrade technical and vocational training and university education for both students and workers on an ongoing basis. Policy-makers must also innovate and refresh how school curricula teach the core skills that must be seeded for innovation capability later in life through creativity and critical thinking skills.[24] In addition, to drive better economies and societies, education and training systems will need to be updated not only to prepare children and adults for future employment but will also need to prepare them to be socially just citizens. New technologies could unlock the ability to scale access to education and to update curricula with greater cadence.

Rethink labour laws for the new economy and use new talent management technologies to adapt to the new needs of the workforce.

With the rapid expansion of digitalization and the adoption of new technologies in all sectors, labour regulation will need to adapt to new forms of work as well as new labour market signals. New formats of work, such as work on online work platforms, calls for new forms of regulation and work standards in the digital economy.

Across the digital platform economy as well as the traditional economy, recent trends have seen a polarization of wages, the disconnect of pay and productivity, as well as erosion of wages to levels where they are unable to guarantee a basic living standard in a number of key economies. These trends suggest a need to examine appropriate minimum and living wage policies that can ensure that workers are able to profit on the basis of their skills and set the basis for a labour market that benefits people and society as well as firms and the economy. Those same aims demand the introduction of further regulation over time that can ensure that adults have the leisure time to maintain civic and familial ties, as well as subjective well-being.

New tools and technologies can support adaptation of the workforce and offer solutions to employers and the public sector. For example, such tools, if managed well, can help reduce the time needed to claim benefits and taxes, or to monitor diversity and inclusion challenges. Such new tools can also be employed to ease the burden of government reporting, allowing public sector oversight, which requires lower levels of private-sector burden.

Expand eldercare, childcare and healthcare infrastructure and innovation for the benefit of people and the economy.

Broad public investments in healthcare and the childcare and eldercare infrastructures can support a future more inclusive economic transformation while offering numerous societal benefits. For example, increasing investment in health can achieve the dual goal of strengthening the capacity of health systems, already insufficient before the pandemic, but also offer an additional area of increasing employment, especially in newly revalued ‘essential’ work. These investments can create preparedness for new health emergencies and promote greater inclusion by broadening access to healthcare, especially among under-served populations.

Such investments are also critical for expanding the care economy for both young people and the elderly. The scale of government investment in this sector has the potential to have significant additional dividends while greatly benefiting societies and individuals; in particular, women, who currently perform most unpaid care work.[25]

The use of technology can support efforts to scale health and care, and innovation in associated business models, opening the possibility for higher-wage, higher-quality work for health and care industry professionals. For example, new technologies could support eldercare workers to prolong time spent in the home rather than in a care home and to provide early alert systems for worsening conditions. New technologies can also further support the expansion of broader healthcare through new monitoring and tracking tools.

Section 3
Markets

3

Markets

Markets are the building blocks of a functioning economy. Competitive markets often produce goods and services satisfying a large variety of human needs that are offered at the best possible prices. There are, however, cases when markets fail to produce the best outcomes, particularly when there is concentrated market power, incomplete information, or externalities. For instance, the 2008 global financial crisis showed that markets are inefficient when an entity has an incentive to increase its exposure to risk because it does not bear the full costs of that risk. In such cases, regulations or public interventions are required to prevent or correct these failures.

Over the past decades, not only has efficiency eroded as new sources of market power and externalities arose, but the inability of markets by themselves to contribute towards sustainability and inclusion objectives has also become increasingly evident. The 2020 pandemic exacerbated some of these trends. This section examines the evolution of product markets, financial markets and international trade as well as the role of new industrial policies in providing a new direction for market outcomes. Section 3.1 uses historical data to show trends in these dimensions, pointing out issues that already required policy attention before the pandemic. Section 3.2 provides a set of priorities for policy interventions to strengthen financial systems, competition and support to the private sector to revive growth (1-2 years) while embedding sustainable and inclusive prosperity principles. Section 3.3 offers policy recommendations for the longer run (3-5 years) that hardwire positive social and environmental outcomes into the functioning of the markets of tomorrow.

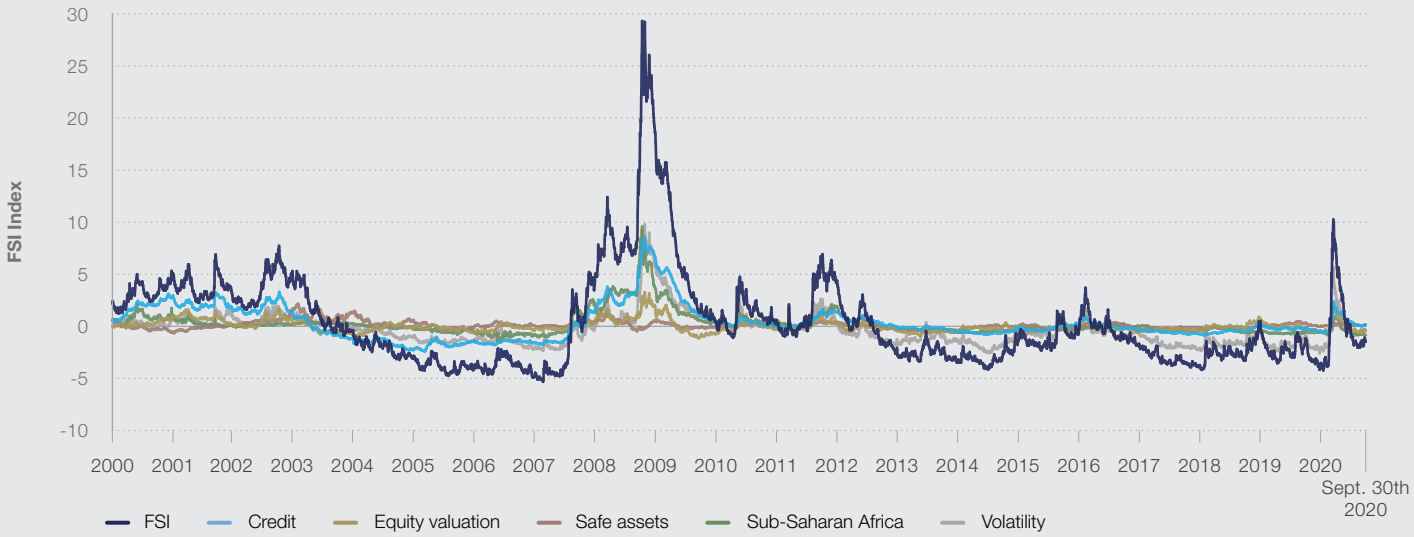
3.1 What were the markets-related priorities emerging from the past decade?

Financial systems after the 2007–2008 crisis have become sounder but continue to have some sources of fragility, including increased corporate debt risks and liquidity mismatches, and are not sufficiently inclusive.

The 2008-2009 financial crisis have led policy-makers to introduce new regulations and macro-prudential policies. Thanks to these interventions, financial systems strengthened worldwide (Figure 3.1). By pushing banks to deleverage, increase capitalization and reduce non-performing loans, banks have emerged from the financial crisis stronger, and were overall sounder in 2019 than they were in the past 12 years. (Table 3.1, Column A).[26]

During the same timeframe, banks, supported by accommodative monetary policy, eased credit conditions, granting better access to capital to both large firms and SMEs. For instance, in the United States and large Eurozone countries, an increasing number of loan managers reported having eased standards for granting business loans between 2008 and 2018. By the same token, business leaders answering the World Economic Forum's Executive Opinion Survey have reported an improvement in access to credit for SMEs in their countries over the past five years (Table 3.1, Column B).

FIGURE 3.1 **Evolution of global financial stress, March 2000 – September 2020**



Source

Office of Financial Research, OFR Financial Stress Index.

Note

The OFR Financial Stress Index (FSI) is a daily, market-based snapshot of stress in global financial markets. It is constructed from 33 financial market variables, such as yield spreads, valuation measures and interest rates. The OFR FSI is positive when stress levels are above average, and negative when stress levels are below average. The value of the OFR FSI on a given day is the weighted average level of each variable observed in the market on that day, relative to its history.

Loose monetary policy and easier access to credit has benefitted the economy on the one hand but introduced new issues on the other. First, low rates have reduced monitoring incentives and lending standards. As a result, corporate debt has risen over the past few years, which may become challenging with the emergence of the COVID-19 crisis. According to the IMF, at-risk corporate debt in 2019 was already high in systemically important countries, including the United States, United Kingdom and China. Although banks have learned to resolve bad loans faster, and most banks remain well capitalized, during the COVID-19 crisis several banks will "approach minimum capital levels".[27] A second issue driven by extra-loose monetary policy is stock market volatility and misalignment between market prices and fundamentals. Prices lose their signalling role and create incentives for diverting funds from investments (e.g. R&D, human capital, new facilities, pollution abatement) towards short-run profits, such as large-scale open-market repurchases.[28]

Furthermore, millions of households are still excluded from financial services and credit. For instance, according to the IMF's Financial Access Survey, in most Sub-Saharan African countries there are less than four bank branches per 100,000 people, while in most European and North American countries there are between 20 and 50.[29] Even within advanced economies some communities are significantly excluded from financial services: for instance, in the United States, almost half of black American households are un-banked or under-banked, versus about 20% of white American households.[30]

TABLE 3.1 | **Banking system indicators, selected countries**

	Column A: Stability indicators				Column B: Access indicators	
	Non-performing loans, (level 2018)	Non-performing loans, (difference 2012-2018)	Soundeness of banks (index, 2019 score relative to 2008)	Change in Bank Capital to Asset Ratio, (difference 2008-2019)	Loans stricteness, (difference Q4 2008-Q4 2018)	Financing of SMEs, % change (index, 2019 score relative to 2015)
Australia	0.9%	-0.85%	91.8	1.18	-	98.1
Canada	0.4%	-0.20%	88.9	1.52	-	119.6
China	1.8%	0.88%	114.4	9.31	-	123.6
France	2.7%	-1.55%	92.7	6.61	-77.28	112.1
Germany	1.2%	-1.62%	91.3	2.04	-36.46	106.7
India	9.5%	6.09%	77.8	8.11	-	99.4
Indonesia	2.3%	0.52%	95.7	6.43	-	108.1
Italy	8.4%	-5.36%	80.4	2.12	-97.50	123.4
Japan	1.1%	-1.20%	109.7	-	-	111.5
Korea, Rep.	0.3%	-0.24%	100.7	1.66	-	116.3
Mexico	2.1%	-0.39%	98.4	1.40	-	102.0
South Africa	3.7%	-0.31%	96.0	8.51	-	85.8
United Kingdom	1.1%	-2.51%	97.3	2.40	-	114.6
United States	0.9%	-2.40%	102.9	11.78	-77.60	104.9

Source

World Economic Forum Executive Opinion Survey, World Bank World Development Indicators database, IMF, financial soundness indicators, European Central Bank's Bank Lending Survey (BLS) and U.S. Federal Reserve Board's quarterly Senior Loan Officer Opinion Survey.

Note

The Non-performing loans indicator is the ratio of the value of non-performing loans divided by the total value of the loan portfolio of all banks operating in a country. The Soundness of banks indicator corresponds to responses to the question "In your country, how do you assess the soundness of banks?" [1 = extremely low—banks may require recapitalization; 7 = extremely high—banks are generally healthy with sound balance sheets]". The Bank capital to asset ratio is obtained by dividing banks' assets by total capital. The Loans strictness indicator is the percentage of bank managers reporting of having tightened standards for loans. The Financing of SME indicator corresponds to responses to the question "In your country, to what extent can small- and medium-sized enterprises (SMEs) access finance they need for their business operations through the financial sector?" [1 = not at all; 7 = to a great extent].

Market concentration has been on an increasing trend in advanced economies, with large productivity and profitability gaps between the top companies and all others in each sector.

Business leaders in advanced economies assess that, on average, the extent of market dominance has increased significantly since 2008. In developing and emerging economies, market dominance has increased less, but has remained persistently higher than in advanced economies. (Figure 3.2). These trends date back several decades. For instance, there is evidence that US market power started to increase in the 1980s, as mark-ups rose by 40 percentage points (reaching 61%), and profit rates increased from 1% of sales to 8% between 1980 and 2014, driven primarily by reallocation towards already high-mark up firms.[31]

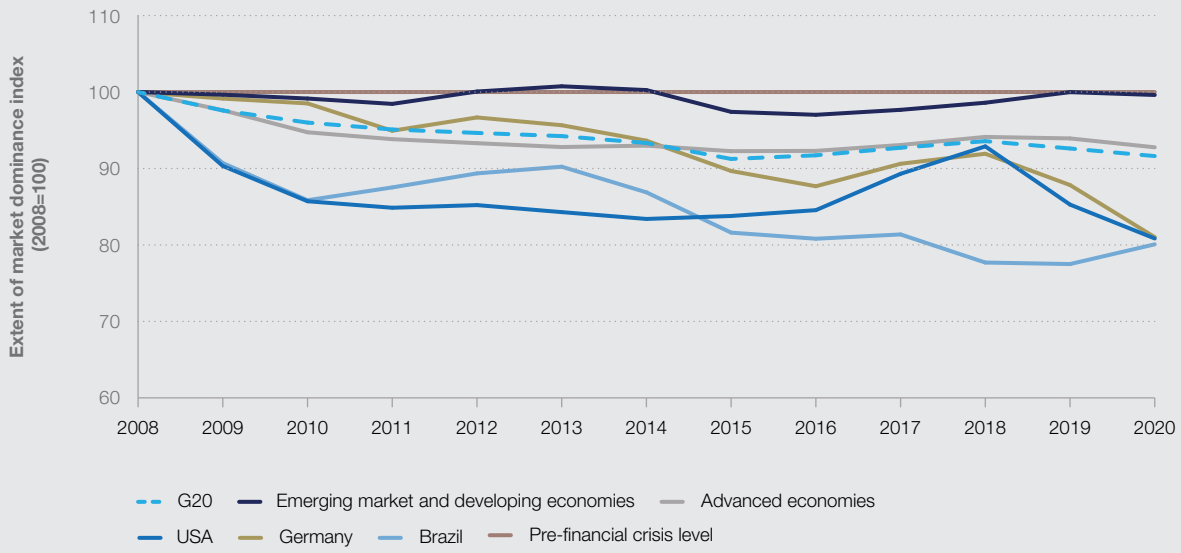
In this context, the outbreak of the COVID-19 pandemic is likely to exacerbate concentration as it may force smaller and fragile companies to exit the market or lose market share in some sectors and reinforce 'winner-take-all' outcomes in other sectors, reducing space for innovation and new entrants as well as potentially reducing consumers' benefit.

Innovation has also become concentrated. Only a handful of countries generate the bulk of new inventions, supported by a few smaller or regional innovators. Most other countries produce only marginal innovations or local adaptation of existing technologies. Over the past 20 years, large cross-country innovation divides have not diminished. Just five countries today produce together over 70% of global patent activity, and the top 10 countries generate over 85% of global patent shares (Figure 3.3). These levels of concentration have remained in place for the past 20 years, with the exception of China and Korea (Figure 3.4).[32]

The geographic distribution of innovation, while it may be the result of typical cluster development and the benefits of agglomeration, also highlights large intra-country innovation divides. Thus, innovation activity takes place overwhelmingly in metropolitan areas, leaving rural areas behind.[33] This adds to the widening of the productivity divide between top companies and the rest—and leading to economies that are increasingly polarized and unequal.

FIGURE 3.2

Trends in extent of market dominance, selected economies and economic groups, 2008–2020



Source

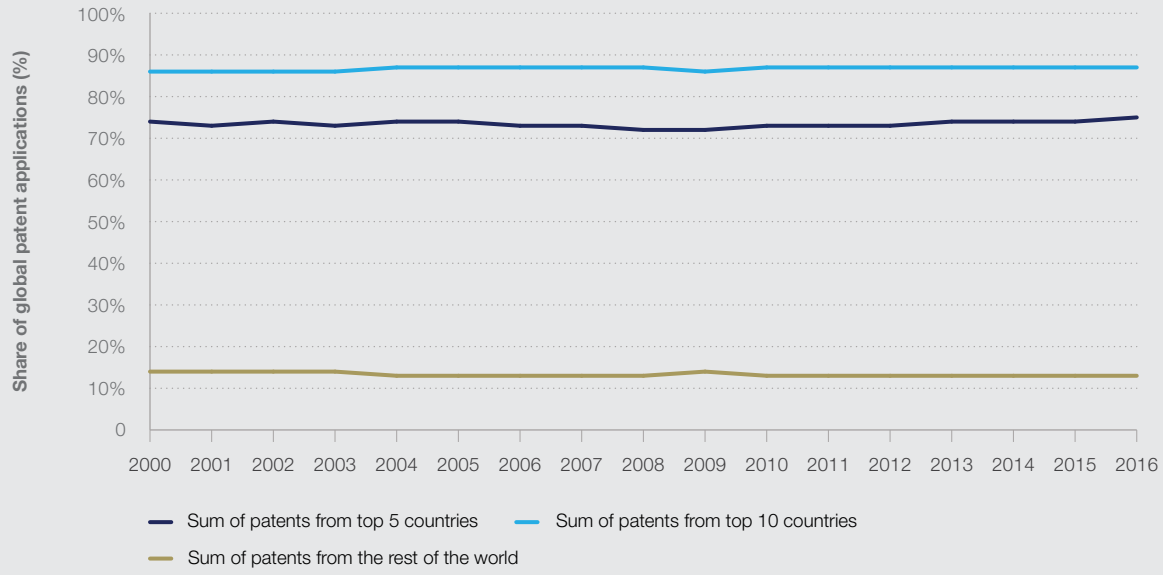
World Economic Forum Executive Opinion Survey 2008–2020 series.

Note

The Extent of market dominance indicator corresponds to responses to the survey question "In your country, how do you characterize corporate activity?" [1 = dominated by a few business groups; 7 = spread among many firms]. Advanced economies as well as emerging market and developing economies are defined according to International Monetary Fund *World Economic Outlook Database* classification.

FIGURE 3.3

Concentration in patent activity, 2000–2016



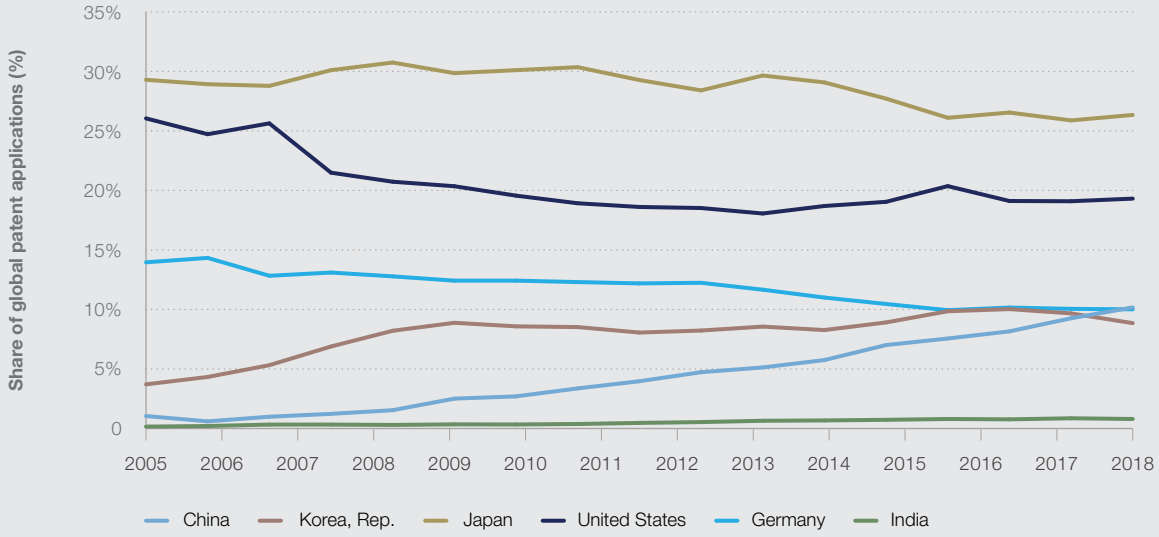
Source

Author calculations based on OECD/STI Micro-data Lab's intellectual property database.

Note

Patents are defined as the number of IP5 patent families, by earliest filing date and inventor country, using fractional counts. The top 5 economies are the economies with the highest number of patents in 2016: Japan; United States; China; Germany and Korea, Rep. The top 10 economies are the economies with the highest number of patents in 2016: Japan; United States; China; Germany; Korea, Rep., Taiwan, China; France; United Kingdom; Italy; and Canada.

FIGURE 3.4 **Trends in patent concentration, selected countries, 2005–2018**



Source

Author calculations based on OECD/STI Micro-data Lab, intellectual property database.

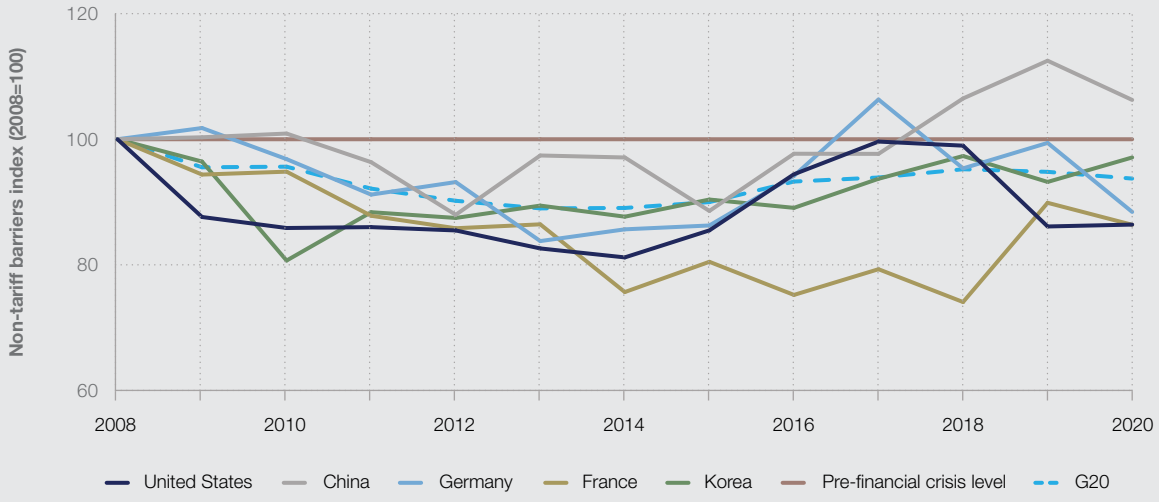
Note

Patents are defined as number of IP5 patent families, by earliest filing date and inventor country, using fractional counts.

Trade openness and the international movement of people have been on a declining trend since the financial crisis.

Countries responded to the 2009 global financial crisis by progressively increasing protectionism both in terms of trade and investments as well as on people movement. This tendency has crept in mainly through marginal adjustments to import practices—such as non-tariff barriers—and FDI rules, rather than through direct adjustment to tariffs rates. On average, business leaders in G20 countries evaluate that the prevalence of non-tariff barriers increased by 7.9% over 12 years ago (Figure 3.5) and that restrictiveness of FDI rules and regulations has increased by about 11.6% over the same period (Figure 3.6).

FIGURE 3.5 **Trends in prevalence of non-tariff barriers, 2008-2020, selected economies**



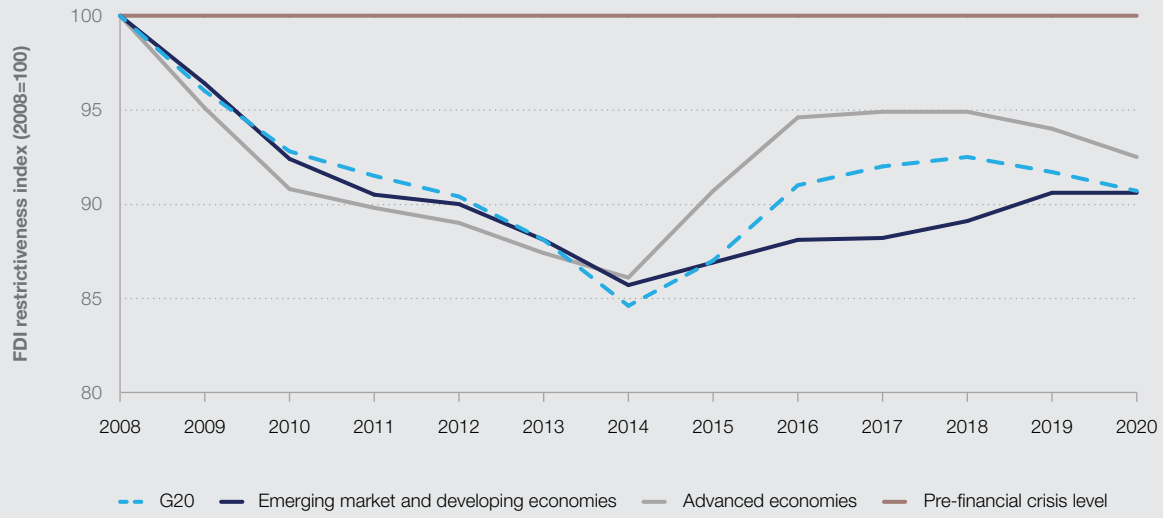
Source

World Economic Forum Executive Opinion Survey 2008–2020 series.

Note

The Prevalence of non-tariff barriers indicator corresponds to responses to the survey question "In your country, to what extent do non-tariff barriers (e.g. health and product standards, technical and labelling requirements, etc.) limit the ability of imported goods to compete in the domestic market?" [1 = strongly limit; 7 = do not limit at all].

FIGURE 3.6 **Trends in restrictiveness of FDI rules, 2008–2020**



Source

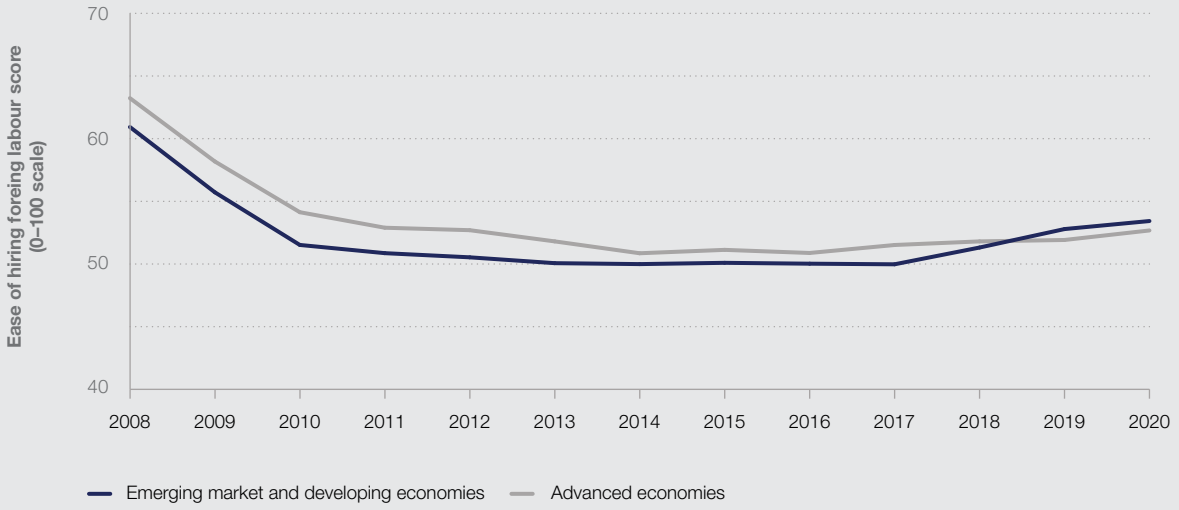
World Economic Forum Executive Opinion Survey 2008–2020 series.

Note

The Restrictiveness of FDI (Foreign Direct Investment) rules indicator corresponds to responses to the survey question "In your country, how restrictive are rules and regulations on foreign direct investment (FDI)?" [1=Extremely restrictive; 7=Not restrictive at all"]. Advanced economies as well as emerging market and developing economies are defined according to International Monetary Fund *World Economic Outlook Database* classification.

A similar trend is visible in terms of the ease of hiring foreign labour. Since the 2009 financial crisis, most countries have progressively tightened migration policies, limiting companies' access to the international pool of talent. As a result, business executives in advanced and emerging countries alike have reported that hiring foreign labour became significantly harder in 2009–2010 and has remained at lower levels since then (Figure 3.7). In about 30 countries out of the 141 covered by the GCR, hiring foreign labour has become significantly harder than it was in 2008–including in Austria, Switzerland, Denmark, Italy, Iceland, Singapore, the United Kingdom and Sweden (among advanced economies), and India, South Africa, Botswana, Colombia and Peru (among emerging and developing economies).

FIGURE 3.7 **Trends in ease of hiring foreign labour, emerging market and developing economies vs advanced economies, 2008–2020**



Source

World Economic Forum Executive Opinion Survey 2008–2020 series.

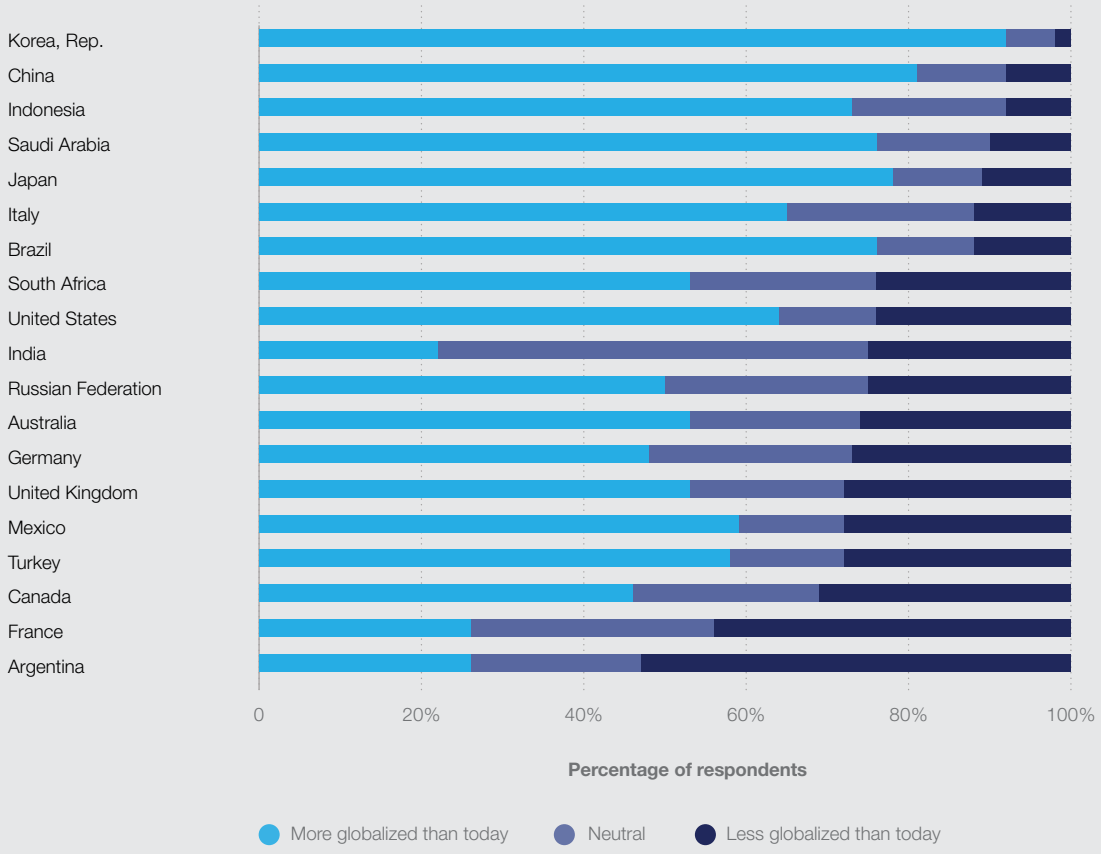
Note

The Ease of hiring foreing labour indicator corresponds to responses to the survey question "In your country, how restrictive are regulations related to the hiring of foreign labour?" [1 = highly restrictive; 7 = not restrictive at all]. Advanced economies as well as emerging market and developing economies are defined according to International Monetary Fund *World Economic Outlook Database* classification.

The health crisis has further exacerbated the decline in international openness trends. Countries have restricted access to people even more during the pandemic, and the "prevalence of non-tariff barriers" indicator is one of the aspects that declined the most in G20 economies between 2019 and 2020, together with other indicators of international openness (e.g. rules on FDI, collaboration with other companies). As an example of the change in policy-makers' mindset, the shortage of personal protective equipment (PPE) triggered by the pandemic, has induced governments to issue temporary export bans and consider reshoring production deemed as strategic.[34]

Although most health-equipment export bans have already been partially removed and health-related restrictions in the movement of people are likely to be lifted as the health crisis is resolved, there is a risk that protectionist policies and mindsets will stick. For instance, policy-makers of different countries have announced support to re-shoring of industries within national borders, and over 30% of business leaders in several G20 economies expect value chains to be less globalized than today (Figure 3. 8).

FIGURE 3.8 **Business leaders' opinions on the future of value chains' globalization**



Source

World Economic Forum, Executive Opinion Survey 2020.

Note

Data refers to the response to the survey question: "In your country, over the next five years, how do you expect supply chains to evolve? 1-3=less globalized than today, 4=same as today, 5-7=more globalized than today". Note that this question is on the 2020 Executive Opinion Survey. The data is not part of the 2020 Global Competitiveness Index.

Taken together, recent and longer-run trends in trade and the movement of people point to a lower commitment to international collaboration. As signalled by episodes of disengagement from the international community (e.g. Brexit, withdrawal from international environmental agreements) the space for effective international agreement has shrunk. This will be particularly crucial at a time when political will is needed to find common solutions on a broad set of topics (e.g. environmental targets, international taxation, vaccinations). As noted in previous editions of the report, globalization and openness will remain important factors for global prosperity, but governments need to ensure better support to those who have been losing out to rapidly advancing globalization and technological change. In the new context, governments will also need to support those small and medium-size businesses that have lost out to the current shock of new restrictions and de-globalization.

3.2 What are the priorities for markets to become a driving force in economic revival?

To respond to the long-standing challenges and as well as the new ones caused by the health crisis, the following priorities have been identified to revive the economy over the next 1-2 years, beyond immediate crisis management.

Ensure stable financial markets, a sound financial system and expand access and inclusion.

Significant actions have already been taken to respond to the financial risks generated by the COVID-19 crisis, including support via guarantees to banks on loans and relaxation of some regulations to allow for flexible use of capital and reserves. However, governments must also look beyond the current crisis to guarantee financial stability, preventing losses and fragilities in the corporate sector from weakening the financial system, and expanding its access.[35]

As COVID-19-related credit support may increase corporate and household indebtedness in the medium term, financing difficulties may arise when moratoria on debt repayments are lifted. Continuing loan guarantees and a gradual phase-out of direct support to firms, accompanied by continued monetary accommodation, should help to avoid mass insolvencies and private debt defaults. In addition, a strong framework for private debt restructuring to resolve nonviable firms should be established, including guidance on how banks should treat restructured loans and moratoria on loan repayments. Further, to prevent future credit crunches, banks should be allowed to continue using flexibility in regulatory frameworks and prudent accounting standards for loan classification and provisioning.[36] Beyond the immediate emergency period, policy-makers should prioritize solvency support for strategic or systemic firms, gradually tightening eligibility criteria for direct support to companies, and find innovative solutions to offer grants to SMEs in countries where small companies represent a large share of employment.[37]

A second policy element to strengthen financial stability is to set up regulations and prudential supervision of the non-bank financial sector, as well as to balance consolidation of weak banks with the growing competition from emerging financial players (shadow banks, FinTech and the entry of BigTech into financial markets). Regulation will need to allow innovation while ensuring financial stability in these new domains of the financial industry to prevent the build-up of systemic fragilities. For developing economies, in addition to monetary and macroprudential policies, policy-makers may also need to manage foreign exchange and capital flows, and vastly expand access and inclusion for their populations.

Balance support for firms to prevent excessive industry consolidation and further concentration with sufficient flexibility to avoid keeping 'zombie-firms' in the system.

As a first response to the COVID-19 crisis, governments have provided swift and strong direct and indirect support to the private sector (e.g. tax deferrals, guarantee loans, recapitalizations, subsidies). These measures have not only been effective in avoiding massive foreclosures and in supporting livelihoods; they have also prevented excessive consolidation and further increase in market concentration in multiple sectors.

In the next phase of the recovery, however, it will be important to consider firms' fragility jointly with excessive and unconditional support that may lead to resource misallocation, keeping 'unviable firms' alive and preventing market competition and limiting industrial renewal. To strike a balance between support on the one hand and competition and innovation on the other, public support to companies should be phased out gradually in line with the evolution of the pandemic, targeting primarily solvent yet illiquid firms, by industry. This is a difficult distinction to make. However, firms should be increasingly required to demonstrate the extent of the COVID-19 negative impact, their financing needs, as well as be assessed against historic financial performance (operating profits, previous borrowing history, etc.) in order to be eligible for different support instruments.[38]

Such approaches can help ensure that resources reach primarily firms and industries that required for the future and those that have suffered in the crisis but have long-term viability. Conversely, support should be less generous toward sectors or activities which create externalities, are declining, or not required for the future. In these sectors, policy-makers should instead provide planning and support for redeploying talent and assets elsewhere.

Create financial incentives for companies to engage in sustainable and inclusive practices and investments.

Emergency support to the private sector during COVID-19 has helped sustain some employment in the short term, but also offers an opportunity to nudge future business strategies towards more inclusive products and services, low-carbon investments or new emerging sectors or markets. Conditional lending and subsidies have been used in some countries during the COVID-19 crisis and can be extended to direct companies towards socially desirable behaviours (e.g. addressing tax avoidance, committing to future investments in energy-efficiency, providing personnel training).

As emergency public support to companies phases out, other instruments should be designed to incentivize investment in the low-carbon economy, new pioneering technologies or socially valuable markets (e.g. care economy), using a mix of subsidies or tax breaks on the one hand, while introducing new taxes (e.g. emissions) that can increase government revenues while correcting externalities.

Lay the foundations for better balancing the international movement of goods and people with local prosperity and strategic local resilience in supply chains.

With the outbreak of the pandemic, long-standing opposition to globalization and a stricter stance on migration has converted into nationalistic industrial policy announcements that aim to attract or re-shore production within national borders to create employment, and at the same time have a more direct control of supply chains. To some extent, partial re-organization of global value chains that proved to be too fragile during the crisis is desirable. It may not only improve resilience but also open up opportunities to countries currently not well integrated into global trade.

However, some caution is needed when it comes to the expected outcomes of re-shoring policies. First, companies tend to replace a supplier from a location with a new one in a different location rather than expanding their network. Hence, resilience may not necessarily improve. Second, sudden re-shoring may disrupt supply chains in the short run and may lead to less employment opportunities than expected when combined with a higher degree of automation. Third, these policies may not necessarily secure the supply of critical pharmaceutical or medical products as supply is better guaranteed by international networks than by a single country's domestic production.

To lay the groundwork for fairer trade that achieves local prosperity, international collaboration is essential along with local support. In the near term, the international community should remove remaining trade restrictions on essential medical supplies, share more information globally on the pandemic, and channel funding for vaccine production and distribution at an affordable price for all countries. In parallel, more dialogue is needed on travel and migration, new trade policies and managing climate change to prepare for reforming international governance in the longer run.

3.3 What are the priorities for turning markets into proactive levers for achieving the transformation of the economy?

As part of their efforts to shape goods, services and financial markets that not only achieve shared prosperity, respective of planetary boundaries, the following policies are recommended for countries to start their economic transformations post-pandemic.

Increase incentives to direct financial resources towards long-term investments, strengthen stability and expand inclusion.

While in the near future, the priority for financial markets will still be on contributing to minimize employment loss without excessive weakening of banks, in the longer run the financial sector will need to embark on a deeper restructuring. Banks will have to rebuild capital buffers, thinned during the COVID-19 crisis. In this phase, the regulatory flexibility allowed to give banks margins of manoeuvre will need to be removed and the implementation of the Basel III standards will have to resume, starting in 2023.[39]

A new regulatory framework will, however, need to encompass both banks and non-bank financial institutions, including further prudential supervision to contain excessive risk-taking in this segment of the industry and to avoid that a new source of systemic risk is introduced in the financial system. Further, as BigTech firms become new players in financial markets, the regulatory framework will have to include provisions on customers' data ownership and portability. Regulators will therefore have to balance prudential regulation and competition policy to avoid compliance becoming a barrier to entry for new players without allowing new entrants to be a source of instability.[40]

Moreover, to steer the financial system to channel funds towards productive, long-run investments, policy-makers should remove incentives that divert funds from these types of investments and instead incentivize financial support to environmental, social, and corporate governance (ESG)-compliant companies. For instance, corporations could be more proactively discouraged to engage in short-term return operations as open-market repurchases, as some countries have done in the short term.[41] When it comes to incentives towards investments in ESG, triple accounting and reporting, together with greater demand for green and inclusive investments by a new generation of consumers could lead banks to renew their product offerings. There is already some evidence that wealth managers are moving towards ESG-informed investing and that banks are creating sustainable exchange-traded funds (ETFs) as well as loans dedicated to home energy-efficiency improvement.[42]

Rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally.

New and pre-COVID-19 competition issues need to be addressed for economies to deliver widespread prosperity in the long run. In terms of long-standing issues, policy-makers must take more action to resolve excessive market power, overall and in specific sectors. This includes reinforcing existing anti-trust authorities and implementing regulation that allows new players to enter the market. It also includes addressing 'winner-take-all' dynamics in some specific markets, such as those where digital platforms offer a position of dominance. New policies in this domain could include developing new metrics to: measure the impact of market concentration in the platform economy, move away from monitoring only market price increases to detect market dominance, scrutinize the practice of the acquisition of start-ups before they become serious competitors to incumbent leaders, and use technology to reduce barriers to entry, such as finding smart solutions to assign property rights to data.[43]

A potential new issue, triggered by the COVID-19 crisis, is the risk, not yet materialized, that stimulus packages—after having been a useful tool to prevent consolidation in the short term—can actually become a tool of market distortion in the long run. If countries convert emergency packages into permanent state aid that promotes 'national champions', competition and level playing fields will be compromised.[44] Recovery strategies should therefore make sure to increase support to companies gradually as the crisis resolves, possibly re-directing resources towards broader incentives for developing inclusive and green products and services.

Facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration.

A new market is created via the interaction of i) norms and standards, ii) technological possibilities, and iii) demand. The World Economic Forum has identified 20 innovative "markets of tomorrow" as new, emergent niches with the potential of transforming economies from the bottom up, by taking advantage of new technologies and new norms to generate economic value while meeting the needs of society and the environment. These markets include, for instance, the market for EdTech and reskilling services, the market for data, and the market for care services.

Six conditions need to be in place for these markets to materialize: invention, production, demand, standards, codification and infrastructure.[45] Enabling these conditions can foster the creation of such new markets to meet societal needs in new ways. For instance, safety nets can be thought of as a market of tomorrow, where the need of employees will be to receive insurance in a context where cross-sector and cross-country mobility will be higher and unemployment episodes may be more frequent than today for a significant section of the workforce. New technologies, adequate norms and public-private collaborations can help offer new solutions to these new needs, creating a new market for safety net services.

Section 4 Innovation Ecosystem

4

Innovation Ecosystem

Innovation ecosystems are a complex process that span the generation of ideas, their translation into products, and the commercialization of these products to a large scale. The success of this progression depends on multiple factors, such as a business culture that rewards entrepreneurship, risk-taking and a will to embrace change, a set of regulations and administrative norms that incentivize this attitude, a strong knowledge-generation sector (universities, research centres and laboratories), and collaboration between these knowledge centres and commercial businesses. Innovation can be successfully steered towards applications particularly valuable to society (e.g. green energy).

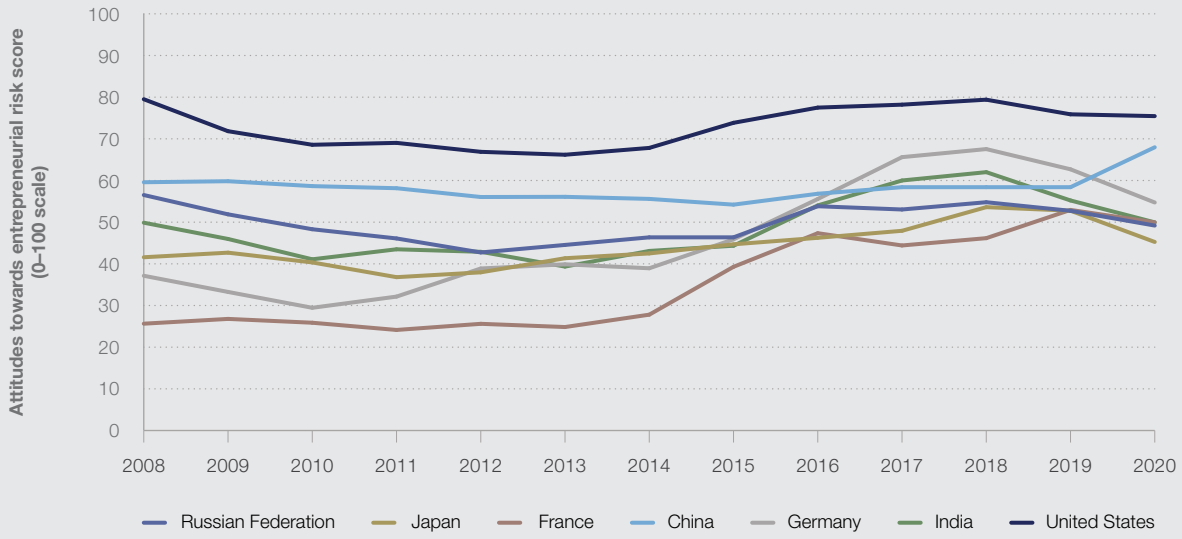
This section focuses on trends in business culture and R&D as the main drivers of innovation, while also considering proactive policies to direct technological progress towards accelerating the goals of sustainability and shared prosperity. Section 4.1, using historical data, shows trends in national innovation, highlighting weak spots in processes that should deliver sustained technical change, partially explaining productivity slowdown in the past few decades. Section 4.2 provides a set of priorities for policy interventions for the next short run (1-2 years), designed to re-start innovation and growth past the COVID-19 crisis, focusing attention on measures that could benefit, simultaneously, employment creation, socially-valuable services and energy transition. Section 4.3 offers policy recommendations for the longer run (3-5 years) that embed social and environmental outcomes and patient investment into innovation objectives.

4.1 What were the innovation ecosystem-related priorities emerging from the past decade?

Entrepreneurial culture has strengthened in the past decade but has not resulted fully in the creation of new firms.

A number of national and global initiatives have scaled efforts to instil an entrepreneurial culture among students, recent graduates and workers. Overall, entrepreneurial culture, measured by attituded towards risk, has increased. Among advanced economies, countries in continental Europe have tried to close their gap vis-à-vis the United States (Figure 4.1). This has led to new innovation ecosystems around leading metropolitan areas. Germany and France, for example, appear to have achieved some success over the past 3-5 years—in parallel with the emergence of Berlin and Paris as hotspots for start-ups and the establishment of a few unicorns in both countries. Among emerging economies, India shows a similar success path, fuelled by the visibility of some of its tech hubs, particularly Mumbai and Bangalore.

FIGURE 4.1 **Trends in attitudes towards entrepreneurial risk, selected countries, 2008–2020**



Source

World Economic Forum Executive Opinion Survey 2008–2020 series.

Note

The Attitudes towards entrepreneurial risk indicator corresponds to responses to the survey question "In your country, to what extent do people have an appetite for entrepreneurial risk?" [1 = not at all; 7 = to a great extent].

Yet measures of business creation have stalled or regressed, signalling an incomplete conversion from business culture to successful commercial activities. In many advanced economies, firm foundations never recovered to pre-crisis levels after 2008–2009, raising concerns about the long-term consequences on competition and productivity. Early numbers from the aftermath of the COVID-19 crisis signal a mixed picture. A unique case among advanced economies, the United States experienced an unprecedented spike in new business creation during the third quarter of 2020. This has been attributed to the combined effect of the immediate support to the financial sector that avoided a credit crunch, generous unemployment subsidies that provided laid-off workers with the safety nets necessary for new entrepreneurial ventures, and the severe disruption of established routines, social structures and business models brought about by the pandemic.

It is too early to know whether this new wave of business creation will turn into long-term job creation, and whether the reallocation is happening towards economic activities that will provide better livelihoods for workers and more sustainable business models. Without diminishing the importance of 'animal spirits' to maintain a competitive and dynamic business sector, COVID-19 has contributed to rethinking of whether societies should more proactively orient market forces and direct innovation on the basis of shared values and future challenges.

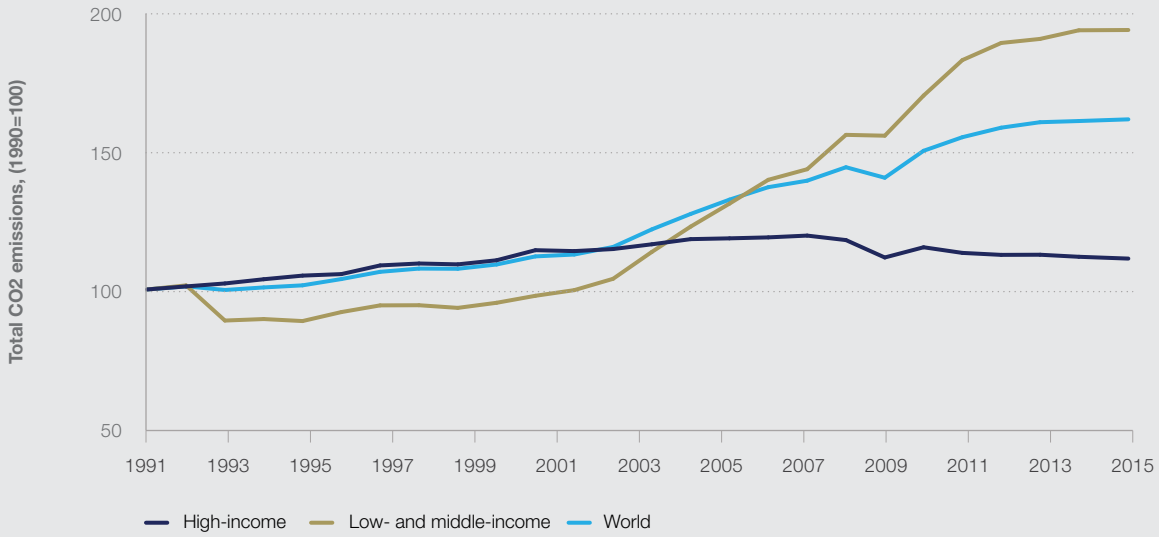
There is a lack of sustained creation of breakthrough technologies and, where there has been innovation, it has not been widely successful at delivering solutions to increasing energy consumption, managing emissions and meeting the demand for inclusive social services.

Over the past decades, despite fast progress in digital and communication technologies, there has been a slowdown in significant technological breakthroughs, especially in domains which could potentially combine high economic growth with sustainability and inclusivity. On the one hand, digital technologies have had a limited return for economic and social outcomes when compared to the progress made through, for example, sanitization or electricity. On the other hand, publicly-funded, long-term research projects that can generate the type of risky, breakthrough innovation the world needs have slowed down, as governments have stepped back from the kind of research-intensive programmes that were the basis of the space race and other mission-driven approaches to innovation.

The pandemic and its aftermath have shown that we have not invested enough in the right type of innovation that could make our societies more inclusive, sustainable and resilient. For example, programmes to develop antivirals had been underfunded, and many of the digital services and technologies which had been developed by the IT industry—while necessary to continue economic and social activities avoiding physical interaction—were not fit-for-purpose to support the frontlines of the pandemic response.

In the last several years, the development and adoption of green technologies and more sustainable products and services have not kept up with the pace of economic growth. Global emissions have increased, particularly in low- and middle-income countries that have experienced a tumultuous process of economic development as of the early 2000s (Figure 4.2).

FIGURE 4.2 **Trend in CO2 emissions, (Kt total), 1991–2015**



Source

World Bank, Sustainable Energy for all (SE4ALL) data catalog.

Note

High-income and low- and middle-income economies are defined according to World Bank classification, which is based on Gross National Income (GNI) per capita (current US$) calculated using the Atlas method.

A similarly slow rate of progress exists in the markets for education, care and other social services where new technologies have not resulted in vastly different social outcomes. This calls for more proactive efforts to combine technology, investment and incentives to enhance social outcomes.

4.2 What are the priorities for innovation ecosystems to the revival of economies?

Expand public investments in R&D, and incentivize venture capital and R&D in private sector and the diffusion of existing technologies that support the creation of new firms and employment in "markets of tomorrow".

Directing innovation and technological diffusion will be among the top priorities for the immediate revival of the economy. As governments design ambitious support packages for the economy, leveraging favourable financing conditions, they will have to balance the urgency for immediate results—particularly in terms of job creation—with the need to start preparing a broader economic transformation towards the markets of tomorrow.

Public R&D funding is among the types of investments that can generate the highest number of good-quality jobs. It has been estimated that in OECD economies five new jobs are created with every 1 million dollars invested on public R&D, and twice as many when the investment is channelled through higher education institutions. This is higher than the job creation triggered by investment in any type of infrastructure in advanced economies (electricity, roads, health and education, water and sanitation). In order to achieve a timely disbursement of resources, governments may want to channel funding to existing research programmes and funding schemes rather than designing brand-new ones. Yet, they should aim to prioritize research that is directed towards the invention of products, services and technologies that can help better position their countries in developing the markets of tomorrow.

Venture capital and private equity support will remain fundamental to accompany the private sector in the transformation of economies. Some countries had already embarked on a process of green and digital transformation prior to the pandemic, and COVID-19 has both increased the demand for a third dimension of social transformation and also triggered a revival of entrepreneurial activity in some countries. Venture capital will be needed convert these ventures into long-term sources of jobs and growth. Early evidence shows that the crisis has had a limited impact on both the value of current VC portfolios and on their ability to fund additional ventures. Yet, governments—especially in those countries with a

weaker VC ecosystem—might want to consider the launch of dedicated innovation funds for seed and early-stage financing, prioritizing the transformation towards the future sources of economic, social and environmental value. Funds such as Israel's Yozma provide examples for the creation of public-private funds-of-funds as pathways for setting the foundations of a broader VC ecosystem.

Finally, governments should also consider the innovation capacity of the existing firms and their need to upgrade their production and business processes and product portfolio. In advanced economies, a credit crunch has been largely avoided thanks to unprecedented monetary interventions, and private equity and debt financing remains available to support the transformation of the traditional economy. Governments should, in particular, reinforce and direct their efforts to create more favourable conditions for the adoption of greener technologies and the development of more job-creating, socially oriented and sustainable product portfolios. This can be achieved through conditionality attached to public funding and guarantee schemes, targeted R&D incentives (grants, innovation prizes) and a more strategic use of public procurement.

4.3 What are the priorities for innovation ecosystems to lead to the transformation of economies?

Incentivize and expand patient investments in research, innovation and invention that can create new "markets of tomorrow".

Long-term economic transformation and the transition to a more sustainable and inclusive paradigm will only be possible by investing in the right type of products, services and technologies that will allow our society to generate economy growth and prosperity while safeguarding the planet, empowering people and strengthening our communities and institutions. Such a paradigm shift requires long-term thinking and patient capital that is compatible with the failures, risks and timeframes of breakthrough research and development. Countries should define, through a consultative process, the key priorities of their innovation and industrial strategy, and identify the key markets they will invest in to sustain long-term economic growth and their transition to a more inclusive and sustainable economy. For each of these markets, research and innovation should be oriented towards solving the use cases that can address societal and environmental challenges and generate economic value.

In spite of high expectations from governments, businesses and the public, the potential of many of these markets of tomorrow remains untapped. We have not yet witnessed the kind of breakthrough innovation and diffusion that could make educational technology (edtech) a widespread, effective and engaging complement of traditional education. We are only starting to map and create new sequences of genes and DNA that could revolutionize the way we produce the objects we use, the food we eat and the drugs we take. We are still waiting for better deployment of existing technology and new technologies that could support eldercare, childcare and healthcare. And our aspiration to explore space is still undercut by the stalling in R&D of relevant technologies, from propulsion engines to spacesuits and interplanetary communication. The inventions needed for some of these new markets might not necessarily come from a technology lab. Innovative financial products, new business models and new policy incentives might revolutionize the way we manage water resources or provide health or unemployment insurance or the exchange of data and the use of artificial intelligence.

Strengthening the capacity of public and private actors that are responsible for designing and implementing innovation strategies is a prerequisite for a successful transformation. Tasks and roles are likely to be distributed among a number of institutions along the innovation chain: national innovation agencies, local innovation and technology parks, university and research institutions, individual companies, private sector research centres, etc. Coordination and communication are key to ensure that there is a shared vision and a timely exchange of information regarding recent developments and future plans.

Incentivize firms to embrace diversity, equity and inclusion to enhance creativity.

Innovation benefits from interaction from experts with different views or backgrounds. As such, improving the diversity, equity and inclusion across the entire innovation chain will be fundamental to broadening the pool of potential talent, improving the capacity of new solutions to reflect the needs of society, and making sure that all segments of society participate fairly in the economic benefits generated through innovation.

Research institutions, incubators, venture capitalists and all the relevant actors of the innovation ecosystem should strengthen their efforts to provide equal opportunities to women inventors, researchers and entrepreneurs, and, similarly, address any form of discrimination on the basis of race, religion, disability and sexual orientation. They should equally experiment with new ways to close opportunity gaps across different socio-economic backgrounds and contribute to bridge the growing divides between urban and rural areas.

Section 5 Assessing Countries' Transformation Readiness

5

Assessing Countries' Transformation Readiness

The previous sections of this report have described the 11 emerging priorities for countries to achieve economic transformation: moving towards a full integration of social, environmental and institutional targets into their economic systems over the next five years (approximately). This final section takes a first step towards measuring the readiness of countries to achieve such a transformation. This exercise does not intend to be a complete assessment of countries' performance on sustainable and inclusive prosperity, but rather focuses only on new dimensions of economic transformation.

As part of the exercise, a preliminary set of concepts were identified to further break down the 11 priorities, indicators benchmarked against them were then identified, and data was eventually collected. Ultimately, results were computed for the 37 economies for which the majority of data on these indicators is available. Appendix A provides a full description for the methodology used to conduct this exercise.

The aim of this exercise is three-fold. First, it maps the areas of priority against available data points in an effort to better define the actions and/or policies needed to "build back better" economies that are productive, sustainable and inclusive. Second, it provides a snapshot of the current situation in each country, assessing the extent to which countries today are on the way towards transforming their economies. Third, it highlights where the key data gaps lie in assessing current national policies and performance.

Tables 5.1 outlines the results of this exercise, which are explained in greater detail below, for each of the 11 priorities:

TABLE 5.1 | Performance on economic transformation priorities, by 2020 score (0–100 scale)

Economy	Ensure public institutions embed strong governance principles and a long-term vision and build trust by serving their citizens	Upgrade infrastructure to accelerate the energy transition and broaden access to electricity and ICT	Shift to more progressive taxation, rethinking how corporations, wealth and labour are taxed, nationally and in an international cooperative framework	Update education curricula and expand investment in the skills needed for jobs and "markets of tomorrow"	Rethink labour laws and social protection for the new economy and the new needs of the workforce	Expand eldercare, childcare and healthcare infrastructure, access and innovation for the benefit of people and the economy
Argentina	45.4	67.6	52.9	46.9	59.5	n/a
Australia	66.7	73.0	62.1	63.5	64.7	49.6
Austria	69.9	83.8	49.9	60.6	66.4	42.8
Belgium	62.7	82.7	54.0	65.8	71.1	54.9
Brazil	45.3	79.4	44.0	39.5	51.0	n/a
Canada	67.0	77.0	56.7	65.3	69.8	61.6
Chile	61.9	72.1	52.0	52.1	51.6	48.7
China	64.3	77.5	58.1	67.0	64.4	n/a
Czech Republic	56.3	81.6	46.8	48.5	63.1	40.0
Denmark	72.0	91.5	41.8	71.5	77.0	65.0
Estonia	66.5	99.7	41.4	56.8	62.8	47.0
Finland	78.5	88.9	43.9	75.3	71.1	61.4
France	64.0	82.6	55.6	56.8	66.7	52.7
Germany	66.5	79.6	54.2	61.4	74.0	51.4
Greece	46.3	80.8	42.6	38.7	47.6	24.7
Hungary	46.1	86.4	30.7	40.8	53.7	34.4
India	49.4	72.6	55.8	43.5	44.4	n/a
Indonesia	58.8	62.7	53.7	49.0	n/a	n/a
Ireland	65.6	86.8	59.2	59.5	62.8	45.8
Israel	65.4	74.2	49.6	66.6	57.9	56.8
Italy	49.6	74.1	39.1	40.7	55.6	37.0
Japan	65.9	76.9	64.5	51.3	61.5	49.3
Korea, Rep.	62.2	81.8	63.4	60.0	61.2	48.5
Mexico	44.3	75.0	48.8	43.3	49.2	36.1
Netherlands	72.0	91.4	47.3	71.8	71.9	61.2
New Zealand	73.0	68.1	53.5	63.5	67.5	58.6
Poland	46.7	77.8	33.6	41.9	59.8	30.3
Portugal	57.8	87.8	52.1	49.8	58.1	31.4
Russian Federation	42.8	57.2	49.8	44.9	65.0	n/a
Slovak Republic	50.0	84.9	44.4	46.5	58.7	35.5
South Africa	53.9	63.8	65.2	42.6	42.9	n/a
Spain	56.4	86.9	49.0	51.4	59.7	45.3
Sweden	70.3	88.0	45.9	69.4	63.7	75.9
Switzerland	76.8	80.0	41.5	70.8	74.2	51.3
Turkey	47.7	67.1	40.7	39.8	48.4	32.3
United Kingdom	65.7	80.9	54.1	59.7	75.2	50.4
United States	67.5	71.2	52.8	68.2	56.9	54.2
Mean	60.0	78.7	50.0	55.3	61.4	47.8
Standard deviation	10.23	8.98	8.14	11.19	8.88	11.78
Highest score	78.47	99.75	65.16	75.26	76.98	75.87
	Finland	**Estonia**	**South Africa**	**Finland**	**Denmark**	**Sweden**
Lowest score	42.84	57.21	30.72	38.75	42.90	24.73
	Russian Federation	**Russian Federation**	**Hungary**	**Greece**	**South Africa**	**Greece**

TABLE 5.1 | Performance on economic transformation priorities, by 2020 score (0–100 scale)

7 to 11 of 11 indicators

Economy	Increase incentives to direct financial resources towards long-term investments, strengthen stability and expand inclusion	Rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally	Facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration	Incentivize and expand patient investments in research, innovation and invention that can create new "markets of tomorrow"	Incentivize firms to embrace diversity, equity and inclusion to enhance creativity
Argentina	32.8	49.8	34.3	31.9	69.0
Australia	81.2	61.6	44.0	42.9	72.4
Austria	88.3	58.6	47.3	38.8	56.6
Belgium	81.2	64.8	49.3	47.8	64.7
Brazil	60.3	59.1	38.0	36.2	57.4
Canada	75.1	74.7	49.5	42.8	66.5
Chile	57.5	58.1	39.7	31.7	57.3
China	72.8	71.8	49.7	50.0	79.2
Czech Republic	58.2	60.4	41.9	40.2	57.3
Denmark	84.6	68.9	46.7	41.7	70.8
Estonia	81.1	66.9	44.9	43.4	60.9
Finland	95.4	70.8	59.5	53.4	70.9
France	83.0	64.7	50.1	50.8	62.2
Germany	79.3	65.6	48.1	49.2	62.6
Greece	68.3	49.2	36.0	25.2	59.7
Hungary	52.0	55.2	39.4	36.7	53.5
India	54.5	57.3	40.2	32.5	45.1
Indonesia	59.7	62.9	45.0	45.6	60.4
Ireland	81.9	59.4	46.6	36.1	66.9
Israel	81.7	67.5	51.2	53.1	65.2
Italy	79.8	68.3	43.0	36.9	46.9
Japan	84.7	62.7	53.5	54.7	56.0
Korea, Rep.	78.3	59.2	46.7	53.4	58.0
Mexico	49.0	54.5	35.7	27.2	52.7
Netherlands	79.9	64.4	50.4	48.3	70.9
New Zealand	93.2	62.6	45.0	45.2	73.9
Poland	62.7	61.5	37.5	32.1	52.7
Portugal	67.1	61.5	44.6	42.2	65.3
Russian Federation	55.3	42.5	n/a	35.6	60.9
Slovak Republic	54.7	49.1	39.3	31.3	52.2
South Africa	48.6	58.3	35.6	31.7	61.5
Spain	59.7	70.1	44.4	40.4	58.6
Sweden	89.0	70.7	52.2	50.8	77.9
Switzerland	59.2	64.0	50.8	51.6	67.2
Turkey	49.8	57.4	38.5	28.9	46.8
United Kingdom	72.4	62.7	46.1	40.9	67.1
United States	47.8	77.6	57.7	57.3	73.3
Mean	69.2	62.0	45.1	41.6	62.2
Standard deviation	15.35	7.41	6.23	8.67	8.48
Highest score	95.42	77.61	59.51	57.32	79.20
	Finland	**United States**	**Finland**	**United States**	**China**
Lowest score	32.81	42.46	34.25	25.21	45.13
	Argentina	**Russian Federation**	**Argentina**	**Greece**	**India**

1. Ensure public institutions embed strong governance principles and a long-term vision and build trust by serving their citizens

Future-oriented institutions will not only need to be transparent and efficient; they must also evolve towards yielding more equitable outcomes and enhancing citizens' trust in them. Governments will also be increasingly called upon to communicate clearly a longer-term vision, anticipating the evolution of trends, and build structures that will allow for agile responses to future shocks and rapid technological change. This includes being able to adopt legal frameworks to channel break-through innovations for the social good as well as updating how the value created in the economy is defined and accounted for. While the knowledge economy now relies very heavily on intangible assets, such as algorithms, software and data, accounting frameworks are still catching up.

The preparedness of countries on this priority area is measured here using metrics on judicial independence, corruption perception, digital media trustworthiness and a composite index reflecting the ability of citizens to exercise formal rights and liberties. It also includes perceptions of business leaders, taken from responses to the World Economic Forum's Executive Opinion Survey, on three factors, which together give an indication of how good public institutions are at anticipating or responding to shocks: 1) governments' responsiveness to change, 2) their long-term vision and 3) the adaptability of legal frameworks to digital business models. Further, in assessing the state of a country's accounting framework, two survey-based indicators are included: business leaders' perception of the strength of auditing and accounting standards, and whether spending on employees is accounted for as a cost or an investment.

Ideally, this area would include additional metrics to monitor in a more granular way the status of the rights and protections of historically disadvantaged groups as well as measures of social trust, for which data coverage is currently sparse.

Based on the available data, the countries that emerge in the top decile of the 37 countries included in this exercise are four small economies: Denmark, Finland, New Zealand and Switzerland. Overall, the spread of countries' institutional quality is wide, ranging from scores in the 40s to scores in the high 70s. The least-prepared countries in this area include Russia, Mexico, Brazil and Argentina.

2. Upgrade infrastructure to accelerate the energy transition and broaden access to electricity and ICT

The transition to a greener and more inclusive economy will have to be underpinned by significant investments in infrastructure, including an expansion of digital networks. Greening the economy will require upgrading energy infrastructure and transport networks in addition to commitments from both public and private sectors to extend and respect multilateral agreements on environmental protection. With respect to inclusion, infrastructure upgrades should comprise the expansion of digital capacity to match the benefit of digitalization with universal access to opportunities.

When it comes to assessing readiness on these aspects, data is still very sparse. The current framework considers emission intensity by infrastructure type, covering one aspect of the environmental dimension, as well as energy efficiency regulation, renewable energy regulation and environment-related treaties in force as key elements of public-sector efforts.

Ideally, an assessment would also include a proxy for the size and ambition of ongoing infrastructure projects including the roll-out of digital infrastructure, the greening of energy infrastructure as well as the transport network. However, these data are currently not available.

Access to electricity and ICT is proxied by connectivity, signal land coverage, gender gaps in digital connectivity, E-government participation and electrification rates.

Overall, countries that are currently better prepared for an economic transformation through their infrastructure include Denmark, Estonia, Finland and the Netherlands. Less-prepared countries include Russia, Indonesia, Turkey and South Africa.

Notably, while environmental regulation seems to have seen some progress for the group of 37 countries considered here, building new and greener infrastructure is less well-developed, indicating the difficult balance between access to efficient and relatively cheap energy (including transport) and the environmental footprint.

3. Shift to more progressive taxation, rethinking how corporations, wealth and labour are taxed, nationally and in an international cooperative framework

In the last two decades, the tax burden in a number of high-income countries has shifted to reinforce existing income polarization dynamics driven in part by global integration and automation of tasks. Middle-income earners have seen their tax burden increase, while high-income earners and capital owners have seen theirs fall.[46] At the same time, pressure on public finances have reached new heights in the wake of the COVID-19 pandemic, as countries are drawing down on public resources to keep economies afloat and revive economic activity. Thus, new demands to finance the transition into recovery will arise.

When it comes to updating tax structures, the key tension to resolve will be between ensuring a fair transition and setting the right incentives for technology adoption and innovation. An updated tax architecture will require policy-makers to rethink relative burdens across income, wealth and corporate taxes in light of these trade-offs.

The assessment of countries' readiness on this priority is based on an aggregate measure of the progressivity of personal, corporate and value-added tax; an inheritance tax indicator; a tax productivity indicator (taxes collected relative to the tax base) and a metric that measures the impact of taxation on inequality.

According to these metrics, Korea, Rep., Japan, Australia and South Africa emerge in the top decile of the distribution on this priority, thanks to their relatively well-balanced and progressive tax structured compared to other countries assessed in the framework. Hungary, Poland, Italy and Turkey score towards the lower end. Overall, however, scores across countries on this priority are low, leaving much room for improvement.

4. Update education curricula and expand investment in the skills needed for the jobs and "markets of tomorrow"

Reskilling, upskilling and education curricula updates are central to prepare workers and achieve inclusive prosperity. Participation in formal education is no longer sufficient to provide employment opportunities and build human capital. Instead, education systems should be upgraded to provide digital skills and critical thinking skills through schools and universities, as well as ongoing learning and skilling through public and private life-long learning programmes.

Data on these aspects, however, is relatively scarce. To date, it is possible to measure business views on employees' skills (skill set mismatch, digital skills, critical thinking in teaching) and partial assessment of firms' training (percentage of firms offering formal training, extent of staff training).

Based on available data, the Netherlands, Denmark, Switzerland and Finland are among the better-prepared countries, working to keep schools' curricula relevant and up-to-date. Greece, Brazil, Turkey and Italy are less well-prepared.

5. Rethink labour laws and social protection for the new economy and the new needs of the workforce

One important component of policies to curb inequality and manage the technology- and recession-driven shifts in the workforce is adequate and agile social safety nets. While this is already the case in some progressive countries, they are often centred around income-support. Instead, future-looking approaches should better integrate income support with adaptation of labour laws and expand the social protection floor, including easing access to education, training and health to support the full development of citizens' human capital. This approach should succeed in protecting and rewarding workers rather than jobs—and deploying technology to facilitate the shifts for workers is crucial.

Country readiness on this priority reflects this idea. Although currently available data does not fully capture how integrated health, education, labour laws and income support policies are, they do allow an assessment of the capacity of a country in providing protection on these domains. Examples of these protections include social protection coverage, guaranteed minimum income benefits, accessibility of healthcare services, inequality adjusted access to education, expenditure for housing allowances, active labour market policies, enforcement of minimum wage, adequate overtime regulation, workers' rights, impact of the online gig economy on working conditions, and employment opportunities for the low-skilled.

Based on the currently available data, Germany, Denmark, Switzerland and the United Kingdom are relatively better prepared than other approaches to combine adequate labour protection with new safety nets models. South Africa, India, Greece and Turkey score towards the lower end on this measure.

6. Expand eldercare, childcare and healthcare infrastructure, access and innovation for the benefit of people and the economy

Universal access to eldercare, childcare and healthcare is a fundamental factor for building fairer societies while empowering human capital. A combination of adopting new technology and expanding investments in this domain could help to address this priority.

Data availability on actual capacity of the care sector, however, is limited, hence the readiness measurement for this exercise reverts to several proxies: public expenditure on childcare and education, public expenditure on healthcare, use of online gig economy for providing care services, care workers to elder population ratio.

Based on the available data, Sweden, Finland and Canada are closer than other countries to achieving expanded access to care services. Notably, these countries allocate a relatively higher number of public resources to this sector and have built a relatively stronger health resilience compared to other countries assessed by this exercise.

It is also important to notice that most emerging countries South Africa, Brazil, Argentina,

Indonesia, Russian Federation and China are not assessed on this dimension due to lack of data.

7. Increase incentives to direct financial resources towards long-term investments, strengthen stability and expand inclusion

A thriving financial sector should channel resources towards long-term investments in the real economy rather than maximize short-term profits or support financial markets. The growing importance of ESG (environmental, social and governance) standards for investing bodes well for the capacity of the financial system to move in this direction. More effective and stringent measures on rewards to executives, dividends, share buy-backs, cash holdings and financial investments by non-financial corporations could also help channel resources towards the investments needed to increase productivity, protect people and the environment, and avoid practices that aim for short-term increases in market valuation. Finally, accounting frameworks could be revised in order to value firms' investments in resilience.

Data availability is extremely limited in this area, hence countries' readiness is assessed using three proxies: quality of ethical standards among peer firms; amount of share buybacks conducted by companies in the country as a percentage of GDP (to capture short-termism in investment); and use of digital financial services among the poor (to capture inclusion).

Using available metrics, Finland, Sweden, New Zealand and Austria emerge as relatively better prepared than other advanced economies on these aspects. Notably, the United States, currently the largest financial centre in the world, is among the least ready to transform on this priority area. While this assessment is based on proxies it shows how financial development may diverge from long-term thinking and inclusion objectives.

8. Rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally

While market concentration has increased in the past decade, modern policies to restore competition will need to consider new drivers of market concentration (e.g. intangible assets, digital platforms) and update their toolkit accordingly.

A vibrant, levelled business environment will require both proactive efforts to facilitate entry by new firms and upgrades to anti-trust frameworks which consider new sources of market power (in particular data holdings) and consumer harm beyond price increases.

Trade openness also contributes to the creation of more competitive markets; future policies should innovate on how to maintain the benefits of international trade while limiting internal divides between regions where world-class companies are located and support regions and sections of the population that lose out from globalization.

Data availability only allows for a partial assessment of these aspects. The data points included to assess countries readiness in this area consist of effective taxation for new economy, transnational firms; the extent of market dominance; the growth of innovative companies; financing of SMEs; venture capital availability as well as proxies of local opportunities (state of cluster development, ratio of unemployment between rural and urban population). Notably, measuring the drivers or the status of competition in the digital economy is difficult and data is scarce.

Based on the available statistics, countries that are relatively more ready to create vibrant business environments include Canada, Finland, China and the United States, while Russia, the Slovak Republic, Greece and Argentina are less ready for this area of transformation.

9. Facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration

Future-oriented policies will need to combine push-and-pull strategies, including incentivizing demand and investments in R&D towards the production of more sustainable and inclusive goods, services and technologies. A number of elements might reinforce path dependency in specific markets and prevent wide adoption of new products and technologies, even when those have superior characteristics. At the same time, bottlenecks in the diffusion of break-through innovations from a niche frontier to the rest of the economy should also be removed.

Governments have several tools to change the direction of market outcomes. Fiscal incentives can be granted to firms and consumers that adopt products and technologies that fall within specific performance requirements. Public procurement can also be a powerful tool to provide an initial market to new technologies that are at an earlier stage of research and development. The private sector can also contribute to tilt markets through its purchasing and sourcing strategies and by re-orienting its supply chains, either to cater to the preferences of consumers or to improve its own efficiency.

To measure countries' readiness on these aspects, available data include trade-adjusted emission levels—normalized by the size of the domestic market in PPP terms—to provide a measure of overall sustainability of consumption patterns within the country, as well as buyer sophistication, the role of the public sector in fostering demand

for new technologies, consumer uptake of new technologies, pledges relative to overall patenting activity, and perception within the business community of the adequacy of existing regulation of emerging technologies.

According to these metrics, Finland, the United States, Sweden and Japan, relative to other countries, provide the best conditions for new technologies to be rolled out, and therefore emerge better prepared to address this priority. However, it is worth noting that overall, scores on this dimension are low and narrowly distributed.

10. Incentivize and expand patient investments in research, innovation and invention that can create new "markets of tomorrow"

Transforming economies will require unlocking the potential of human curiosity and creativity to develop breakthrough technologies and the new products, services and markets that apply them.

To measure these aspects would require data on aspects such as investments in long-term science and research projects, availability of patient capital for targeted development of new technologies, governments' capacity to act as a de facto venture capitalist, time-horizon of research and the amount of development spending across countries.

Data availability, however, is limited on these domains, hence countries readiness on this priority is proxied by two indicators: i) state of research and development across 15 new technologies, and ii) role of the public sector in driving the development of these new technologies.

Finland, Japan, the United States, Korea, Rep. and Sweden emerge as better prepared on developing markets of tomorrow, thanks to a well-developed network of public institutions that shape the science, technology and innovation agenda of the country, and also work closely with research institutions and the private sector to implement this agenda. Greece, Mexico, Turkey and the Slovak Republic are less well-prepared.

11. Incentivize firms to embrace diversity, equity and inclusion to enhance creativity

Diversity, equity and inclusion must be an integral part of an innovation-driven strategy for economic transformation. Companies must fully leverage the creative potential of different segments of the population and access to the opportunities generated through innovation should be expanded via, for instance, facilitating inclusion in ownership of new innovative businesses, employment in research roles, and career progression in growing markets.

In spite of long-standing efforts to increase granularity of indicators to include gender or other dimensions of diversity, data gaps do persist, and measurement has been proxied by four indicators. As such, progress of countries on promoting diversity, equity and inclusion in their workforce has been measured by the gender diversity of the workforce, the propensity of companies to rely on professional management rather than friends and family, and the presence of women in tech roles and in ownership structures. The propensity of companies to rely on professional management rather than friends and family, and the presence of women in tech roles and in ownership structures. Clearly, these measures offer only a partial assessment of inclusion; yet countries are beginning to include these elements in national statistics.

Based on the narrow number of currently available statistics, China, Sweden, New Zealand and the United States perform best in this area, relative to all other countries assessed. India, Turkey, Italy and the Slovak Republic perform less well. Data availability on gender parity in business ownership, however, is currently limited to a small set of countries, making cross-country comparisons challenging.

Cross-priority assessment

The main contribution of this exercise is to provide an assessment of countries' readiness on each of the 11 priorities for transformation. However, a synthetic view on overall transformation readiness can provide a snapshot of the most promising and holistic approaches taken by advanced and emerging economies so far.

Table 5.2 presents such a synthetic readiness assessment, based on a simple average of the measurement of the 11 priorities described above.

These results are not a composite index and must be treated with caution, due to insufficient indicators, the use of proxies and missing values. It should also be noted that the methodology allows for balancing out low scores in one dimension with higher scores in another. This is an important limitation, since, to achieve transformation, countries should aim for addressing all 11 priorities equally.

The key take-aways of this exercise are that organizations such as the World Economic Forum must better measure the capacity of countries to transform and expand data availability, and that no country is yet ready to transform its economy. However, among the existing policies, and based on available statistics, the 'Nordic model' is the most promising in leading economic systems towards greater sustainability and shared prosperity. These countries (e.g. Finland, Denmark, Sweden) are among the best-prepared on most of the 11 priorities identified by this framework and are, consequently, among those that are most ready for an economic transformation.

TABLE 5.2

Performance on economic transformation readiness, by aggregated 2020 score (0–100 scale)

Country/economy	Score (0-100)	Decile	Priorities measured	Number of missing indicators
Argentina	49.0	9	10 /11	6
Australia	62.0	4	11 /11	3
Austria	60.3	6	11 /11	5
Belgium	63.6	3	11 /11	4
Brazil	51.0	8	10 /11	7
Canada	64.2	2	11 /11	6
Chile	53.0	7	11 /11	4
China	65.5	2	10 /11	8
Czech Republic	54.0	7	11 /11	5
Denmark	66.5	1	11 /11	3
Estonia	61.0	5	11 /11	5
Finland	69.9	1	11 /11	5
France	62.7	3	11 /11	2
Germany	62.9	3	11 /11	2
Greece	47.2	10	11 /11	3
Hungary	48.1	10	11 /11	2
India	49.5	9	10 /11	7
Indonesia	55.3	7	9 /11	6
Ireland	60.9	6	11 /11	5
Israel	62.7	3	11 /11	5
Italy	51.9	8	11 /11	2
Japan	61.9	5	11 /11	3
Korea, Rep.	61.2	5	11 /11	2
Mexico	46.9	10	11 /11	5
Netherlands	66.3	2	11 /11	3
New Zealand	64.0	2	11 /11	4
Poland	48.8	9	11 /11	2
Portugal	56.1	6	11 /11	3
Russian Federation	50.4	8	9 /11	7
Slovak Republic	49.7	9	11 /11	4
South Africa	50.4	8	10 /11	9
Spain	56.5	6	11 /11	5
Sweden	68.5	1	11 /11	3
Switzerland	62.5	4	11 /11	6
Turkey	45.2	10	11 /11	4
United Kingdom	61.4	5	11 /11	2
United States	62.2	4	11 /11	4

Note

Values are based on a simple average of the 11 priorities listed in Table 5.1 and 5.2. They offer a preliminary assessment, using available statistics, of the approximate state of countries' transformation path towards sustainable and inclusive prosperity. Country-comparison should consider: i) uneven data/indicator availability; ii) use of proxy measures for several concepts; iii) lack of consensus of specific goldposts for each indicator.

Denmark and Finland appear among the top 3 score on the 11 categories of transformation four times, while Sweden appears three times. The United States is among the top 3 three times across the 11 categories, performing well on areas such as patient investment for research and development and facilitiating the creation of the markets of tomorrow. However the United States must do a lot more on building more accessible and green infrastructure, rethinking labour laws and in directing financial resources towards more long-term investments. China appears in the top 3 on two areas: anti-trust frameworks and promoting diversity primarily due to strong participation by women, but must do more in improving the quality and vision of public institutions and in upgrading infrastructure to accelerate the energy transition. Countries such as Greece, South Africa, the Russian Federation and Turkey appear in the bottom three at least three times or more across the 11 categories. Across all categories however, most economies have a long way to go to attain "maximum" scores and measurement concepts and data availability must be expanded to provide a more detailed picture of transformation readiness.

Section 6 Disruption and Resilience: Tracking the Impact of the Pandemic Through Executive Opinions

6

Disruptions and Resilience: Tracking the Impact of the Pandemic through Business Perceptions

6.1 The impact of the COVID-19 crisis on indicators of competitiveness

The impact of the current health crisis has had a profound impact on the perception of business leaders, and many of these perceptions have been captured by the World Economic Forum's Executive Opinion Survey. Perceptions in some areas have indicated that progress in some areas critically stalled or declined during the crisis; while in other areas leaders believe there was a marked improvement compared to previous trends. Table 6.1 shows a summary of the top five areas that experienced the most movement upward or downward within advanced and emerging economies.

TABLE 6.1[47]

	Advanced economies			Emerging and developing economies		
		% change (2017-2019 avg Vs. 2020)*	2017-2019 average level (0/100)		% change (2017-2019 avg Vs. 2020)	2017-2019 average level (0/100)
Factors that registered the most negative shifts	Competition in network services	-2.9%	67.9	Business costs of crime and violence	-2.5%	52.3
	Collaboration between companies	-2.6%	51.9	Judicial independence	-2.4%	43.5
	Competition in professional services	-2.3%	75.0	Organized crime	-1.2%	56.5
	Competition in retail services	-1.8%	78.0	Extent of market dominance	-0.6%	43.8
	Ease of finding skilled employees	-1.5%	60.0	Public trust of politicians	-0.4%	32.0
Factors that registered the most positive shifts	Government's responsiveness to change	8.2%	52.1	Collaboration within a company	6.9%	51.6
	Collaboration within a company	4.6%	65.0	Government's responsiveness to change	6.8%	42.3
	Venture capital availability	4.4%	47.2	Efficiency of train services	5.9%	34.3
	Social safety net protection	4.2%	67.5	Venture capital availability	5.9%	33.6
	Soundness of banks	4.0%	73.3	Country capacity to attract talent	5.8%	40.0

*Percent change computed as 2020 score, minus 2017-2019 average score, divided by 2017-2019 average score.

Comparing the views of business leaders in 2020 with their views during the previous three years it emerges that, in advanced economies since the pandemic, there has been: 1) a marked decline in competition in services (network, professional and retail services), possibly driven by the over-reliance on platforms since the beginning of the pandemic, re-enforcing an already growing winner-take-all economy in these markets; 2) a reduction in collaboration between companies, possibly related to lockdowns that reduced exchanges and people's movement; and 3) finding skilled workers has become more difficult, mainly because the gap in the skills required in this phase (geared towards the digital economy) has further amplified during the pandemic.

In emerging and developing markets since the pandemic, business leaders noticed: 1) an increase of business costs related to crime and violence and 2) organized crime. These changes, however, reflect a reversal of a positive trend in 2018 and 2019 and should therefore be interpreted as a partial step-back in ongoing progress on these aspects. Beyond these aspects business leaders also flag 3) a reduction in judicial independence, an ongoing negative trend since before the pandemic; 4) further reduction in competition; and 5) stagnating trust in politicians.

On the flip side, the COVID-19 crisis has triggered a positive response from different stakeholders in some dimensions. In advanced economies: 1) business leaders assessed governments' responses to change higher than before the crisis, yet starting from a low base; 2) collaboration within companies increased, as companies had to better leverage internal resources in this context (notably, this contrasts with a reduction in collaboration with other companies; 3) venture capital availability continued to improve (in continuation with a previous trend), yet again starting from a low base; 4) business leaders perceived that social safety nets, although not optimal still, have contributed to respond to crisis; and 5) soundness of banks continued to improve this year, in continuation with previous trends, possibly also thanks to prompt policy response.

In emerging and developing countries, business leaders have similar views when it comes to 1) government response to change, 2) collaboration within companies, and 3) venture capital availability. Notably, business leaders assess government response to change in 2020 more positively compared to previous years, even though trust in politicians stalled. This signals that, while measures to respond to the first wave of the pandemic were judged positively, they did not change the fundamental level of trust in governments. In addition, in these countries, on average, 4) train services improved, a continuation of previous trends, and 5) capacity to attract talent, also an ongoing trend, albeit this year's assessment on this aspect, is lower than it was in 2019, but higher than it was in 2017 and 2018.

Taken together, these assessment show that all business leaders are concerned by potential increase in competition and governance dynamics. Further, in countries at the technological frontier, business leaders are concerned about lack of adequate skills. These results also show that all stakeholders are adapting their behaviour to cope with the current context.

These insights from the Executive Opinion Survey, although not comprehensive, offer a unique perspective on business leaders' views and suggest clear indications on the needs of business communities.

6.2 Key features of competitiveness that enhanced countries' responses to the pandemic

The 2020 pandemic has been a shock for all countries, and no economy has been untouched by losses both in terms of human lives and livelihoods.

Against this backdrop, however, it is possible to identify some common features that helped countries better manage the impact of the pandemic on their economy and their people. Based on the assessment of business leaders – through the executive opinion survey – the following dimensions emerged as particularly important to be resilient to this specific health crisis and its immediate aftermath.[48]

First, economic digitalization and digital skills. Social distancing has been the most immediate response to COVID-19; therefore, countries that could continue running significant segments of their economy remotely were better placed to go through the pandemic than those who could not. For instance, countries that could leverage flexible work arrangements (the top 5 include Netherlands, New Zealand, Switzerland, Estonia, and the United States) and those where digital skills are most widespread (top 5 include Finland, Sweden, Estonia, Iceland, and the Netherlands) could partially adjust by increasing the digitalization of their economic activity. Despite important disparities between sectors that could be digitalized, and those that cannot, economies that could rely on technology and the provision of digital services online were relatively less affected and

were also able of using technology for monitoring the evolution of the infection.

Second, safety nets and financial soundness. Since multiple segments of the economy had to cope with full lockdowns or reduced business activity, countries that already had in place strong safety nets to support those who could not work through the pandemic, were better placed to salvage livelihoods. Denmark, Finland, Norway, Austria, Luxembourg and Switzerland, for instance, could all rely on well-established mechanisms to support households during the health crisis. Similarly, countries that could support companies with either direct subsidies or credit could prevent excessive bankruptcies and job losses. Notably, economies with strong financial systems (Taiwan [China], Finland, the United States, the United Arab Emirates and Singapore) could more easily find resources to provide credit to SMEs, which, in addition to public interventions, contributed to keeping companies afloat in the current context.

Third, governance and planning. Managing the COVID-19 crisis has proven extremely challenging for all governments. Balancing public health policies with economic and social policies requires adopting second-best solutions, which are difficult to assess. In general terms, countries that could better plan and coordinate health measures with fiscal and social policies have been relatively more successful in mitigating the effects of the crisis. Policy stability (the capacity of government to provide a steady policy framework) can be used as a proxy for government capacity to plan and coordinate. On this aspect, countries that perform relatively well include Singapore, Switzerland, Luxembourg, Austria and the United Arab Emirates.

Fourth, health system and research capacity. A health system is not only defined by the capacity of its healthcare sector (hospitals, doctors, beds) but also by the accessibility of these services by a large fraction of the population, by the protocols in place to manage public health issues and by the capacity to develop and deploy a technological response (vaccine). While a comprehensive measure of healthcare capacity is not available, the data from the Executive Opinion Survey shows that the economies that allow relatively widespread access to healthcare include Japan, Spain, Taiwan [China], Malta and the Netherlands. Not all these countries could prevent a large diffusion of the virus, yet, widespread access to healthcare could offer extensive medical support. Further, anecdotal evidence shows that economies that experienced previous Coronavirus epidemics (e.g. SARS), had better protocols and technological systems in place (e.g. Korea, Singapore, Taiwan [China]) and could contain the epidemic relatively more than others, and navigated the crisis relatively well. As this crisis has shown, vaccine development and deployment capacity are also critical. As such, countries with greater biotechnology capacity and established national and international collaborations between universities and companies (Switzerland, the United States, Finland, Israel, the Netherlands) have been able to develop solutions to the current crisis, and are better placed to cope with future pandemics.

Conclusions

This special edition of the *Global Competitiveness Report* has combined historical data, unique indicators and the results of expert discussions to highlight existing and emerging priorities to not only re-boot growth, but also to set a new direction that will deliver sustainable and inclusive prosperity in the years to come.

It has also introduced a preliminary attempt to measure countries' readiness to transform their economies in line with this new direction.

Over the next year, the World Economic Forum will be hosting a series of communities and dialogues to develop new benchmarks, new standards and new actions for building new economic models that combine productivity, sustainability and shared prosperity. The Global Future Council on New Agenda for Fiscal and Monetary Policy, the Global Future Council on New Agenda for Economic Growth and Recovery, the Community of Chief Economists, the Champions for a New Dashboard for the New Economy and the Stewardship Board of the New Economy and Society Platform will be involved in shaping this effort. All readers are invited to share their views into this conversation, supporting collective efforts to "build back better".

Notes

1. World Bank, 2020.
2. ILO, 2020.
3. IMF, 2020c.
4. Woetzel, et al, 2017.
5. ITU, 2020.
6. ITU, 2019.
7. World Economic Forum, 2020a.
8. ITU, 2020.
9. For a deep dive on how countries can update education systems to equip children with the skills of the future, see World Economic Forum, 2020c.
10. Huang, et al, 2020.
11. World Economic Forum, 2020b.
12. Patillo, et al, 2003.
13. Krahnke, 2020, and Marchesi and Masi, 2020.
14. Kharas, 2020.
15. Woetzel, et al, 2017.
16. IMF, 2020c.
17. Schwartz, et al, 2020.
18. IDC, 2020.
19. ITU, 2020.
20. Hsieh, et al, 2019.
21. World Economic Forum, 2020c.
22. World Health Organization, 2016b.
23. Slotkin, et al, 2020.
24. World Economic Forum, 2020d.
25. ITUC, 2017.
26. Looking at the United Kingdom, for instance, in 2018 only 1.1% of loans in banks' portfolio were at risk of not being paid back, while in 2012, the figure was about 3.6%. Banks' leverage (the ratio of assets [currency and deposits; debt securities; and loans]) – to equity declined from 103.3% to 46.6% from 2008–2018, and business leaders in 2019 considered British soundness of banks to have almost returned to pre-financial crisis levels.
27. Board of Governors of the Federal Reserve System, 2020.

28. Lazonick, et al, 2020, show that U.S. S&P 500 companies have engaged in an average of $400 billion open-market repurchases between 2010 and 2018. While banned or strictly reviewed by market authorities before the 80s for preventing companies from manipulating stock prices, they were liberalized in the 80s and 90s to fight hostile takeovers. Liberalization has, however, re-introduced price manipulation risks and diversion of liquidity from investments.

29. https://data.imf.org/?sk=E5DCAB7E-A5CA-4892-A6EA-598B5463A34C.

30. Florant, et al, 2020.

31. De Loecker, et al, 2020.

32. Author calculations based on OECD, Intellectual property (IP) statistics and analysis patents database, accessed June 2020.

33. Carlino and Kerr, 2014.

34. For a list of temporary bans and related measures refer to ITC Market Access Map, available at: https://www.macmap.org/covid19

35. For instance, in the Eurozone supervisors have allowed banks to fully use capital and liquidity buffers, introduced flexibility in the criteria for loan classification and implementation of IFSR 9, and postponed the 2020 stress tests.

36. IMF, 2019.

37. IMF, 2020b.

38. IMF, 2020c.

39. Rousova, et al, 2020.

40. Carletti, et al, 2020.

41. This can be achieved either in a more direct way, banning open market repurchases altogether (as proposed by the recent “Reward Work Act”) or more mildly, by introducing closer supervision by stock market authorities (e.g. S.E.C.) with the possibility of charging companies that are found to manipulate the stock’s price (for more details on this, see for instance https://www.nytimes.com/2018/08/23/opinion/ban-stock-buybacks.html).

42. KPMG, 2020.

43. World Economic Forum, 2019b.

44. EESC, 2020.

45. For more details on these conditions and a full description of the 20 markets of tomorrow refer to World Economic Forum, 2020e, https://www.weforum.org/reports/markets-of-tomorrow-pathways-to-a-new-economy.

46. Egger, P. et al. (2019).

47. Competition in network services is derived from responses to the question "In your country, how competitive are the provision of Network sector services (telecommunications, utilities, postal, transport, etc.?" [1 = Not at all competitive; 7 = Extremely competitive]; Collaboration between companies is derived from responses to the question "In your country, to what extent do companies collaborate in sharing ideas and innovating?" [1 = Not at all; 7 = To a great extent]; Competition in professional services is derived from responses to the question "In your country, how competitive are the provision of Professional services (legal services, accounting, engineering, etc.?" [1 = Not at all competitive; 7 = Extremely competitive]; Competition in retail services is derived from responses to the question "In your country, how competitive are the provision of Retail services?"

[1 = Not at all competitive; 7 = Extremely competitive]; Ease of finding skilled employees is derived from responses to the question "In your country, to what extent can companies find people with the skills required to fill their vacancies?" [1 = not at all; 7 = to a great extent]; Government's responsiveness to change is derived from responses to the question "In your country, to what extent does the government respond effectively to change (e.g technological changes, societal and demographic trends, security and economic challenges)?" [1 = Not at all; 7 = To a great extent]; Collaboration within a company is derived from responses to the question "In your country, to what extent do people collaborate and share ideas within a company?" [1 = Not at all; 7 = To a great extent]; Venture capital availability is derived from responses to the question "In your country, how easy is it for start-up entrepreneurs with innovative but risky projects to obtain equity funding?" [1 = extremely difficult; 7 = extremely easy]; Social safety net protection is derived from responses to the question "In your country, to what extent does a formal social safety net provide adequate protection to the general population (e.g., protection against job loss, disability, old age, poverty)?" [1 = Not at all - it doesn't provide any protection; 7 = To the full extent - provides full protection]; Soundness of banks is derived from responses to the question ""In your country, how do you assess the soundness of banks?" [1 = extremely low—banks may require recapitalization; 7 = extremely high—banks are generally healthy with sound balance sheets]; Business costs of crime and violence is derived from responses to the question "In your country, to what extent does the incidence of crime and violence impose costs on businesses?" [1 = to a great extent—imposes huge costs; 7 = not at all—imposes no costs]; Judicial independence is derived from responses to the question "In your country, how independent is the judicial system from influences of the government, individuals, or companies?" [1 = not independent at all; 7 = entirely independent]; Organized crime is derived from responses to the question "In your country, to what extent does organized crime (mafia-oriented racketeering, extortion) impose costs on businesses? [1 = to a great extent—imposes huge costs; 7 = not at all—imposes no costs]; Extent of market dominance is derived from responses to the question "In your country, how do you characterize corporate activity?" [1 = dominated by a few business groups; 7 = spread among many firms]; Public trust of politicians is derived from responses to the question "In your country, how do you rate the ethical standards of politicians?" [1 = extremely low; 7 = extremely high]; Efficiency of train services is derived from responses to the question "In your country, how efficient (i.e., frequency, punctuality, speed, price) are train transport services?" [1 = extremely inefficient—among the worst in the world; 7 = extremely efficient—among the best in the world]; Country capacity to attract talent is derived from responses to the question "To what extent does your country attract highly skilled individuals from abroad?" [1 = not at all; 7 = to a great extent—the country attracts the best and brightest from around the world.

48. The analysis in this section, is based on the following Executive Opinion Survey indicators. Flexible work arrangements, derived from the question “In your country, to what extent do companies offer flexible working arrangements (e.g., virtual teams, remote working, part-time, employment)? [1=Not at all; 7= To a great extent]”; Digital skills among active population, derived from the question “In your country, to what extent does the active population possess sufficient digital skills (e.g., computer skills, basic coding, digital reading)? [1 = Not all; 7 = To a great extent]”; Social safety net protection, derived from the question “In your country, to what extent does a formal social safety net provide adequate protection to the general population (e.g., protection against job loss, disability, old age, poverty)? [1 = Not at all—it doesn't provide any protection; 7 = To the full extent—it provides full protection]”; Financing of SMEs, derived from the question “In your country, to what extent can small- and medium-sized enterprises (SMEs) access the finance they need for their business operations through the financial sector? [1 = Not at all; 7 = To a great extent]”; Government ensuring policy stability, derived from the question In your country, to what extent does the government ensure a stable policy environment for doing business? [1 = Not at all; 7 = To a great extent]; Accessibility of healthcare services, derived from the question In your country, to what extent are women entering information technology roles (across all sector)? [1 = Not at all; 7 = To the full extent—the rate is equal to that of men]; University-industry collaboration in R&D derived from the question “In your country, to what extent do business and universities collaborate on research and development (R&D)? [1 = Not at all; 7 = To a great extent]”

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Appendix A

Transformation Readiness framework: methodology and definitions

The computation of the transformation readiness framework used in this exercise is based on successive aggregations of scores, from the indicator level (the most disaggregated level) to the concept level, from the concept level to the priority level, and finally to the overall score for each country assessed. At every aggregation level, each aggregated measure is computed by taking the average (i.e. arithmetic mean) of the scores of its components, as described in Table A1 below. The priority scores presented in Tables 5.1 and 5.2 are computed as the average of the concepts listed in table A1. The overall scores presented in Table 5.3 are the average of the scores on the 11 priorities.

For individual indicators, prior to aggregation, raw values are transformed into a progress score ranging from 0 to 100, where 100 indicates the most desirable outcome. While there is not always a consensus of what these "targets" should be, the actual thresholds used for computing scores is provided in Table A1.

To allow for the aggregation of indicators of different nature and magnitude, each indicator entering is converted into a unit-less score, ranging from 0 to 100 using a min-max transformation. Formally, each indicator is re-scaled according to the following formula:

$$score_{i,c} = \underbrace{\left(\frac{value_{i,c} - wp_i}{frontier_i - wp_i} \right)}_{\alpha} \times 100,$$

where $value_{i,c}$ is the "raw" value of country c for indicator i, worst performance (wp_i) is the lowest acceptable value for indicator i, and frontier i corresponds to the best possible outcome. Depending on the indicator, the frontier may be a policy target or aspiration, the maximum possible value, or a number derived from statistical analysis of the distribution (e.g. 90th or 95th percentile). If a value is below the worst performance value, its score is 0; if a value is above the frontier value, its score is capped at 100.

TABLE A1 | **Definitions**

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Ensure public institutions embed strong governance principles and a long-term vision and build trust by serving their citizens	Make institutions more just and equitable and increase trust	Judicial independence	Response to the question "In your country, how independent is the judicial system from influences of the government, individuals, or companies?" [1 = not independent at all; 7 = entirely independent].	World Economic Forum	1.0	7.0
		Corruption perception index	This indicator measures perceptions of corruption in the public sector.	Transparency International	0.0	100.0
		Digital media trust-worthineess and privacy	Score on "Trust & safety" pillar, which measures internet safety and cultural acceptance of the internet. It is a weighted average of 1) privacy regulations; 2) trust in online privacy; 3) trust in government websites and apps; 4) trust in non-government websites and apps; 5) trust in information from social media; and 6) e-commerce safety.	Economist Intelligence Unit, Inclusive Internet Index	0.0	100.0
		Egalitarian democracy index	This indicator meaures the equality of freedoms and rights of individuals across all social groups, equality of distribution of resources across all social groups, equality of access to power across all social groups and ndivisuals and level of electoral democracy.	V-Dem	0.0	1.0
	Strengthen foresight and future-proof legal frameworks and regulations	Government's responsiveness to change	Response to the survey question "In your country, to what extent does the government respond effectively to change (e.g. technological changes, societal and demographic trends, security and economic challenges)?" [1 = not at all; 7 = to a great extent].	World Economic Forum	1.0	7.0
		Government long-term vision	Response to the survey question "In your country, to what extent does the government have a long-term vision in place?" [1 = not at all; 7 = to a great extent].	World Economic Forum	1.0	7.0
		Legal framework's adaptability to digital business models	Response to the survey question "In your country, how fast is the legal framework of your country adapting to digital business models (e.g. e-commerce, sharing economy, fintech, etc.)?" [1 = not fast at all; 7 = very fast] | 2018–2019 weighted average or most recent period available.	World Economic Forum	1.0	7.0
	Reset frameworks around the role and value of intangibles and technologies	Strength of auditing and accounting standards	Response to the survey question "In your country, how strong are financial auditing and reporting standards?" [1 = extremely weak; 7 = extremely strong].	World Economic Forum	1.0	7.0
		Companies´ perception of human capital spending	Response to the survey question "In your country, how do companies perceive human capital spending?" [1 = As a cost to minimize; 7 = As a key investment].	World Economic Forum	1.0	7.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Upgrade infrastructure to accelerate the energy transition and broaden access to electricity and ICT	Reimagine infrastructure models	Prevelance of green infrastructure	This indicator is a composite of a selected set of indicators which relate to green infrastructure: building emission intensity, electricity emission intensity, road transpot energy efficiency and waste emission intensity.	Climate Action tracker	0.0	100.0
	Strengthen regulations to mitigate nature loss and climate change	Energy efficiency regulation	Assesses a country's policies and regulations to promote energy efficiency energy. The score ranges from 0 (not conducive) to 100 (very conducive).	The World Bank/ ESMAP, Policy Matters: Regulatory Indicators for Sustainable Energy (RISE) 2018 (https://rise.worldbank.org/reports, https://rise.worldbank.org/scores)	0.0	100.0
		Renewable energy regulation	Assesses a country's policies and regulations to promote renewable energies. The score ranges from 0 (not conducive) to 100 (very conducive).	The World Bank/ ESMAP, Policy Matters: Regulatory Indicators for Sustainable Energy (RISE) 2018 (https://rise.worldbank.org/reports,https://rise.worldbank.org/scores)	0.0	100.0
		Environment-related treaties in force	Total number of ratified environmental treaties (0–29 scale, where 29 is best).	The International Union for Conservation of Nature (IUCN) Environmental Law Centre ELIS Treaty Database (data received through direct communication)	0.0	100.0
	Broaden access to basic services	Active policies to increase digital connectivity	Score on the "Policy Pillar", which measures the existence of national strategies that promote the safe and widespread use of the internet. Score is the weighted average of the following indicator scores: 1)National female e-inclusion policies; 2) government e-inclusion strategy; 3)National broadband strategy; 4) Funding for broadband strategy; 5) Spectrum policy approach; 6) National digital identification system; 7) government effors to promote 5G.	Economist Intelligence Unit, Inclusive Internet Index	0.0	100.0
		Basic digital connectivity	Percentage of the population covered by at least an LTE/WiMAX mobile network.	International Telecommunication Union (ITU)	0.0	100.0
		Gender differeces in digital connectivity	Difference between the share of men using the internet and the share of women using the internet.	International Telecommunication Union (ITU)/ Gallup	0.1	20.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
	Broaden access to basic services	Access to electritiy	Electrification rate (% of population).	International Energy Agency, World Energy Outlook 2020 (https://www.iea.org/reports/world-energy-outlook-2020); The World Bank Group, Sustainable Energy for All database	0.0	100.0
		E-Participation	Score on the E-Participation Index, which assesses the use of online services to facilitate the provision of information by governments to citizens. The scale ranges from 0 to 1 (best).	United Nations, Department of Economic and Social Affairs, E-Government Survey 2018: Gearing E-Government To Support Transformation Towards Sustainable And Resilient Societies (July 2018)	0.0	1.0
Shift to more progressive taxation, rethinking how corporations, wealth and labour are taxed, nationally and in an international cooperative framework	Increase progressivity of taxation	Progressivity of tax and tax structures	This indicator measures the progressivity of tax structures on paper, based on the rates and levels of personal income tax, corporate income tax and value added tax in the country.	OXFAM, Commitment to Reducing Inequality Index	0.0	1.0
		Tax productivity	This indicator measures whether countries are collecting as much tax as they should, to recognize the fact that despite having progressive tax structures on paper countries might fail to collect these taxes in practice. It is calculated using tax rates and tax collection amounts compared with GDP or private consumption.	OXFAM, Commitment to Reducing Inequality Index	0.0	1.0
		Inheritance tax	Tax rate levied on property and money acquired by gift or inheritance.	Tax foundation	0.0	0.6
		Tax impact on inequality	The share of total tax raised from each of income, corporate and VAT taxes multiplied by the actual or predicted impact of each on the Gini coefficient.	OXFAM, Commitment to Reducing Inequality Index	0.0	1.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Update education curricula and expand investment in the skills needed for jobs and "markets of tomorrow"	Upgrade training and education for the future of work	Percentage of firms offering formal training	This indicator is the share of firms offering formal training are the percentage of firms offering formal training programs for their permanent, full-time employees.	World Bank, Enterprise Surveys	5.0	100.0
		Extent of staff training	Response to the survey question "In your country, to what extent do companies invest in training and employee development?" [1 = not at all; 7 = to a great extent].	World Economic Forum	1.0	7.0
		Skill set of the population	Response to the survey question "In your country, to what extent can companies find people with the skills required to fill their vacancies?" [1 = Not at all; 7 = To a great extent].	World Economic Forum	1.0	7.0
		Digital skills among active population	Response to the survey question " "In your country, to what extent does the active population possess sufficient digital skills (e.g. computer skills, basic coding, digital reading)?" [1 = not all; 7 = to a great extent].	World Economic Forum	1.0	7.0
		Critical thinking in teaching	Response to the survey question ""In your country, how do you assess the style of teaching?" [1 = frontal, teacher based, and focused on memorizing; 7 = encourages creative and critical individual thinking].	World Economic Forum	1.0	7.0
Rethink labour laws and social protection for the new economy and the new needs of the workforce	Set a social protection floor	Social protection coverage	This indicator conveys the share of the population effectively covered by a social protection system, including social protection floors. It also provides the coverage rates of the main components of social protection: child and maternity benefits, support for persons without a job, persons with disabilities, victims of work injuries and older persons.	International Labour Organisation	0.0	100.0
		Guaranteed min. income benefits	This indicator measures the income of jobless families relying on minimum-income safety-net benefits as a percentage of the median disposable income for a couple with two children (with one partner is out of work). This can be compared with a poverty line defined as a fixed percentage of median income. For instance, if the poverty threshold is 50% of median income, a value of 30% means that benefit entitlements alleviate poverty risks of 60%. This ratio includes housing benefits.	Organisation for Economic Co-operation and Development (OECD)	0.0	100.0
		Accessibility of healthcare services	Response to the question "In your country, how accessible is healthcare to all individuals?" [1 = Limited—only the privileged have access to healthcare; 7 = Universal—all individuals have access to healthcare].	World Economic Forum	1.0	7.0
		Government spending on housing allowance	Government spending on housing allowances as % of GDP.	Organisation for Economic Co-operation and Development (OECD)	0.0	1.0
		Inequality adjusted access to education	This indicator is the inequality-adjusted average between mean years of schooling and expected years of schooling.	UNDP Human Development Index	0.0	100.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Rethink labour laws and social protection for the new economy and the new needs of the workforce	Strengthen labour protection for the new economy	Active labour market policies	Response to the question "In your country, to what extent are unemployed people supported in reskilling and finding new employment?" [1 = Not at all; 7 = To a great extent].	World Economic Forum	1.0	7.0
		Enforcement of minimum wage	Legal minimum wage rate, compared with the average income (GDP per capita) in the country.	OXFAM, Commitment to Reducing Inequality Index	0.0	1.0
		Adequate overtime regulation	Share of workers working more than 48 hours per week (full-time and part time contracts) based on national labour surveys.	International Labour Organisation (ILO)	0.0	50.0
		Impact of the online gig economy on working conditions	Response to the survey question "In your country, what is the impact of the online gig economy on working conditions (e.g. working time, remuneration stability)? [1 = Significantly worsens working conditions; 7 = Significantly improves working conditions].	World Economic Forum	1.0	7.0
		Workers' rights	Score adapted from the ITUC Global Rights Index, which measures the level of protection of internationally recognized core labour standards. The scale of this indicator ranges from 0 (no protection) to 100 (high protection).	International Trade Union Confederation	0.0	100.0
		Employment opportunities for those with basic education	Ratio of unemployment among labor force with basic education to median.	International Labour Organisation (ILO)	0.0	100.0
Expand eldercare, childcare and healthcare infrastructure, access and innovation for the benefit of people and the economy	Make care services universally available	Public expenditure on childcare, pre-primary education and early childhood education	Public expenditure on childcare and pre-primary education and total public expenditure on early childhood education and care, as a % of GDP. Public expenditure on early childhood education and care covers all public spending (in cash or in kind) towards formal day-care services (e.g. crèches, day care centres, and family day care, generally aimed at children aged 0 to 2, inclusive) and pre-primary education services (including kindergartens and day-care centres, which usually provide an educational content as well as traditional care for children aged from 3 to 5, inclusive).	OECD, Families database	0.0	2.0
		Public expenditure on healthcare	General government expenditure on health comprises the direct outlays earmarked for the enhancement of the health status of the population and/or the distribution of medical care goods and services among population by the following financing agents: central/federal, state/provincial/ regional, and local/municipal authorities; extrabudgetary agencies, social security schemes; parastatals. All can be financed through domestic funds or through external resources.	World Health Organization Global Health Expenditure database, via World Bank data	0.0	21.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
	Make care services universally available	**Use of online gig economy for providing care services**	Response to the survey question "In your country, to what extent is the online gig economy* used to provide care services (e.g., childcare, elderly-care, nursing) [1 = Not at all; 7 = To a great extent] *The online gig economy referes to a labour market that is specific to digital platforms and to working arrangements that are focussed on short-term contracts and task-based work.	World Economic Forum	1.0	7.0
		Long-term disability, elder and other care workers	Formal LTC workers (FTE) per 100 population aged 65 years old and over. Formal LTC workers are defined as paid staff, typically nurses and personal carers, providing care and/or assistance to people limited in their daily activities at home or in institutions, excluding hospitals.	OECD	0.0	10.0
Increase incentives to direct financial resources towards long-term investments, strengthen stability and expand inclusion	Increase financial markets' long-term orientation and financial inclusion	**Shares buyback**	Five-year moving average (2009-2013) and represented as a share of total GDP (2009-2013).	Bankscope, via Inclusive growth index	0.0	2.5
		Adopotion of ethical standards by firms	Response to the survey question "In your country, how do you rate the corporate ethics of companies (ethical behavior in interactions with public officials, politicians and other firms)?" [1 = Extremely poor—among the worst in the world; 7 = Excellent—among the best in the world].	World Economic Forum	1.0	7.0
		Use of digital financial services among poor population	The percentage of respondents who report using mobile money, a debit or credit card, or a mobile phone to make a payment from an account, or report using the internet to pay bills or to buy something online, in the past 12 months. It also includes respondents who report paying bills, sending or receiving remittances, receiving payments for agricultural products, receiving government transfers, receiving wages, or receiving a public sector pension directly from or into a financial institution account or through a mobile money account in the past 12 months, income, poorest 40% (% age 15+).	Global Findex, World Bank Group	0.0	1.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally	Update competition and anti-trust frameworks and facilitate entrance of new actors	Effective taxation for new economy transnational firms	Score on "Harmful Tax Practices (HTP), Existence of, absence of anti-tax avoidance measures and evidence of profit shifting", which assesses the extent to which its tax system is undermining its own and other countries' capacity to generate and retain tax revenues.	OXFAM, Commitment to Reducing Inequality Index	0.0	1.0
		Extent of market dominance	Response to the survey question "In your country, how do you characterize corporate activity? [1 = dominated by a few business groups; 7 = spread among many firms]".	World Economic Forum	1.0	7.0
		Growth of innovative companies	Response to the survey question "In your country, to what extent do new companies with innovative ideas grow rapidly? [1 = Not at all; 7 = To a great extent].	World Economic Forum	1.0	7.0
		Financing of SMEs	Response to the survey question "In your country, to what extent can small- and medium-sized enterprises (SMEs) access the finance they need for their business operations through the financial sector? [1 = Not at all; 7 = To a great extent].	World Economic Forum	1.0	7.0
		Venture capital availability	Response to the survey question " in new edition of EOS include the distribution of VC by region// In your country, how easy is it for start-up entrepreneurs with innovative but risky projects to obtain equity funding? [1 = Extremely difficult; 7 = Extremely easy].	World Economic Forum	1.0	7.0
	Balance competitive markets with local development	State of cluster development	Response to the survey question " In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)?" [1 = non-existent; 7 = widespread in many fields]	World Economic Forum	1.0	7.0
		Ratio of unemployment between rural and urban populations	Within country regional diversity of new job vacancies.	International Labour Organisation (ILO) / World Bank	0.0	0.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration	Foster demand for more sustainable and inclusive products and technologies	**Consumption-based emissions per capita**	Emissions per capita related to goods and services consumed in the country (i.e. adjusted for import/export flows).	Our World in Data	0.0	1.0
		Consumer uptake of new technologies	Companies/consumers using products and services based on 3D, 4D printing and modelling technology, biotechnology and DNA technology, clean energy (generation, storage, transmission) technology, distributed ledger technology/ blockchain technology, energy efficiency of buildings technology, information processing (artificial intelligence, big data, virtual reality, augmented reality) technology, internet of things and cloud computing technology, network security and encryption protocols technology, new agriculture and food technologies, new materials and composites technology, Quantum computing, robots (air, factory, land, underwater) technology, satellites (data, connectivity) and space technology, smart and energy-efficient transport technology and water, waste and air management technology.	World Economic Forum	1.0	4.0
		Buyer sophistication	Response to the survey question "In your country, on what basis do buyers make purchasing decisions?" [1 = Solely on the lowest price; 7 = On sophisticated performance attributes]	World Economic Forum	1.0	7.0
		Public sector role in fostering demand for new technologies	Role of public sector in driving the use of products based on 3D, 4D printing and modelling technology; biotechnology and DNA technology; clean energy (generation, storage, transmission) technology; distributed ledger technology/ blockchain technology; energy efficiency of buildings technology; information processing (artificial intelligence, big data, virtual reality, augmented reality) technology; internet of things and cloud computing technology; network security and encryption protocols technology; new agriculture and food technologies; new materials and composites technology; robots (air, factory, land, underwater) technology; satellites (data, connectivity) and space technology; smart and energy-efficient transport technology; and water, waste and air management technology.	World Economic Forum	1.0	3.0
	Pilot IP frameworks that accelerate and diffuse sustainable technological standards	**Regulation of emerging technologies**	Response to the survey question "In your country, how adequately regulated are the emerging technologies and their applicatons (e.g., artificial intelligence, robotices, digital platforms)?" [1=Not adequately at all—there are many regulatory grey area and loopholes; 7= Adequately—regulation is adequate for all emerging technologies and their applications].	World Economic Forum	1.0	7.0
		Patent pledges by private sector	This indicator is the number of patent pledges by companies from the country, normalized by overall patenting activity.	IPR Pledge Database	0.0	100.0

TABLE A1 | Definitions

Priority	Concept	Indicator	Indicator short description	Source	Minimum value used for normalization	Maximum value used for normalization
Incentivize and expand patient investments in research, innovation and invention that can create new “markets of tomorrow”	Increase patient investment in research and development for the "markets of tomorrow"	State of R&D investment in new technologies	State of R&D in 3D, 4D printing and modelling technology; biotechnology and DNA technology; clean energy (generation, storage, transmission) technology; distributed ledger technology/ blockchain technology; energy efficiency of buildings technology; information processing (artificial intelligence, big data, virtual reality, augmented reality) technology; internet of things and cloud computing technology; network security and encryption protocols technology; new agriculture and food technologies technology; new materials and composites technology; robots (air, factory, land, underwater) technology; satellites (data, connectivity) and space technology; smart and energy-efficient transport technology; and water, waste and air management technology.	World Economic Forum	1.0	4.0
		Public sector initative in R&D for new technologies	The extent to which the public sector, takes initiative on 3D, 4D printing and modelling technology; biotechnology and DNA technology; clean energy (generation, storage, transmission) technology; distributed ledger technology/ blockchain technology; energy efficiency of buildings technology; information processing (artificial intelligence, big data, virtual reality, augmented reality) technology; internet of things and cloud computing technology; network security and encryption protocols technology; new agriculture and food technologies technology; new materials and composites technology; robots (air, factory, land, underwater) technology; satellites (data, connectivity) and space technology; smart and energy-efficient transport technology; and water, waste and air management technology.	World Economic Forum	0.0	1.0
Incentivize firms to embrace diversity, equity and inclusion to enhance creativity	Improve diversity, equity and inclusion in firms for greater and fairer innovation	Diversity of workforce	Response to the survey question "In your country, to what extent do companies employ a diverse workforce (e.g., in terms of ethnicity, religion, sexual orientation, gender)? [1 = Not at all; 7 = To a great extent].	World Economic Forum	1.0	7.0
		Reliance on professional management	Response to the survey question "In your country, who holds senior management positions in companies? [1 = Usually relatives or friends without regard to merit; 7 = Mostly professional managers chosen for merit and qualifications].	World Economic Forum	1.0	7.0
		Gender parity in tech roles	Response to the survey question "In your country, to what extent are women entering information technology roles (across all sector)? [1 = Not at all; 7 = To the full extent—the rate is equal to that of men].	World Economic Forum	1.0	7.0
		Share of firms with a female (co-)owners	Firms with female participation in ownership (% of firms).	World Bank, Enterprise Surveys	0.0	50.0

Appendix B

Transformation Readiness Performance by Score in Category

TABLE B.1 **Transformation Readiness scores (0-100 best)**

Economy	Ensure public institutions embed strong governance principles. build a long-term vision and establish trust by serving their citizens	Economy	Upgrade infrastructure to accelerate the energy transition and broaden access to electricity and ICT	Economy	Shift to more progressive taxation. rethinking how corporations. wealth and labour are taxed. nationally and in an international cooperative framework
Finland	78.5	Estonia	99.7	South Africa	65.2
Switzerland	76.8	Denmark	91.5	Japan	64.5
New Zealand	73.0	Netherlands	91.4	Korea. Rep.	63.4
Denmark	72.0	Finland	88.9	Australia	62.1
Netherlands	72.0	Sweden	88.0	Ireland	59.2
Sweden	70.3	Portugal	87.8	China	58.1
Austria	69.9	Spain	86.9	Canada	56.7
United States	67.5	Ireland	86.8	India	55.8
Canada	67.0	Hungary	86.4	France	55.6
Australia	66.7	Slovak Republic	84.9	Germany	54.2
Germany	66.5	Austria	83.8	United Kingdom	54.1
Estonia	66.5	Belgium	82.7	Belgium	54.0
Japan	65.9	France	82.6	Indonesia	53.7
United Kingdom	65.7	Korea. Rep.	81.8	New Zealand	53.5
Ireland	65.6	Czech Republic	81.6	Argentina	52.9
Israel	65.4	United Kingdom	80.9	United States	52.8
China	64.3	Greece	80.8	Portugal	52.1
France	64.0	Switzerland	80.0	Chile	52.0
Belgium	62.7	Germany	79.6	Austria	49.9
Korea. Rep.	62.2	Brazil	79.4	Russian Federation	49.8
Chile	61.9	Poland	77.8	Israel	49.6
Indonesia	58.8	China	77.5	Spain	49.0
Portugal	57.8	Canada	77.0	Mexico	48.8
Spain	56.4	Japan	76.9	Netherlands	47.3
Czech Republic	56.3	Mexico	75.0	Czech Republic	46.8
South Africa	53.9	Israel	74.2	Sweden	45.9
Slovak Republic	50.0	Italy	74.1	Slovak Republic	44.4
Italy	49.6	Australia	73.0	Brazil	44.0
India	49.4	India	72.6	Finland	43.9
Turkey	47.7	Chile	72.1	Greece	42.6
Poland	46.7	United States	71.2	Denmark	41.8
Greece	46.3	New Zealand	68.1	Switzerland	41.5
Hungary	46.1	Argentina	67.6	Estonia	41.4
Argentina	45.4	Turkey	67.1	Turkey	40.7
Brazil	45.3	South Africa	63.8	Italy	39.1
Mexico	44.3	Indonesia	62.7	Poland	33.6
Russian Federation	42.8	Russian Federation	57.2	Hungary	30.7

TABLE B.1 | Transformation Readiness scores (0-100 best)

Economy	Update education curricula and expand investment in the skills needed for jobs in markets of tomorrow.	Economy	Rethink labour laws and social protection for the new economy and the new needs of the workforce	Economy	Expand eldercare. childcare and healthcare infrastructure and innovation for the benefit of people and the economy
Finland	75.3	Denmark	77.0	Sweden	75.9
Netherlands	71.8	United Kingdom	75.2	Denmark	65.0
Denmark	71.5	Switzerland	74.2	Canada	61.6
Switzerland	70.8	Germany	74.0	Finland	61.4
Sweden	69.4	Netherlands	71.9	Netherlands	61.2
United States	68.2	Finland	71.1	New Zealand	58.6
China	67.0	Belgium	71.1	Israel	56.8
Israel	66.6	Canada	69.8	Belgium	54.9
Belgium	65.8	New Zealand	67.5	United States	54.2
Canada	65.3	France	66.7	France	52.7
Australia	63.5	Austria	66.4	Germany	51.4
New Zealand	63.5	Russian Federation	65.0	Switzerland	51.3
Germany	61.4	Australia	64.7	United Kingdom	50.4
Austria	60.6	China	64.4	Australia	49.6
Korea. Rep.	60.0	Sweden	63.7	Japan	49.3
United Kingdom	59.7	Czech Republic	63.1	Chile	48.7
Ireland	59.5	Ireland	62.8	Korea. Rep.	48.5
Estonia	56.8	Estonia	62.8	Estonia	47.0
France	56.8	Japan	61.5	Ireland	45.8
Chile	52.1	Korea. Rep.	61.2	Spain	45.3
Spain	51.4	Poland	59.8	Austria	42.8
Japan	51.3	Spain	59.7	Czech Republic	40.0
Portugal	49.8	Argentina	59.5	Italy	37.0
Indonesia	49.0	Slovak Republic	58.7	Mexico	36.1
Czech Republic	48.5	Portugal	58.1	Slovak Republic	35.5
Argentina	46.9	Israel	57.9	Hungary	34.4
Slovak Republic	46.5	United States	56.9	Turkey	32.3
Russian Federation	44.9	Italy	55.6	Portugal	31.4
India	43.5	Hungary	53.7	Poland	30.3
Mexico	43.3	Chile	51.6	Greece	24.7
South Africa	42.6	Brazil	51.0	Argentina	n/a
Poland	41.9	Mexico	49.2	Brazil	n/a
Hungary	40.8	Turkey	48.4	China	n/a
Italy	40.7	Greece	47.6	India	n/a
Turkey	39.8	India	44.4	Indonesia	n/a
Brazil	39.5	South Africa	42.9	Russian Federation	n/a
Greece	38.7	Indonesia	n/a	South Africa	n/a

TABLE B.1 | Transformation Readiness scores (0-100 best)

Economy	Increase incentives to direct financial resources towards long-term investments, strengthen stability and expand inclusion	Economy	Rethink competition and anti-trust frameworks needed in the Fourth Industrial Revolution, ensuring market access, both locally and internationally	Economy	Facilitate the creation of "markets of tomorrow", especially in areas that require public-private collaboration
Finland	95.4	United States	77.6	Finland	59.5
New Zealand	93.2	Canada	74.7	United States	57.7
Sweden	89.0	China	71.8	Japan	53.5
Austria	88.3	Finland	70.8	Sweden	52.2
Japan	84.7	Sweden	70.7	Israel	51.2
Denmark	84.6	Spain	70.1	Switzerland	50.8
France	83.0	Denmark	68.9	Netherlands	50.4
Ireland	81.9	Italy	68.3	France	50.1
Israel	81.7	Israel	67.5	China	49.7
Belgium	81.2	Estonia	66.9	Canada	49.5
Australia	81.2	Germany	65.6	Belgium	49.3
Estonia	81.1	Belgium	64.8	Germany	48.1
Netherlands	79.9	France	64.7	Austria	47.3
Italy	79.8	Netherlands	64.4	Korea, Rep.	46.7
Germany	79.3	Switzerland	64.0	Denmark	46.7
Korea, Rep.	78.3	Indonesia	62.9	Ireland	46.6
Canada	75.1	United Kingdom	62.7	United Kingdom	46.1
China	72.8	Japan	62.7	New Zealand	45.0
United Kingdom	72.4	New Zealand	62.6	Indonesia	45.0
Greece	68.3	Australia	61.6	Estonia	44.9
Portugal	67.1	Poland	61.5	Portugal	44.6
Poland	62.7	Portugal	61.5	Spain	44.4
Brazil	60.3	Czech Republic	60.4	Australia	44.0
Indonesia	59.7	Ireland	59.4	Italy	43.0
Spain	59.7	Korea, Rep.	59.2	Czech Republic	41.9
Switzerland	59.2	Brazil	59.1	India	40.2
Czech Republic	58.2	Austria	58.6	Chile	39.7
Chile	57.5	South Africa	58.3	Hungary	39.4
Russian Federation	55.3	Chile	58.1	Slovak Republic	39.3
Slovak Republic	54.7	Turkey	57.4	Turkey	38.5
India	54.5	India	57.3	Brazil	38.0
Hungary	52.0	Hungary	55.2	Poland	37.5
Turkey	49.8	Mexico	54.5	Greece	36.0
Mexico	49.0	Argentina	49.8	Mexico	35.7
South Africa	48.6	Greece	49.2	South Africa	35.6
United States	47.8	Slovak Republic	49.1	Argentina	34.3
Argentina	32.8	Russian Federation	42.5	Russian Federation	n/a

TABLE B.1

Transformation Readiness scores (0-100 best)

Economy	Incentivize and expand patient investments in research, innovation and invention that can create new "markets of tomorrow"	Economy	Incentivize firms to embrace diversity, equity and inclusion to enhance creativity
United States	57.3	China	79.2
Japan	54.7	Sweden	77.9
Korea, Rep.	53.4	New Zealand	73.9
Finland	53.4	United States	73.3
Israel	53.1	Australia	72.4
Switzerland	51.6	Finland	70.9
France	50.8	Netherlands	70.9
Sweden	50.8	Denmark	70.8
China	50.0	Argentina	69.0
Germany	49.2	Switzerland	67.2
Netherlands	48.3	United Kingdom	67.1
Belgium	47.8	Ireland	66.9
Indonesia	45.6	Canada	66.5
New Zealand	45.2	Portugal	65.3
Estonia	43.4	Israel	65.2
Australia	42.9	Belgium	64.7
Canada	42.8	Germany	62.6
Portugal	42.2	France	62.2
Denmark	41.7	South Africa	61.5
United Kingdom	40.9	Russian Federation	60.9
Spain	40.4	Estonia	60.9
Czech Republic	40.2	Indonesia	60.4
Austria	38.8	Greece	59.7
Italy	36.9	Spain	58.6
Hungary	36.7	Korea, Rep.	58.0
Brazil	36.2	Brazil	57.4
Ireland	36.1	Czech Republic	57.3
Russian Federation	35.6	Chile	57.3
India	32.5	Austria	56.6
Poland	32.1	Japan	56.0
Argentina	31.9	Hungary	53.5
Chile	31.7	Mexico	52.7
South Africa	31.7	Poland	52.7
Slovak Republic	31.3	Slovak Republic	52.2
Turkey	28.9	Italy	46.9
Mexico	27.2	Turkey	46.8
Greece	25.2	India	45.1

Appendix C

The Executive Opinion Survey: The Voice of the Business Community

The Executive Opinion Survey (the Survey) is a key ingredient of the *Global Competitiveness Report Special Edition 2020* series and other Forum benchmarking activities. It is the longest-running and most extensive survey of its kind and provides a yearly evaluation of important aspects of socio-economic development for which statistical data is missing because it is either impossible or extremely difficult to measure on a global scale. The aim of the Survey is to capture reality as well as possible, and business leaders are arguably the best positioned to assess the business environment in which they operate.

Through the 80 survey questions, respondents are asked to evaluate the situation for specific domains at the country level, providing insights into the following themes: macro-financial and business environment; social cohesion and well-being; governance and institutions; connection, access and infrastructure; innovation capability and new products; education system and skills; labour market and employment as well as a cross-cutting focus on equity and social justice dimensions. The results complement other statistical data to provide a more complete assessment of the business environment and the drivers of productivity.

The indicators derived from the Survey are used in the calculation of the several World Economic Forum's indexes and data pieces. A truly unique source of data, the Survey has also long been used by numerous international and non-governmental organizations, think tanks and academia for empirical and policy work.

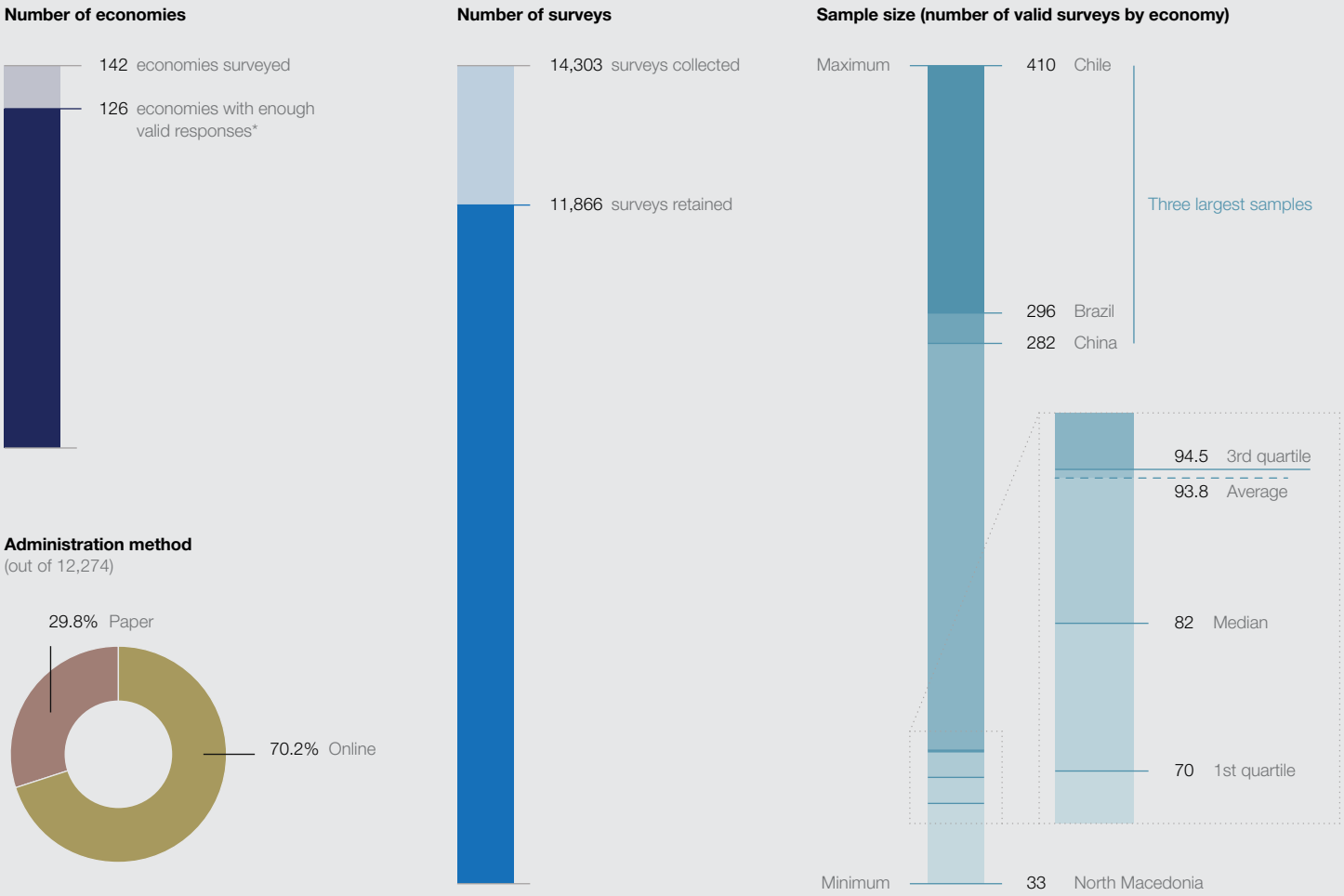
The Survey 2020 in numbers

The 2020 edition of the Survey captured the views of 14,303 business executives between February and July 2020. Following the data editing process described below, a total of 11,866 responses were retained from 126 economies. In order to encourage digitization of the survey collection process, especially in light of the COVID-19 pandemic, this year more than 70% (70.2%) of the retained surveys were completed online (see Figure C.1). The 2020 edition of the Survey was made available in 42 languages (see Table C.1). After not being covered in the 2019 edition of the report, Sierra Leone and Liberia were re-included in the 2020 edition.

Survey structure, administration and methodology

The Survey comprises 80 questions. Most questions ask respondents to evaluate, on a scale of 1 (considered among the worst in the world) to 7 (considered among the best in the world), the performance on various topics of the country where the respondent operates. The questions are organized into 10 topical areas: Infrastructure; Technology; Financial Environment; Trade and Investment; Competition; Business Operations and Innovation; Security; Governance; Human Capital; and Risks and Emerging Technologies.
The administration of the Survey is supervised by the World Economic Forum and conducted at the national level by the Forum's network of Partner Institutes. Partner Institutes are universities or research organizations, business associations, competitiveness councils, or, in some cases, survey companies. These organizations have the private-sector network for reaching out to leading business executives and a firm commitment to improving the competitiveness of their respective economies (for the full list, see the Partners Institutes section of this report).

FIGURE C.1 **Descriptive statistics of the Executive Opinion Survey 2020**



Source

World Economic Forum, Executive Opinion Survey, 2020 edition.

Note

Not all charts are drawn to scale.
* Post quality controls.

TABLE C.1 **Available languages in 2020**

Albanian	French	Montenegrin
Arabic	German	Polish
Armenian	Greek	Portuguese (Brazilian)
Azeri	Hungarian	Romanian
Bosnian	Indonesian	Russian
Bulgarian	Italian	Serbian
Chinese (simplified)	Japanese	Slovak
Chinese (traditional)	Khmer	Slovenian
Croatian	Korean	Spanish
Czech	Kyrgyz	Tajik
Danish	Lao	Thai
English	Latvian	Turkish
Estonian	Lithuanian	Urdu
Farsi	Mongolian	Vietnamese

In administering the Survey and in order to gather the strongest data set, Partner Institutes are asked to follow detailed sampling guidelines and collect the data within a specific timeframe. The collection process is based on best practices in the field of Survey administration and on discussions with survey experts. It is put in place to ensure that the sample of respondents is the most representative possible and comparable across the globe.

The sampling guidelines specify that the Partner Institutes create a sample frame (Figure C.2)—a list of business executives from companies of various sizes and from the various sectors of activity.

The sample frame should reflect the structure of the economy as follows:

- It should be in proportion to the share of GDP by sector: agriculture, manufacturing industry, non-manufacturing industry (mining and quarrying, electricity, gas and water supply, construction) and services.
- It should ensure the representation of both large- (more than 250 employees) and small-sized companies (250 employees or fewer), again reflecting each sector. At least one-third of companies are large and one-third are small, and the remaining one-third are determined by the structure of the economy in proportion to the share of GDP by company size.
- It should ensure that the chosen companies also have a sufficiently wide geographical coverage.

Partner Institutes are asked to separate the sample frame into two lists: one that includes only large firms, and a second that includes all other firms, retaining sectoral representation in both lists. Partner Institutes then randomly select from each list the firms that will receive the Survey.

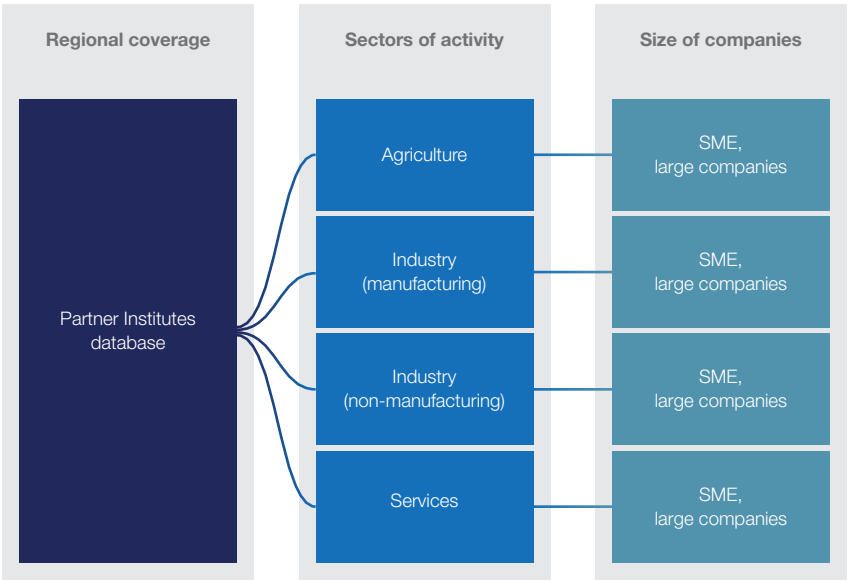
The Survey is administered in a variety of formats. The primary method of administration is the online survey tool, but other methods are also used: mail-in surveys, face-to-face interviews and telephone interviews. Given the circumstances that prevailed due to the COVID-19 pandemic, the survey was conducted primarily online in 2020.

In addition to administering the Survey, Partner Institutes play an active and essential role in disseminating the findings of The *Global Competitiveness Report Special Edition 2020* and other reports published by the World Economic Forum, by holding press events and workshops to highlight the results at the national level to the business community, the public sector and other stakeholders.

Data quality control and score computation

This section details the process whereby individual responses are aggregated in order to produce the indicator scores from the Survey questions of each country.

FIGURE C.2 **Sample frame requirements**



Data quality check

Prior to aggregation, the respondent-level data is subjected to a data quality control process. The following response types are excluded from the data set: surveys where the respondent gives the same answer to at least 80% of the questions; surveys with a completion rate inferior to 50%; respondents who do not have the required level of seniority; and duplicate surveys, which can occur, for example, when a survey is both completed online and mailed in.

A univariate outlier test is then applied at the country level for each question of each survey. We use the standardized score—or "z-score"—method, which indicates by how many standard deviations any one individual answer deviates from the mean of the country sample. Individual answers with a standardized score greater than 3 are excluded. Additional statistical tests aimed at detecting responses that exhibit too little or too much variance across answers are used to exclude individual responses.

Computation of single-edition country scores

We use a simple average to compute scores at the country level. As the sample frame aims to replicate an economy's sectoral composition and includes companies of different sizes, the country-level score of each Executive Opinion Survey question is the arithmetic mean of all answers in each country. That is, for a given question, all individual answers carry the same weight.

Formally, the average of a Survey indicator *i* for country *c*, denoted $q_{i,c}$, is computed as follows:

$$q_{i,c} = \frac{\sum_{j}^{N_{i,c}} q_{i,c,j}}{N_{i,c}}$$

where

$q_{i,c,j}$ is the answer to question *i* in country *c* from respondent *j*; and

$N_{i,c}$ is the number of respondents to question *i* in country *c*.

Once responses have been aggregated at the country level, a test to detect statistical outliers is run. A univariate linear regression is used to predict the expected average score of Survey indicators based on the average performance on the other indicators. Average Survey scores that lie outside the 90% confidence interval around the predicted values are considered "outliers". The scores of individual Survey indicators are systematically corrected by a factor corresponding to the distance between the observed average Survey score and the predicted Survey average at the limit of the confidence interval.

In addition, an analysis to assess the reliability and consistency of the Survey data over time is carried out. As part of this analysis, an inter-quartile range (IQR) test is performed to identify large swings—positive and negative—between two editions. For each country, we compute the year-on-year difference, d, in the average score of a core set of 53 Survey questions. We then compute the inter-quartile range or IQR (i.e. the difference between the 25th percentile and the 75th percentile). Any value outside the range bounded by the 25th percentile minus 1.5 times the IQR and the 75th percentile plus 1.5 times the IQR is identified as a potential outlier. This test is complemented by a series of additional empirical tests, including an analysis of five-year trends and a comparison of changes in the Survey results with changes in other indicators capturing similar concepts. We interview local experts and consider the latest developments in a country in order to assess the plausibility of the Survey results.

Country score computation

For each country and each Survey question, in the general case, the final country score is a weighted average of the single-edition scores of the two most recent editions of the Survey. The weighted average approach makes results less sensitive to the specific point in time when the Survey is administered. Second, it increases the amount of available information by providing a larger sample size. Additionally, because the Survey is carried out during the first quarter of the year, the average of the responses in the first quarter of 2019 and the first quarter of 2020 better aligns the Survey data with many of the data indicators from sources other than the Survey, which are often annual-averages data.

The weighted scheme used to compute the final country score is composed of two overlapping elements. We place more weight on the year with the larger sample size to attribute equal weight to each response. At the same time, we attribute greater weight to the most recent sample because it contains the most up-to-date information. That is, we also "discount the past." Table C.2 reports the exact weights used in the computation of the scores of each country.

TABLE C.2

Executive Opinion Survey: descriptive statistics and weightings

Economy	Survey edition	No. of respondents	Weight (%)*	Survey edition	No. of respondents	Weight (%)*	Online (%)**
Albania	2019	94	47.0%	2020	80	53.0%	–
Algeria	2018	87	43.5%	2019	98	56.5%	–
Angola	2019	352	54.2%	2020	162	45.8%	100
Argentina	2019	121	48.8%	2020	89	51.2%	100
Armenia	2019	83	48.4%	2020	63	51.6%	100
Australia	2019	80	49.2%	2020	57	50.8%	100
Austria	2019	167	47.8%	2020	134	52.2%	45.1
Azerbaijan	2019	70	48.9%	2020	N/A	N/A	–
Bahrain	2019	67	43.9%	2020	73	56.1%	100
Bangladesh	2019	77	49.2%	2020	55	50.8%	–
Barbados	2019	50	49.8%	2020	34	50.2%	100
Belgium	N/A	N/A	N/A	2020	49	100.0%	100
Benin	2019	90	44.9%	2020	91	55.1%	–
Bolivia	2019	61	47.0%	2020	52	53.0%	100
Bosnia and Herzegovina	2019	97	47.9%	2020	77	52.1%	100
Botswana	2019	83	46.3%	2020	75	53.7%	–
Brazil	2019	231	41.9%	2020	296	58.1%	100
Brunei Darussalam	2018	61	33.7%	2019	161	66.3%	–
Bulgaria	2019	100	45.4%	2020	97	54.6%	–
Burkina Faso	2018	73	50.4%	2019	47	49.6%	–
Burundi	2019	94	46.4%	2020	84	53.6%	–
Cambodia	2019	63	45.0%	2020	63	55.0%	100
Cameroon	2019	88	42.6%	2020	107	57.4%	–
Canada	2019	86	45.7%	2020	81	54.3%	100
Cape Verde	2019	68	53.0%	2020	35	47.0%	100
Chad	2019	94	46.7%	2020	82	53.3%	–
Chile	2019	234	38.2%	2020	410	61.8%	100
China	N/A	N/A	N/A	2020	282	100.0%	99.6
Colombia	2019	117	49.1%	2020	84	50.9%	97.6
Congo, Democratic Rep.	2019	97	48.2%	2020	75	51.8%	37.3
Costa Rica	2019	70	49.4%	2020	49	50.6%	100
Côte d'Ivoire	2019	259	45.4%	2020	251	54.6%	–
Croatia	2019	78	44.4%	2020	82	55.6%	100
Cyprus	2019	82	48.1%	2020	64	51.9%	23.4
Czech Republic	2019	151	50.8%	2020	94	49.2%	100
Denmark	2019	33	32.3%	2020	101	67.7%	31.6
Dominican Republic	2019	61	48.0%	2020	48	52.0%	100
Ecuador	2019	89	45.9%	2020	83	54.1%	100
Egypt	2019	120	45.1%	2020	119	54.9%	37.8
El Salvador	2019	68	46.2%	2020	62	53.8%	100
Estonia	2019	83	45.6%	2020	79	54.4%	100
Eswatini	2018	45	47.4%	2019	37	52.6%	–
Ethiopia	2019	96	100.0%	2020	N/A	N/A	–
Finland	2019	40	37.9%	2020	72	62.1%	100
France	2019	132	52.7%	2020	70	47.3%	100
Gabon	2019	33	100.0%	2020	N/A	N/A	–

TABLE C.2

Executive Opinion Survey: descriptive statistics and weightings

Economy	Survey edition	No. of respondents	Weight (%)*	Survey edition	No. of respondents	Weight (%)*	Online (%)**
Gambia, The	2018	87	47.0%	2019	74	53.0%	12.8
Georgia	2019	52	39.5%	2020	81	60.5%	100
Germany	2019	79	43.5%	2020	89	56.5%	91
Ghana	2019	93	44.1%	2020	100	55.9%	14
Greece	2019	97	47.1%	2020	82	52.9%	97.5
Guatemala	2019	82	44.7%	2020	84	55.3%	1.2
Guinea	2019	93	45.7%	2020	88	54.3%	—
Haiti	2018	73	50.9%	2019	45	49.1%	—
Honduras	N/A	N/A	N/A	2020	99	100.0%	100
Hong Kong SAR	2019	89	41.7%	2020	116	58.3%	100
Hungary	2019	85	44.9%	2020	86	55.1%	100
Iceland	2019	85	45.6%	2020	81	54.4%	100
India	2019	309	47.2%	2020	259	52.8%	15.8
Indonesia	2019	89	46.5%	2020	79	53.5%	—
Iran, Islamic Rep.	2019	108	42.8%	2020	129	57.2%	100
Ireland	2019	65	51.0%	2020	40	49.0%	100
Israel	2019	75	50.2%	2020	49	49.8%	100
Italy	2019	93	50.4%	2020	60	49.6%	100
Jamaica	2018	47	40.8%	2019	66	59.2%	—
Japan	2019	51	39.3%	2020	81	60.7%	1.2
Jordan	2019	79	45.8%	2020	74	54.2%	100
Kazakhstan	2019	78	48.1%	2020	61	51.9%	100
Kenya	2019	113	48.3%	2020	87	51.8%	100
Korea, Rep.	2019	100	45.3%	2020	98	54.7%	—
Kuwait	2019	82	53.6%	2020	40	46.4%	100
Kyrgyz Republic	2019	100	45.0%	2020	100	55.0%	—
Lao PDR	2019	77	46.2%	2020	70	53.8%	25.7
Latvia	2019	90	47.3%	2020	75	52.7%	—
Lebanon	2019	70	46.9%	2020	60	53.1%	100
Lesotho	2019	98	44.7%	2020	100	55.3%	—
Liberia	N/A	N/A	N/A	2020	63	100.0%	30.1
Lithuania	2019	70	43.0%	2020	82	57.0%	100
Luxembourg	2019	44	45.3%	2020	43	54.7%	100
Madagascar	2019	119	100.0%	2020	N/A	N/A	—
Malawi	2019	58	40.0%	2020	87	60.0%	20.7
Malaysia	2019	83	45.0%	2020	83	55.0%	100
Mali	2019	96	43.6%	2020	107	56.4%	—
Malta	2019	65	47.3%	2020	54	52.7%	100
Mauritania	N/A	N/A	N/A	2020	95	100.0%	—
Mauritius	2019	66	43.7%	2020	73	56.3%	100
Mexico	2019	161	48.1%	2020	125	51.9%	97.6
Moldova	2018	86	41.8%	2019	111	58.2%	—
Mongolia	2019	72	43.1%	2020	84	56.9%	85.7
Montenegro	2019	77	44.4%	2020	81	55.6%	—
Morocco	2018	57	46.9%	2019	49	53.1%	—
Mozambique	2018	84	44.6%	2019	87	55.4%	—
Namibia	2019	82	45.3%	2020	80	54.7%	23.8
Nepal	2019	79	48.0%	2020	62	52.0%	43.5

TABLE C.2

Executive Opinion Survey: descriptive statistics and weightings

Economy	Survey edition	No. of respondents	Weight (%)*	Survey edition	No. of respondents	Weight (%)*	Online (%)**
Netherlands	2019	87	45.7%	2020	82	54.3%	100
New Zealand	2019	57	47.9%	2020	45	52.1%	100
Nicaragua	N/A	N/A	N/A	2020	53	100.0%	83
Nigeria	2019	78	46.9%	2020	67	53.1%	100
North Macedonia	2019	52	50.6%	2020	33	49.4%	75.8
Norway	2017	39	47.9%	2018	31	52.1%	–
Oman	2019	84	44.7%	2020	86	55.3%	100
Pakistan	2019	148	46.0%	2020	137	54.0%	5.8
Panama	2019	86	49.3%	2020	61	50.7%	98.4
Paraguay	2019	90	45.4%	2020	87	54.6%	100
Peru	2019	112	48.0%	2020	88	52.0%	100
Philippines	2019	58	39.9%	2020	88	60.1%	81.8
Poland	2019	206	45.3%	2020	201	54.7%	99.5
Portugal	2019	150	44.5%	2020	156	55.5%	100
Qatar	2019	97	40.9%	2020	135	59.1%	14.8
Romania	2019	144	45.6%	2020	137	54.4%	72.3
Russian Federation	2019	278	45.4%	2020	270	54.6%	99.6
Rwanda	2019	69	41.6%	2020	91	58.4%	100
Saudi Arabia	2019	108	52.3%	2020	59	47.7%	100
Senegal	2019	95	48.1%	2020	74	51.9%	100
Serbia	2019	95	47.5%	2020	78	52.5%	100
Seychelles	2018	56	38.8%	2019	93	61.2%	–
Sierra Leone	N/A	N/A	N/A	2020	78	100.0%	85.9
Singapore	2019	115	42.3%	2020	143	57.7%	100
Slovak Republic	2019	77	44.5%	2020	80	55.5%	100
Slovenia	2019	81	43.1%	2020	94	56.9%	100
South Africa	2019	91	44.9%	2020	92	55.1%	97.8
Spain	2019	100	45.4%	2020	97	54.6%	100
Sri Lanka	2019	48	38.8%	2020	80	61.3%	100
Sweden	2019	52	48.3%	2020	40	51.7%	100
Switzerland	2019	92	46.0%	2020	85	54.0%	100
Taiwan, China	2019	111	47.3%	2020	92	52.7%	30.4
Tajikistan	2019	94	46.6%	2020	83	53.4%	3.6
Tanzania	2019	98	46.8%	2020	85	53.2%	100
Thailand	2019	102	47.9%	2020	81	52.1%	100
Trinidad and Tobago	2019	98	46.6%	2020	86	53.4%	100
Tunisia	2019	89	45.0%	2020	89	55.0%	74.2
Turkey	2019	88	45.4%	2020	85	54.6%	76.5
Uganda	2019	94	42.2%	2020	118	57.8%	100
Ukraine	2019	94	45.3%	2020	92	54.7%	–
United Arab Emirates	2019	75	45.5%	2020	72	54.5%	100
United Kingdom	2019	141	48.7%	2020	105	51.3%	100
United States	2019	250	44.8%	2020	255	55.2%	100
Uruguay	2019	80	45.0%	2020	80	55.0%	100
Venezuela	2019	35	40.3%	2020	51	59.7%	100
Viet Nam	2019	78	45.5%	2020	75	54.5%	66.7

TABLE C.2 Executive Opinion Survey: descriptive statistics and weightings

Economy	Survey edition	No. of respondents	Weight (%)*	Survey edition	No. of respondents	Weight (%)*	Online (%)**
Yemen	2019	76	45.5%	2020	73	54.5%	49.3
Zambia	2019	92	46.9%	2020	79	53.1%	17.7
Zimbabwe	2018	55	43.3%	2019	63	56.7%	—

Note

All statistics are computed following the editing of the data; see text for details. "—" indicates that there was no online administration of the Survey.

* Weight applied to the country score in that edition of the Survey. See Box B.1 for an example of a calculation.
** Share of surveys completed online (2020 only).

The country scores thus obtained are then used for the computation of the Global Competitiveness Index 4.0.

Formally, for any given Survey question *i*, country *c*'s score, $q_{i,c}^{2019\text{-}20,}$ is given by:

$$q_{i,c}^{2019-20} = w_c^{2019} \times q_{i,c}^{2019} + w_c^{2020} \times q_{i,c}^{2020} \quad (1)$$

where

$q_{i,c}^{t}$ is country *c*'s score on question *i* in year *t*, with *t* = 2019, 2020, as computed following the approach described in the text; and

w_c^t is the number of respondents to question *i* in country *c*.

The weights for each year are determined as follows:

$$w_c^{2019} = \frac{(1-\alpha)+\frac{N_c^{2019}}{N_c^{2019}+N_c^{2020}}}{2} \quad (2a)$$

and

$$w_c^{2020} = \frac{\alpha + \frac{N_c^{2020}}{N_c^{2019}+N_c^{2020}}}{2} \quad (2b)$$

where

N_c^t is the sample size (i.e. the number of respondents) for country *c* in year *t*, with *t* = 2019, 2020.

α is the discount factor that accounts for temporality set at 0.6.

Plugging Equations (2a) and (2b) into (1) and rearranging yields:

$$q_{i,c}^{2019-20} = \frac{1}{2} \times \left[(1-\alpha) \times q_{i,c}^{2019} + \alpha \times q_{i,c}^{2020}\right] + \frac{1}{2} \times \left[\frac{N_c^{2019}}{N_c^{2019}+N_c^{2020}} \times q_{i,c}^{2019} + \frac{N_c^{2020}}{N_c^{2019}+N_c^{2020}} \times q_{i,c}^{2020}\right] \quad (3)$$

In Equation (3), the first component of the weighting scheme is the discounted-past weighted average. The second component is the sample-size weighted average. These two components are given half-weight each. One additional characteristic of this approach is that it prevents a country sample that is much larger in one year from overwhelming the smaller sample from the other year. In the case of Survey questions that were introduced in 2020 for which, by definition, no past data exists, full weight is given to the 2020 score. For newly covered countries, this treatment is applied to all questions. For countries whose 2020 data were discarded, the results from the previous editions of the report are used instead. Box C.1 provides an example of country score computation.

BOX C.1

Example of score computation

For this example, we compute the score of Argentina on the Diversity of workforce indicator. The indicator is derived from the following Survey question: "In your country, to what extent do companies have a diverse workforce (e.g. in terms of ethnicity, religion, sexual orientation, gender)?" (1 = not at all, 7 = to a great extent). Argentina's score was 4.9 in 2019 and 4.8 in 2020. The weighting scheme described above indicates how the two scores are combined. In Argentina, the size of the sample was 121 in 2019 and 89 in 2020. Using $\alpha = 0.6$ as discount factor and applying Equations (2a) and (2b) yields weights of 0.488 for 2019 and 0.512 for 2020 (see Table C.2). The final country score for this question is therefore:

$$\underbrace{0.488 \times 4.9}_{2019} + \underbrace{0.512 \times 4.8}_{2020} = 4.85.$$

While numbers are rounded to two decimal places in this example and to one decimal place in result tables, full-precision figures are used in all calculations.

The Executive Opinion Survey is administered every year between February and May. However, in 2020, given the exceptional circumstances of COVID-19 lockdowns in many countries, the administration period of the Executive Opinion Survey was extended by three months until 10 July. Table B.3 provides full details about the administration period for each country. After analysis, no statistically significant impact was found of administration periods on scores. Statistical significant has been assessed by: (i) conducting t-tests in each country, on differences in scores between respondents who have submitted their answers in 2020 before any lockdown measure was introduced, and those who have submitted their answers in 2020, after lockdown measures were introduced (this applies only to those countries where information on exact submission date is available); (ii) conducting t-tests in each country, on differences in country average scores between 2019 and 2020.

TABLE C.3

Survey administration period, by country, in 2020

Economy	Start date of survey administration	End date of survey administration
Albania	3-Feb-20	7-Jun-20
Angola	18-Mar-20	9-May-20
Argentina	3-Feb-20	10-Jul-20
Armenia	3-Feb-20	25-May-20
Australia	5-Feb-20	30-Apr-20
Austria	28-Feb-20	20-Apr-20
Bahrain	11-Feb-20	30-Jun-20
Bangladesh	20-Feb-20	5-May-20
Barbados	25-Feb-20	23-Jun-20
Belgium	18-Jun-20	10-Jul-20
Benin	3-Feb-20	14-Apr-20
Bolivia	18-Feb-20	18-May-20
Bosnia and Herzegovina	6-Mar-20	8-Apr-20
Botswana	10-Feb-20	24-Apr-20
Brazil	6-Feb-20	17-Jun-20
Bulgaria	2-Mar-20	27-Mar-20
Burundi	3-Feb-20	15-Apr-20
Côte d'Ivoire	10-Feb-20	27-Mar-20
Cambodia	7-Feb-20	2-Jun-20
Cameroon	16-Mar-20	26-Apr-20
Canada	18-Jun-20	10-Jul-20
Cape Verde	10-Feb-20	15-Jul-20
Chad	1-Mar-20	1-May-20
Chile	18-Mar-20	14-Mar-20
China	19-Jun-20	30-Jun-20
Colombia	18-Mar-20	1-Jun-20
Congo, Democratic Rep.	3-Feb-20	5-Jun-20
Costa Rica	24-Feb-20	22-May-20
Croatia	7-Feb-20	5-May-20
Cyprus	5-May-20	10-Jun-20
Czech Republic	4-Mar-20	7-Jul-20
Denmark	3-Feb-20	22-Apr-20
Dominican Republic	5-Mar-20	25-Jun-20
Ecuador	12-Feb-20	13-Jul-20
Egypt	3-Feb-20	1-Apr-20
El Salvador	21-Feb-20	21-May-20
Estonia	17-Feb-20	11-May-20

TABLE C.3

Survey administration period, by country, in 2020

Economy	Start date of survey administration	End date of survey administration
Finland	25-Feb-20	20-Jun-20
France	11-Feb-20	19-Jun-20
Germany	14-Apr-20	10-Jul-20
Ghana	4-Mar-20	17-May-20
Greece	25-Feb-20	22-May-20
Guatemala	16-Feb-20	24-Apr-20
Guinea	19-Mar-20	6-Apr-20
Honduras	14-Feb-20	19-May-20
Hong Kong SAR	10-Feb-20	22-Jun-20
Hungary	12-Mar-20	23-Jun-20
Iceland	7-Feb-20	28-Mar-20
India	6-Feb-20	15-Apr-20
Indonesia	3-Feb-20	28-May-20
Iran, Islamic Rep.	19-Feb-20	20-May-20
Ireland	19-Feb-20	14-May-20
Israel	15-May-20	5-Jul-20
Italy	20-Mar-20	6-Jul-20
Japan	3-Feb-20	8-Apr-20
Jordan	12-Feb-20	5-Mar-20
Kazakhstan	11-Feb-20	19-Apr-20
Kenya	16-Feb-20	9-Jul-20
Korea, Rep.	4-Mar-20	3-Jun-20
Kuwait	16-Feb-20	10-Jul-20
Kyrgyz Republic	11-Feb-20	26-May-20
Lao PDR	3-Feb-20	20-May-20
Latvia	3-Feb-20	5-May-20
Lebanon	19-Feb-20	1-Jun-20
Lesotho	3-Feb-20	27-Mar-20
Liberia	1-Mar-20	25-May-20
Lithuania	7-Feb-20	20-Apr-20
Luxembourg	3-Feb-20	15-May-20
Malawi	2-Mar-20	17-May-20
Malaysia	13-Feb-20	7-May-20
Mali	3-Feb-20	30-Apr-20
Malta	3-Mar-20	21-May-20
Mauritania	3-Feb-20	24-Jun-20
Mauritius	25-Feb-20	25-May-20
Mexico	17-Feb-20	21-May-20
Mongolia	5-Feb-20	14-Apr-20
Montenegro	10-Feb-20	20-May-20
Namibia	3-Feb-20	15-Jun-20
Nepal	17-Feb-20	30-Jun-02
Netherlands	15-Feb-20	20-May-20
New Zealand	16-Jun-20	8-Jul-20
Nicaragua	24-Feb-20	29-May-20
Nigeria	10-Feb-20	18-Jul-20
North Macedonia	23-Mar-20	19-Jun-20
Oman	10-Feb-20	12-May-20
Pakistan	19-Mar-20	25-May-20
Panama	24-Feb-20	2-Jun-20
Paraguay	13-Feb-20	18-May-20
Peru	6-Feb-20	25-Mar-20
Philippines	11-Feb-20	26-May-20
Poland	27-Feb-20	8-Jun-20
Portugal	11-Feb-20	15-May-20
Qatar	10-Mar-20	25-Jun-20
Romania	3-Feb-20	24-Apr-20
Russian Federation	17-Mar-20	26-May-20
Rwanda	9-Mar-20	16-May-20
Saudi Arabia	23-Feb-20	7-Jun-20
Senegal	8-May-20	12-Jun-20
Serbia	3-Mar-20	22-May-20
Sierra Leone	10-Feb-20	29-May-20
Singapore	20-Feb-20	8-May-20
Slovak Republic	24-Mar-20	6-May-20
Slovenia	10-Feb-20	23-Apr-20
South Africa	20-Feb-20	23-May-20
Spain	9-Mar-20	12-Apr-20
Sri Lanka	6-Feb-20	8-Apr-20
Sweden	6-Feb-20	1-May-20
Switzerland	18-Feb-20	26-Mar-20
Taiwan, China	18-Feb-20	15-Apr-20
Tajikistan	16-Feb-20	25-Mar-20
Tanzania	10-Feb-02	8-Apr-20
Thailand	24-Feb-20	3-May-20
Trinidad and Tobago	13-Feb-20	19-May-20
Tunisia	13-Feb-20	22-Apr-20
Turkey	17-Feb-20	14-Jun-20
Uganda	5-Mar-20	26-May-20
Ukraine	15-Mar-20	31-May-20
United Arab Emirates	13-Feb-20	25-May-20
United Kingdom	16-Feb-20	9-Mar-20
Uruguay	10-Mar-20	2-Jul-20
United States	17-Jun-20	5-Jul-20
Venezuela	3-Feb-20	24-May-20
Viet Nam	10-Feb-20	5-May-20
Yemen	3-Feb-20	22-May-20
Zambia	3-Feb-20	29-May-20

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