EUROPEAN CENTER FOR
DIGITAL COMPETITIVENESS

BY ESCP BUSINESS SCHOOL

DIGITAL RISER REPORT 2021

Preface

The Covid-19 pandemic in 2020 and 2021 has highlighted the importance of digital technologies. Companies with a digital business model have been able to navigate through various lockdowns without significant revenue loss, or even sustained growth. At the same time, companies relying on digital infrastructures and processes have been able to keep operating smoothly. In a nutshell, the ongoing digital revolution has been significantly accelerated by the Covid-19 pandemic.

The way that governments manage and navigate this transition will continue to determine significantly how competitive and prosperous their countries will be in the decades ahead. More than ever before, new technologies such as 3D printing, augmented and virtual reality, sensors, artificial intelligence, quantum computing and robotics have the potential to disrupt nearly any industry. As a result, we will see new growth, new opportunities and a better future. However, we might also see regions that are less able to navigate through such complex transitions and might thus miss these opportunities.

To drive this essential transformation, two dimensions are of particular importance: the mindset and the ecosystem of each country. Successful transformation can only occur if both of these dimensions are sufficiently developed. And since all countries are working on improving these areas, the speed and effectiveness of implementation are very important, in order to improve competitiveness in the field of new digital technologies. This is why we analyse the speed of a country's progress in these areas in the Digital Riser Ranking.

Based on data from the World Economic Forum, the World Bank and the International Telecommunication Union, we analysed how much progress countries have made relative to their global peers in the last three years. The ranking offers a dynamic perspective on the fast-moving field of digital transformation and shows how much can be gained and lost in a relatively short time frame. It also shows that every country can make significant progress independently of its individual starting point.

As in last year's report, we also carefully studied the top three Digital Risers in every region and developed a playbook of best practice case studies. This playbook showcases which policies work in driving digital transformation forward, and it aims to enable governments to learn from each other as well as to benchmark and potentially adapt their strategies for the future.

We hope that this study inspires a broader debate about the necessity for quick and determined actions around the digital and innovation policies necessary to create countries' future competitiveness. Also, we hope that it fosters learning and exchange around the world on the best practices for successful policies in the digital domain.

Prof. Dr. Philip Meissner

Dr. Christian Poensgen

Executive Summary

As the Covid-19 pandemic has shown, digital technologies determine not only whether countries thrive, but also how well they are able to navigate through trying times. Applied effectively, digital technologies not only enable education and work to move from schools and offices to the home, but they also provide ever more efficient ways to organise processes in companies and governments. Against this backdrop, in our Digital Riser Report 2021, we look at how governments managed and navigated the transition driven by digital technologies between 2018 and 2020.

As in last year's report, we have analysed two factors: how much progress countries have made relative to their global peers in the last three years, and the best practices of the top Digital Risers in nine country groups. We thus highlight developments and initiatives that may inform political decision-makers around the world on which practices to implement, based on what has proven successful in their region and beyond.

The top Digital Risers have set ambitious goals for their digital transformation

- Most successful Digital Risers in our report share ambitious goals. China has implemented a comprehensive push for entrepreneurship and innovation. Vietnam wants its digital economy to account for 30 per cent of GDP by 2030, and Hungary has defined its goal to become one of the ten leading countries in digital technologies in Europe by the end of the decade.

- Also, Digital Risers have shared deliberate and comprehensive government programmes with top-level support, such as Made in China 2025 in China, the Innovation and Skills Plan in Canada and the National Digital Transformation Program 2025 in Vietnam.

- Other examples can be found in Cambodia, which has invested significantly in digital education. In 2019, the country announced a plan to increase the number of schools, under the New Generation School programme, to about 150. Similarly, Georgia has launched its Unified Strategy for Education and Science for 2017-2021, which ultimately aims to modernise science, technology and the innovation system.

The top Digital Risers reveal a growing divide in the speed of digital transformation

- Canada and Georgia are among the top Digital Risers worldwide. While these are not countries that may directly come to mind when it comes to digital, the underlying policies they implemented in the last three years show a strong and comprehensive push towards digital transformation. Both countries demonstrate that an acceleration in the speed of digital transformation is possible.

- In Europe, a two-speed transformation continues. As in last year's report, France made significant advances in its digital competitiveness (+28 ranks), while Germany lost quite substantially during the same time period (-176 ranks). However, our results also reveal that change can happen quickly with the right measures; Italy, for instance, improved its position from last position in 2020, to second place in the Group of Seven in 2021.

- When looking at the two digital superpowers USA and China, our analysis shows that China gained in digital competitiveness (+211 ranks), while the USA lost strength in the last three years (-72 ranks). While the decline of the United States was driven by the ecosystem dimension of our ranking, China gained most strongly in our mindset dimension.

The top Digital Risers enable entrepreneurship

- Digital Risers strived to attract international talent and promote entrepreneurship. One example is Spain's Entrepreneurial Nation Strategy, which comprised the Startup Act, the launch of the National Entrepreneurship Office, an international programme to attract talented women and a visa programme for foreign professionals. Also, the Italian Startup Act (ISA), a legal framework that provided favourable visa policies and tax incentives, yielded more than 10,000 registered innovative startups until 2019.

- Also, other Digital Risers placed entrepreneurship centre stage. The most notable example is China's government, which declared entrepreneurship as part of the Chinese Dream.

- Digital Risers invested in technology-driven innovation. Brazil, for example, launched an Angel Fund to boost entrepreneurship and innovative ideas, while Cambodia set up a joint initiative with VC firm 500 startups to support entrepreneurs in building tech-driven startups.

Methodology

The Digital Riser Report 2021 analyses and ranks the changes that countries around the globe have seen in their digital competitiveness between 2018 and 2020. The 2018 data were obtained from the Global Competitiveness Report, published by the World Economic Forum (WEF). Given a change in the format of the Global Competitiveness Report in 2020, 2020 data for the studied indicators were obtained from the Global Competitiveness Report issued by the World Economic Forum (WEF) as well as supporting data provided by the World Bank and the International Telecommunication Union. Thus, we were able to compare the exact same indicators used in the 2018 Global Competitiveness Report.

Based on our research, and as in the Digital Riser Report 2020, we define a country's digital competitiveness in two main dimensions: its ecosystem and its mindset. For both dimensions, the Digital Riser Report includes five items from the Global Competitiveness Report. For the ecosystem and mindset dimensions, respectively, these items are:

Ecosystem

- Venture capital availability
- Cost to start a business
- Time to start a business
- Ease of hiring foreign labour
- Skillset of graduates

Mindset

- Digital skills among active population
- Attitudes towards entrepreneurial risk
- Diversity of workforce
- Mobile-broadband subscriptions
- Companies embracing disruptive ideas

To compare the progress of 137 countries regarding their digital ecosystem, mindset and overall competitiveness, we assigned equal weight to all of the ten items. We then

looked at the absolute, accumulated change in ranks for each country between 2018 and 2020 on these ten items.

As an example, China – which was the G20's top Digital Riser – over the last three years has seen an accumulated increase of 211 ranks over the ten items:

Ecosystem	Change in ranks between 2018 and 2020:
Venture capital availability	+1
Cost to start a business	-22
Time to start a business	+49
Ease of hiring foreign labour	+25
Skillset of graduates	+28
Mindset	
Digital skills among active population	+32
Attitudes towards entrepreneurial risk	+23
Diversity of workforce	+55
Mobile-broadband subscriptions	+0
Companies embracing disruptive ideas	+20
Accumulated change in ranks between 2018 and 2020	**+211**

To ensure the comparability of results relative to a comparative baseline, we clustered all countries into nine groups. These include the Group of Seven, the Group of Twenty and the seven WEF regional groups.

Apart from the ranking itself, the Digital Riser Report also analyses the policies followed by the top Digital Riser countries. These offer an explorative overview of what these countries did to earn their top position in our ranking.

At a Glance: The Digital Riser Ranking 2021

G7

+

1. Canada
2. Italy
3. France

-

4. USA
5. UK
6. Germany
7. Japan

G20

+

1. China
2. Saudi Arabia
3. Brazil
4. Argentina
5. Turkey
6. Indonesia
7. Canada
8. Italy
9. France
10. Korea, Rep

-

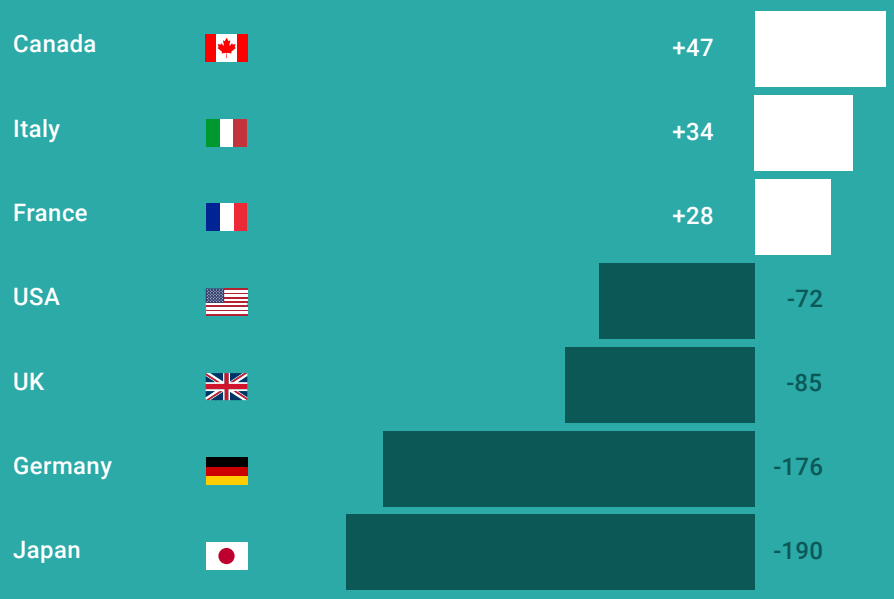
11. Australia
12. Mexico
13. Russia
14. USA
15. UK
16. South Africa
17. Germany
18. Japan
19. India
20. EU [1)]

Top Risers per Region

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

[1)] The EU is not included since it is a collection of countries.


1. Georgia
2. Armenia
3. Azerbaijan
1. Lithuania
2. Hungary
3. Spain
1. Eygpt
2. Saudi Arabia
3. Yemen
1. Sri Lanka
2. Bangladesh
3. Nepal
1. Vietnam
2. China
3. Cambodia
1. Gambia
2. Tanzania
3. Mauritania

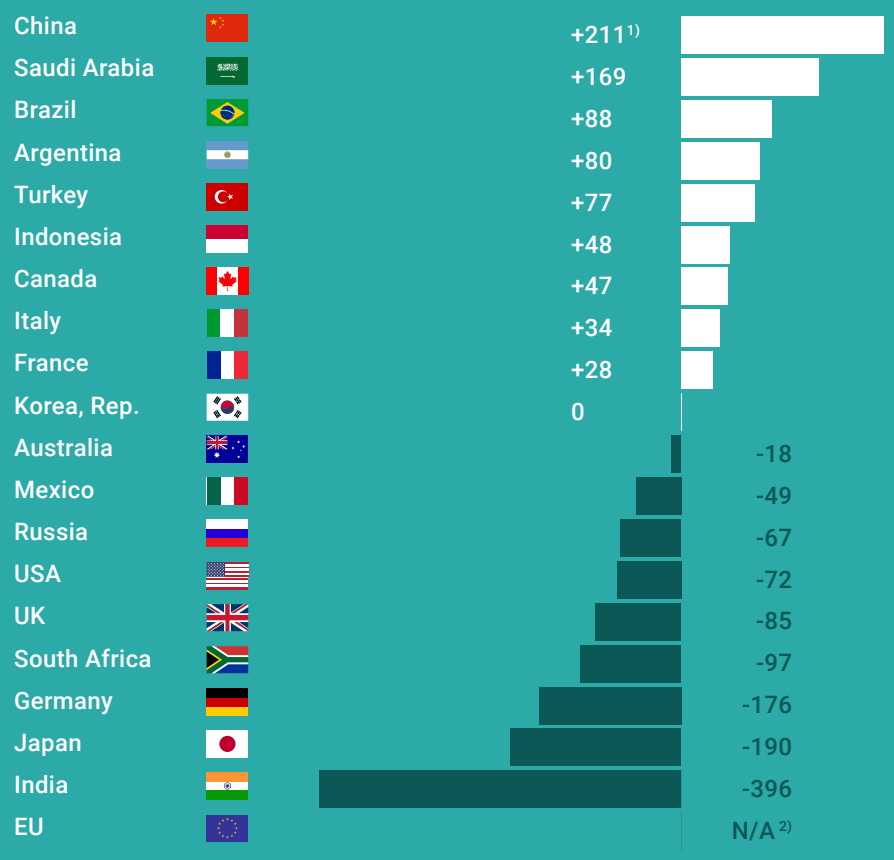

Canada
+47
Italy
+34
France
+28
USA
-72
UK
-85
Germany
-176
Japan
-190

G7

Within the Group of Seven, Canada was the top Digital Riser over the last three years, while Japan and Germany fell significantly behind. Surprisingly, Europe's economic powerhouse Germany dropped enormously in terms of its relative competitive position. When breaking down the results, Canada and Italy improved the most in the ecosystem and mindset dimensions, respectively. While Germany's decline was mainly driven by a decrease in the ecosystem dimension, Japan scored low in the mindset dimension. Canada's outperformance can be mainly explained by the launch of its "Innovation and Skills Plan" lighthouse initiative. This agenda notably included the Strategic Innovation Fund, which created and maintained more than 70,000 jobs and leveraged a total investment of over $45 billion by 2021. Additionally, the Innovation Superclusters Initiative co-invested over $1.2 billion in more than 270 projects to launch superclusters that accelerate business-driven innovation with the potential to energise the economy.

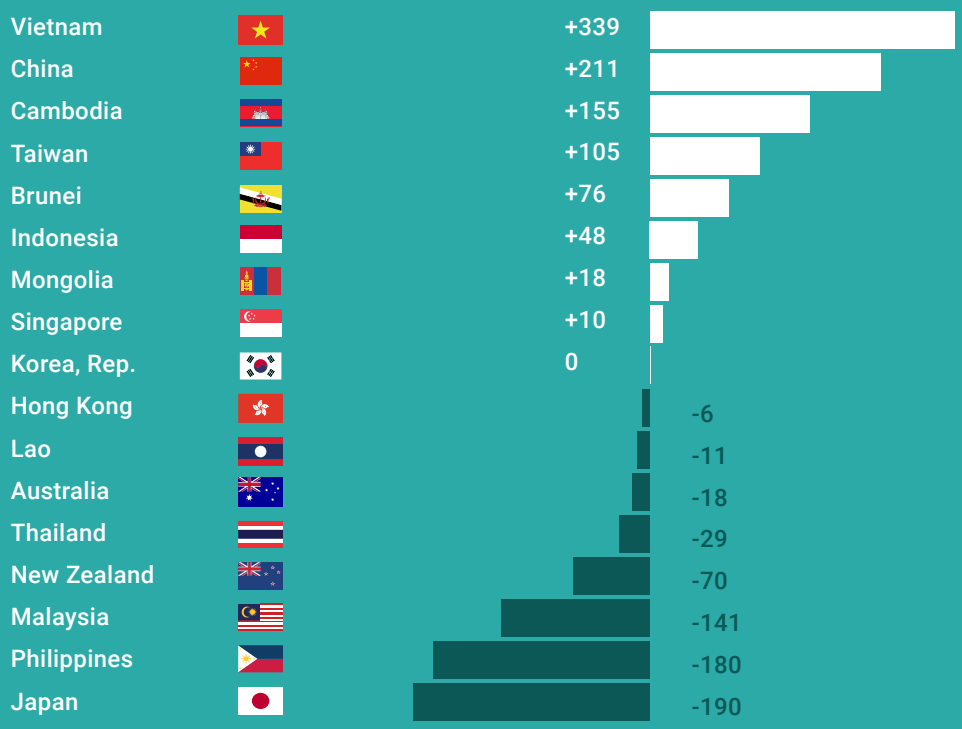
G20

Within the Group of Twenty, China was the top Digital Riser, while India and Japan fell significantly behind. Interestingly, no European country made it into the top three Digital Risers among the Group of Twenty. Germany ranked only third to last. When breaking down the results, Saudi Arabia and China improved most in the ecosystem and mindset dimensions, respectively. While India's decline was driven by both the ecosystem and mindset dimensions, Japan scored comparably low for mindset. China's outperformance can be mainly explained by its "Made in China 2025" lighthouse initiative, which defines and supports ten key sectors in which China aims to become a world leader, including information technology and robotics. In a similar vein, China's government has stressed the significance of entrepreneurship by making it part of the Chinese Dream.



1) Due to missing data for China on the qualitative indicators used in the study changes in these dimensions represent changes between 2020 and 2017. However given the magnitude of changes observed in China these differences in time do not alter the rankings.

2) The EU is not included since it is a collection of countries.

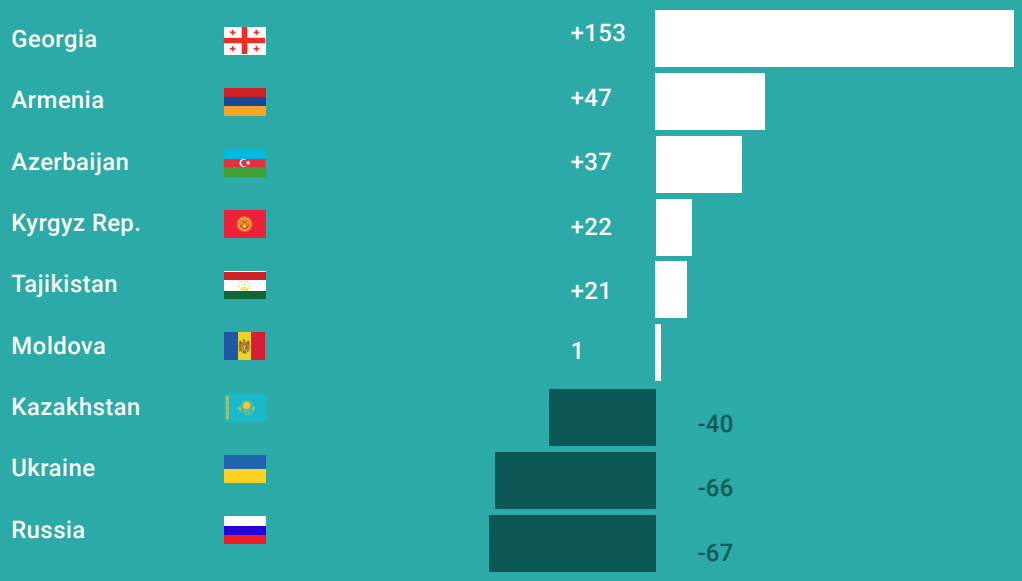

Vietnam +339
China +211
Cambodia +155
Taiwan +105
Brunei +76
Indonesia +48
Mongolia +18
Singapore +10
Korea, Rep. 0
Hong Kong -6
Lao -11
Australia -18
Thailand -29
New Zealand -70
Malaysia -141
Philippines -180
Japan -190

East Asia and the Pacific

In East Asia and the Pacific, Vietnam was the top Digital Riser over the last three years, while Japan fell significantly behind. Surprisingly, digitally-aspiring countries like Singapore and South Korea merely ranked moderately well comparatively, occupying ranks 8 and 9, respectively. When breaking down the result in the ecosystem and mindset dimensions, Vietnam improved the most in both dimensions. Japan's decline was mainly driven by the mindset dimension, but it also fell back on the ecosystem dimension. Vietnam's outperformance can mainly be explained by its "National Digital Transformation Program 2025" lighthouse initiative, which aims to experiment with new technologies and models, update business processes, overhaul government activities and develop a safe, secure and humane digital environment. The government has also stated that by 2030, the digital economy should account for 30% of Vietnam's GDP.

Eurasia

In Eurasia, Georgia was the top Digital Riser over the last three years, while Russia fell significantly behind. When breaking down the result in the ecosystem and mindset dimensions, Georgia improved the most in both dimensions. Whilst Russia's decline was driven by both dimensions, it lost out most on the mindset dimension. Georgia's outperformance can mainly be explained by its "Social-economic Development Strategy of Georgia – Georgia 2020" lighthouse initiative, which included several areas to promote the digital ecosystem of the country, e.g. innovation and high-tech, as well as e-literacy and capacity-building. Also, to promote the mining of cryptocurrencies in the country, the Georgian Ministry of Finance published a public decision consisting of tax exemptions for this sector. Lastly, in 2020, the Minister of Economy and Sustainable Development announced a new visa policy, aiming to attract foreign workers to the country.


Georgia
Armenia
Azerbaijan
Kyrgyz Rep.
Tajikistan
Moldova
Kazakhstan
Ukraine
Russia
+153
+47
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1
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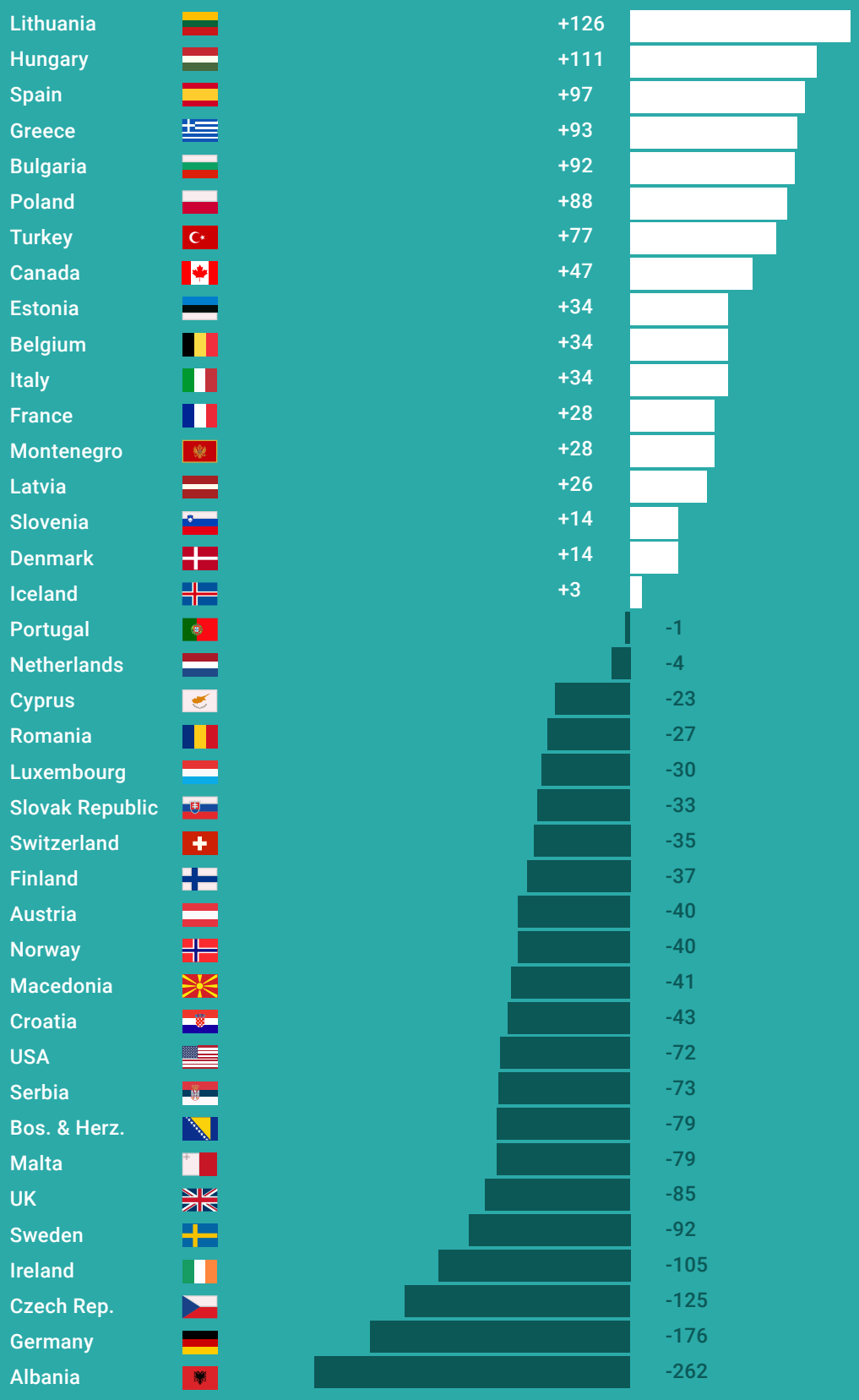
-66
-67

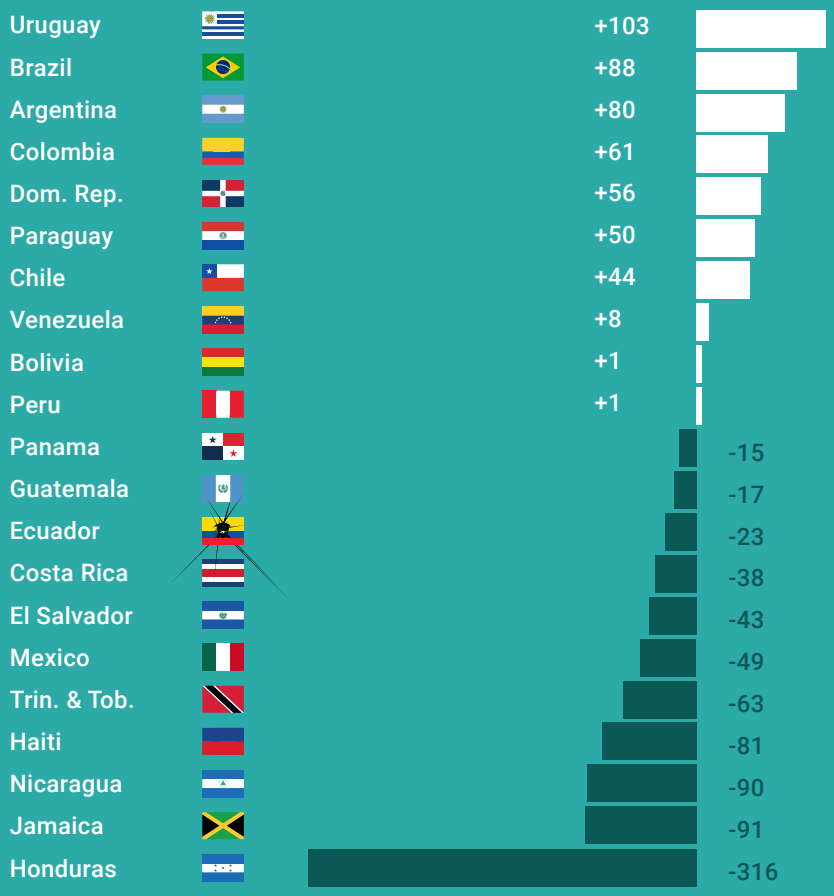

Lithuania +126
Hungary +111
Spain +97
Greece +93
Bulgaria +92
Poland +88
Turkey +77
Canada +47
Estonia +34
Belgium +34
Italy +34
France +28
Montenegro +28
Latvia +26
Slovenia +14
Denmark +14
Iceland +3
Portugal -1
Netherlands -4
Cyprus -23
Romania -27
Luxembourg -30
Slovak Republic -33
Switzerland -35
Finland -37
Austria -40
Norway -40
Macedonia -41
Croatia -43
USA -72
Serbia -73
Bos. & Herz. -79
Malta -79
UK -85
Sweden -92
Ireland -105
Czech Rep. -125
Germany -176
Albania -262

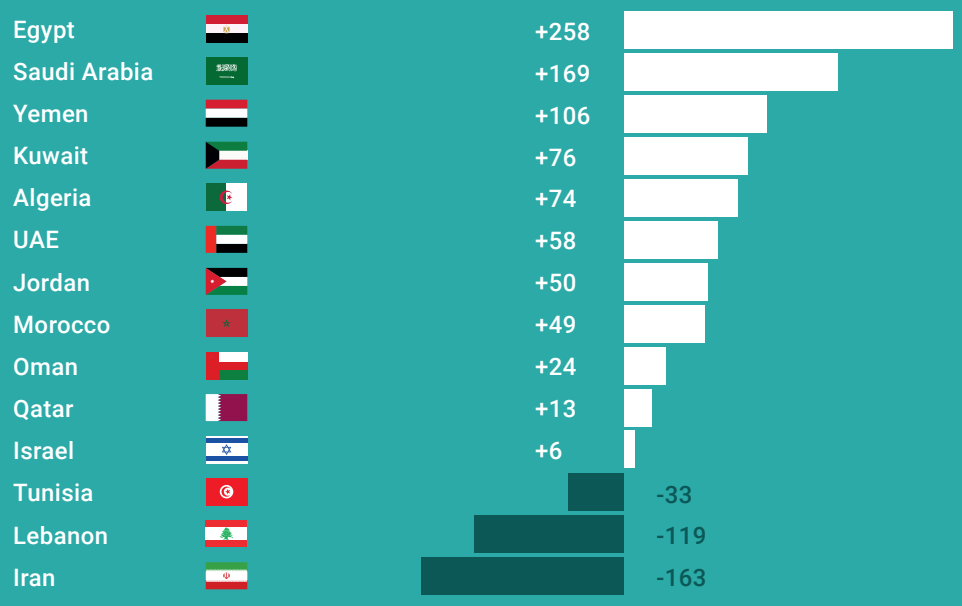
Europe and North America

In Europe and North America, Lithuania was the top Digital Riser, while Albania and Germany fell significantly behind. When breaking down the results, Lithuania and Poland improved the most in the ecosystem and mindset dimensions, respectively. Furthermore, while Germany scored the lowest on the ecosystem dimension, Albania scored low in terms of its mindset. Lithuania's outperformance can mainly be explained by its "Lithuanian Industry Digitisation Roadmap 2019-2030" lighthouse initiative, which aims to make it an industry leader in digitisation for its region, as well as a testbed for cutting-edge technology solutions. The government also strives to create an attractive environment for talented professionals from abroad, and in 2019, it launched the Startup Employee Visa programme to attract the latter to Lithuanian startups.

Latin America and the Caribbean

In Latin America and the Caribbean, Uruguay was the top Digital Riser over the last three years, while Honduras dropped significantly. Notably, fewer than half of the region's countries improved on their relative digital competitiveness. When breaking down the results, Brazil and Colombia improved the most in the ecosystem and mindset dimensions, respectively, while Honduras ranked last on both counts. Uruguay's outperformance can mainly be explained by its "Agenda Uruguay Digital 2020" lighthouse initiative, which aims to promote its digital transformation in a sustainable and inclusive way. Also, Uruguay's National Research and Innovation Agency (ANII) launched Proyecta Uruguay in 2019, a programme which aims to make the country more attractive for innovative startups and to entrepreneurs.


Uruguay +103
Brazil +88
Argentina +80
Colombia +61
Dom. Rep. +56
Paraguay +50
Chile +44
Venezuela +8
Bolivia +1
Peru +1
Panama -15
Guatemala -17
Ecuador -23
Costa Rica -38
El Salvador -43
Mexico -49
Trin. & Tob. -63
Haiti -81
Nicaragua -90
Jamaica -91
Honduras -316

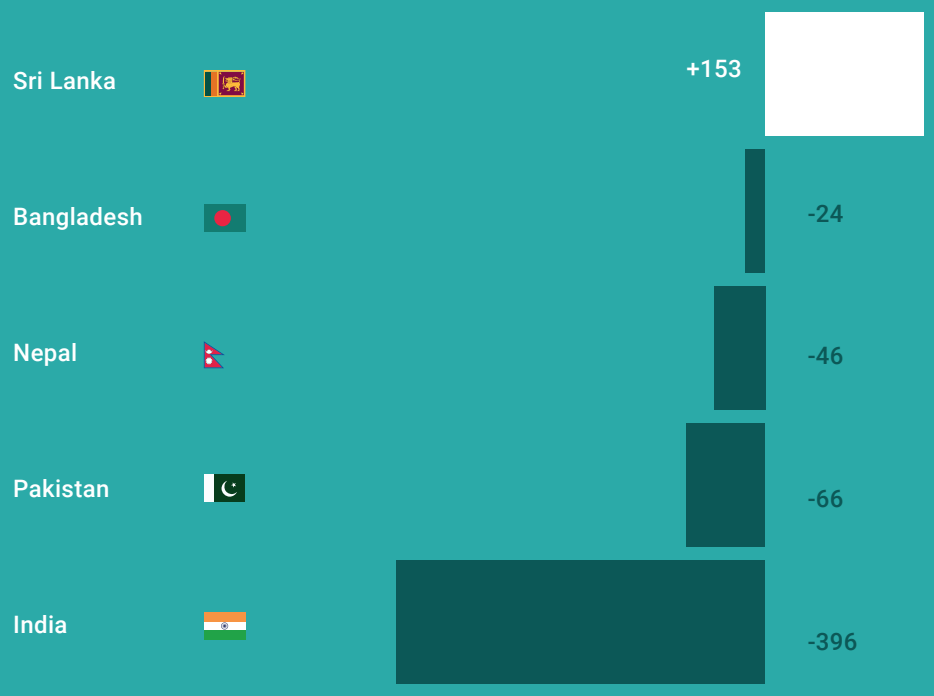

Egypt
Saudi Arabia
Yemen
Kuwait
Algeria
UAE
Jordan
Morocco
Oman
Qatar
Israel
Tunisia
Lebanon
Iran
+258
+169
+106
+76
+74
+58
+50
+49
+24
+13
+6
-33
-119
-163

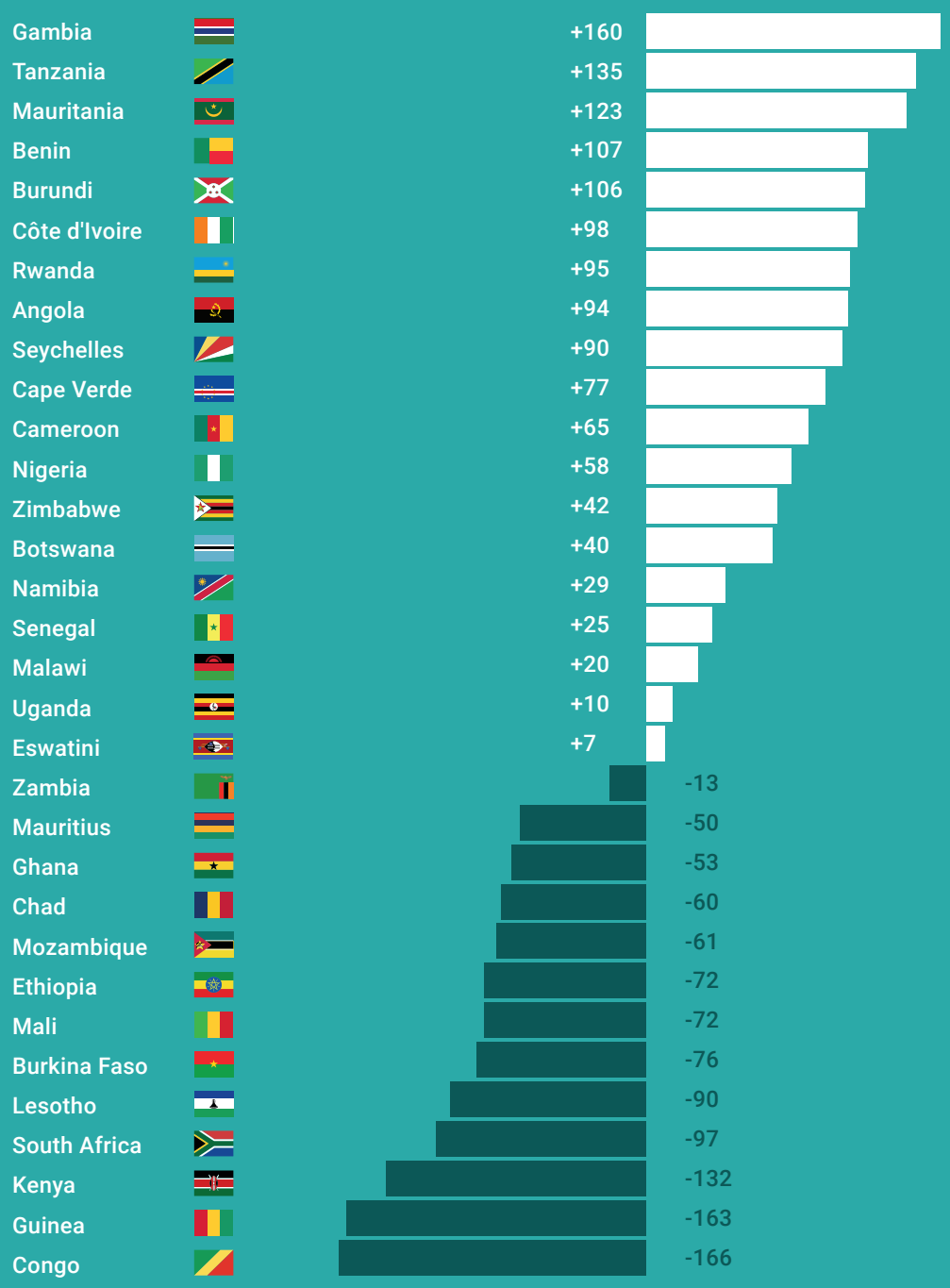
Middle East and North Africa

Within the Middle East and North Africa group, Egypt was the top Digital Riser, while Iran and Lebanon dropped significantly. The group did comparatively well as a whole, as eleven out of 14 countries improved their relative digital competitiveness. When breaking down the results, Saudi Arabia and Egypt improved the most in the ecosystem and mindset dimensions, respectively. Iran lost out the most on both the ecosystem and the mindset dimension, while Lebanon's drop was second to last on both dimensions. Egypt's outperformance can mainly be explained by its "ICT 2030 Strategy" lighthouse initiative, which contributes to its vision for 2030 by creating Digital Egypt. Furthermore, in 2020, the government announced a plan to establish a $2 billion investment fund to promote non-banking financial services and Egypt's digital transformation.

South Asia

In South Asia, Sri Lanka was the top Digital Riser, while India fell significantly behind. When breaking down the results, Sri Lanka improved the most on both the ecosystem and mindset dimensions, whilst India's decline meant it lost out the most on both dimensions. Intriguingly, except for Sri Lanka, all countries in the group declined in terms of their relative digital competitiveness. Sri Lanka's outperformance, in turn, can mainly be explained by its "National Digital Policy for Sri Lanka 2020-2025" lighthouse initiative, which aims to attain sustained development and growth for the digital economy. In 2020, the government announced that it would prioritise the ICT sector, in order to make the country a global innovation hub, e.g. via the establishment of a citizen-centric digital government and the promotion of IT entrepreneurship.


Sri Lanka
+153
Bangladesh
-24
Nepal
-46
Pakistan
-66
India
-396


Gambia +160
Tanzania +135
Mauritania +123
Benin +107
Burundi +106
Côte d'Ivoire +98
Rwanda +95
Angola +94
Seychelles +90
Cape Verde +77
Cameroon +65
Nigeria +58
Zimbabwe +42
Botswana +40
Namibia +29
Senegal +25
Malawi +20
Uganda +10
Eswatini +7
Zambia -13
Mauritius -50
Ghana -53
Chad -60
Mozambique -61
Ethiopia -72
Mali -72
Burkina Faso -76
Lesotho -90
South Africa -97
Kenya -132
Guinea -163
Congo -166

Sub-Saharan Africa

In Sub-Saharan Africa, Gambia was the top Digital Riser over the last three years, while Congo and Guinea dropped significantly. When breaking down the results, Gambia and Tanzania improved the most in the ecosystem and mindset dimensions, respectively. While both Congo and Guinea's declines were mainly driven by the ecosystem dimension, Guinea also ranked last on the mindset dimension. Gambia's outperformance can mainly be explained by its "National Entrepreneurship Policy" lighthouse initiative, a programme with the United Nations to create a thriving middle-income economy by 2026 that is driven by self-reliant and innovative entrepreneurs and an enabling and strengthening ecosystem. Other notable initiatives include the National Enterprise Development Initiative (NEDI), which promotes youth and female entrepreneurship in the country, to empower them to create viable employment opportunities and to support Gambian economic development.

Country Groups and Regions: Digital Riser Best Practices

LIGHTHOUSE INITIATIVE

Innovation and Skills Plan

- Agenda by the Canadian government to spark growth and help it realise its potential as a global leader in innovation
- Goals of the plan include providing Canadian people with critical skills, the creation of well-paying jobs, and helping strengthen and grow the middle class. Key areas include
  - People and skills
  - Research, technology and commercialisation
  - Investment, scale-up and clean growth
- As part of the initiative, the Strategic Innovation Fund has created and maintained more than 70,000 jobs and leveraged a total investment of over $45 billion

REGULATIONS

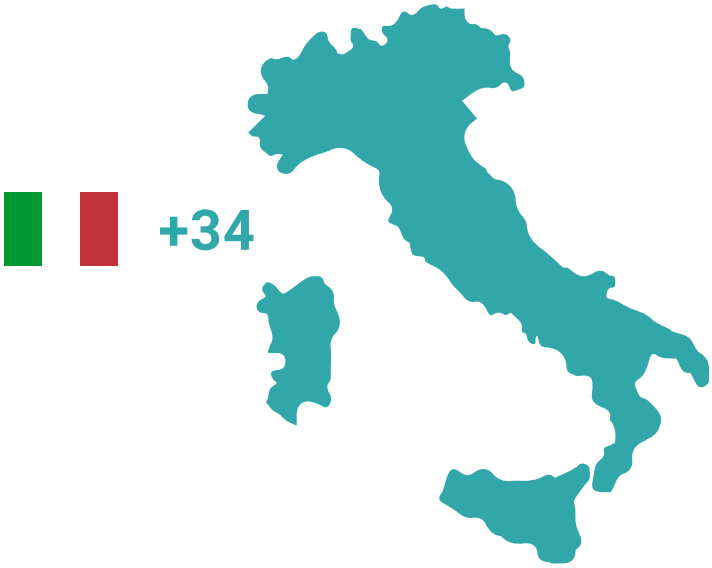
- In 2018, the Canadian government started the Digital Operations Strategic Plan (2018-2022) to coordinate and set the direction of the digital transformation within the government. Its vision statement includes that 'digitally, the Government of Canada must operate as one to benefit all Canadians'
- In 2020, the proposal of the Digital Charter Implementation Act 2020 was announced with the aim of securing Canadians' private information and setting clear and dynamic rules for innovative businesses

INVESTMENTS

- The Innovation Superclusters Initiative has co-invested over $1.2 billion in more than 270 projects to launch superclusters that accelerate business-driven innovation, with the potential to energise the economy
- As part of the Connect to Innovate programme, the government announced it would invest $585 million by 2023, providing 975 rural and remote communities with high-speed internet
- In 2017, the government announced the Innovative Solutions Canada programme, with an annual investment of $100 million, supporting small businesses seeking novel solutions for government-issued challenges

Canada

In the Group of Seven, Canada ranked first out of our top 3 Digital Risers.



Italy

In the Group of Seven, Italy ranked second out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Repubblica Digitale

- An initiative to overcome the digital divide, promote digital inclusion and strengthen the development of digital skills among citizens
- As part of the initiative, the Ministry for Technological Innovation and Digitalization launched the multi-stakeholder National Coalition for Digital Skills and Jobs in 2020 partnership with the European Union, which includes the following measures:
  - Promoting among citizens digital skills and the skills needed for new technologies, including the promotion of self-development tools and workshops
  - Raising awareness of the importance of digital skills, e.g. via awards and events
  - Finding new means of training for skilling, upskilling and reskilling

REGULATIONS

- The Italian Startup Act (ISA) was implemented as a legal framework to boost the Italian startup ecosystem
  - The programme yielded more than 10,000 registered innovative startups up to 2019
  - Support included regulatory advantages, such as special visa policies, and financial benefits, such as tax incentives
  - In 2019, two expert groups on AI and blockchain were established to develop action plans for these technologies
- Since its launch in 2020, more than 100 initiatives have already been launched by members of the National Coalition for Digital Skills and Jobs, e.g. the project A Tablet and a Smile for the Elderly, to promote digital inclusion among generations

INVESTMENTS

- In 2020, and against the challenges posed by the Covid-19 pandemic, the government decided to support remote learning by investing €85 million
- In 2019, Italy's Minister of Economic Development, Welfare and Social Policies announced the National Innovation Fund (NIF), including a starting budget of €1 billion to support startups and innovation in the country
- Furthermore, the setting up of a €45 million fund for emerging technologies was included in the 2019 Budget Law, with the intention to support innovation in the fields of blockchain, AI and internet of things (IOT)

LIGHTHOUSE INITIATIVE

La French Tech

- A government-initiated global community and platform to promote entrepreneurship. It is jointly run by civil servants and former entrepreneurs to shape France's digital policy, and it includes a broad range of activities spanning regulations (e.g. French Tech Visa), investments and international image campaigns to promote French entrepreneurship

- To boost entrepreneurship further in France, the French public investment bank Bpifrance and Aichi Prefectural government in Nagoya (Japan) signed a Memorandum of Understanding, which focuses on the support of startups and businesses through connections and exchanges between French and Japanese startups

REGULATIONS

- The TECH.GOUV programme was launched by the government in 2019 and targets the acceleration of the digital transformation of public services

- Also in 2019, the Action Plan for Business Growth and Transformation (PACTE) was adopted, intending to simplify business creation and enable SMEs to grow and conquer external markets. The plan also includes a closer connection between public research and companies

- In 2020, French telecom providers launched the first commercial 5G networks in the country

INVESTMENTS

- As a part of a stimulus package presented in 2020, the government announced digital investments of €7 billion to promote technology and innovation

- Also in 2020, the government presented a €4 billion liquidity support plan, intending to support startups and ensure investments during the Covid-19 crisis

- The digital inclusion strategy, set up in 2018, targets people that do not use the internet, and it aims to improve access to digital skills and infrastructure. The programme sets out to help 1.5 million citizens every year, and leverages a budget of up to €100 million

France

In the Group of Seven, France ranked third out of our top 3 Digital Risers.

China

In the Group of Twenty, China ranked first out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Made in China 2025

- A national strategic plan to develop China's industrial capabilities and to reduce dependence on foreign technology
- State support for ten key sectors in which China aims to become a world leader, including
  - Information technology
  - Numerical control tools and robotics
  - Ocean engineering equipment and high tech ships
- A follow-up programme, China Standards 2035, initially announced in 2018, aims to set global standards for new technologies. Also, China's government has put entrepreneurship centre stage by making it part of the Chinese Dream

REGULATIONS

- China's State Administration for Market Regulation (SAMR) started to regulate its tech giants, in order to strengthen digital competition, including an investigation into Alibaba over monopolistic practices, and fining online discount retailer Vipsho about $500,000 for unfair competition
- In 2018, the government announced further steps to promote its mass entrepreneurship and innovation initiative, including a simplified procedure for starting a business and the formulation of policy incentives for scientific researchers to launch a business
- China's current Five-Year Plan contains extensive efforts to promote the development of future technologies, e.g. AI, quantum information technology, genetic technology and biotechnology, up to 2025

INVESTMENTS

- In 2018, the Chinese government committed to invest about US$300 billion to leverage Made in China 2025
- A blockchain fund of about €1.3 billion was set up by the government to finance promising projects in the cryptocurrency industry
- The country made heavy investments in 5G technology, including the deployment of some 100,000 5G base stations in 2019, which then increased to 700,000 in 2020. The masterplan includes estimated investments of $1.4 trillion to promote the establishment of 5G networks, the installation of cameras and sensors and the development of AI software

LIGHTHOUSE INITIATIVE

ICT Strategy 2023

- A government roadmap for innovation and the digital economy, which aims at developing digital capabilities and attracting foreign technical investments
- A broad action plan that encompasses attracting leading international companies, enhancing technical and digital knowledge and promoting R&D in the start-up ecosystem
- Major targets for the ICT sector include the creation of over 25,000 quality jobs in the sector, an increase in the IT and emerging technologies market size by 50%, the growth of the ICT sector's contribution to GDP by $13.33 billion over five years and a rise in women's participation in the sector by 50%

REGULATIONS

- The Saudi Data and Artificial Intelligence Authority (SDAIA), established by a royal decree in 2019, supports innovation and digital transformation in the country and contributes to the country's Vision 2030 through the use of AI and big data
- The establishment of a further authority was approved by the Saudi Cabinet. The Digital Government Authority (DGA) helps create digital interactions and electronic services between citizens, government and business
- The third action plan in the National Strategy for Digital Transformation, which covers the time period 2020-2024, sets out to realise a smart government in the country

INVESTMENTS

- Saudi Arabia continuously invested in its digital infrastructure, for example by deploying 5G networks and building 6,500 new towers, the latter of which are important for shorter radio wavelengths that help deliver effective coverage
- The government focused especially on boosting foreign direct investment (FDI) to diversify its economy; at the end of 2020, a plan of special economic zones was announced
- At the end of 2019, the Saudi Public Investment Fund launched Jada, a $1.07 billion "fund of funds" intended to support SMEs in a sustainable way

Saudi Arabia

In the Group of Twenty, Saudi Arabia ranked second out of our top 3 Digital Risers.

Brazil

In the Group of Twenty, Brazil ranked third out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Brazilian Digital Transformation Strategy – E-Digital

- Coordinated by the Ministry of Science, Technology, Innovation and Communications (MCTIC), the strategy provides a coherent framework for a number of different government digitisation initiatives
- It contains enabling "axes" that support thematic lines through creating a supportive environment
  - The enabling axes include digital infrastructure, activities in research, development and innovation, as well as educational and professional skills for the digital age
  - Focus topics are the digital transformation of the economy and the digital transformation of the government
- The strategy explicitly aims 'to embrace digital transformation as an opportunity for the entire nation to take a leap forward'

REGULATIONS

- In 2020, a new Digital Government Strategy for 2020-2022 was adopted, targeting citizen-centricity, transparency, efficiency and the trustworthiness of government actions
- From 2019, huge efforts were made to promote the development of new technologies in the country, e.g. the establishment of the National Internet of Things Plan, the elaboration of the Brazilian Artificial Intelligence Strategy and the creation of the Applied Research Centers on that very technology
- The Legal Framework for Startups passed the Brazilian Senate with the goal to promote the creation of innovative start-ups and to establish investment incentives in the country

INVESTMENTS

- Announced in 2017, the Brazilian National Bank for Economic and Social Development (BNDES) launched an Angel Fund to boost entrepreneurship and innovative ideas within the country
- The government defined the rollout of 5G as a major milestone in the country's digital transformation, and the National Telecommunications Agency (Anatel) approved rules for 5G tenders
- Various public and public-private efforts targeted the stimulation of entrepreneurship in the country, including the InovAtiva Brasil programme, StartOut Brasil and the National Committee of Start-Up Support Initiatives

LIGHTHOUSE INITIATIVE

National Digital Transformation Program 2025

- The programme experiments with new technologies and models, updates business processes, overhauls government activities and develops a safe, secure and humane digital environment
- Several initiatives go hand in hand with the programme, e.g. the introduction of “Make in Vietnam” digital products and platforms; likewise, the launch of the school management platform MISA QLTH in 2020 not only supports schools, but also enables a national database to foster digital transformation in the educational sector
- By 2030, the digital economy should account for 30% of Vietnam’s GDP

REGULATIONS

- In 2019, the government launched the National Public Service Portal (NPSP), an electronic platform to connect the government with enterprises and people; its services and utilities include
  - Announcement of promotion activities
  - Payment of electricity bills
  - Provision of electricity services
  - Reissuance of health insurance cards
- In 2019, Vietnam’s government issued the first licence to test 5G to state-owned telecommunications company Viettel, to enable it to become one of the early adopters of the technology

INVESTMENTS

- Huge efforts in digital infrastructure resulted in internet coverage expanding from almost 0% of the population in 2000 to 64% by 2020
- To drive innovation in the areas of AI, IOT and cloud infrastructure, the government announced a smart city operations centre, with a total investment of over $1.4 million
- Launched in 2016, the Supporting the National Innovation Initiative to 2025 (ISEV) supports the creation of a favourable environment for startups, e.g. with government investments of more than $80 million by 2025

Vietnam

In East Asia and the Pacific, Vietnam ranked first out of our top 3 Digital Risers.

China

In East Asia and the Pacific, China ranked second out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Made in China 2025

- A national strategic plan to develop China's industrial capabilities and to reduce dependence on foreign technology
- State support for ten key sectors in which China aims to become a world leader, including
  - Information technology
  - Numerical control tools and robotics
  - Ocean engineering equipment and high tech ships
- A follow-up programme, China Standards 2035, initially announced in 2018, aims to set global standards for new technologies. Also, China's government has put entrepreneurship centre stage by making it part of the Chinese Dream

REGULATIONS

- China's State Administration for Market Regulation (SAMR) started to regulate its tech giants, in order to strengthen digital competition, including an investigation into Alibaba over monopolistic practices, and fining online discount retailer Vipsho about $500,000 for unfair competition
- In 2018, the government announced further steps to promote its mass entrepreneurship and innovation initiative, including a simplified procedure for starting a business and the formulation of policy incentives for scientific researchers to launch a business
- China's current Five-Year Plan contains extensive efforts to promote the development of future technologies, e.g. AI, quantum information technology, genetic technology and biotechnology, up to 2025

INVESTMENTS

- In 2018, the Chinese government committed to invest about US$300 billion to leverage Made in China 2025
- A blockchain fund of about €1.3 billion was set up by the government to finance promising projects in the cryptocurrency industry
- The country made heavy investments in 5G technology, including the deployment of some 100,000 5G base stations in 2019, which then increased to 700,000 in 2020. The masterplan includes estimated investments of $1.4 trillion to promote the establishment of 5G networks, the installation of cameras and sensors and the development of AI software

LIGHTHOUSE INITIATIVE

ICT Masterplan 2020

- ICTopia Cambodia was set as a vision for an ICT-driven society; the initiative addresses four key areas of ICT development:
  - Empowering people, including ICT human resource development, i.e. strengthening ICT education and standardising ICT skills, and e-awareness
  - Ensuring connectivity, e.g. by developing a national ICT infrastructure
  - Enhancing ICT industry capabilities and setting up an ICT standards body
  - Enriching e-services to promote Cambodian e-government services
- The government announced that a new policy framework for the evolvement of the digital socioeconomic environment between 2021 and 2035 is in the process of planning

REGULATIONS

- The E-commerce Law and the Consumer Protection Law were enacted in 2019 to regulate e-commerce activities (such as online payment), promote trade via electronic means (such as e-signatures) and rule the electronic acts and transactions of the government
- In 2020, the government launched a new online business registration system (Single Portal) to reduce bureaucracy and thus improve the investment environment in the country

INVESTMENTS

- In 2020, Khmer Enterprise, a unit under the Cambodian Ministry of Economy and Finance, and the VC firm 500 Startups launched the joint initiative Angkor 500 to support entrepreneurs in building tech-driven startups
  - The initiative aims to gather and inspire founders throughout Cambodia
  - It includes hosting bootcamps to prepare Cambodian startups for interaction with foreign markets and investors
- The Cambodian Ministry of Education, Youth and Sport launched the New Generation School (NGS) programme in 2015 to improve educational quality and to prepare students for working in the digital age
  - $4.65 million has been invested in the project since 2015
  - In 2019, the Ministry announced a plan to increase the number of NGS to about 150 across the country
- Also, the Ministry motivated Cambodian youth to start their own businesses; for example, the Minister of Education, Youth and Sport stated in a video, 'It is our responsibility to give youth the opportunity to explore their potential and to prepare them for future endeavours'

Cambodia

In East Asia and the Pacific, Cambodia ranked third out of our top 3 Digital Risers.

Georgia

In Eurasia, Georgia ranked first out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Social-economic Development Strategy of Georgia – Georgia 2020

- A socio-economic development strategy encompassing several areas, in order to promote the digital ecosystem of the country
  - High-speed broadband internet for future development
  - Innovation and high-tech
  - E-literacy and capacity building
  - E-government
- As part of its implementation, several initiatives were launched, e.g. the programme "Produce in Georgia", to support entrepreneurship and innovation and increase Georgia's export potential

REGULATIONS

- To promote the mining of cryptocurrencies in the country, the Georgian Ministry of Finance published a public decision consisting of tax exemptions for this sector, including:
  - Individuals exempted from any income and profit tax in the context of cryptocurrencies
  - The sale of cryptocurrencies is not taxable by value-added tax (VAT)
  - Selling computing (hash power) from Georgia abroad is not subject to VAT
- In 2017, the government's Georgia Technology Authority announced an Office of Digital Services Georgia (DSGa)
  - DSGa supports state agencies to improve the delivery of information services
  - It also helps state agencies ensure easy access to engaging with state information and services
- In 2020, the Minister of Economy and Sustainable Development announced a new visa policy, aiming to attract foreign workers to Georgia

INVESTMENTS

- The Start-Up Georgia programme was set up in 2016 to support entrepreneurs with interesting business ideas. The total budget is about €11.7 million
- In 2017, the government launched the Unified Strategy for Education and Science for 2017-2021, aiming to increase access to high-quality education and to modernise science, technology and the innovation system
- As part of Georgia's National Broadband Development Strategy for 2020-2025, the Log-in Georgia Project, a joint initiative between the country and the World Bank, will connect up to 1,000 villages and almost 500,000 people to a high-quality broadband service. In 2020, the World Bank approved €35.7 million to support the project

LIGHTHOUSE INITIATIVE

Armenia's Digital Transformation Agenda 2018-2030

- A framework with six focus areas to make Armenia competitive internationally through digital transformation: Smart government; a creative digital labour force; highly efficient, reliable and affordable infrastructure; safe and resistant cyber-space; an internationally competitive private sector and an interconnected, collaborative and functional institutional framework
- As part of implementing the agenda, a digitalisation strategy was developed by the Ministry of High-Tech Industry for 2020-2035, aiming to ensure the interoperability of systems, the implementation of educational programmes and the introduction of common standards

REGULATIONS

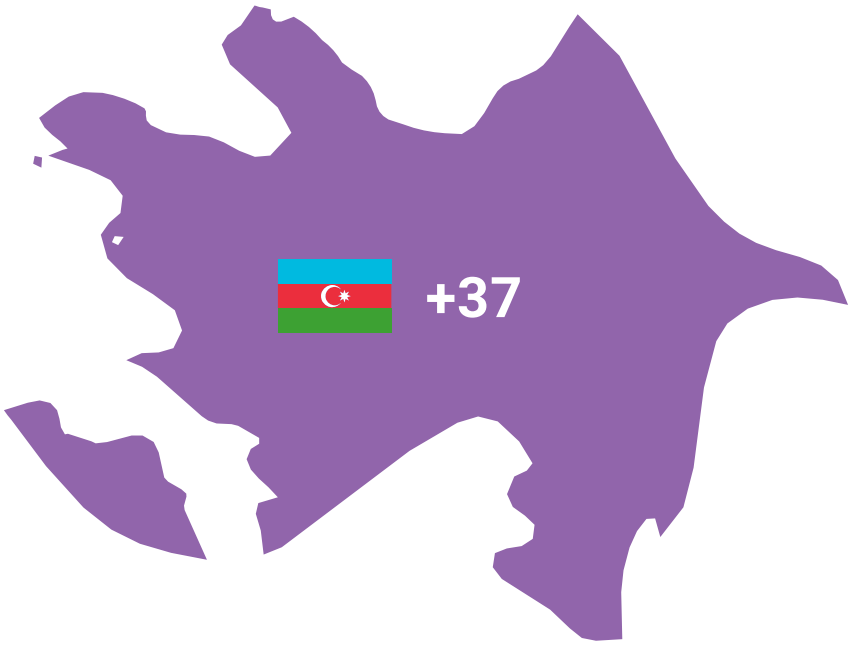
- The Armenian government actively supports the growth of the country's ICT industry and closely cooperates with international partners to improve the global competitiveness of Armenian ICT companies
- Several important e-government platforms were launched in Armenia, e.g. the electronic State Register for Legal Entities system, the "Mulberry" electronic document management system and an electronic notary system
- In 2017, a common website to publish legal Act drafts (e-draft.am) was created by the government to ensure transparency and the active participation of society in the legislative process

INVESTMENTS

- As part of the EU4Armenia project, certain areas with the potential to promote the digital development of the country are supported, including
  - Innovation-IT (total budget €25 million)
  - Education (total budget over €13 million)
  - Connectivity (total budget €48 million)
- Supported by the Support to SME Development in Armenia (EU-SMEDA) project, the Armenia Startup Academy (ASA) was officially launched in 2017 to support tech companies and start-ups with customer support, with a total amount raised of over €4 million

Armenia

In Eurasia, Armenia ranked second out of our top 3 Digital Risers.



Azerbaijan

In Eurasia, Azerbaijan ranked third out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Strategic Road Map on the Development of Telecommunication and Information Technologies

- Comprehensive digitalisation framework with three targets:
  - Improving governance structures and strengthening ICT
  - Increasing the productivity and operational efficiency of the business environment
  - Digitising government and social environments
- Priorities include driving ICT skills and knowledge, mobile infrastructure investment and digital payments
- In 2019, the Azerbaijani president approved the Government Cloud (G-Cloud) concept to increase efficiency and reduce IT infrastructure costs in government agencies through the use of cloud technologies

REGULATIONS

- In 2017, Azerbaijan's Agency for the Development of Small and Medium-sized Enterprises (SMEs) was established, supporting the development of SMEs in the country
  - As part of the initiative, supportive "SME Friend" offices were opened in over 20 cities
  - More than 1,500 entrepreneurs took part in the agency's online educational training sessions
- Established in 2018, the E-Gov Development Center developed over 40 projects up to 2019, which encompassed a number of different service areas. In 2019, the Director of the E-Gov Development Center announced the plan to switch from a "one-stop shop" to a "non-stop shop" model of e-governance by 2025
- In 2020, the parliament ratified a law to install a trans-Caspian fibre-optic cable across the bottom of the Caspian Sea between Azerbaijan and Turkmenistan, thereby strengthening its position as a regional digital hub

INVESTMENTS

- Several public and cooperative initiatives were set up to strengthen workforce diversity in the country, notably through the empowerment of women:
  - The Women in Business programme with the European Bank for Reconstruction and Development (EBRD) includes support for female entrepreneurs seeking to access finance as well as business advice and mentoring
  - The Women in Stem mentorship programme with the United Nations Development Programme (UNDP) targets young female students and professionals in the field of STEM (Science, Technology, Engineering and Mathematics) and provides them with the necessary tools and advice
  - Since 2011, nine Women Resource Centers have been established in Azerbaijan. The initiative supports women in rural areas by improving their entrepreneurial skills and competitiveness in the labour market. Up to 2019, over 6,000 women had participated in the free training courses

LIGHTHOUSE INITIATIVE

Lithuanian Industry Digitisation Roadmap 2019-2030

- A plan by the Ministry of Economy and Innovation to coordinate digitisation efforts in the country
- Targets include the promotion of digital skills for employees, the development of digital technology competence centres and tax incentives regarding new technologies
- By 2030, Lithuania aims to become an industry leader in digitisation for its region, as well as a testbed for cutting-edge technology solutions. It also seeks to create an attractive environment for talented professionals from abroad

REGULATIONS

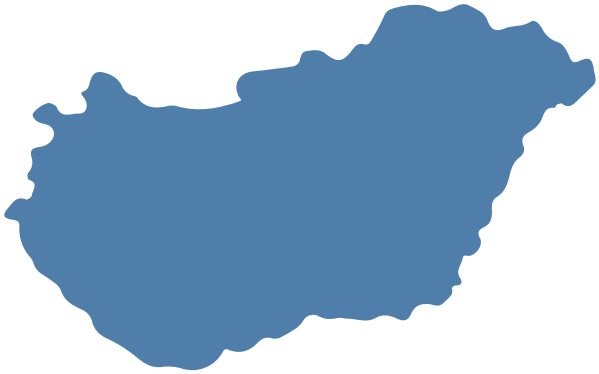
- In 2017, the government officially launched the national industry digitisation platform Pramonė 4.0 to create linkages between solution providers, end-users and supporting organisations, as well as to facilitate the flow of ideas, investments and knowledge amongst them
- In 2019, the Startup Employee Visa programme was launched by the government to attract foreign talents to Lithuanian startups
- As an experiment, in 2020, the Bank of Lithuania issued the world's first blockchain-based digital collector coin (LBCOIN) to create a safe playground for digital tokens

INVESTMENTS

- Lithuania joined the European declaration on High-Performance Computing in 2018, to promote world-class computing and data infrastructure in a joint European effort
- More than €5 million have been granted by the Ministry of Science and Education to support the development of High-Performance Computing (HPC) in the country
- In 2018, the Bank of Lithuania launched LBChain, the world's first blockchain-based sandbox of its kind, to provide fintechs and startups with an environment in which to learn and promote innovation

Lithuania

In Europe & North America, Lithuania ranked first out of our top 3 Digital Risers.



+111

Hungary

In Europe & North America, Hungary ranked second out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

National Digitalisation Strategy

- Encompassing different sub-strategies, the National Digitization Strategy aims to promote the ICT industry successfully during the EU funding period 2021-2027; the plan is a successor to the National Infocommunication Strategy (NIS) and comprises initiatives in areas such as digital infrastructure, digital skills, the digital economy and digital government
- Objectives include that 95 per cent of the households are covered by gigabit networks by 2030, as well as the reduction of the share of 16-74 year old Hungarians that do not use the internet, with the aim of reducing that portion to below 2 per cent by 2030
- The government articulated the vision to make Hungary one of the ten EU leading countries in digitisation by the end of the decade

REGULATIONS

- Hungarian Central Governmental Service Bus (KKSzB)
  - Initially launched in 2017, the KKSzB is an interoperability platform that enables the standardised and service-orientated connection between national base registries and several public-sector information systems, with the goal to simplify administration processes
  - As the Hungarian judicial organisation joined the KKSZB in 2019, it is expected that the jurisdiction will eventually become more efficient
- In 2016, the government initiated the Digital Startup Strategy (DSS) to improve the overall environment for entrepreneurship in the country, focusing, for example, on entrepreneurial competencies, sources of financing and a culture of cooperation
- From 2018, there was an obligation for all public administration bodies to provide online services, without the need to appear in person

INVESTMENTS

- Successful and ongoing investments in the context of the Superfast Internet Programme (SZIP)
  - By 2018, every household had the possibility to gain internet access of at least 30Mbps – which represented a goal of the NIS
  - The current phase of the programme intends to ensure 100Mbps-plus network coverage to 90 per cent of Hungarian households by 2025
- The Governmental Agency for IT Development (KIFÜ), which operates under the supervision of the Ministry of Innovation and Technology, is currently running about 60 projects at a value of over $1.2 billion

LIGHTHOUSE INITIATIVE

Spain Digital 2025

- Announced in 2020 by Spain's prime minister, Spain Digital 2025 aims to foster the digital transformation process of the country and position digitisation as an essential lever for the kickstarting of economic growth
- The strategy contains nearly 50 measures and ten strategic axes, including digital connectivity and 5G, digital skills among citizens, cybersecurity, digitisation of public administration, digitisation in companies (especially in micro-SMEs and startups), the promotion of AI and big data and the establishment of a modern legal framework
- The strategy is expected to mobilise public and private investments of about €70 billion in the 2020-2022 period

REGULATIONS

- In 2018, Spain joined the Innovation Radar initiative, initiated by the European Union, to help high-potential innovations reach the market
- The plan Spain: Entrepreneurial Nation Strategy aims to modernise Spain's business environment and to promote the creation of quality jobs. Measures include the Startup Act, the launch of the National Entrepreneurship Office, an international programme to attract talented women and a visa programme for foreign professionals
- Spain's digital agenda set the goal of 50 per cent of public services to be available through a mobile app by 2025

INVESTMENTS

- The government announced three key plans with a joint investment of €11 billion, with the intention to adjust different key digital levers within the framework of Spain's digital agenda: National Digital Skills Plan, Digitalisation of SMEs Plan 2021-2025 and Digitalisation of the Public Authorities Plan
- Also, in 2020, the government presented the Connectivity Plan (public investment of €2.3 billion), the Strategy to promote 5G (investment of €2 billion) and the National Strategy for Artificial Intelligence (investment of €600 million) as part of its digital agenda
- In 2020, the Educa en Digital programme (mobilisation of €260 million) was launched by the government, aiming to promote digital education and close the technological social gap

Spain

In Europe & North America, Spain ranked third out of our top 3 Digital Risers.

Uruguay

In Latin America & the Caribbean, Uruguay ranked first out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Agenda Uruguay Digital 2020

- The Agenda Uruguay Digital 2020 (AUD 2020) is a national strategy that bundles different initiatives according to priority and aims to promote Uruguay's digital transformation in a sustainable and an inclusive way
- The AUD 2020 consists of four key pillars
  - Fostering social policy and inclusion through the use of digital technologies
  - Accelerating sustainable economic development by building a digital economy
  - Improving government management
  - Implementing governance for an information society, in order to increase security and trust in new technologies

REGULATIONS

- In 2019, and in line with the AUD 2020, the government launched the Artificial Intelligence Strategy for the Digital Government, to promote the responsible use of AI in the public sector
- Also in 2019, government-owned telecommunication company Antel deployed Latin America's first commercial 5G network, improving the environment for businesses
- In 2018, the government regulated the taxation of digital economic actions and services, as well as multinational enterprises, to strengthen the digital legal framework

INVESTMENTS

- As part of the AUD 2020, a programme dedicated to the development of digital competencies reached over 70,000 Uruguayan people by 2019
- The government-owned telecommunication company Antel plans to reach national Fibre-to-the-Premises (FttP) coverage by early 2022, with an estimated investment of $800 million
- In 2019, Uruguay's National Research and Innovation Agency (ANII) launched Proyecta Uruguay, a programme set up to make the country more attractive to innovative start-ups and entrepreneurs

LIGHTHOUSE INITIATIVE

Brazilian Digital Transformation Strategy – E-Digital

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REGULATIONS

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Brazil

In Latin America & the Caribbean, Brazil ranked second of our top 3 Digital Risers.

+80

Argentina

In Latin America & the Caribbean, Argentina ranked third out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Program for Strengthening of the Digital Agenda

- The objective of the programme is to improve the productivity of the economy by advancing its digitalisation through actions. The four key elements set out to:
  - Establish a digital agenda
  - Strengthen the legal framework for connectivity
  - Broaden offerings and improve the quality of digital government services
  - Promote policy measures for digital productive transformation
- In 2019, the Inter-American Development Bank approved a loan of $300 million to support the digitisation strategy

REGULATIONS

- Argentina's Electronic Document Management Platform (GDE) hopes to improve public-sector efficiency, resulting, for example, in the full digitisation of organisational procedures within central ministries and decentralised organisations by 2018
- Several regulations promoted simplification and interoperability in the public sector, e.g. the Decree on Register Simplification, which facilitates information exchange between public-sector organisations, and Resolution 19/2018, which ratified the establishment of the interoperability platform INTEROPER.AR
- A resolution issued by Argentina's Public Registry of Commerce (IGJ) in 2018 made it considerably easier for foreign companies to start a business in the country

INVESTMENTS

- In 2019, it was announced that the Ministry of Production and Labour would provide up to $50,000 support for up to ten blockchain projects each year
- In 2018, the Software & IT Services Chamber of Commerce (CESSI) launched the Federal Strategic Plan for the Argentine Software Industry 2018-2030, in order to create 500,000 new jobs by 2030
- The incubator programme incuBAte, run by the city of Buenos Aires and backed by the Ministry of Modernization, Innovation, and Technology, supports entrepreneurs through mentorship, the provision of office space and financial assistance

LIGHTHOUSE INITIATIVE

ICT 2030 Strategy

- Building on different previous medium- and long-term ICT development strategies, the plan enables the development of a knowledge-based society and a strong digital economy
- The plan contributes to Egypt's vision for 2030 through creating Digital Egypt, which is based on the main pillars of digital transformation, digital skills & jobs and digital innovation
- As part of the strategy, the Ministry of Communications and Information launched the Future Work is Digital initiative (Egypt FWD), a technology learning and upskilling scholarship to develop the ICT skills of 100,000 young Egyptians

REGULATIONS

- To develop the ICT sector, Egypt has taken different steps to establish a regulatory framework for the sector in recent years, including the enactment of cybercrime law, intellectual property law, consumer protection law, e-signature law and data protection law
- In 2020, the government announced the trial launch of a digital government service platform, including 70 electronic government services, such as driving licence renewals or notarial services
- In 2020, the National Telecommunication Regulatory Authority launched the Mobile Number Portability (MNP), to improve efficiency and competitiveness in that field

INVESTMENTS

- In 2019, the Ministry of Communications and Information Technology invested about $1.6 billion in infrastructural development
- The government also supported the development of six technology parks
  - These parks support innovation and entrepreneurship
  - They offer training institutions, startup incubators and training facilities around topics such as AI, data science and cybersecurity
  - In 2020, the Minister of Communications and Information Technology announced that the parks would be opened after the Covid-19 pandemic
- In 2020, the government announced a plan to establish a $2 billion investment fund to promote non-banking financial services and Egypt's digital transformation

Egypt

In Middle East & North Africa, Egypt ranked first out of our top 3 Digital Risers.

Saudi Arabia

In Middle East & North Africa, Saudi Arabia ranked second of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

ICT Strategy 2023

- A government roadmap for innovation and the digital economy, which aims at developing digital capabilities and attracting foreign technical investments
- A broad action plan that encompasses attracting leading international companies, enhancing technical and digital knowledge and promoting R&D in the start-up ecosystem
- Major targets for the ICT sector include the creation of over 25,000 quality jobs in the sector, an increase in the IT and emerging technologies market size by 50%, the growth of the ICT sector's contribution to GDP by $13.33 billion over five years and a rise in women's participation in the sector by 50%

REGULATIONS

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INVESTMENTS

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- The government focused especially on boosting foreign direct investment (FDI) to diversify its economy; at the end of 2020, a plan of special economic zones was announced
- At the end of 2019, the Saudi Public Investment Fund launched Jada, a $1.07 billion "fund of funds" intended to support SMEs in a sustainable way

LIGHTHOUSE INITIATIVE

Entrepreneurship Education – Know about Business

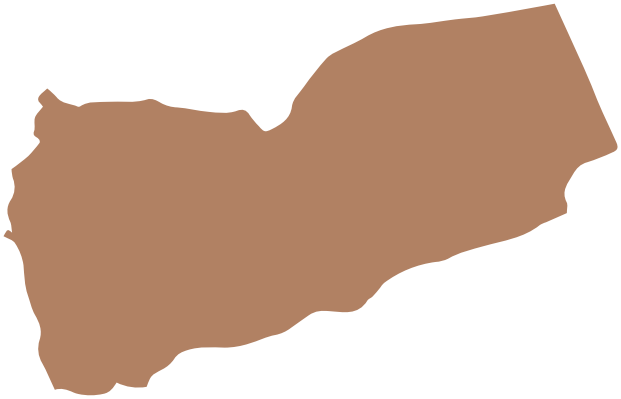
- In 2008, the International Labour Organization (ILO) and Yemen's Social Development Fund (SDF) launched a project to promote entrepreneurship education, intending to raise awareness about starting a business and to increase the necessary skill set
- The initiative resulted in the successful implementation of the Know About Business (KAB) curriculum
- The project was followed by further ILO initiatives to promote entrepreneurship within the country, e.g. a business startup course for university students called Mubadara

REGULATIONS

- Several initiatives were set up by the government and national and foreign organizations to strengthen women's employment and entrepreneurship, including:
  - The Women's Entrepreneurship Programme, created by the ILO in partnership with Yemen's Small and Medium Enterprise Promotion Service (SMEPS), and the SFD, which aimed to encourage women to start their own businesses and/or help them improve existing ventures
  - The German Corporation for International Cooperation (GIZ) and the SMEPS developed digital business advice services such as coaching sessions via WhatsApp

INVESTMENTS

- In 2008, a public-private partnership started the implementation of the Innovations in Technology-Assisted Learning for Educational Quality (INTALEQ) project. Total investment amounted to more than $1.4 million
  - The goal was the 'Acquisition of 21st-century skills by Yemeni high school students, so that they are better equipped to find work, live productive lives and contribute to Yemen's development as a stable and prosperous democracy'
  - Several actions were implemented to achieve this goal, e.g. the provision of digital learning objectives and training for teachers on how to use them effectively
  - Project partners included the Yemeni Ministry of Education, the U.S. Agency for International Development and the Education Development Center

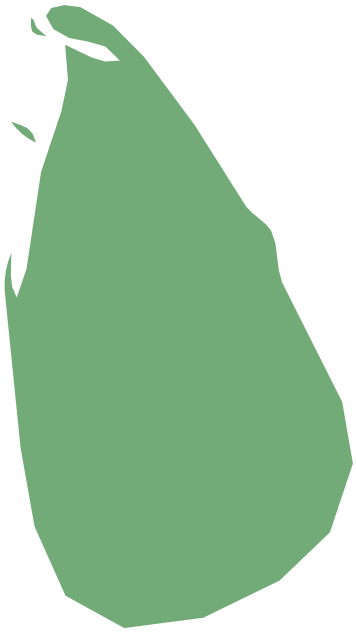


+106

Yemen

In Middle East & North Africa, Yemen ranked third out of our top 3 Digital Risers.

+153



Sri Lanka

In South Asia, Sri Lanka ranked first out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

National Digital Policy for Sri Lanka 2020-2025

- The policy represents the government's digital agenda until 2025 and delivers a conceptual framework for the country, which includes the building of a digital government and a digital economy, and aims to attain sustained development and growth for the digital economy

- The strategy includes: strengthening the innovative economy, expanding digital governance and increasing its effectiveness, improving connectivity and addressing online security and data protection

REGULATIONS

- In 2017, the nation's parliament approved the Electronic Transactions Amendment Bill, in order to harmonise the country's electronic transactions legislation with the UN Electronic Communication Convention (UN ECC) and to promote business, commerce and trade in the digital age

- In 2020, Sri Lanka's Ministry of Education and Microsoft signed a memorandum of understanding to promote remote education
  - Students, teachers and ministry officials are provided with free access to Microsoft Office 365 tools
  - The memorandum also targets the improvement of IT competencies

INVESTMENTS

- The digital transformation and adoption programme Sri Lanka Go Digital, organised by the Information and Communication Technology Agency of Sri Lanka (ICTA), empowered over 250 entrepreneurs from regional SMEs by providing knowledge on the development of their businesses through the use of digital technologies

- In 2020, Sri Lanka's prime minister stated that the government would prioritise the ICT sector, to turn the country into a global innovation hub. Several initiatives currently contribute to this goal, e.g. the establishment of a citizen-centric digital government and the promotion of IT entrepreneurship

- The ICTA launched the "Public Wi-Fi Initiative" in 2018 and set up over 1,100 free internet hotspots across the country

LIGHTHOUSE INITIATIVE

Digital Bangladesh

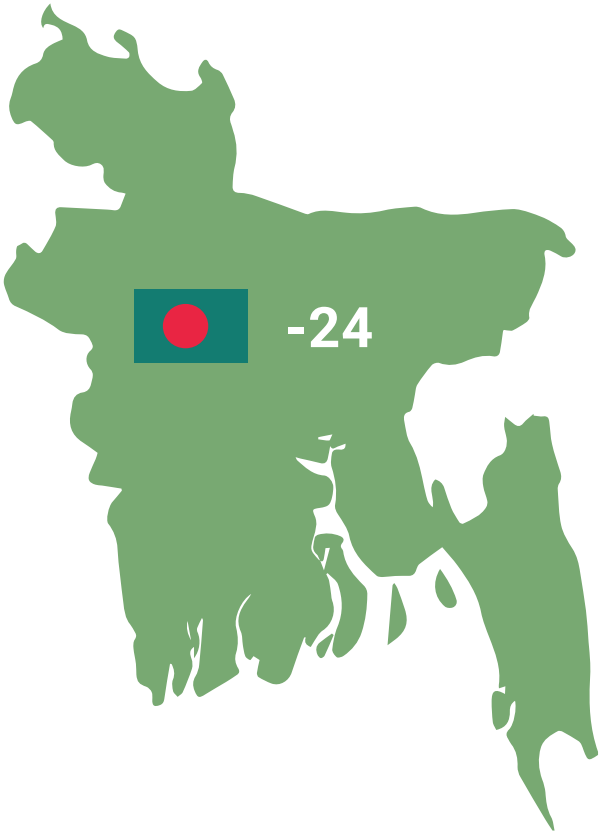
- Originally emerging from the political manifesto Vision 2021, Digital Bangladesh has become the major strategy to promote the overall development of the country through the use of technology; it contains four pillars:
  - Digital government
  - Human resource development
  - IT industry promotion
  - Connecting citizens
- After its initial announcement, the initiative was extended to the timeframe 2021 to 2050

REGULATIONS

- In 2015, the government formulated the new National ICT Policy, with the intention of enabling the ICT sector to successfully promote the Digital Bangladesh vision
- Considered the flagship programme of Digital Bangladesh, the Access to Information Programme (a2i) was set up, which aims to generate innovation and improve citizens' lives. Notable measures include:
  - The expansion of digital financial inclusion
  - Improvements to e-government services and the simplification of bureaucratic processes

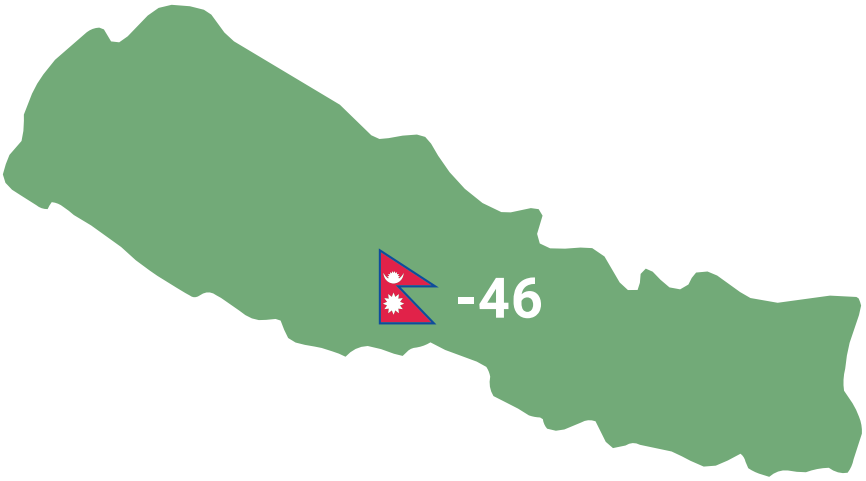
INVESTMENTS

- As part of the Digital Bangladesh vision, the government has established more than 5,000 Digital Centers since 2010 to accelerate the digitisation of public services and reduce poverty through citizen-centric innovation
- The government aims to improve the investment environment via a number of initiatives, including the establishment of special economic zones and IT parks across the country
- The a2i Programme established an innovation fund to empower Bangladeshi entrepreneurs, with a total amount of $4.5 million awarded



Bangladesh

In South Asia, Bangladesh ranked second out of our top 3 Digital Risers.



Nepal

In South Asia, Nepal ranked third out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Digital Nepal

- A programme designed to enable Nepal to leverage disruptive technologies and drive socio-economic growth by
  - Determining how digital initiatives can contribute to economic growth
  - Finding innovative ways to solve major challenges facing society in a shorter period and with fewer resources
  - Identifying opportunities for Nepal to participate in the global economy
- Digital Nepal includes eight sectors and 80 digital initiatives, and it is expected to deliver revenue of about $8billion after the implementation of all programmes

REGULATIONS

- The government defined a number of priority areas critical to the success of Digital Nepal projects:
  - Technology and infrastructure, e.g. the improvement of digital connectivity
  - The promotion of entrepreneurship by encouraging private-sector participation and foreign investment
  - Talent and skills development through improvements in digital education
- Several regulatory frameworks currently aim to create an enabling environment for the digitisation of the country, including the National ICT Policy, the National Broadband Policy, the Government Enterprise Architecture (GEA) and the Nepal e-Governance Interoperability Framework (NeGIF)

INVESTMENTS

- A $35.5 million project aims to increase broadband connectivity in Nepal's rural and hilly areas
- In 2018, and as a continuation of the Micro-Enterprise Development Programme (MEDEP), the Nepalese government announced its support for micro-enterprises by providing about $14 million to encourage people to run these ventures, thus creating job opportunities and reducing poverty
- Roughly 70 per cent of government office payments had been moved online by the end of 2020, and the government is planning to bring all such transactions online by the end of 2022

LIGHTHOUSE INITIATIVE

National Entrepreneurship Policy

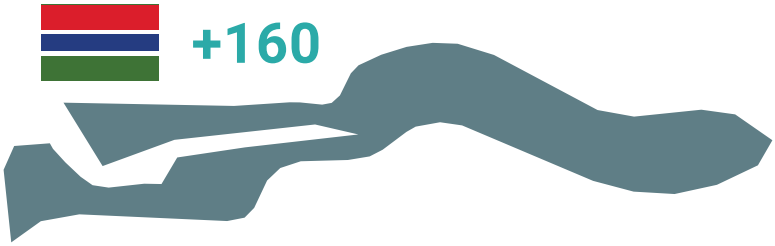
- A programme run with the United Nations to create a thriving middle-income economy by 2026, driven by self-reliant and innovative entrepreneurs and an enabling and strengthening ecosystem
  - Enhancing access to finance for entrepreneurs
  - Upgrading entrepreneurship, education and skills
  - Spreading ICT and recognising entrepreneurs as creators of jobs and prosperity
  - Setting efficient bankruptcy procedures
  - Instilling an entrepreneurship mindset

REGULATIONS

- In 2020, a 24-month technical assistance project, in tandem with the EU Emergency Trust Fund for Africa (EUTF), was adopted, to empower the country's ICT sector by helping the state-owned telecommunications company Gamtel and Gambian regulatory authorities set up necessary regulations and policies for the sector. Projects include the provision of a business plan, financial proposals and robust tendering models. The EUTF's contribution is about €1.05 million
  - In 2017, the government announced a plan to improve the investment environment and enhance foreign direct investment (FDI) by implementing the UNCTAD's Investment Policy Review (IPR) of The Gambia. Policies recommended by the United Nations Conference on Trade and Development (UNCTAD) include strengthening the legal framework for FDI to support openness and transparency, as well as promoting a business-conducive environment

INVESTMENTS

- The National Enterprise Development Initiative (NEDI) promotes youth and women's entrepreneurship in the country to create viable employment opportunities and to support Gambian economic development. One measure was a five-day entrepreneurship training course for young Gambian entrepreneurs in 2019
- In 2017, the €11 million Youth Empowerment Project (YEP) was launched in a cooperative partnership between the Gambian government, the EU and the International Trade Center, with the intention to enhance economic development and future opportunities for youth in the country, e.g. by improving upskilling training programmes and promoting entrepreneurship



Gambia

In Sub-Saharan Africa, Gambia ranked first out of our top 3 Digital Risers.

Tanzania

In Sub-Saharan Africa, Tanzania ranked second out of our top 3 Digital Risers.

LIGHTHOUSE INITIATIVE

Digital Tanzania Programme

- A government project aiming to increase access to high-quality and affordable internet services in the country, as well as to improve the government's ability to offer digital public services
- The project comprises three major focus areas:
  - A digital ecosystem, including ICT policy
  - Digital connectivity, e.g. a connected government
  - Digital government platforms and services
- For the first phase of the project (2020-2024), known as the Digital Foundations Project, the financial supporter World Bank estimated costs of $150 million

REGULATIONS

- Tanzania has digitised payments that are made to the government, resulting in less bureaucratic inefficiency and increased transparency
- Additionally, the government confirmed a partnership with the telecommunication company Vodacom Tanzania in 2019 to strengthen financial payment systems for 127 local government offices
- In 2009, the government started to build the National ICT Broadband Backbone (NICTBB), in order to improve digital connectivity in the country

INVESTMENTS

- The National Information and Communication Technology Policy (NICTP) of 2006 set out to narrow the digital divide and to transform the country into a knowledge-based economy
- In 2008, the perennial Science and Technology and Higher Education Program (STHEP) was approved to enhance the development of human capital regarding science and technology. It was funded as a credit of the International Development Association (IDA) by about $115 million
- Tanzania's Education Sector Development Plan (2016/2017 - 2020/2021) includes the enhancement of digital skills in government-based vocational education centres and the development of e-learning tools in the context of adult education

LIGHTHOUSE INITIATIVE

Strategy for Accelerated Growth and Shared Prosperity (SCAPP)

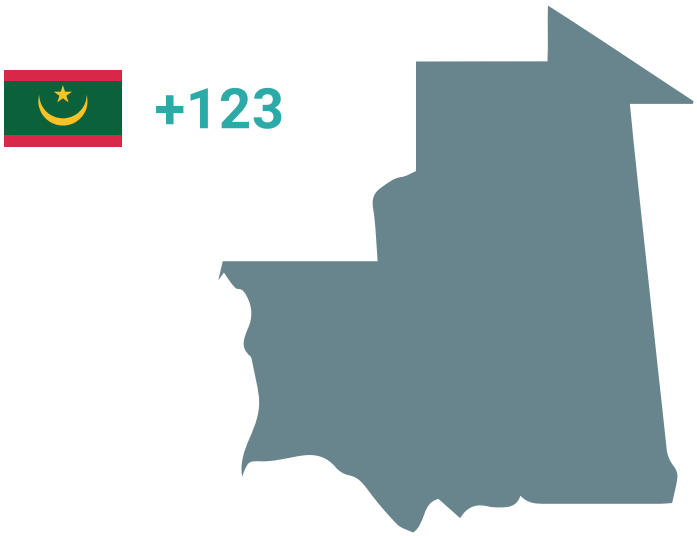
- Approved by parliament in 2018, the government strategy frames and promotes entrepreneurship as a key pillar for achieving inclusive growth
- The establishment of the Entrepreneurship and MSME Development Unit was one of the most important initiatives, and it seeks to improve the potential of entrepreneurs by offering training, education and business monitoring services
- The strategy also contains the goal to become a competitive and diversified economy, and to enable higher-skilled human resources by 2025

REGULATIONS

- The government signed the West Africa Regional Communications Infrastructure Project in Mauritania (WARCIP Mauritania) in 2013, aiming to increase the coverage of high-speed internet in the country
- Since 2015, there have been several reforms to launch businesses faster and cheaper, including the establishment of a one-stop shop, simplifying business registration procedures and reducing launch costs, such as the fee for obtaining a tax identification number

INVESTMENTS

- In 2018, and to promote foreign direct investment, the government published an online investment guide (iGuide) as a one-stop shop for investors
- A youth entrepreneurship fund was set up by the Caisse des Dépôts et de Développement (CDD), which was co-funded by the Arab Fund for Economic and Social Development (FADES) with over $20 million, endeavouring to promote youth and women's entrepreneurship



Mauritania

In Sub-Saharan Africa, Mauritania ranked third out of our top 3 Digital Risers.

Conclusion

The Digital Riser Index indicates that the competitive landscape around digital technologies is moving extremely quickly. Governments that place digital transformation at the top of their agenda can achieve tangible results in relatively short time frames – a notion best exemplified by the rise of China to the top of the Group of Twenty (G20) in terms of its relative progress in this field. Our study also highlights that around the world, digital incumbents increasingly face new and dynamic competitors. In the East Asia and Pacific region, for example, digitally established countries like Singapore and South Korea rank in the middle and were outperformed by Vietnam in their relative progress in the last three years. This suggests that progress is attainable independent of a country's digital competitiveness baseline and its size.

On the other hand, the latest results from the Digital Riser Index confirm a tendency that we also saw in last year's report: the speed of transformation differs significantly between China and the US, as well as between European countries like France, Italy and Germany. While this development does not mean that the gain of one is the loss of another, it does demonstrate that governments should emphasise ways of strategically managing their policies in this crucial area for the future.

We hope that the results of the best-practice policies highlighted in this report inspire additional digital progress around the world with measures catered to the respective needs of each economy. Inspired by the top Digital Risers, these measures can centre on education, talent attraction and financial support for innovation and entrepreneurship.

Responses to the Covid-19 pandemic have significantly accelerated the adoption of digital technologies. By the end of 2020, companies had improved the digitisation of their product, customer and supply chain interactions. In order for their countries to improve their competitiveness around future technologies, governments should follow this lead and enable an ecosystem and mindset that supports the digital economy.

Appendix A: Methodology

The Digital Riser Report 2021 analyses and ranks the changes that countries around the globe have seen in their digital competitiveness between 2018 and 2020. The 2018 data were obtained from the Global Competitiveness Report, published by the World Economic Forum (WEF). Given a change in the format of the Global Competitiveness Report in 2020, 2020 data for the studied indicators were obtained from the Global Competitiveness Report issued by the World Economic Forum (WEF) as well as supporting data provided by the World Bank and the International Telecommunication Union. Thus, we were able to compare the exact same indicators used in the 2018 Global Competitiveness Report.

Based on our research, and as in the Digital Riser Report 2020, we define a country's digital competitiveness in two main dimensions: its ecosystem and its mindset.

For both dimensions, the Digital Riser Report includes five items from the Global Competitiveness Report. For the ecosystem and mindset dimensions, respectively, these items are:

Ecosystem

- Venture capital availability
  Global Competitiveness Report series code: 9.03
  Response to the survey 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]
  Source: World Economic Forum

- Cost to start a business
  Global Competitiveness Report series code: 11.01
  Expressed as a percentage of the economy's income per capita
  Source: World Bank Group

- Time to start a business
  Global Competitiveness Report series code: 11.02
  Number of calendar days needed to complete the procedures to legally operate a business
  Source: World Bank Group

- Ease of hiring foreign labour

  Global Competitiveness Report series code: 8.07

  Response 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]

  Source: World Economic Forum

- Skillset of graduates

  Global Competitiveness Report series code: 6.04

  Average score of the following two Executive Opinion Survey questions: “In your country, to what extent do graduating students from secondary education possess the skills needed by businesses?” and “In your country, to what extent do graduating students from university possess the skills needed by businesses?” In each case, the answer ranges from 1 (not at all) to 7 (to a great extent).

  Source: World Economic Forum

Mindset

- Digital skills among active population

  Global Competitiveness Report series code: 6.05

  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]

  Source: World Economic Forum

- Attitudes towards entrepreneurial risk

  Global Competitiveness Report series code: 11.05

  Response 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]

  Source: World Economic Forum

› Diversity of workforce
Global Competitiveness Report series code: 12.01
Response to the 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]
Source: World Economic Forum

› Mobile-broadband subscriptions
Global Competitiveness Report item: 3.02
Number of active mobile-broadband subscriptions per 100 Population.
Source: International Telecommunication Union

› Companies embracing disruptive ideas
Global Competitiveness Report series code: 11.08
Response to the survey question "In your country, to what extent do companies embrace risky or disruptive business ideas?"
[1 = not at all; 7 = to a great extent]
Source: World Economic Forum

To compare the progress of 137 countries regarding their digital ecosystem, mindset and overall competitiveness, we assigned equal weight to all ten items. We then looked at the absolute, accumulated change in rank for each country between 2018 and 2020, based on these ten items.

As an example, China – which was the G20's top Digital Riser – over the last three years has seen an accumulated increase of 211 ranks over the ten items:

Ecosystem	Change in ranks between 2018 and 2020
Venture capital availability	+1
Cost to start a business	-22
Time to start a business	+49
Ease of hiring foreign labour	+25
Skillset of graduates	+28
Mindset	
Digital skills among active population	+32
Attitudes towards entrepreneurial risk	+23
Diversity of workforce	+55
Mobile-broadband subscriptions	+0
Companies embracing disruptive ideas	+20
Accumulated change in ranks between 2018 and 2020:	+211

To ensure the comparability of results relative to a comparative baseline, we clustered all countries into nine groups. These include the Group of Seven, the Group of Twenty and the seven WEF regional groups.

Apart from the ranking itself, the Digital Riser Report also analyses the policies followed by the top Digital Riser countries. These offer an explorative overview of what these countries did to earn their top position in our ranking.

Appendix B: Rankings

G7

Rank	Overall		Ecosystem		Mindset	
1	Canada	47	Canada	45	Italy	48
2	Italy	34	France	-3	France	31
3	France	28	Italy	-14	Canada	2
4	USA	-72	UK	-33	USA	-21
5	UK	-85	Japan	-48	UK	-52
6	Germany	-176	USA	-51	Germany	-99
7	Japan	-190	Germany	-77	Japan	-142

G20

Rank	Overall		Ecosystem		Mindset	
1	China	211	Saudi Arabia	124	China	130
2	Saudi Arabia	169	Brazil	113	Italy	48
3	Brazil	88	China	81	Saudi Arabia	45
4	Argentina	80	Indonesia	74	Argentina	32
5	Turkey	77	Turkey	57	France	31
6	Indonesia	48	Argentina	48	Turkey	20
7	Canada	47	Canada	45	South Africa	11
8	Italy	34	France	-3	Korea, Rep.	5
9	France	28	Russia	-3	Canada	2
10	Korea, Rep.	0	Korea, Rep.	-5	Australia	-4
11	Australia	-18	Australia	-14	Mexico	-15
12	Mexico	-49	Italy	-14	USA	-21
13	Russia	-67	UK	-33	Brazil	-25
14	USA	-72	Mexico	-34	Indonesia	-26
15	UK	-85	Japan	-48	UK	-52
16	South Africa	-97	USA	-51	Russia	-64
17	Germany	-176	Germany	-77	Germany	-99
18	Japan	-190	South Africa	-108	Japan	-142
19	India	-396	India	-176	India	-220
20	EU	N/A [1)]	EU	N/A [1)]	EU	N/A [1)]

[1)] The EU is not included since it is a collection of countries.

East Asia and the Pacific

Rank	Overall		Ecosystem		Mindset	
1	Vietnam	339	Vietnam	139	Vietnam	200
2	China	211	China	81	China	130
3	Cambodia	155	Indonesia	74	Cambodia	86
4	Taiwan	105	Cambodia	69	Taiwan	58
5	Brunei	76	Brunei	62	Lao	37
6	Indonesia	48	Taiwan	47	Brunei Darussalam	14
7	Mongolia	18	Hong Kong	17	Mongolia	13
8	Singapore	10	Mongolia	5	Singapore	10
9	Korea, Rep.	0	Thailand	2	Korea, Rep.	5
10	Hong Kong	-6	Singapore	0	Australia	-4
11	Lao	-11	Korea, Rep.	-5	New Zealand	-21
12	Australia	-18	Australia	-14	Hong Kong	-23
13	Thailand	-29	Japan	-48	Indonesia	-26
14	New Zealand	-70	Lao	-48	Thailand	-31
15	Malaysia	-141	New Zealand	-49	Malaysia	-36
16	Philippines	-180	Philippines	-78	Philippines	-102
17	Japan	-190	Malaysia	-105	Japan	-142

Eurasia

Rank	Overall		Ecosystem		Mindset	
1	Georgia	153	Georgia	100	Georgia	53
2	Armenia	47	Moldova	32	Armenia	51
3	Azerbaijan	37	Kazakhstan	19	Azerbaijan	22
4	Kyrgyz Rep.	22	Tajikistan	17	Kyrgyz Rep.	18
5	Tajikistan	21	Azerbaijan	15	Tajikistan	4
6	Moldova	1	Ukraine	14	Moldova	-31
7	Kazakhstan	-40	Kyrgyz Rep.	4	Kazakhstan	-59
8	Ukraine	-66	Russia	-3	Russia	-64
9	Russia	-67	Tajikistan	-4	Ukraine	-80

Europe and North America

Rank	Overall		Ecosystem		Mindset	
1	Lithuania	126	Lithuania	60	Poland	93
2	Hungary	111	Greece	60	Hungary	87
3	Spain	97	Turkey	57	Lithuania	66
4	Greece	93	Bulgaria	50	Spain	48
5	Bulgaria	92	Spain	49	Italy	48
6	Poland	88	Canada	45	Montenegro	48
7	Turkey	77	Latvia	42	Bulgaria	42
8	Canada	47	Hungary	24	Belgium	40
9	Estonia	34	Slovenia	17	Estonia	36
10	Belgium	34	Switzerland	14	Greece	33
11	Italy	34	Albania	14	France	31
12	France	28	Denmark	4	Macedonia	29
13	Montenegro	28	Portugal	0	Turkey	20
14	Latvia	26	Luxembourg	0	Denmark	10
15	Slovenia	14	Austria	0	Iceland	6
16	Denmark	14	Estonia	-2	Netherlands	3
17	Iceland	3	France	-3	Canada	2
18	Portugal	-1	Iceland	-3	Croatia	2
19	Netherlands	-4	Poland	-5	Romania	0
20	Cyprus	-23	Belgium	-6	Portugal	-1
21	Romania	-27	Cyprus	-6	Slovenia	-3
22	Luxembourg	-30	Netherlands	-7	Slovak Rep.	-8
23	Slovak Republic	-33	Italy	-14	Finland	-12
24	Switzerland	-35	Montenegro	-20	Latvia	-16
25	Finland	-37	Bos. & Herz.	-22	Norway	-16
26	Austria	-40	Norway	-24	Sweden	-16
27	Norway	-40	Slovak Rep.	-25	Cyprus	-17
28	Macedonia	-41	Finland	-25	USA	-21
29	Croatia	-43	Romania	-27	Luxembourg	-30
30	USA	-72	UK	-33	Serbia	-31
31	Serbia	-73	Serbia	-42	Malta	-35
32	Bos. & Herz.	-79	Malta	-44	Austria	-40
33	Malta	-79	Croatia	-45	Ireland	-44
34	UK	-85	USA	-51	Switzerland	-49
35	Sweden	-92	Ireland	-61	UK	-52
36	Ireland	-105	Czech Rep.	-61	Bos. & Herz.	-57
37	Czech Rep.	-125	Macedonia	-70	Czech Rep.	-64
38	Germany	-176	Sweden	-76	Germany	-99
39	Albania	-262	Germany	-77	Albania	-276

Latin America and the Caribbean

Rank	Overall		Ecosystem		Mindset	
1	Uruguay	103	Brazil	113	Colombia	70
2	Brazil	88	Uruguay	67	Dom. Rep.	67
3	Argentina	80	Argentina	48	Paraguay	54
4	Colombia	61	Guatemala	23	Panama	42
5	Dom. Rep.	56	Bolivia	14	Uruguay	36
6	Paraguay	50	Chile	11	Chile	33
7	Chile	44	Ecuador	9	Argentina	32
8	Venezuela	8	Paraguay	-4	Venezuela	31
9	Bolivia	1	Trin. & Tob.	-7	Peru	27
10	Peru	1	Colombia	-9	Haiti	-12
11	Panama	-15	Dom. Rep.	-11	Bolivia	-13
12	Guatemala	-17	Costa Rica	-15	Mexico	-15
13	Ecuador	-23	Venezuela	-23	El Salvador	-16
14	Costa Rica	-38	Peru	-26	Costa Rica	-23
15	El Salvador	-43	El Salvador	-27	Brazil	-25
16	Mexico	-49	Nicaragua	-32	Ecuador	-32
17	Trin. & Tob.	-63	Mexico	-34	Guatemala	-40
18	Haiti	-81	Jamaica	-37	Jamaica	-54
19	Nicaragua	-90	Panama	-57	Trin. & Tob.	-56
20	Jamaica	-91	Haiti	-69	Nicaragua	-58
21	Honduras	-316	Honduras	-145	Honduras	-171

Middle East and North Africa

Rank	Overall		Ecosystem		Mindset	
1	Egypt	258	Saudi Arabia	124	Egypt	172
2	Saudi Arabia	169	Egypt	86	Algeria	53
3	Yemen	106	Yemen	66	Kuwait	48
4	Kuwait	76	Jordan	49	Saudi Arabia	45
5	Algeria	74	UAE	31	Yemen	40
6	UAE	58	Kuwait	28	UAE	27
7	Jordan	50	Morocco	22	Morocco	27
8	Morocco	49	Oman	22	Qatar	14
9	Oman	24	Algeria	21	Israel	7
10	Qatar	13	Tunisia	3	Oman	2
11	Israel	6	Israel	-1	Jordan	1
12	Tunisia	-33	Qatar	-1	Tunisia	-36
13	Lebanon	-119	Lebanon	-76	Lebanon	-43
14	Iran	-163	Iran	-87	Iran	-76

South Asia

Rank	Overall		Ecosystem		Mindset	
1	Sri Lanka	153	Sri Lanka	77	Sri Lanka	76
2	Bangladesh	-24	Bangladesh	-6	Pakistan	-11
3	Nepal	-46	Nepal	-23	Bangladesh	-18
4	Pakistan	-66	Pakistan	-55	Nepal	-23
5	India	-396	India	-176	India	-220

Sub-Saharan Africa

Rank	Overall		Ecosystem		Mindset	
1	Gambia	160	Gambia	104	Tanzania	107
2	Tanzania	135	Mauritania	100	Seychelles	94
3	Mauritania	123	Rwanda	80	Benin	83
4	Benin	107	Côte d'Ivoire	78	Cameroon	67
5	Burundi	106	Cape Verde	66	Burundi	63
6	Côte d'Ivoire	98	Angola	56	Gambia	56
7	Rwanda	95	Burundi	43	Angola	38
8	Angola	94	Nigeria	37	Eswatini	32
9	Seychelles	90	Namibia	29	Zimbabwe	24
10	Cape Verde	77	Tanzania	28	Mauritania	23
11	Cameroon	65	Benin	24	Nigeria	21
12	Nigeria	58	Botswana	22	Côte d'Ivoire	20
13	Zimbabwe	42	Malawi	19	Botswana	18
14	Botswana	40	Zimbabwe	18	Uganda	18
15	Namibia	29	Zambia	10	Senegal	17
16	Senegal	25	Senegal	8	Rwanda	15
17	Malawi	20	Cameroon	-2	Cape Verde	11
18	Uganda	10	Seychelles	-4	South Africa	11
19	Eswatini	7	Uganda	-8	Malawi	1
20	Zambia	-13	Burkina Faso	-10	Namibia	0
21	Mauritius	-50	Mauritius	-14	Chad	-9
22	Ghana	-53	Ghana	-19	Zambia	-23
23	Chad	-60	Ethiopia	-21	Mozambique	-27
24	Mozambique	-61	Eswatini	-25	Congo	-28
25	Ethiopia	-72	Lesotho	-30	Ghana	-34
26	Mali	-72	Mozambique	-34	Mali	-35
27	Burkina Faso	-76	Mali	-37	Mauritius	-36
28	Lesotho	-90	Chad	-51	Ethiopia	-51
29	South Africa	-97	Kenya	-62	Lesotho	-60
30	Kenya	-132	Guinea	-82	Burkina Faso	-66
31	Guinea	-163	South Africa	-108	Kenya	-70
32	Congo	-166	Congo	-138	Guinea	-81

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Dr. Christian Poensgen is the director of the European Center for Digital Competitiveness at ESCP Business School in Berlin. Previously, he worked as the Senior Fellow Future of Work in the German Bundestag on various digital competitiveness projects, notably in the areas of continuing education, blockchain and agile administration. He is an ada Fellow and a mentor at a number of leading accelerators.

European Center for Digital Competitiveness

BY ESCP BUSINESS SCHOOL

The European Center for Digital Competitiveness was founded at ESCP Europe Business School in Berlin with the goal of bringing digital competitiveness to the political and public debate, where it currently only plays a minor role.

Given the digital revolution that our economy and society currently face, digital competitiveness must take center stage in debates to secure our prosperity for the future.

Similarly, in this increasingly dynamic environment we want to support the initiative to position Europe as a global leader for the responsible application of technology for the benefit of society.

About ESCP Business School

ESCP Business School was founded in 1819. The School has chosen to teach responsible leadership, open to the world and based on European multiculturalism. Six campuses in Berlin, London, Madrid, Paris, Turin and Warsaw are the stepping stones that allow students to experience this European approach to management.

Several generations of entrepreneurs and managers were thus trained in the firm belief that the business world may feed society in a positive way.

This conviction and ESCP's values - excellence, singularity, creativity and plurality - daily guide our mission and build its pedagogical vision.

Every year, ESCP welcomes 6000 students and 5000 managers from 120 different nationalities. Its strength lies in its many business training programmes, both general and specialised (Bachelor, Master, MBA, Executive MBA, PhD and Executive Education), all of which include a multi-campus experience.

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