

Azerbaijan
Centre for the
Fourth Industrial
Revolution

WORLD
ECONOMIC
FORUM

IDEA: Investing in the Digital Economy of Azerbaijan

INSIGHT REPORT
JUNE 2024



Contents

Executive summary	3
Introduction	5
1 Project framework and approach	6
1.1 Digital FDI	7
1.2 InvesTech	8
1.3 Approach	9
2 Stakeholder input analysis: Key findings	10
2.1 Digital FDI	11
2.2 InvesTech	16
3 Policy options	21
4 The way forward: Policy options in action	25
Conclusion	27
Annexes	28
Annex 1: Country diagnostic	28
Digital FDI: Landscape mapping	28
Factors affecting FDI	29
Annex 2: Survey methodology	32
Annex 3: Acronyms and abbreviations	33
Contributors	34
Endnotes	35

Disclaimer

This document is published by the World Economic Forum as a contribution to a project, insight area or interaction. The findings, interpretations and conclusions expressed herein are a result of a collaborative process facilitated and endorsed by the World Economic Forum but whose results do not necessarily represent the views of the World Economic Forum, nor the entirety of its Members, Partners or other stakeholders.

© 2024 World Economic Forum. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, including photocopying and recording, or by any information storage and retrieval system.

Executive summary

The digital economy is a critical catalyst of global economic growth. With the rise of Fourth Industrial Revolution technologies and the internet, digital activities have become increasingly important for businesses, governments and individuals.

Foreign direct investment (FDI) brings not only capital but also know-how and technology. Attracting and facilitating FDI in the digital economy (commonly known as “digital FDI”) becomes instrumental in enhancing digital capacity for both economies and firms. However, given that this is an emerging area, challenges arise from information asymmetries, coordination hurdles and lack of enabling regulations to connect capital to digital investment opportunities.

Against this backdrop, the World Economic Forum (the Forum) has collaborated with the Center for the Fourth Industrial Revolution (C4IR) Azerbaijan¹ and the Export and Investment Promotion Agency of the Republic of Azerbaijan (AZPROMO) on the Investing in the Digital Economy of Azerbaijan (IDEA) project. The project has two complementary goals:

- 1. Growing investment in the digital economy,** including: (a) investment in digital infrastructure; (b) investment in new digital start-ups; (c) investment in digital adoption in existing firms (e.g. digital transformation of traditional businesses); and (d) support for digital services exports and outward digital FDI.

- 2. Using technologies to grow investment** by both governments and firms throughout the entire investment life cycle (e.g. investment attraction, entry, retention, aftercare and linkages).

To achieve these goals, two conceptual frameworks from the Forum are used as the basis for data collection and analysis (see Section 2, Stakeholder input analysis: Key findings), namely **digital FDI and InvestTech**, to dissect the opportunities and challenges to growing investment flows in the digital economy and use technology to grow investment.

This report covers survey findings from 100 foreign and domestic firms that have invested in Azerbaijan’s digital economy in recent years. The survey is based on an updated version of the questions from the initial digital FDI survey that was carried out at the global level by the Forum,² which focused on identifying enabling elements (policies, regulations and measures) that influence firms’ decisions to invest in Azerbaijan. This is complemented by stakeholder consultations and interviews, spanning the public and private sectors – government officials, foreign and domestic investors and other key participants – to understand the main challenges to growing digital FDI, policy options to address these challenges and the main technologies that can be used to facilitate and grow investment.

The findings from the survey and interviews point towards the following challenges in growing investment in the country:

TABLE 1: Potential areas for improvement to grow investment in the digital economy

Pillars of digital FDI and InvestTech	Potential areas for improvement
Invest in new digital activities (start-ups)	<ul style="list-style-type: none"> – The digital start-up ecosystem is still in its nascent phase, requiring the development of new investment opportunities. – More investment is needed in advancing technology-focused research and development (R&D). – A gap exists between the rapid growth of the information and communication technology (ICT) sector and slower progress in cybersecurity development, particularly concerning data sharing for businesses. – Enhancements in quality control and assessment are necessary for new digital solutions to ensure a better product–market fit.

Pillars of digital FDI and InvesTech	Potential areas for improvement
Invest in digital adoption by existing firms	<ul style="list-style-type: none"> – Advanced digital skills in the population could be enhanced. – A digital skills gap persists between the skills demanded in the job market and those delivered by academia and training. – Policies are limiting the use of international payment systems, coupled with a lack of clarity on cross-border payment rules.
Invest in digital infrastructure	<ul style="list-style-type: none"> – There is room for improvement in internet speed, quality and universal coverage within the country, particularly in regions outside the capital. – Data governance frameworks require updating (e.g. the current cloud policy has affected data sharing).
ICT service exports and outward digital FDI	<ul style="list-style-type: none"> – Firms exhibit a lack of trust in e-payment systems. – Intellectual property (IP) protection regulations may be inadequately enforced. – Outdated regulatory norms and standards in certain digital industries have introduced additional administrative burdens, as firms often opt to comply with international or European Union (EU) standards.
InvesTech helps investors throughout the investment life cycle	<ul style="list-style-type: none"> – There is a demand for open, transparent, reliable and easily accessible data platforms using emerging technologies (e.g. artificial intelligence, big data analytics), particularly for market research. – Increased marketing promotion has the potential to bolster the country's brand, particularly in the information technology (IT) service sector, attracting FDI.

Based on interviews and consultations with both the public and private sectors to identify actions to address these challenges, a set of policy options or measures are proposed (see Section 3, Policy options) that could contribute to growing digital FDI and InvesTech adoption in Azerbaijan.

These policy options or measures were considered in a validation workshop organised in collaboration with C4IR Azerbaijan and AZPROMO, bringing together important stakeholders from the country's digital ecosystem, including government authorities, firms and international development partners. Out

of 13 policy options recommended, three concrete action areas were prioritized to be considered for implementation by the government to attract digital FDI and adopt InvesTech solutions. These three action areas were selected based on their alignment with key targets and the country's Digital Economy Development Strategy, which is expected to be approved and implemented in 2024. Looking ahead, a second phase of the project will be led by C4IR Azerbaijan, with the support of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the Forum, to implement priority action areas.

TABLE 2: **Action areas for implementation**

Action area 1 (New digital activities)	Support the regional expansion of Azerbaijani start-ups, develop FDI as a source of capital and hold activities to aid the exchange of ideas between regional start-ups.
Action area 2 (Digital adoption)	Support the digital transformation of existing Azerbaijani firms by scaling the use of the Smart Industry Readiness Index (SIRI) ³ to guide firms through their digital transformation journey and enhance their readiness for Industry 4.0 technologies. Additionally, host workshops featuring insights from international firms experienced in using SIRI.
Action area 3 (InvesTech)	Support the adoption of specific InvesTech tools in Azerbaijan, notably an investment incentives calculator that will facilitate FDI decisions.

Introduction

In recent years, Azerbaijan has witnessed a remarkable shift towards prioritizing the digital economy as an integral component of its socioeconomic development goals.

Aligned with its national vision to diversify its economy and reduce its reliance on extractive industries, Azerbaijan recognizes the critical role of foreign direct investment (FDI) in promoting digital growth and enhancing global competitiveness.

The government of Azerbaijan has placed significant emphasis on attracting foreign investment, implementing reforms and stimulating private-sector expansion through its comprehensive Strategy of Socio-Economic Development in 2022–2026.⁴ The strategy sets out a vision and goals including increasing the volume of FDI in the non-oil/gas sector, specifically agriculture, tourism, renewables, food processing, the chemical industry, information and communications technology (ICT) and transportation/logistics.

Yet until 2023, the flow of FDI to Azerbaijan was still primarily concentrated in the energy sector. FDI in the priority sectors identified in the strategy has thus been limited. According to statistics from the United Nations Conference on Trade and Development, in 2022 the total stock of FDI reached \$29.4 billion, making up around 37.3% of the country's GDP, which is a 20% decline from the previous year. The decline of FDI is largely the result of the repatriation of funds by oil and extractive companies.⁵

The main source of FDI in the past came from countries including Russia, Türkiye and Kazakhstan, and were almost exclusively aimed at major projects for oil/gas pipelines and related services. Looking at recent developments, according to Azerbaijan's Central Bank the leading investors in 2023 Q1, Q2

and Q3 were the United Kingdom (31%), Türkiye (19.3%), Cyprus (13.4%), Iran (6.7%) and the Netherlands (6.5%).⁶

Despite the oil-and-gas sector being responsible for the great bulk of FDI entering Azerbaijan, a closer look at the activities of foreign investors operating in the country reveals that the majority of new investment projects (between January 2016 and April 2023) were highly concentrated in sectors such as financial/business services, software and IT services and industrial equipment.⁷ There is thus significant scope for greater FDI attraction and facilitation in sectors driving the digital economy of Azerbaijan.

In 2023, the government of Azerbaijan conducted extensive reforms that place more emphasis on the digital economy. One notable effort involves the formulation of the Digital Economy Development Strategy, a key action plan of the Strategy of Socio-Economic Development in 2022–2026, aimed at supporting Azerbaijan's position within the digital economy landscape. Since December 2022, a dedicated working group under the auspices of the Center for Analysis and Coordination of the Fourth Industrial Revolution (4SIM) has been established to develop this strategy in order to form a sustainable and competitive digital economy in the country.⁸

This report provides insights into the digital investment needs and priorities of firms and explores the policies, regulations and measures Azerbaijan can adopt to create a digital-friendly investment climate and grow digital FDI.

1 Project framework and approach

The project draws on the Forum's framework for digital FDI and InvesTech to identify specific elements that influence and enable a potential investor's decision to commit capital and resources.

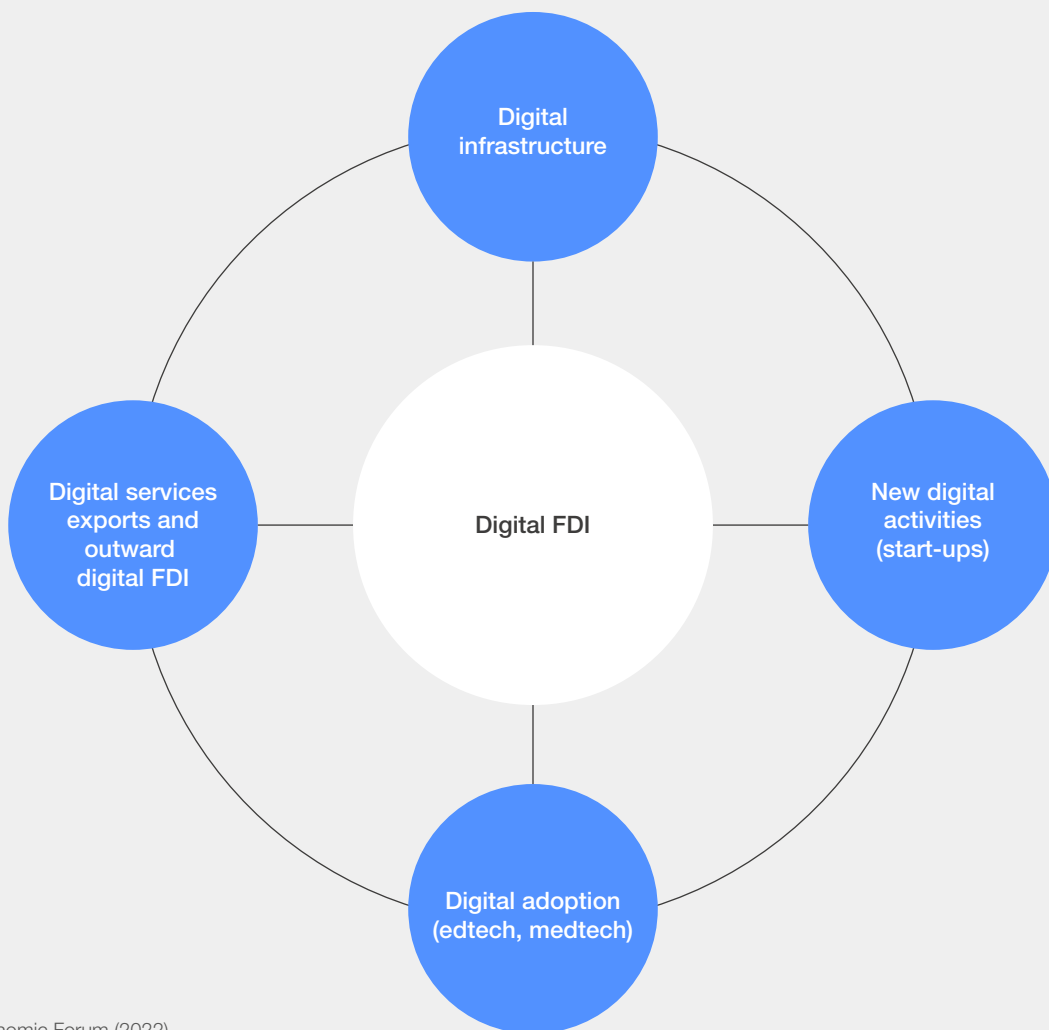


1.1 Digital FDI

The digital FDI framework suggests that policies, regulations and measures to attract digital FDI fall under four pillars:⁹

- 1. Digital infrastructure:** elements that enable investment in digital infrastructure, including both the physical and regulatory dimension
- 2. New digital activities:** elements that enable investment in new digital activities such as start-ups
- 3. Digital adoption:** elements that enable digital adoption by traditionally non-digital firms
- 4. Digital services exports and outward digital FDI:** investment that helps develop local capacity to enable two-way integration with the global digital economy

FIGURE 1: Four pillars to enable digital FDI



Source: World Economic Forum (2022)

To identify digital FDI projects and firms, the fDi Markets database is used.¹⁰ While digital FDI can take place in any sector, certain ones can act as digital enablers horizontally throughout the economy. Two sectors can be considered “structural” digital enablers and four “supportive” digital enablers: (1) communications and (2) software and IT services can be seen as

structural enablers, while (3) business machines and equipment, (4) consumer electronics, (5) electronic components and (6) semiconductors are considered more supportive enablers.¹¹ The six were selected from a total of 37 sectors in fDi Markets as they fit the digital economy architecture proposed by the United Nations Conference on Trade and Development (UNCTAD).¹²

1.2 InvesTech

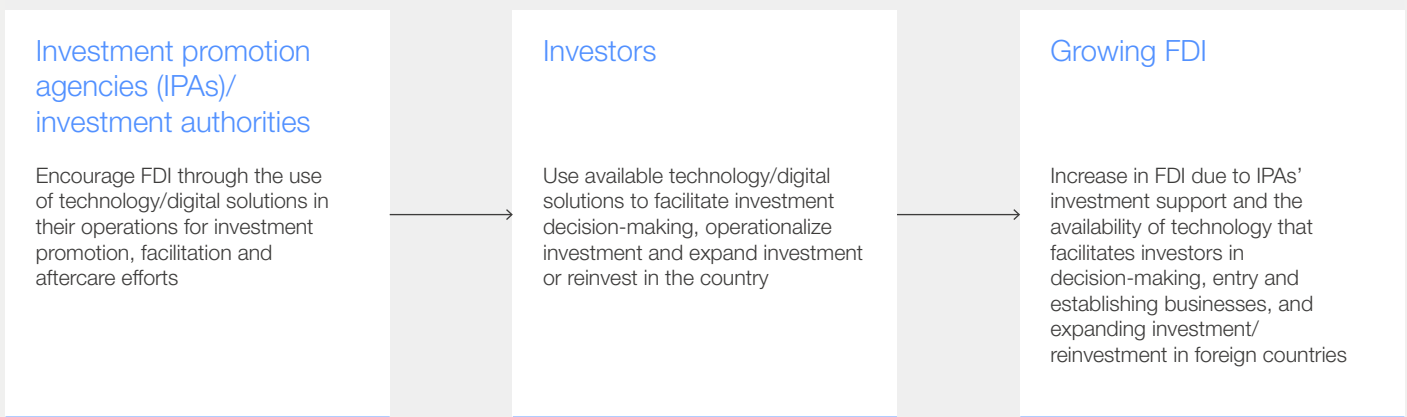
InvesTech – a concept developed by the World Economic Forum – covers the use of new technology applications that enable firms and investment authorities to facilitate investment flows.

- **On the investment climate “demand side”,** InvesTech provides investors with data-driven insights and automation tools, enhancing the efficiency, accuracy and informativeness of decision-making throughout the entire investment life cycle. This ensures that investors

benefit from a conducive business environment to meet their business needs and priorities.

- **On the investment climate “supply side”,** InvesTech equips investment authorities with technology and digital solutions to strengthen their promotion, facilitation and aftercare efforts. By using these tools, authorities can create and sustain investment-friendly business environments for investors.

FIGURE 2: InvesTech in action: how technology facilitates growing investment

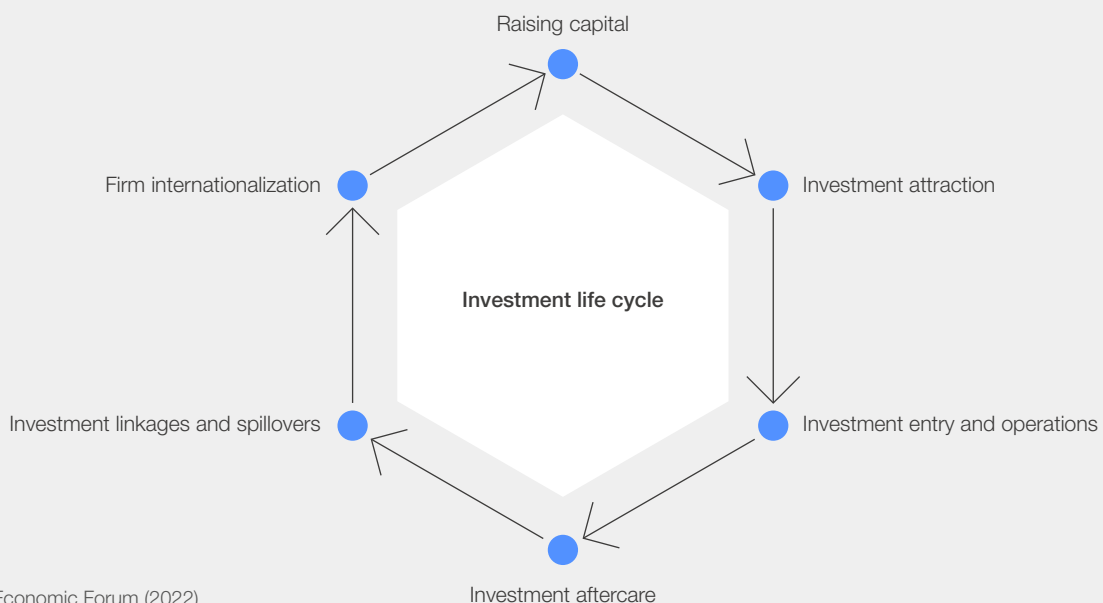


Source: World Economic Forum (2022)

The investment life cycle encompasses six stages at which InvesTech can be used by investment

authorities and investors to manage and grow investment flows (see Figure 3).

FIGURE 3: Investment life cycle: six stages at which to use InvesTech



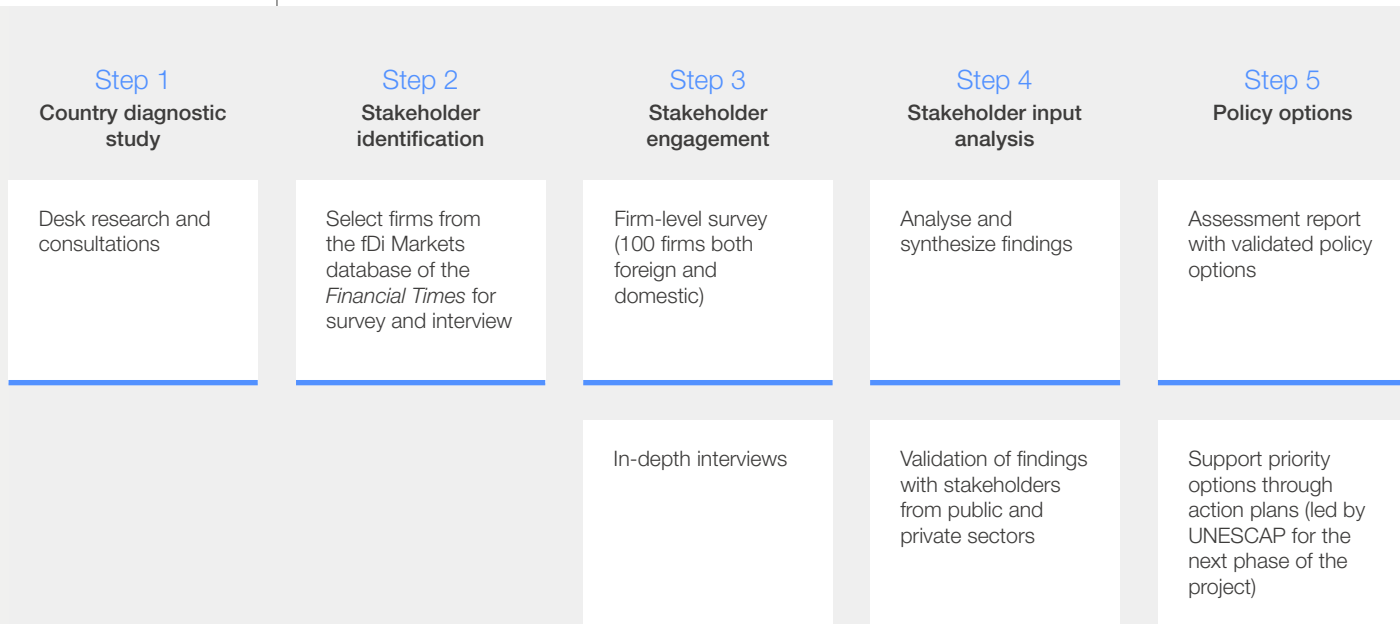
Source: World Economic Forum (2022)

1.3 Approach

The project undertook a five-step approach to identify which policies, regulations and measures are most important for investors in growing digital

FDI and which technologies are most important for encouraging investors to use InvesTech.

FIGURE 4: Stepwise approach of the project



Source: World Economic Forum (2022)

The project began with introductory meetings to align key objectives with counterparts from the Government of Azerbaijan. Regular consultations were held to draw primary insights from relevant stakeholders and validate project findings.

Step 1: Country diagnostic study

Carry out desk research to understand the technology and regulatory landscape of the country (see Annex 1, Country diagnostics).

Step 2: Stakeholder identification

Identify relevant firms. In this case, firms participating in the project are mainly identified from the fDi Markets database of the *Financial Times*, focusing on sectors serving as digital enablers horizontally within the economy: software and IT services, telecommunications and media, banking and financial services, and e-commerce.

Step 3: Stakeholder engagement

Conduct a survey of firms in Azerbaijan, building on the existing digital FDI survey conducted globally by the Forum and complementing it with questions

related to InvesTech as well as carrying out in-depth interviews involving both foreign and domestic investors in Azerbaijan. Interviews provide the chance to probe deeper into the opportunities and challenges of investing in the country, capturing the experience and insights of firms, as the important actors in investment decision-making.

Step 4: Stakeholder input analysis

Synthesize and analyse all data and information collected in Step 3 to identify the primary challenges related to investment in the country. The findings undergo validation with stakeholders from both the public and private sectors in Azerbaijan through a validation workshop.

Step 5: Policy options

Suggest policy options to address the identified challenges, guiding the potential implementation of FDI-enabling solutions in the country.

2 Stakeholder input analysis: Key findings

Survey results were analysed from 100 firms, encompassing both foreign and domestic companies that have made investments in Azerbaijan's digital economy.



Firms span across diverse sectors, including IT, telecommunications and media, e-commerce, electronics and financial services (see Annex 2 for survey methodology and industry spread of surveyed firms). Survey results are further enriched through interviews and consultations with selected stakeholders throughout the digital ecosystem.

The findings are summarized separately for digital FDI and InvesTech.

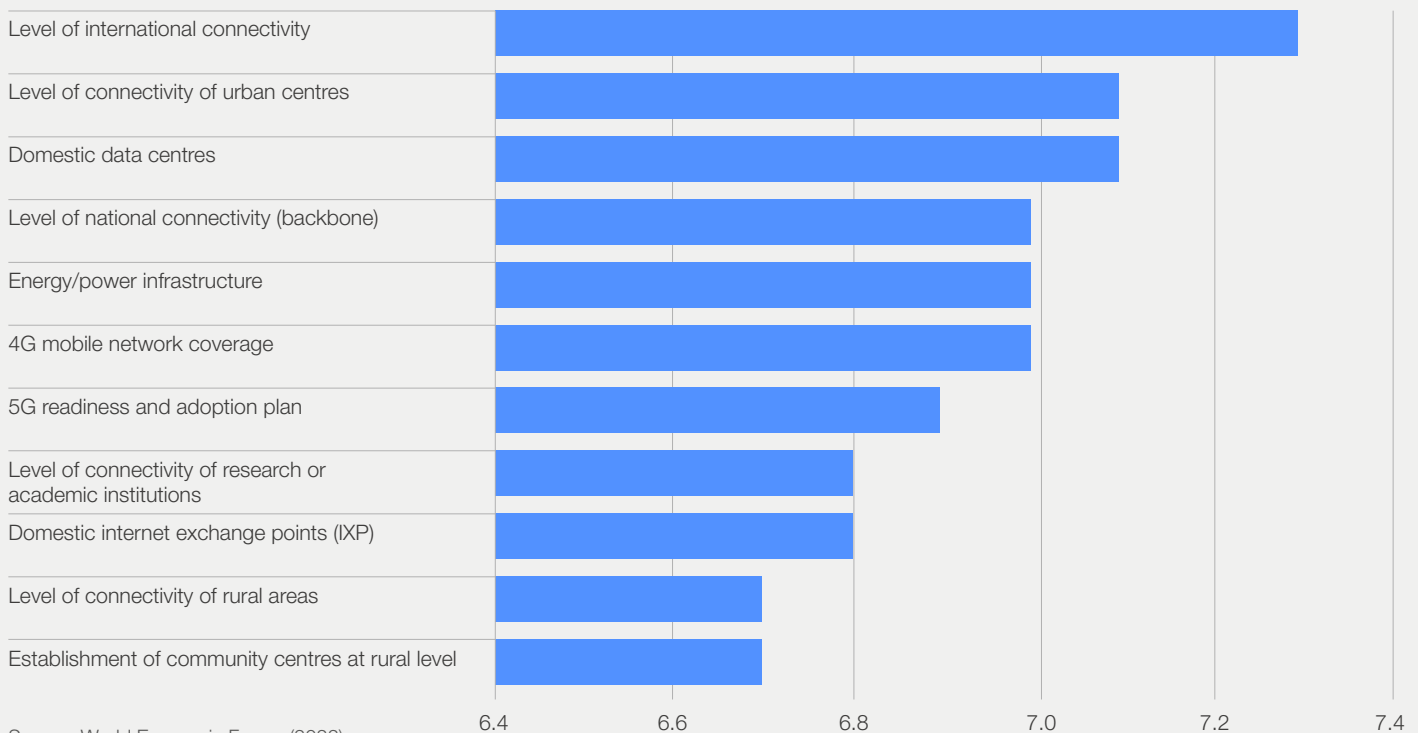
2.1 Digital FDI

1. Enabling investment in digital infrastructure

Figure 5 illustrates the primary physical elements identified by surveyed firms as being crucial for

enhancing investment in digital infrastructure within Azerbaijan. The top three elements selected for attracting FDI are: (1) level of international connectivity; (2) connectivity of urban centres; and (3) quality of domestic data centres.

FIGURE 5: How important are the following physical elements for investing in digital infrastructure in Azerbaijan (0 = least important, 10 = most important)? [weighted average]



Source: World Economic Forum (2022)

Level of international connectivity/level of connectivity of urban centres

If an economy is connected internationally or different parts of the national economy are connected to each other, it will make that economy relatively more attractive for investment. In Azerbaijan, network connectivity could be improved both in terms of speed, coverage and governance. In recent years, the internet has become more accessible to the general public, with the penetration rate rising from only 17% in 2008 to 81% in 2023. Improved internet penetration and affordability result from the gradual spread of mobile and fixed broadband networks and

a notable cut in retail prices for the country's internet service providers.¹³

Despite these advances, interviewed firms have highlighted challenges such as intermittent connectivity and suboptimal internet speeds. This has hindered investment in the country as well as the efficiency of providing export IT services abroad. One of the main reasons behind this current underperformance could be linked to the quality of the broadband service, where the number of higher-speed connections is still relatively low and not connected to the global network. In 2023, Azerbaijan ranked 116th among 181 countries

in terms of fixed broadband internet speed, underscoring the need for improvement.¹⁴

Domestic data centres

Data centres are indispensable infrastructure in the digital era. They provide secure and scalable environments for storing, managing and processing large amounts of data. Having good data centres offers more potential for revenue-generating activities that provide long-term economic growth.

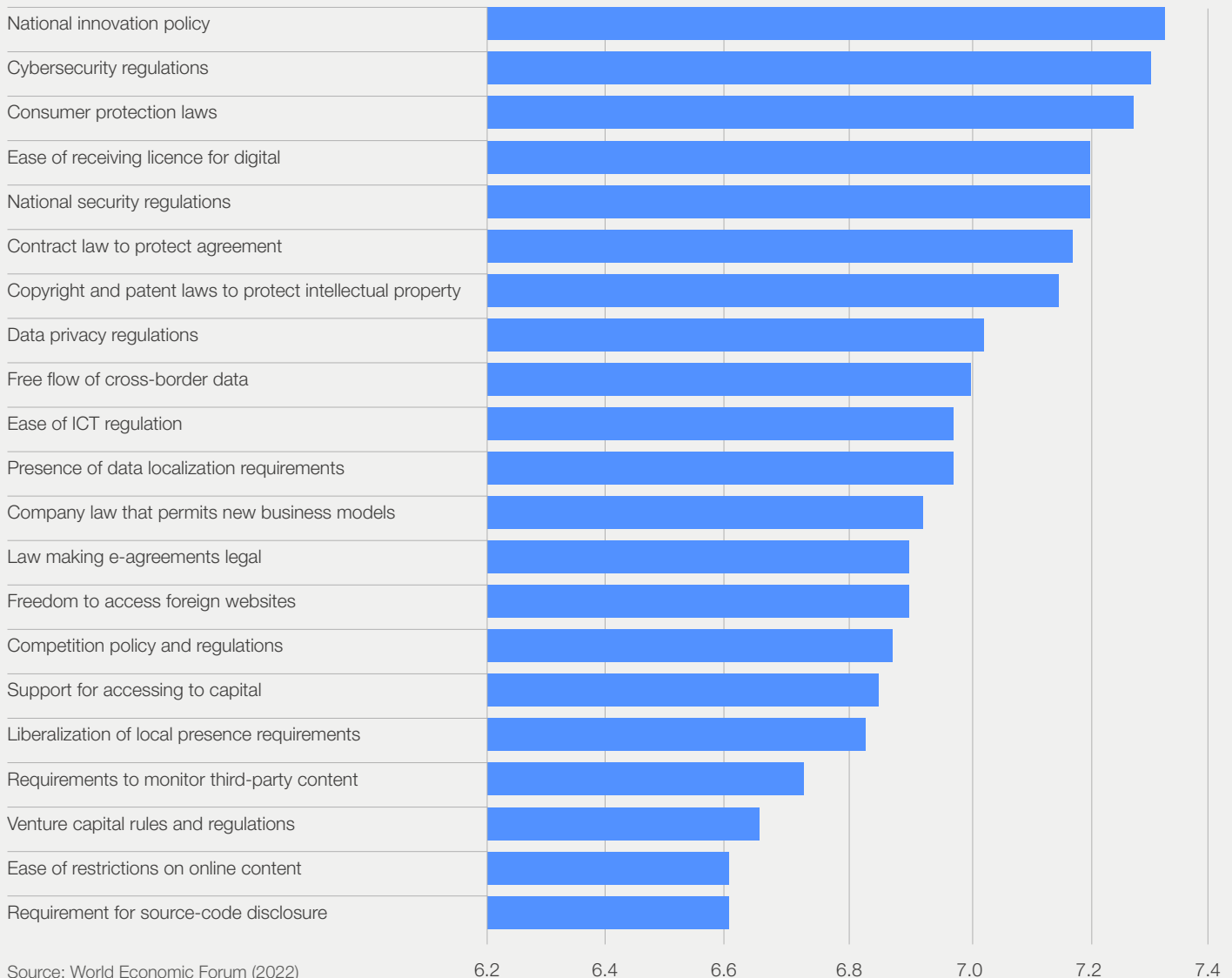
While Azerbaijan has witnessed significant development in physical infrastructure over the past decade (e.g. internet coverage, digital content and moving the local system to the cloud) there remain areas that could be improved to attract digital FDI. Two challenges emerged during interviews: (1) outdated cloud infrastructure powered by data centres has hindered data and digital solution sharing, thereby limiting technology competition; (2) great progress has been made in the implementation of e-government services (Azerbaijan Service and

Assessment Network [ASAN] and Small and Medium Business Houses [SMB Houses]),¹⁵ yet there are challenges involved in the sharing of infrastructure among government agencies. The existence of multiple public-sector digital platforms in Azerbaijan at different levels with no single standard for the creation of integrated IT systems generates potential risks in several areas, including cybersecurity breaches, loss of data, unauthorized access etc. and increased inefficiency of business processes (e.g. renewal of resident permits).

2. Enabling investment in new digital activities

The most important enablers that surveyed firms have identified for attracting investment in new digital activities in Azerbaijan are illustrated in Figure 6. The top three enablers are related to: (1) national innovation policy; (2) cybersecurity regulations; and (3) consumer protection laws.

FIGURE 6: How important are the following for investing in new digital activities in Azerbaijan, e.g. start-ups (0 = least important, 10 = most important)? [weighted average]



Source: World Economic Forum (2022)

National innovation policy

Having a strong innovation policy is deemed to be one of the main pillars for improving the efficiency of a country's economy and infrastructure. Presently, Azerbaijan does not have a single strategy document that outlines its science, technology and innovation priorities. However, the Ministry of Economy is in the process of drafting a Law of the Republic of Azerbaijan "On Innovation Activities", following Decree No. 881 of the President of the Republic of Azerbaijan (2019), to ensure coordination in the field of innovative development in the Republic of Azerbaijan. Moreover, Azerbaijan has made notable improvements in developing a conducive environment for start-ups and innovation. The establishment of numerous institutions and programmes aimed at supporting business development and promoting innovation – such as large-scale networking events organized by the government, technopark development and business incubators – reflects this progress.

However, insights from interviews suggest that the overall start-up ecosystem is still in its nascent stages. Investors have limited options for investing in local start-ups, with many start-ups still in the early stages of maturity, often lacking innovative or competitive ideas. Additionally, there remains ambiguity surrounding the value of investing in the R&D of technology.

Cybersecurity regulations

Countries that have good regulations and policies to promote cybersecurity while at the same time promoting innovation will be attractive to investors (both foreign and domestic). In Azerbaijan, the rapid expansion of the ICT sector highlights a pressing need for accelerated development in cybersecurity measures. Without balanced progress, the burgeoning ICT industry risks outpacing cybersecurity protocols, potentially hindering free flow of data and increasing the cost and risk of doing business.

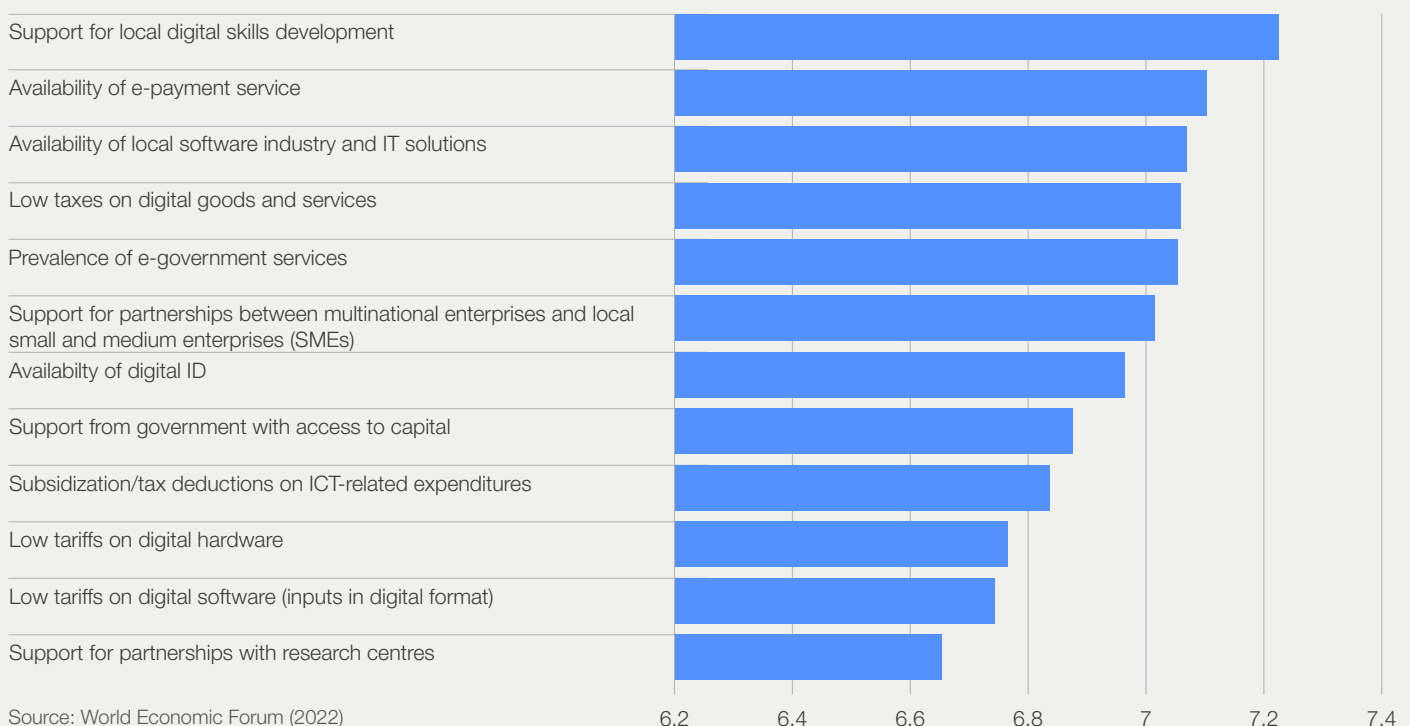
Effective cybersecurity protection requires guaranteeing the safety of systems, data and information and preventing information leakage and data manipulation. While a new cybersecurity law was recently enacted, it primarily focuses on critical infrastructure. There remains an overarching lack of trust in cybersecurity measures, along with concerns regarding data sharing among businesses.

Consumer protection laws

Having effective consumer protection laws in place can attract investment by ensuring a fair and trustworthy digital marketplace, protecting the rights and interests of individuals and businesses in using digital products and services.

During interviews, it was highlighted that there is frequently a deficiency in quality control or assessment for digital solutions, leading to a lack of product-market fit. Consequently, there is a pressing need to advance digital assessment laboratories dedicated to testing, evaluating and comparing digital solutions.

FIGURE 7: How important are the following for investing in existing firms that are adopting digital technologies in Azerbaijan (0 = least important, 10 = most important)? [weighted average]



Source: World Economic Forum (2022)

3. Enabling investment in digital adoption by existing firms

The most important enablers identified by surveyed firms for investing in existing firms that are adopting digital technologies in Azerbaijan are illustrated in Figure 7. The top three enablers are related to: (1) support for local digital skills development; (2) availability of e-payment services; and (3) availability of local software industry and IT solutions.

Support for local digital skills development

The growth of the digital economy is closely associated with an appropriately skilled workforce, whose members possess digital foundation skills such as the ability to use digital technologies as well as more advanced skills where needed. Investors are interested in economies that support local digital skills development (e.g. training programmes and STEM – science, technology engineering and mathematics – education), which, in turn, attracts digital FDI.

In Azerbaijan, while more than 65% of the general population possess basic ICT skills, allowing them to perform digital operations, the country lags behind its regional peers with regard to advanced digital skills.¹⁶ The lack of more advanced digital skills makes citizens more vulnerable to cyberattacks and more likely to miss opportunities for using digital services.

This lack of such skills stems from two main factors: first, there is a skills mismatch, with many personnel working in the digital sector lacking the desired technical skills (e.g. they are more experienced with hardware solutions and do not have advanced digital skills); second, despite the rapid growth of Azerbaijan's ICT sector, the IT services industry remains relatively small, resulting in limited employment opportunities and relatively low salaries. Consequently, there is a significant brain drain of skilled ICT professionals to other countries.

Availability of e-payment services

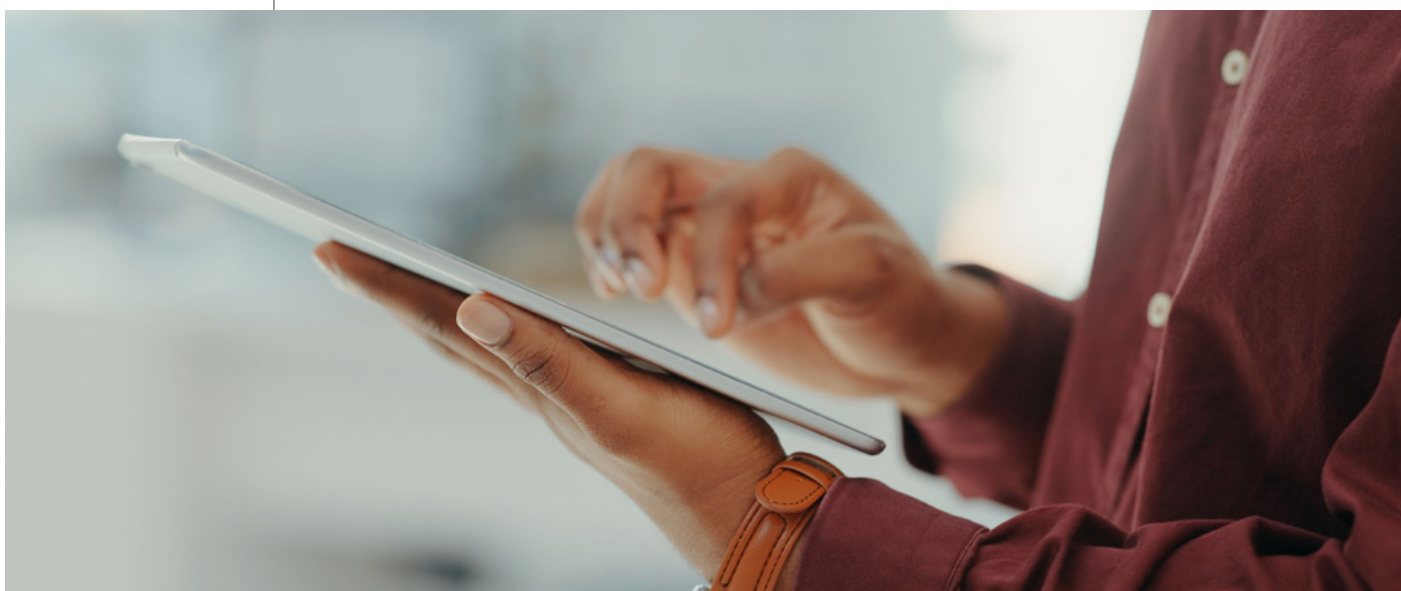
E-payment services are essential to digital economy development and facilitating digital transformation. By providing fast, secure and convenient payment systems, economies can make it easier for businesses to operate and attract both foreign and domestic investment.

According to the Network Readiness Index, Azerbaijan ranked 75th out of 134 countries in 2023.¹⁷ The country performed particularly well on adult literacy rate and ICT skills in the education system, yet underperformed in the use of digital payments, online access to financial accounts and e-commerce legislation. Among interviewed firms, a couple of challenges were raised, including regulatory restrictions in using international payment systems, lack of clarity of cross-border payment rules and low interest in innovative fintech (e.g. blockchain and cryptocurrencies) that has led to low levels of digital payment and e-commerce use in the country.

Availability of local software industry and IT solutions

The quality and availability of the local software industry and IT solutions are prime determinants of the ability to attract digital FDI. A thriving technology industry creates lucrative opportunities for investors looking to capitalize on the sector's significant growth in revenue, workforce and innovation.

Azerbaijan's ICT sector has been expanding rapidly in recent years. However, it remains predominantly dominated by the telecommunications industry, particularly the mobile segment. Opportunities exist to diversify the ICT sector by having a stronger focus on the computer service industry, specifically on the development of software, mobile apps and e-commerce platforms.

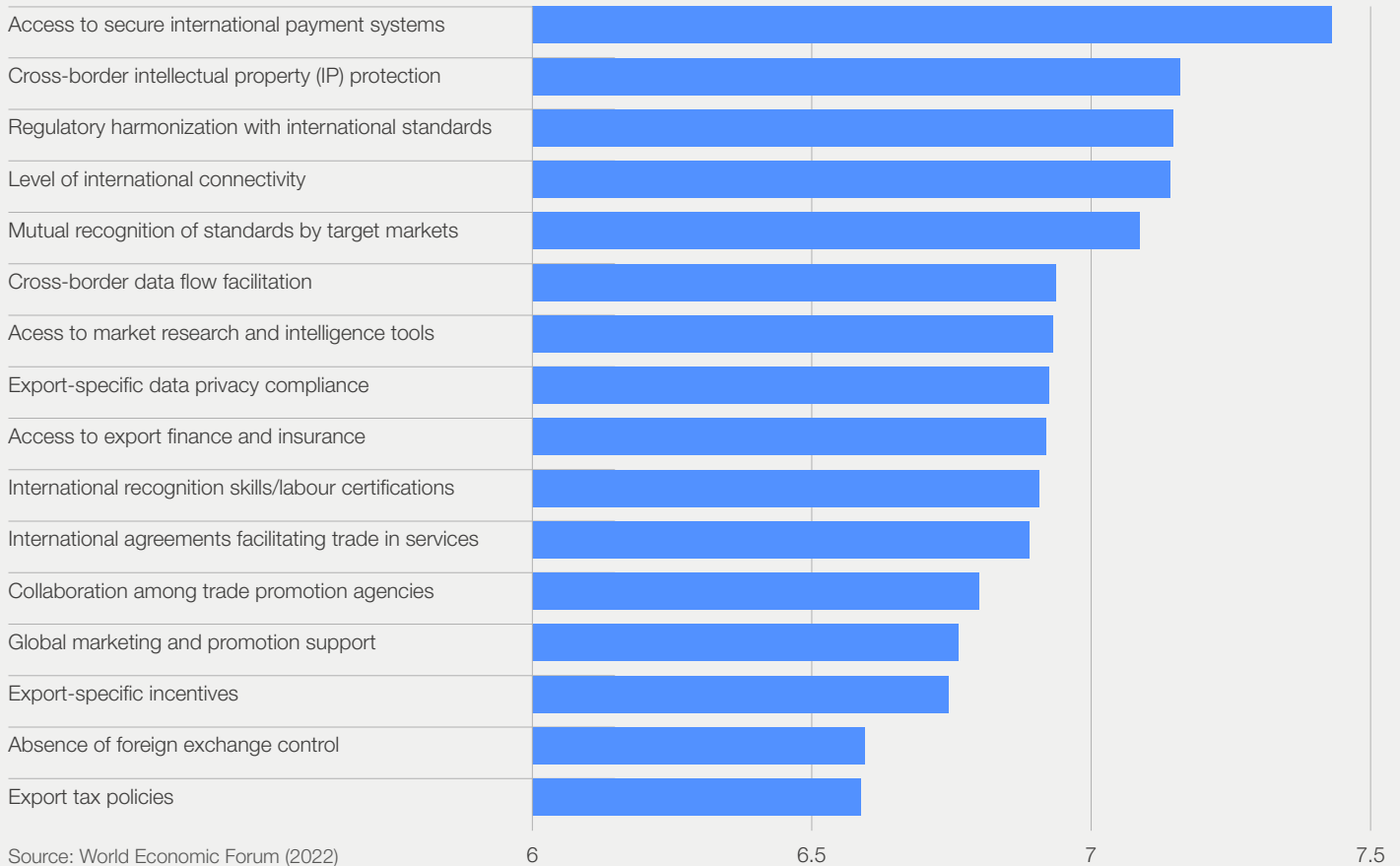


4. Strengthening digital services exports

The most important elements surveyed firms have identified for driving digital service exports

are illustrated in Figure 8. The top three enablers are related to: (1) access to secure international payment systems; (2) cross-border intellectual property (IP) protection; and (3) regulatory harmonization with international standards.

FIGURE 8: How important are the following for firms in Azerbaijan exporting IT and telecom services? (0 = least important, 10 = most important)? [weighted average]



Access to secure international payment systems

Access to secure international payment systems or platforms can enable users to make international transactions seamlessly compared to conventional banking systems. In Azerbaijan, due to regulatory restrictions and a lack of trust in e-payments, marketplaces do not use international payment systems for transactions. For example, PayPal is available in the country for making payments to others but not for receiving payments, and this has hindered the development of e-commerce and e-payments.

Cross-border intellectual property (IP) protection

Digital activities rely heavily on intellectual property, and firms invest significant resources in developing and protecting their intellectual property. In the context of exporting digital services, cross-border IP rights enforcement can be improved. Within the

country, firms reported that there is widespread unlicensed software use in the workplace, taking innovative ideas from competitors etc. There is a lack of ombudspersons or places to appeal in resolving disputes. There is room for improvement in defending IP rights within the country.

Regulatory harmonization with international standards

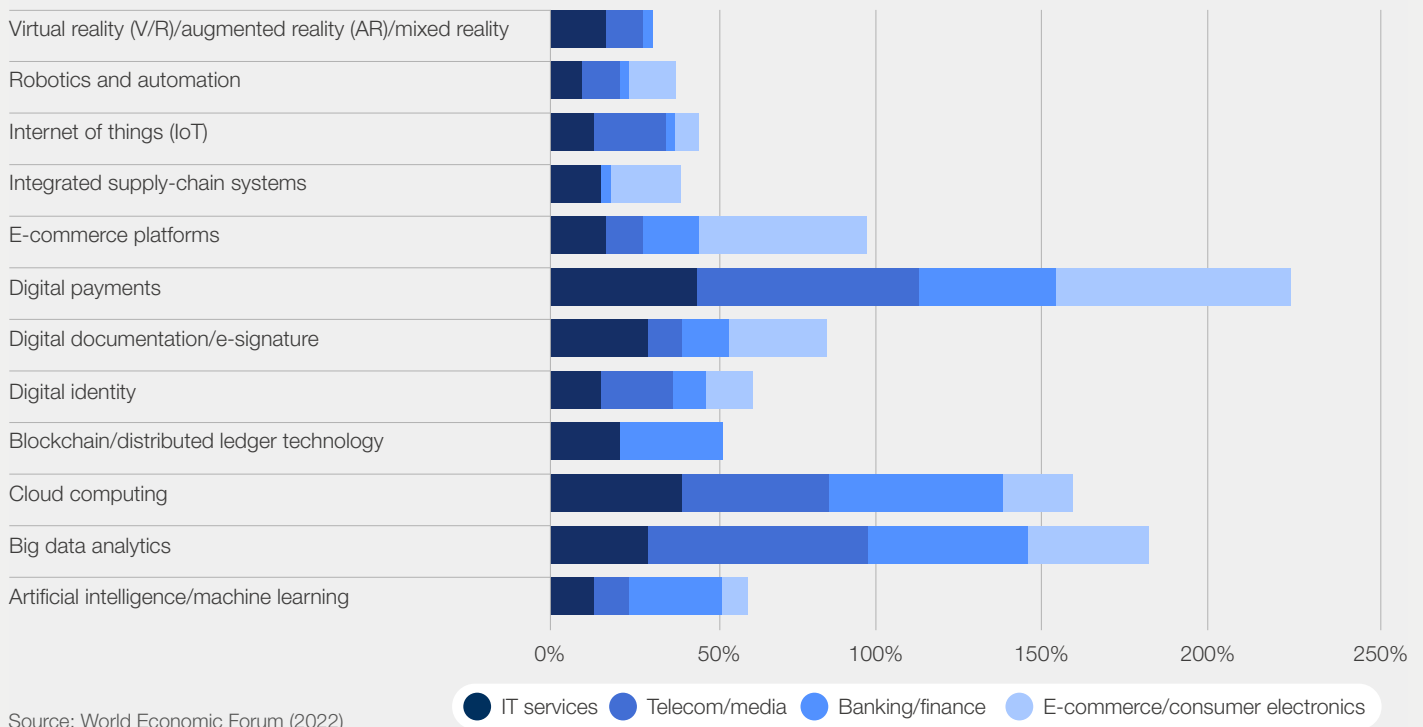
Harmonization with international standards is an important effort towards achieving regulatory cooperation in international trade among countries. However, according to interviewed firms, some regulatory norms/standards are relatively outdated for a few industries, and for some digital solutions there are no domestic standards in the area. Companies tend to comply with international standards or EU standards most of the time, but this lack of clarity can create additional administrative burdens and documentation requests.

2.2 InvesTech

With regard to InvesTech, looking at the aggregated response from all four sectors, the top three technologies identified as the most important enablers for investment in Azerbaijan are: (1) digital payments; (2) big data analytics; and (3) cloud computing

(see Figure 9). The evolution of all three technologies is important, given the current economy and technology landscape in the country, whereas it may still be a little early for the adoption of robotics and virtual reality/augmented reality (VR/AR).

FIGURE 9: Technology enablers for investment



Digital payment has been identified as one of the top enablers for investing in digital transformation in existing firms, and it is the foundation for e-commerce. The use of digital payment is relatively low in the country due to lower levels of advanced digital skills, low levels of trust in digital banking, lack of clarity on cross-border payment rules and regulatory restrictions on using international payment systems. For investors in any sector, the availability, security and interoperability of digital payment services are critical in investment decision-making and operation.

Big data analytics is another innovative technology that is increasingly important for investors in the country, where it helps investors gain insights into customer preferences, behaviour and market trends and facilitates them in making informed investment decisions, be it linked to new digital activities, digital adoption of existing firms or digital infrastructure.

Cloud computing solutions are especially useful for enhancing investment operations, including enabling secure data storage, data sharing and

collaborations between teams. Cloud-based platforms can also support portfolio management systems, data analysis and client communications. Therefore, upgrading the country's cloud system and cloud policy is important for improving the country's data-storing and data-sharing capacities.

Figure 10 shows the current adoption rate of the three technologies. It can be observed that all three have been fully adopted in the telecom/media sector. Since this sector has been considered the backbone of Azerbaijan's digital infrastructure, more investment in emerging technologies would have been expected in the sector.

With respect to digital payment, the adoption rate for all sectors is relatively high, with 100% adoption from both the IT services and telecom/media sectors. With regard to the e-commerce and banking/finance sectors, the adoption gap comes from data security and privacy concerns as well as some company policies that prevent the adoption of such technology in their operations. The lower levels of adoption of digital payment could lead to

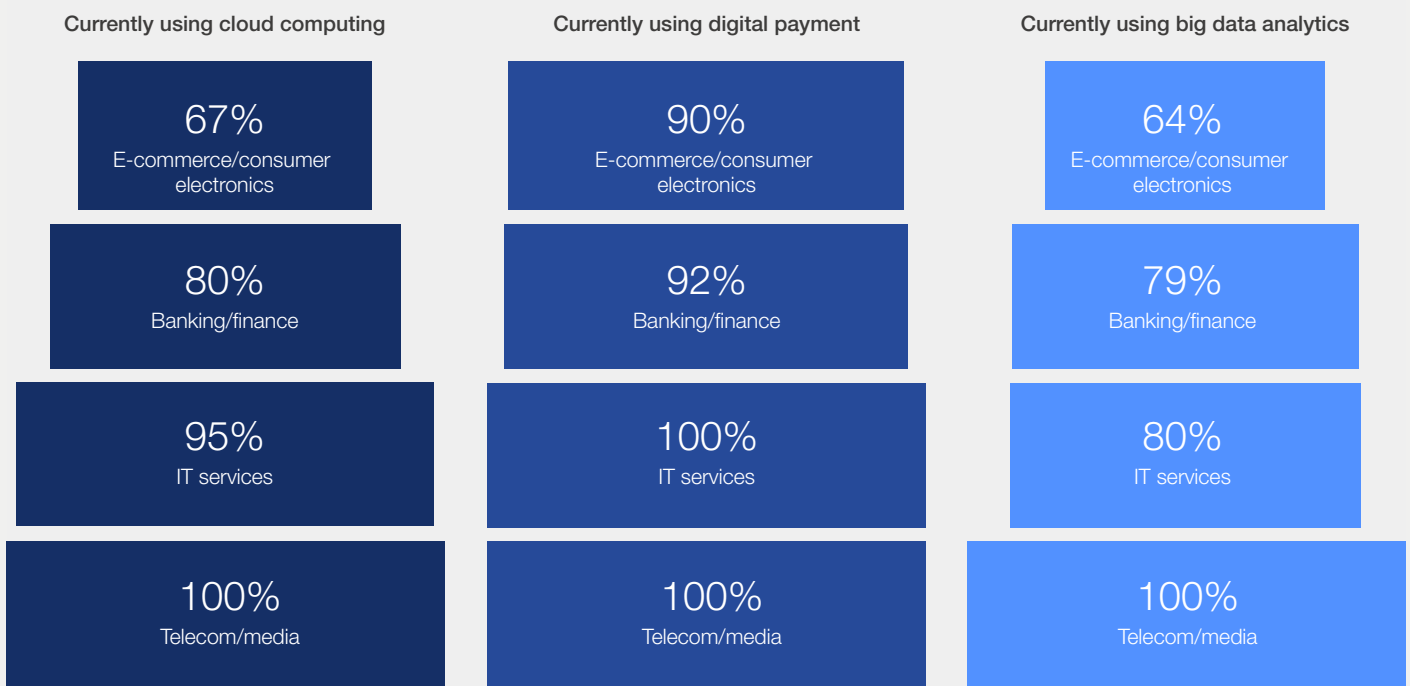
slow progress in the e-commerce and banking/finance sectors' development, as digital payments allow services to be delivered at a competitive cost and enable small and medium enterprises (SMEs) in particular to access formal financial services and benefit from e-commerce. More opportunities could be provided by the government to promote digitalization of services, particularly in relation to digital payment.

When looking at big data analytics, the IT service sector has, surprisingly, the lowest adoption rate. Of the surveyed firms, only 64% have currently adopted this technology in their operations. The main concern expressed was predominantly linked to data security and privacy issues and a lack of

trained personnel having digital skills within the local economy to effectively use the technology.

As for cloud computing, both the e-commerce and banking/finance sectors have a comparatively low adoption rate. Cloud services are usually considered critical for the two sectors, given that they need to have the capacity to store and transfer millions of data points related to, for example, customers and transactions. For the e-commerce sector, the reason for lower levels of adoption is mostly related to the lack of trained personnel, whereas for the banking/finance sector, the high technology cost and regulatory restrictions on accessing technology providers from other countries have been major factors.

FIGURE 10: Adoption rate of technology in Azerbaijan

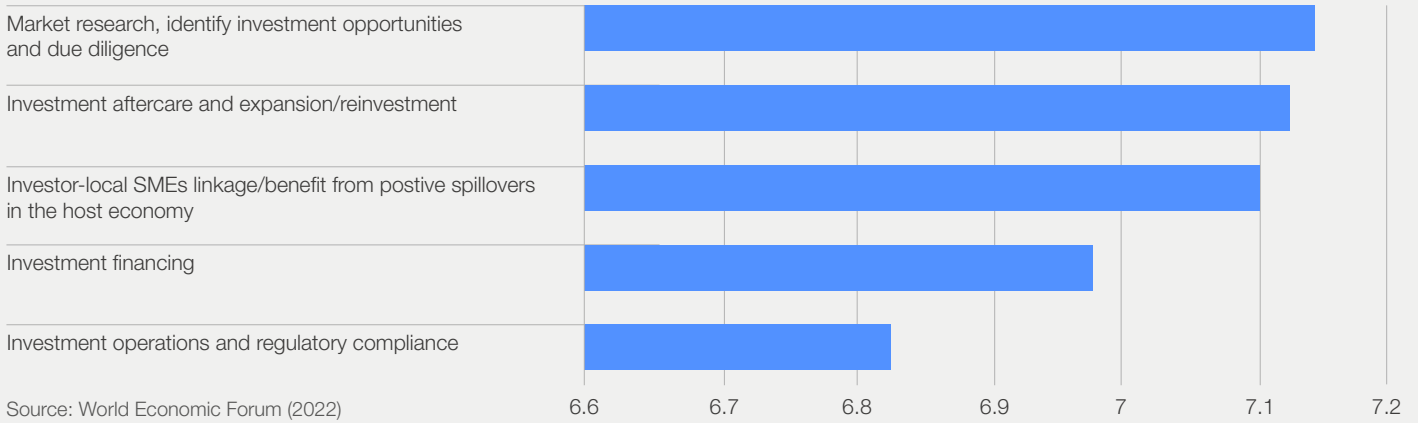


Source: World Economic Forum (2022)

When it comes to applying the technologies, through the survey it was identified that when investing in Azerbaijan, firms would like to see an increasing role for technology in facilitating their decision-making and operation especially during the “market research, identify investment opportunities and due diligence” phase (see Figure 11). This was further explored during the interviews, where it was mentioned that in the country there is currently no large or professional company providing an open, transparent, reliable and easily

accessible data platform for market research or that reflects the economic situation of the country. If there were an easier way to get metadata on the economy, it could substantially help start-ups/SMEs operating in Azerbaijan. One reason for the absence of such a platform could be the potential perceived competition with government authorities in providing IT services, as sometimes government authorities act as both regulators and operators, hence discouraging other potential operators from entering the market.

FIGURE 11: Importance of technology in helping investors during the investment life cycle [weighted average]



Market research, identify investment opportunities and due diligence

Zooming in on the “market research, identify investment opportunities and due diligence phase” to start, the digital tools/applications that are considered most critical for firms in conducting market research for identifying investment opportunities are: (1) online business set-up procedures; (2) online platforms with real-time data and market insights using AI and/or big data; (3) social media campaigns, podcasts, videoconferencing and other online communications (see Figure 12).

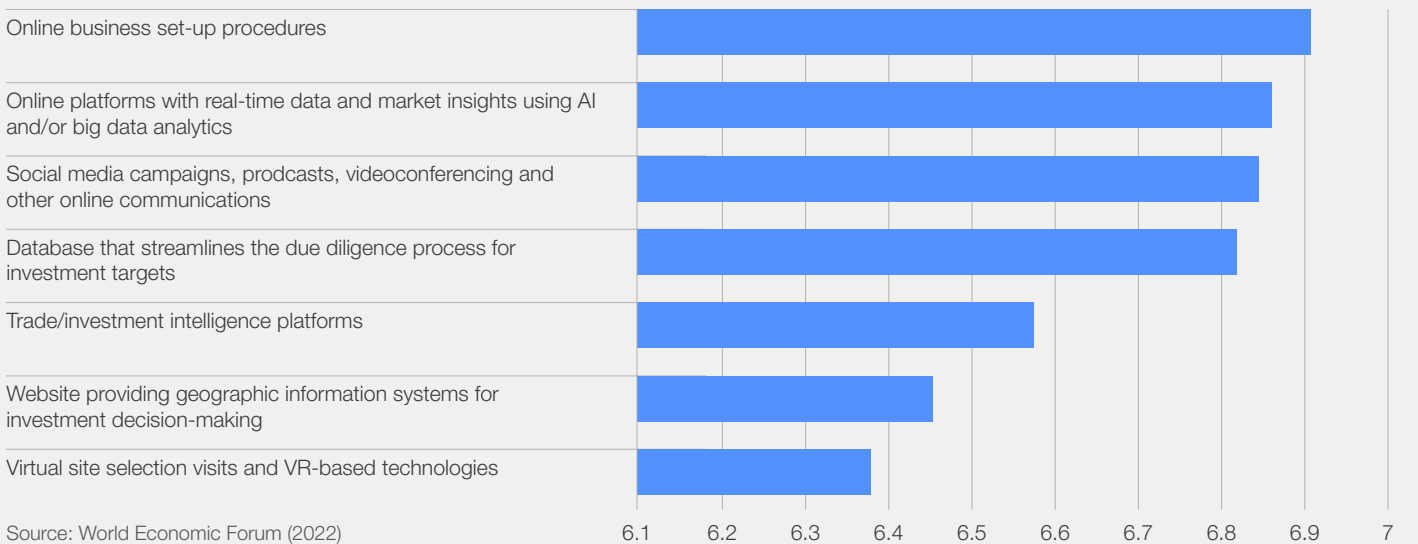
In the interview, it was noted that starting a business in the country is very straightforward and quick with the implementation of e-government services (ASAN); where efficiency could be improved is in integrating different public-sector platforms to better

store and share data among government agencies, thereby increasing the efficiency of certain business processes such as renewal of residence permits, as firms would then not need to go back and forth between several agencies.

Online platforms with real-time data and market insights using emerging technology are currently absent in the country. This service is, however, more readily available in neighbouring countries or other advanced economies. Filling this gap could substantially help firms looking to invest in the economy.

Finally, with regard to social media campaigns, currently such digital channels for investment promotion have not been widely used. Interviewed firms reported that more marketing promotion could help the country build its brand, especially for the IT service sector, to attract foreign investment.

FIGURE 12: Importance of technology in helping investors with investment decision-making [weighted average]



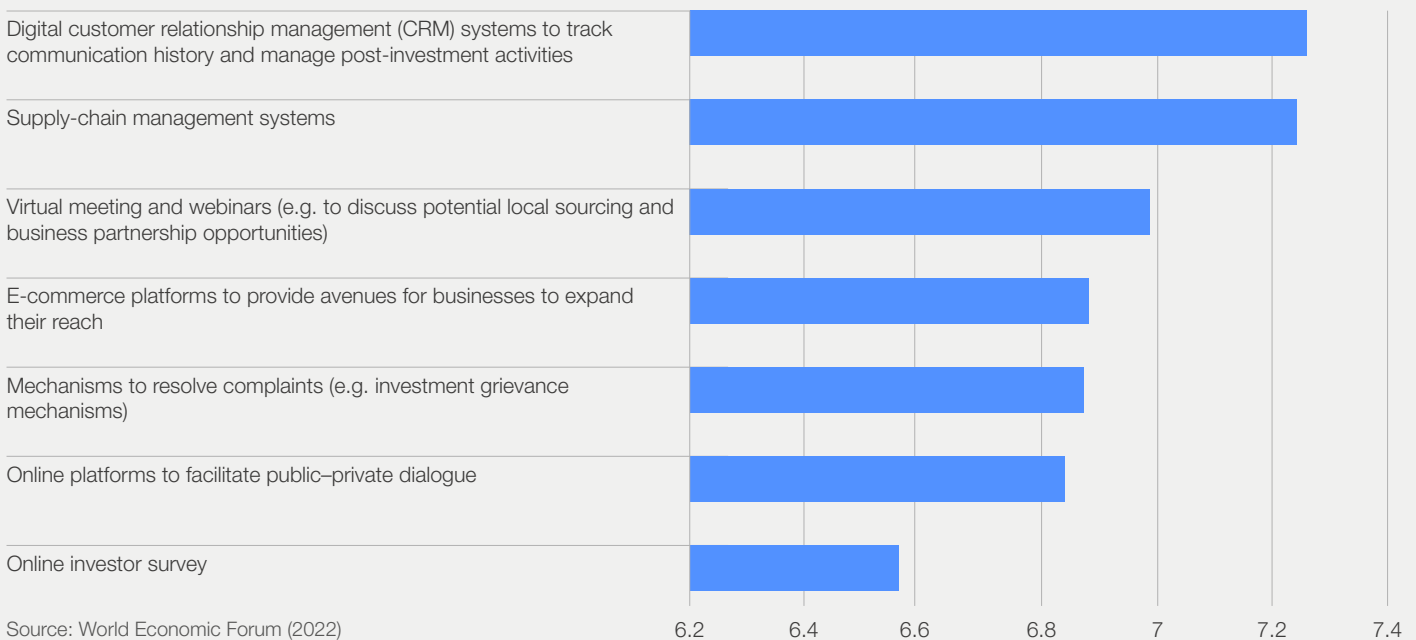
Investment aftercare and expansion/reinvestment

“Investment aftercare and expansion/reinvestment” was identified as the second important phase that could benefit from substantial digital tools/application of technology. The top three digital tools/technologies considered critical for investment expansion are related to: (1) digital customer relationship management systems (CRM) to track communications; (2) supply-chain management systems; (3) virtual meetings and webinars (see Figure 13).

Both the telecom/media and e-commerce sectors gave proportionally higher scores to the importance of digital CRM systems and supply-chain management systems, given their operational and delivery model. Interviewed firms reported that the overall level of digitalization is quite low in the economy, especially in the areas of data collection and use of simple system automation tools to support data analytics. Hence, further advances in supporting technology development in these areas would be welcome.

With regard to virtual meetings and webinars, adoption has significantly increased since the COVID-19 pandemic, during which physical meetings were often suspended.

FIGURE 13: Importance of technology in helping investors during investment expansion [weighted average]



Investor-local SMEs linkage/benefit from positive spillovers in the host economy

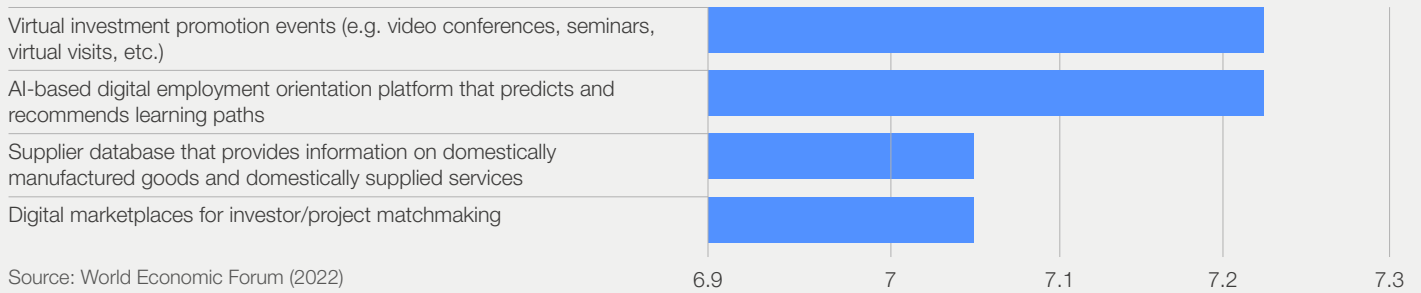
During the “linkage and spillover” phase, the top two areas in which technology could play an important role are in: (1) virtual investment promotion events; (2) AI-based digital employment orientation platforms that predict and recommend learning pathways (see Figure 14).

For investors, creating linkages with the local business ecosystem is very important; in fact, many investors choose a particular location because of a strong existing business ecosystem in their sector, and so this is beneficial for local start-ups and SMEs as they can potentially benefit from the positive spillover of skills, technology and know-how. Virtual investment promotion events could add much value in this area, with

the advantage of providing opportunities to meet high-level representatives from both the public and private sectors through virtual events and discuss collaboration opportunities and later follow up with in-person interactions.¹⁸

AI-based digital employment orientation platforms can be especially important for enhancing the growth prospects of a firm, as they save costs and production time and suggest training resources based on employees’ skills-development needs. In digital-related and knowledge-intensive industries, in particular, it was identified through the interview that there is a digital skills gap in both the public and private sectors for meeting market demands, hence having AI-based learning platforms with prescribed learning paths would be helpful in digital skills development from the operational side.

FIGURE 14: Importance of technology in helping investors to enhance growth prospects [weighted average]



Investment operation and regulatory compliance

According to Figure 15, the top three areas in which technology could play an important role are related to: (1) digital identity verification solutions (e.g. biometric verification, background checks, etc.); (2) investment single window/one-stop-shop for regulatory requirements/policies; (3) risk-management tools.

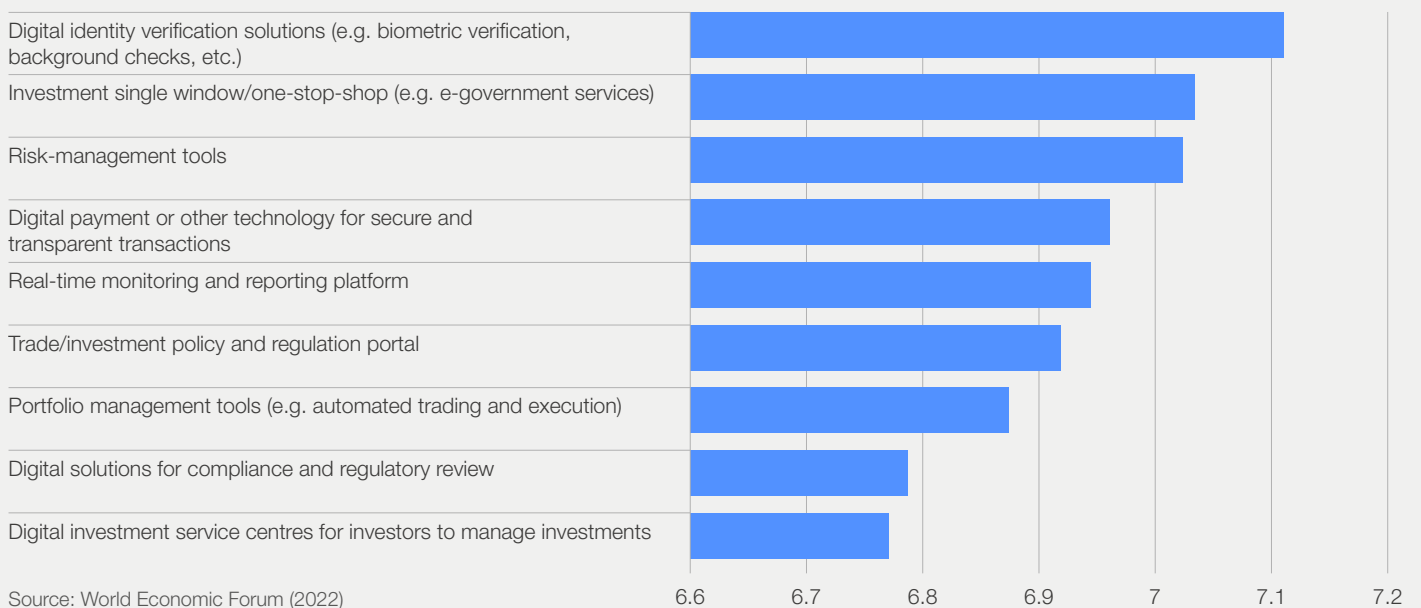
Digital identity verification solutions rank at the top when it comes to facilitating investment operations. Their significance is undeniable, opening doors for widespread participation in the digital economy, including online transactions and access to e-government services. While the deployment of digital identity verification solutions has started in Azerbaijan, it remains in its nascent stage. The next stage could be to better capitalize on national digital

identity programmes to enable the use of more digital activities.

Interviewed firms stated that the transparency of regulatory requirements and policy measures could be improved through a one-stop-shop in which firms/members of the public have access to all regulatory requirements or procedures that help businesses with compliance checks. Currently individuals often find themselves navigating multiple government agency websites to gather comprehensive information on requirements and documentation needs.

On risk-management tools, the average score from the telecom/media sector was proportionally higher than for other sectors. Given that telecom is the backbone of Azerbaijan's digital infrastructure and has been expanding rapidly in the past 10 years, more advanced technological tools are in demand to improve operational efficiency.

FIGURE 15: Importance of technology in helping investors during investment operation and compliance [weighted average]



3 Policy options

The possible policies presented to promote investment in the digital economy are based on feedback from firms operating in four digital FDI-enabling sectors: IT, telecom/media, banking/finance and e-commerce.



While all policy options identified hold the potential to positively influence digital FDI and the adoption of InvesTech, they must be systematically prioritized to ensure the government of Azerbaijan has the available resources and time to work on these areas, aligning with its national socioeconomic development goals and Digital Economy Development Strategy.

The findings and resulting policy options were shared with relevant stakeholders from both the public and private sectors (pertinent government agencies, foreign and domestic firms, international development partners, etc.) through a consultation and validation workshop. From the workshop and from additional consultations, certain policy options from the list were prioritized, and a more concrete action plan and way forward for implementation were formulated. Details are discussed in Section 4, The way forward: Policy options in action.

TABLE 3: **Policy options to facilitate digital FDI and make better use of InvesTech**

New digital activities	Policy option 1 Support the regional expansion of Azerbaijani start-ups and provide entrepreneurship capacity-building	<p>Consider facilitating the expansion of Azerbaijani start-ups to other markets and bring start-ups from other countries into Azerbaijan to learn from them. Both of these measures could improve the capacity of local Azerbaijani start-ups, including through the spillover effect of building know-how, technical capacity and skills development.¹⁹</p> <p>Consider organizing regular awareness-raising campaigns on the opportunities for creating start-ups. For new start-ups, provide capacity-building on entrepreneurship and market research on making their innovative ideas more competitive.</p>
	Policy option 2 Align cybersecurity and personal data protection with international standards	<p>Consider regularly reviewing domestic regulations in cybersecurity to potentially harmonize technical requirements and standards with international standards to ensure that digital transformation and e-governance in Azerbaijan are aligned with the requirements and needs of the modern-day cyber landscape. The constantly evolving nature of the cybersecurity environment calls for increased use of international cybersecurity standards and best practices, which have been developed through multistakeholder, open and consensus-based processes to address these dynamic cyberthreats.</p> <p>Consider ensuring that data policy both provides personal data protection and allows for the smooth cross-border data flow that is critical for cloud-based services.</p>
	Policy option 3 Support R&D for the digital economy through incentives and public procurement	<p>Consider establishing an ecosystem more conducive to mobilizing resources towards R&D through different policy instruments such as pushing for joint R&D cost-sharing between government and the private sector and establishing centres of digital excellence in which firms can learn from good emerging technology methodologies.</p> <p>Consider using public procurement to support R&D through government agencies for emerging technology solutions, thereby helping to demonstrate proof of concept. It is important to ensure that support and benefits are not only provided to larger, established firms or government-related firms in the market but that smaller firms and start-ups also benefit from increased R&D.</p>

Digital adoption	<p>Policy option 4</p> <p>Prioritize digital skills development in schools and raise awareness of the benefits of digitalization</p>	<p>Consider prioritizing educational resources towards digital skills development, especially in science, technology, engineering and mathematics (STEM) subjects, ensuring a higher proportion of employment in digital-related and knowledge-intensive industries.</p> <p>Consider awareness-raising among the general population about the benefits of digitalization. Equal learning opportunities could be promoted for all citizens to ensure that digital skills development programmes are provided beyond urban centres and to better enable the upskilling of workers in rural areas.</p>
	<p>Policy option 5</p> <p>Collaborate with the private sector to identify in-demand digital skills that will help create jobs</p>	<p>Consider working in collaboration with the private sector to identify the digital skills required to keep pace with the rapid digital transformation across various industries and sectors. Place particular emphasis on ensuring such digital skills are those demanded by the workforce so this could lead to employment.</p>
	<p>Policy option 6</p> <p>Promote fintech solutions and strengthen financial inclusion</p>	<p>Consider promoting fintech solutions and their wider adoption by traditional businesses (e.g. e-wallets). Promote awareness and use of digital financial services to enhance financial inclusion, including ease of opening bank accounts and use of online banking.²⁰</p>
Digital infrastructure	<p>Policy option 7</p> <p>Ensure growth in broadband provision through competition and supportive policies</p>	<p>Consider supporting additional improvements in the quality of broadband and universal coverage by encouraging competition in the market, e.g. through competitive tenders.</p> <p>Currently, the country has a very active mobile broadband user base and good coverage of 3G and 4G (ranked 40 out of 131 countries in 2023 on “Population covered by at least a 3G mobile network”).²¹ However, good coverage does not translate into universal coverage, high-quality and high-speed connections. The ICT market in Azerbaijan is fairly concentrated with state-owned companies, which potentially limits the sector’s development.</p> <p>Consider adopting policies supportive of the growth of broadband. Examples from Organisation for Economic Co-operation and Development (OECD) countries that could be relevant include simplifying licensing requirements, improving transparency in the registration process and introducing independent regulation.²²</p>
	<p>Policy option 8</p> <p>Support the development of a cloud environment</p>	<p>Consider ensuring that cloud services are available and of high quality, both through supporting access by private firms in Azerbaijan to international cloud services and through encouraging the development of domestic cloud services providers.</p> <p>Consider support for the further advance of government-provided cloud services by public-sector bodies for more seamless delivery of services. The growth of such services can help stimulate the development of domestic cloud services for the private sector as well.</p> <p>In addition, a complementary approach could be to support a hybrid cloud, which unifies publicly owned cloud and private cloud, which could provide additional benefits, such as cost savings and optimization.</p>

Digital service exports	Policy option 9 Establish a one-stop IP service platform in the country and strengthen IP protection and enforcement	<p>Consider ensuring that Azerbaijani digital entrepreneurs and firms with innovative ideas have strong support in registering and protecting their IP through a one-stop IP service platform.</p> <p>Consider ensuring strong IP protection and enforcement in the digital ecosystem overall, to make it more likely that foreign firms with advanced digital technologies set up shop in Azerbaijan, thereby supporting the growth of a high-quality business environment.</p>
	Policy option 10 Facilitate cross-border digital payment systems, including through interoperability	<p>Consider providing policy guidance that signals to the market that cross-border digital payment systems are welcome and encouraged.</p> <p>Consider supporting the interoperability of digital payment systems in Azerbaijan and other countries by adopting international standards such as ISO 20022 to advance payment connectivity and partnerships with international organizations.</p>
	Policy option 11 Support image-building and branding for digital services exports	<p>Consider strengthening marketing promotion of digital service exports from Azerbaijan and building the brand of the country as a strong digital service country. There are digital service exporters in Azerbaijan, but a lack of trust and awareness in the foreign market of digital solutions from the country.</p>
InvesTech	Policy option 12 Raise awareness of InvesTech tools and map out current InvesTech capabilities to plug any gaps	<p>The main challenges in fully benefiting from emerging technologies and promoting digital transformation are not linked to the technology itself (as it is transferable) but to having the right skills in the labour force, enabling infrastructure as well as a good regulatory environment for the digital economy (e.g. for cybersecurity, data protection, etc.).</p> <p>For fully fledged use of emerging technologies, open and frequent experimentation is needed. Investment authorities (including the Azerbaijan Export and Investment Promotion Agency [AZPROMO]) could bring together public agencies, private-sector firms, non-profit organizations, research institutions and other relevant stakeholders to create an innovation ecosystem around InvesTech tools and transfer knowledge, skills and capacity between different players, helping firms and public-sector agencies to create value that cannot be developed within each one's capacity alone.</p> <p>Moreover, investment authorities could also hire innovative teams to identify firms and assess R&D capacity within the country in the digital sectors and map out their current capacities and visions for the near future, then bring these firms and stakeholders together to share ideas and good practices and potentially collaborate on joint projects.</p>
	Policy option 13 Support the three most widely recognized InvesTech applications in Azerbaijan	<p>Consider providing additional support to make available and promote the adoption of the three most widely recognized InvesTech applications in Azerbaijan (as per survey results) to facilitate investment decision-making and operations:</p> <ul style="list-style-type: none"> – Digital payments – Big data analytics – Cloud computing

4

The way forward: Policy options in action

Three policy options have been selected to be developed and put into action by C4IR Azerbaijan as a matter of priority.



Following the conclusion of the validation workshop, three policy options were agreed for prioritization by C4IR Azerbaijan as the next step for a second-phase project led by the C4IR Azerbaijan and UNESCAP, supported by the World Economic Forum. The remaining policy options were viewed favourably by key stakeholders, but the community

decided to focus on the three options outlined below to achieve tangible impact in the near term.

Table 4 provides a summary of the three suggested policy options from Table 3 and proposed next steps in achievable terms.

TABLE 4: **Action areas for implementation**

Policy option	Action area	Activity
<p>Policy option 1 (New digital activities)</p> <p>Support the regional expansion of Azerbaijani start-ups and provide entrepreneurship capacity-building</p>	<p>Action area 1</p> <p>Support the regional expansion of Azerbaijani start-ups, support FDI as a source of capital and hold activities for regional start-up ideas exchange.</p>	<ul style="list-style-type: none"> – Facilitate a workshop for Azerbaijani and regional start-ups, focusing on the viability of FDI as a means of providing capital. Additionally, share insights on expansion strategies and success stories from neighbouring markets. – Conduct training sessions and capacity-building exercises for start-ups in Azerbaijan, Kazakhstan and Tajikistan (and potentially Türkiye), emphasizing export readiness, especially in digital services, and the opportunity for FDI to provide capital.
<p>Policy option 5 (Digital adoption)</p> <p>Collaborate with the private sector to identify in-demand digital skills that will help create jobs</p>	<p>Action area 2</p> <p>Support the digital transformation of existing Azerbaijani firms by scaling the use of the Smart Industry Readiness Index (SIRI) tool to guide firms through their digital transformation journey and enhance their readiness for Industry 4.0 technologies.</p> <p>Additionally, host a workshop featuring insights from international firms experienced with SIRI.</p>	<ul style="list-style-type: none"> – Host a workshop and training session tailored for Azerbaijani manufacturing firms, with a focus on those with significant potential for digitalization. The sessions will introduce the SIRI assessment tool, accompanied by case studies showcasing successful implementations by international firms.
<p>Policy option 13 (InvesTech)</p> <p>Support the most widely recognized InvesTech application in Azerbaijan for investment attraction, entry and operation; investment aftercare and retention; and foreign-domestic firm linkages</p>	<p>Action area 3</p> <p>Promote the adoption of specific InvesTech tools in Azerbaijan, notably an incentives calculator tailored for investors.</p>	<ul style="list-style-type: none"> – Collaborate with relevant government agencies (e.g. AZPROMO, C4IR Azerbaijan) to design an investment incentives calculator. This tool will encompass information on both horizontal incentives spanning various sectors and those tailored specifically to the digital economy. – The calculator could be hosted on all relevant investment authorities' websites for easy access and use by potential investors.

Conclusion

The Investing in the Digital Economy of Azerbaijan (IDEA) project is dedicated to enhancing the country's investment climate for the digital economy.

Through project activities, the aim was to identify key policies, regulations and approaches conducive to attracting digital FDI and promoting the adoption of InvesTech to grow investment in Azerbaijan. This has been carried out through desk research and extensive stakeholder engagement, including business surveys, one-on-one interviews and consultations.

The findings – those areas where there is scope for further improvement and strengthening – have been presented and policy options suggested. The objective behind each policy option is to identify the ways in which the Azerbaijani government could better enable investment in digital infrastructure,

digital activities and digital adoption by existing firms and better support ICT service exports and outward digital FDI as well as the adoption of InvesTech.

The feasibility of these suggested policy options has been substantiated through consultation with and validation by relevant stakeholders from both the public and private sectors. This consultation and validation ensures consensus on and support for the prioritized action areas, laying the groundwork for future implementation. Looking ahead, a second phase of the project will be led by C4IR Azerbaijan, with the support of UNESCAP and the World Economic Forum, to implement the priority action areas.



Annexes

Annex 1: Country diagnostic

Digital FDI: Landscape mapping

Digital FDI in Azerbaijan can be conceptualized as an investment in economic activities related to infrastructure, software and IT services, telecommunications and media, banking/finance, e-commerce and start-ups (in sectors such as agriculture, energy, health and education).

Regulatory environment

Azerbaijan's digital economy policy suite comprises a range of policy, legislative and regulatory instruments. These largely fall into two categories:

1. Technology regime: policies and regulations that define and govern the country's digital sector (across all four pillars of digital FDI) and influence the evolution of Azerbaijan's digital economy.
2. Investment regime: policies and regulations that define and govern the overarching investment landscape for investors in the digital economy in Azerbaijan.

1. Technology regime

The country has made significant progress in improving its digital economy through several strategic policy actions, including the establishment of the Center for Analysis and Coordination of the Fourth Industrial Revolution (4SIM) and the Innovation and Digital Development Agency to implement policies supporting digital economy development.

The core of the digital economy strategy of the country revolves around accelerating the digitalization of existing sectors and empowering citizens through improved digital skills.²³ To achieve these goals, there is a strong emphasis on improving government operations via digital technologies. Since 2010, the president has been leading the process to promote the large-scale expansion of the digital ecosystem, including streamlining administrative procedures and expanding e-government services. This is marked by the launch of the E-Government Development Center, establishing the Azerbaijan Service and Assessment Network (ASAN) service centres,²⁴ implementing single-window systems and creating high-tech parks and innovation hubs. These endeavours collectively contribute to developing a more competitive society and economy.

In the area of cybersecurity, the government announced its first five-year Strategy of Azerbaijan Republic on Information Security and Cybersecurity for 2023–2027 in August 2023. The strategy outlines important issues such as cybersecurity requirements for the national digital space, enhanced personal data protection and the development of an organizational structure for cyber organizations. Simultaneously, the Central Bank of Azerbaijan has approved the Cybersecurity Strategy in Financial Markets for 2023–2026, solidifying the commitment to a resilient financial cybersecurity environment.

In addition to digital economy reforms, Azerbaijan has strategically committed itself to transregional digital megaprojects with the aim of turning the South Caucasus countries into a regional “digital hub” (in parallel with the country's longer-term strategic objective of becoming a transit and energy hub) and reducing its own reliance on foreign countries such as Russia and Ukraine for internet access. One of these projects is the Digital Silk Way, which aims to construct a modern fibre-optic network that serves as a digital telecommunication corridor connecting Europe and Asia.²⁵

2. Investment regime

Foreign investment in Azerbaijan is regulated by a number of pieces of domestic legislation, international treaties and agreements. These include the Law on Investment Activity, the Law on Investment Funds, the Law on Privatization of State Property and other sector-specific regulations.

According to the Law on Investment Activity, issued in June 2022,²⁶ the state guarantees the protection of the rights and freedom of investors and prohibits unreasonable discriminatory treatment, harassment or any type of violence against investors and their investment.

The new law also designates preferred investment projects, including those focused on enhancing Azerbaijan's technological capacity, encouraging eco-friendly technologies, optimizing natural resource usage, advancing social infrastructure and various economic sectors, fostering relevant expertise and promoting regional development.

In parallel, several reforms have been undertaken to improve the investment climate in the country, such as providing tax-related benefits and other government financial support,²⁷ the provision of loans on preferential terms,²⁸ expansion of the mechanism of public-private partnerships, removing restrictions on repatriation of profits, foreign exchange, technology transfer and limited price control, among others, according to the AZPROMO investment guide.

Furthermore, to stimulate investment, the Ministry of Economy is issuing investment promotion documents (IPD) to legal entities and entrepreneurs.²⁹ The IPDs serve as a basis for granting tax and customs benefits for investors, including exemption from income tax of 50% and exemption from VAT and customs duties on imported hardware, technological equipment and structures for seven years if the starting date is before 2019 and ten years if the starting date is after 2019.³⁰

Factors affecting FDI

Several factors can affect FDI inflows and outflows in Azerbaijan.

1. Investment climate and ease of doing business

The investment climate in Azerbaijan has improved over the years in terms of eliminating redundant business licence categories, promoting e-government service centres, simplifying customs procedures, suspending certain business inspections and reforming the tax regime.

On government services, significant progress has been made in expanding e-government services, notably in the areas of allowing online company registration, issuing of business licensing and public procurement. The e-government portal (ASAN) has been identified as the best practice in the region by the World Bank.³¹ According to the UN E-Government Index, Azerbaijan ranked 83rd out of 193 in 2022 (increased from 0.45 to 0.69 in the past decade), above both the world and regional averages (global average 0.61, regional average 0.65).³²

Despite these efforts by the government to build a conducive business environment, challenges still remain when it comes to the priority sectors of focus. The government has sought to attract FDI, undertake reforms to diversify its economy from being too resource-dependent and stimulate private sector-led growth. However, the economy remains heavily dependent on hydrocarbons, which accounted for around 92% of export revenue in 2023 and half of the state's budget. This poses risks to long-term growth due to the decline in oil production constrained by infrastructure capacity and rising domestic consumption,³³ price volatility and the global shift away from fossil fuels.

2. Legal environment

Azerbaijan's legal system is based on civil law principles and the country has undergone significant legal reforms in recent years to modernize its legal

framework and attract foreign investment. Under Azerbaijan's Law on the Protection of Foreign Investment and the Law on Investment Activity, foreign investors enjoy full legal protection and may not be nationalized or expropriated except under specific circumstances. Private entities may freely establish, acquire and dispose of an interest in business enterprises. In accordance with these laws, the Azerbaijan government treats foreign investors in a manner no less favourable than national investors.

3. Digital sector-specific policy and regulations

According to the OECD's FDI Regulatory Restrictiveness Index, Azerbaijan has an open regulatory regime in the IT, telecommunications and media, and electronics sectors with a score of 0.01 (open = 0; closed = 1).³⁴ The country is more open to FDI than the OECD average when it comes to statutory restrictions in these sectors. Barriers to FDI are relatively low and market conditions are comparable to some of the most open OECD economies.

Among the digital FDI priority sectors, ICT is one of the four target sectors for economic diversification. The government has established several technology parks in the country, which offer tax breaks, exemptions and preferential terms to companies.

In 2016, the president approved a Strategic Roadmap for the Development of Telecommunications and Information Technologies, which outlined three key strategies along with priorities, namely: (1) improve governance structures and strengthen ICT; (2) increase productivity and the operational efficiency of the business environment; and (3) digitalize government and the social environment.³⁵ This includes, but is not limited to, the creation of a sector regulator to establish regulations and license operations, allocation of a low-frequency spectrum for 4G/LTE³⁶ and more competition in the infrastructure backbone market, among others.

In 2021, Azerbaijan established the Information and Communication Technology Agency, with the aim of promoting fair market competition for ICT. It is, however, important that the new agency has sufficient financial and human resources to fulfil its mission.

Despite these new policy initiatives related to the country's digital economy, gaps still remain in many areas, including: the lack of a strategic policy document on cybersecurity; implementation barriers to the Law on Digital E-Signature due to the underdevelopment of e-commerce, which is underpinned by the low penetration of e-payments; the low availability of global e-commerce marketplaces; underdeveloped logistics; and high costs associated with international credit card payment networks.

4. Digital infrastructure development

Azerbaijan's ICT sector has been expanding rapidly in recent years; however, the growth rate has been less than that of the overall economy. The sector is dominated mostly by the telecom industry, especially its mobile segment. Opportunities exist to diversify the ICT sector by having a stronger focus on the computer service industry, specifically on the development of software, mobile apps and e-commerce platforms.

In recent years, the internet has become more accessible to the general public in Azerbaijan, with a penetration rate rising from only 17% in 2008 to 81% in 2023. Increased internet penetration and improved affordability are the results of a gradual extension of mobile and fixed broadband networks, along with a significant reduction in retail prices from the country's internet service providers. High internet penetration, however, does not yet translate into impactful use, as indicated by the country's low ranking on the Network Readiness Index (NRI) (74th out of 131 in 2022).³⁷ According to the NRI, Azerbaijan performs particularly well on adult literacy rates and ICT skills in the education system, yet underperforms in the use of digital payments, online access to financial accounts, e-commerce legislation and general data protection regulation (GDPR) performed by business enterprises. This indicates areas that may need to be prioritized and addressed if the digital economy is to take off fully.

One of the main reasons behind this current underperformance could be linked to the quality of the broadband service, where the number of higher-speed connections is still relatively low. In 2023, Azerbaijan ranked 116th among 181 countries in terms of fixed broadband internet speed. This could negatively affect aspects of socioeconomic development in the country, including skills development, job creation and FDIs.

Another area where caution is needed is the monopoly of the ICT industry, which serves as an important obstacle to improving internet access and service quality throughout the country.

There is also a geographic digital divide emerging, with different levels of broadband connectivity between rural and urban areas, with ICT infrastructure beyond Baku requiring further attention.³⁸ With broadband connection being a prerequisite for businesses to be part of the digital community, less connected firms fall behind their better-connected counterparts. Given that the telecom sector is the backbone of Azerbaijan's digital infrastructure, the country could further improve its business/investment environment by facilitating technology-neutral competition and creating a level playing field (thus helping to generate high-quality service at affordable prices). In addition, measures to promote alternative dispute resolution could help to generate a balanced economy so that larger and smaller firms both reap the benefits of the digital economy.³⁹

5. Access to markets

Azerbaijan's strategic location between Europe and Asia has played a significant role in facilitating FDI in the country. The nation serves as a natural bridge/trade and transportation corridor that makes it an attractive hub for trade and logistics.⁴⁰ The Baku–Tbilisi–Ceyhan oil pipeline and the Baku–Tbilisi–Kars railway, the new Baku International Sea Trade Port and the North–South Transport Corridor are notable examples of infrastructure projects that have facilitated trade and investment in the region.

Furthermore, Azerbaijan's location has also made it a crucial transit route for energy resources. The country has been providing natural gas to Europe, Türkiye and Georgia through the Trans Adriatic Pipeline (TAP). In 2022, the EU signed a memorandum of understanding (MoU) with Azerbaijan to double Azerbaijan's gas exports to Europe by 2027. Currently, the EU market accounts for the largest proportion of gas exports from Azerbaijan followed by Türkiye.

Azerbaijan is also expected to continue to develop its central position on the Trans-Caspian East–West Corridor, also known as the Middle Corridor, an increasingly important trade route that is an alternative transit route due to the risks associated with the Russian route following the conflict in Ukraine.

6. Trade and investment policies

Foreign trade in Azerbaijan is primarily governed by the Tax Code, Customs Code and Law on Customs Tariffs. To date, Azerbaijan is a party to 10 free trade agreements (FTA) and one preferential trade agreement (PTA), mostly with countries from the Eurasia region, including Russia, Ukraine, Georgia, Kazakhstan, Kyrgyzstan and Tajikistan. Furthermore, the country has signed 49 bilateral investment treaties,⁴¹ while also enjoying favoured trade status under an EU partnership and cooperation agreement.

In terms of international regulatory considerations, Azerbaijan has held observer status at the World Trade Organization (WTO) since 1997 but has not made significant progress towards joining the WTO.

In 2016, the government introduced tax and investment incentives for entrepreneurs and legal entities in non-oil export sectors as part of economic diversification efforts. These measures include certain partial and temporary exemptions from income, corporate, property and land taxes, favourable tax treatment for manufacturing facilities and imports of manufacturing equipment, and subsidies for certain exports. In 2022, the government introduced some investment promotion measures by adopting the Decree of the President of Azerbaijan on the Improvement of the Investment Promotion Mechanism.

7. Conducive environment for start-ups and innovation

The establishment of the Innovation and Digital Development Agency in 2018 represents an important milestone for the country in providing a conducive environment for business and innovation. The main objective of the agency is to assist individuals and legal entities in obtaining modern technologies and technological solutions, promote innovation-oriented research and innovation projects and provide them with financial support for innovation. The agency provides services to start-ups through its INNOLAND Incubation and Acceleration Center.

Even though in recent years Azerbaijan has put in place a number of new institutions and programmes to support business development and spur innovation, new policy instruments are not yet fully operational. There are no legal restrictions that prohibit the establishment of new organizational forms supporting ICT innovation in the country. However, the definitions and roles of actors in the national innovation system are not clearly determined, and there has been limited coordination among innovation agents (e.g. innovation agencies, high-tech parks, incubators), which limits the overall efficiency and effectiveness of existing programmes. There are opportunities for maximizing the impact of this business environment by improving coordination among innovation agents and promoting positive spillover effects.

8. Digital skills in the country

Growth of the digital economy is closely associated with an appropriately skilled workforce, which possesses digital foundation skills, such as the ability to use digital technologies, as well as more advanced skills where needed.

In Azerbaijan, while more than 65% of the general population possesses basic ICT skills enabling them to perform digital operations, the country lags behind its regional peers with regard to advanced digital skills.⁴² This lack of digital skills would further limit citizens' use of the internet and exacerbate the digital divide in the country.

9. Outward investment

While the government encourages outward investment, it is important to note that the levels of investment promotion and facilitation provided vary depending on specific circumstances and the sectors involved. Azerbaijani firms have primarily invested in energy and natural resources, real estate and construction and infrastructure. The State Oil Company of Azerbaijan (SOCAR) and the State Oil Fund of Azerbaijan (SOFAZ) are among the largest outward investors in the country.

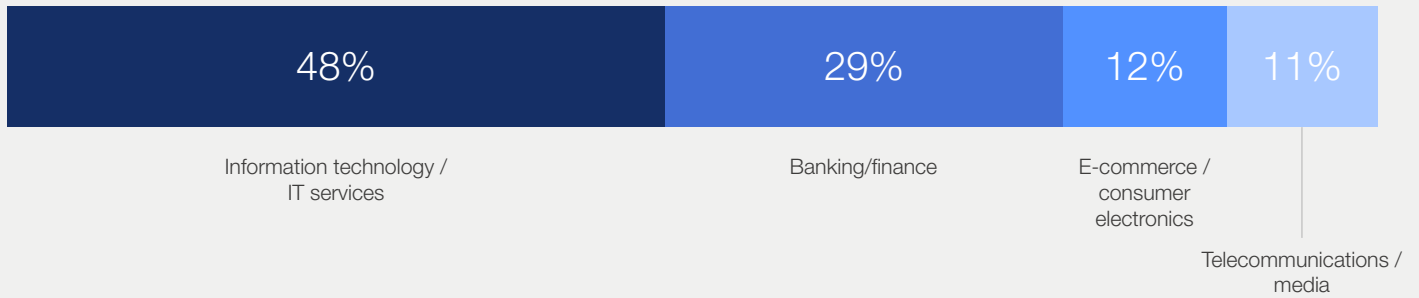
Annex 2: Survey methodology

The survey questions align with the global survey carried out by the World Economic Forum for the Digital FDI Policies, Regulations and Measures to Attract FDI in the Digital Economy white paper.⁴³

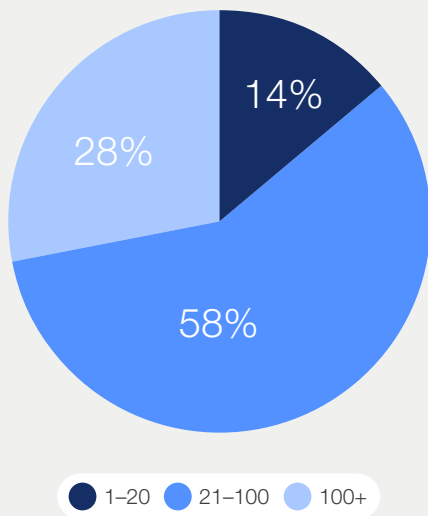
Questions were peer-reviewed and guided by an advisory committee of experts to ensure that the right policies, regulations and measures were considered.

FIGURE 16: Characteristics of surveyed firms

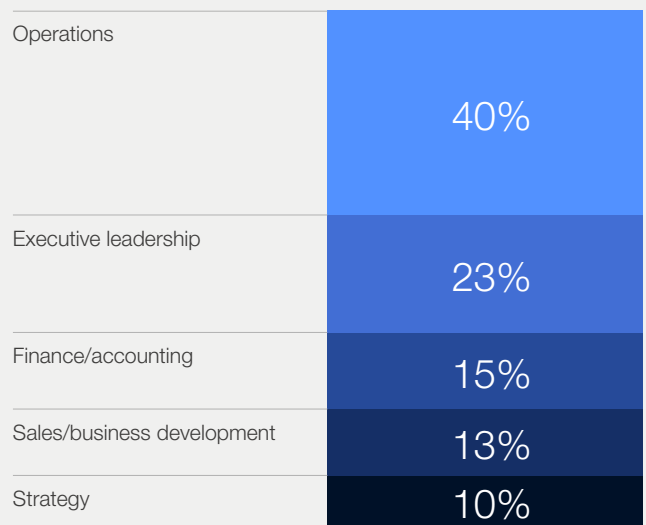
Industry spread



Size of surveyed firms (number of employees)



Department within the firm



Source: World Economic Forum (2022)

Annex 3: Acronyms and abbreviations

4SIM	Center for Analysis and Coordination of the Fourth Industrial Revolution
AI	Artificial intelligence
ASAN	Azerbaijan Service and Assessment Network
AZPROMO	Azerbaijan Export and Investment Promotion Agency
C4IR	Centre for the Fourth Industrial Revolution
CRM	Customer relationship management systems
EU	European Union
FDI	Foreign direct investment
FTA	Free trade agreements
GDP	Gross domestic product
GDPR	General data protection regulation
ICT	Information and communication technology
IoT	Internet of things
IP	Intellectual property
IPD	Investment promotion documents
ISO	International Organization for Standardization
IT	Information technology
MoU	Memorandum of understanding
OECD	Organisation for Economic Co-operation and Development
PTA	Preferential trade agreement
R&D	Research and development
SIRI	Smart Industry Readiness Index
SME	Small and medium enterprise
STEM	Science, technology, engineering and mathematics
TAP	Trans Adriatic Pipeline
UNCTAD	United Nations Conference on Trade and Development
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VR/AR	Virtual reality/augmented reality
WTO	World Trade Organization

Contributors

Lead Authors

Mingcong Li

Policy Analyst, Trade in Services,
World Economic Forum

Matthew Stephenson

Head, Investment and Services,
World Economic Forum

Acknowledgements

Partners

We would like to thank the team at the Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan for their support during the writing process.

Kanan Ibrahimov

Specialist, Project Management, Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan

Fariz Jafarov

Centre Head, Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan

Gulmina Malikzade

Head, Project Management, Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan

Kamil Piriyev

Press Secretary, Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan

Aziza Vidadi

Head, Analysis and Monitoring Department, Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan

Ruslan Zeynalzade

Specialist, Project Management Department, Centre for the Fourth Industrial Revolution (C4IR) Azerbaijan

Collaborators

We would also like to thank our esteemed collaborators, whose expertise has contributed to the scope of this report.

Yusif Abdullayev

Executive Director, Export and Investment Promotion Agency of the Republic of Azerbaijan (AZPROMO)

Zohrab Gadirov

Deputy Executive Director, Export and Investment Promotion Agency of the Republic of Azerbaijan (AZPROMO)

Heather Taylor-Strauss

Economic Affairs Officer, United Nations Economic and Social Commission for Asia and the Pacific

Production

Alison Moore

Editor, Astra Content

Jean-Philippe Stanway

Designer

Endnotes

- 1 Hosted by the Center for Analysis and Coordination of the Fourth Industrial Revolution (4SIM) within the Ministry of Economy of Azerbaijan.
- 2 World Economic Forum, *Digital FDI: Policies, Regulations and Measures to Attract FDI in the Digital Economy*, September 2020: https://www3.weforum.org/docs/WEF_Digital_FDI_2020.pdf.
- 3 The Smart Industry Readiness Index (SIRI) comprises a suite of frameworks and tools to help manufacturers (regardless of size and industry) to start, scale and sustain their manufacturing transformation journeys. It is the global measure of the Industry 4.0 transformation maturity. See: International Centre for Industrial Transformation, “Smart Industry Readiness Index”: <https://incit.org/en/services/siri/>.
- 4 Center for Analysis of Economic Reforms and Communication of the Republic of Azerbaijan, “Socio-economic Development Strategy for 2022–2026 of the Republic of Azerbaijan”, 29 July 2022: <https://ereforms.gov.az/en/media/xeberler/azerbaycan-respublikasinin-2022-2026-ci-illerde-sosial-iqtisadi-inkisaf-strategiyasi-437>.
- 5 For more up-to-date information, see: Azerbaijan Central Bank: [https://www.cbar.az/page-43/external-sector\)-statistic](https://www.cbar.az/page-43/external-sector)-statistic).
- 6 Accessed through the Central Bank of Azerbaijan, *Annual Report*, 2023 (in Azerbaijani): <https://www.cbar.az/page-6/annual-reports>.
- 7 Accessed through the fDi Markets database, the *Financial Times*, 2023: <https://www.fdimarkets.com/>.
- 8 The Center for Analysis and Coordination of the Fourth Industrial Revolution (4SIM) was established under the Ministry of Economy in accordance with the Decree of the President of the Republic of Azerbaijan, dated 6 January 2021.
- 9 World Economic Forum, *Digital FDI Policies, Regulations and Measures to Attract FDI in the Digital Economy*, September 2020: https://www3.weforum.org/docs/WEF_Digital_FDI_2020.pdf.
- 10 fDi Markets is used as a database because it captures greenfield FDI, which is likely to produce the most benefits for the host economy.
- 11 Stephenson, M. et al., *Leveraging Digital FDI for Capacity and Competitiveness: How to Be Smart*, T20, Task Force 3, 2021: <https://ssrn.com/abstract=3942066>.
- 12 The exception is media/entertainment, which is part of UNCTAD’s proposed architecture and also featured in fDi Markets, but was not included in the approach because in fDi Markets the category was focused on theme parks, gambling and museums and therefore lacked a strong digital dimension. In the case of Azerbaijan, there were no investment projects in semiconductors in the period considered, so this sector was omitted; see UNCTAD, *World Investment Report: Investment and the Digital Economy*, 2017: https://unctad.org/en/PublicationsLibrary/wir2017_en.pdf.
- 13 World Bank Group, *Republic of Azerbaijan – A Sector Assessment: Accelerating Growth of High-Speed Internet Services in Azerbaijan*, 18 December 2014: <https://documents1.worldbank.org/curated/en/585201468206662555/pdf/AUS91950REVISED0Box385411B00PUBLIC0.pdf>.
- 14 AzerNews, “Azerbaijan Moves Up in World Ranking in Terms of Mobile Internet Speed”, 16 June 2023: <https://www.azernews.az/business/211180.html>.
- 15 Small and Medium Business Houses (SMB Houses) are structural divisions of the Small and Medium Business Development Agency of the Republic of Azerbaijan, where services provided by the state and private institutions are presented in a unified space and format. The purpose of SMB Houses is to provide government-to-business (G2B) and business-to-business (B2B) services in a unified space and format, applying modern innovations in accordance with the principles of efficiency, transparency, courtesy, responsibility and convenience to entrepreneurial entities, ensuring the implementation of each service in a legal, high-quality and transparent manner to ensure entrepreneur satisfaction.
- 16 International Telecommunication Union, *Digital Trends in the Commonwealth of Independent States Region 2021: Information and Communication Technology Trends and Developments in the CIS Region*, 2017–2020, 2021: <http://handle.itu.int/11.1002/pub/8186ca52-en>.
- 17 Accessed through the Portulans Institute, “Network Readiness Index”, 2023: https://download.networkreadinessindex.org/reports/nri_2023.pdf.
- 18 Additional support to advance the agenda is provided at: The Law of the Republic of Azerbaijan, “On Public-Private Partnership”: <https://e-qanun.az/framework/53020>; The Law of the Republic of Azerbaijan, “On Arbitration”: <https://e-qanun.az/framework/56211> (both in Azerbaijani).
- 19 Additional resources on how the Asia-Pacific region has approached this topic are provided at: ESCAP, *Policy Guidebook on Attracting and Promoting FDI in the Digital Economy*, 22 February 2023: <https://www.unescap.org/kp/2023/policy-guidebook-attracting-and-promoting-fdi-digital-economy>.
- 20 For the latest regulatory developments on fintech and e-payments, please see: Azerbaijan Central Bank, “Digital Payments Strategy of the Central Bank of the Republic of Azerbaijan for 2021–2023”: <https://cbar.az/page-680/digital-payment-strategy?language=en>; “AZƏRBAYCAN RESPUBLİKASI MƏRKƏZİ BANKININ İDARƏ HEYƏTİNİN” (in Azerbaijani): <https://e-qanun.az/framework/56351>.

- 21 According to the Network Readiness Index, in 2023, Azerbaijan performed relatively well in the aspects of “Future technologies” and technology adoption by the “Government”, which is indicated by its strength in investing in emerging technologies (23rd out of 131), adoption of emerging technologies (34th out of 131) and the population covered by at least a 3G mobile network (40th out of 131). In contrast, the country’s weakest pillar is “Regulation”; areas for improvement include bolstering the ICT regulatory environment (117th out of 131).
- 22 Organisation for Economic Co-operation and Development (OECD), *Bridging the Rural Digital Divide*, OECD Digital Economy Papers, No. 265, OECD Publishing, 2018: <https://doi.org/10.1787/852bd3b9-en>.
- 23 Trend News Agency, “Azerbaijan Considers to Implement Digital Economy Strategy”, 26 January 2024: <https://en.trend.az/business/3853578.html>.
- 24 The ASAN Service, which serves as a “one-stop shop” to reduce time lost in investment activities and connect citizens with the government, was launched in 2012. It has expanded to 25 centres throughout the country, providing more than 360 services through its high-tech system grid.
- 25 European Union for Digital Economy, “Digital Silk Way Project Promises Development for Azerbaijan and Georgia”, 27 November 2023: <https://eufordigital.eu/digital-silk-way-project-promises-development-for-azerbaijan-and-georgia/#:~:text=Digital%20Silk%20Way%20project%20promises%20development%20for%20Azerbaijan%20and%20Georgia,-Date%3A%2027%2F11&text=Azerbaijan%20and%20Georgia%20are%20set.to%20Central%20and%20South%20Asia>.
- 26 Law No. 551-VIQ, the Law on Investment Activity, came into effect in July 2022. This law supersedes the Law on Protection of Foreign Investment issued in 1992 and the Law on Investment Activities issued in 1995.
- 27 In 2020, a new Tax Code Amendment entered into force. Residents of industrial and high-tech parks in Azerbaijan are exempted from income, land and property taxes for 10 years. Moreover, VAT and customs duty extensions on the import of equipment and facilities for the construction of production facilities were lengthened to 10 years. See Azpromo, *Azerbaijan Investment Guide*: https://azpromo.az/storage/982/iduqsKSN55-Investment-Guide_katalog_11zon.pdf.
- 28 The Entrepreneurship Development Fund (EDF) is a government organization operating under the Ministry of Economy that offers financial support mechanisms such as soft loans, equipment loans, interest subsidies and guarantee mechanisms for MSMEs development in the country. Supporting digital development and innovation-oriented projects is one of the priority sectors of the Fund.
- 29 The benefits to IPD holders include: (1) exemption from VAT and customs duties on the import of machinery, technological equipment and facilities; (2) exemption from property tax; (3) exemption from land tax for the lands owned or used; (4) for individual entrepreneurs, 50% of the income is tax-free from the date of receipt of the Investment Promotion Certificate; (5) for legal entities, 50% of the profit is tax-free.
- 30 Dentons Law Firm, “New Rules on Investment Promotion in Azerbaijan”, Lexology, 21 January 2016: <http://www.lexology.com/library/detail.aspx?g=23014577-ed7a-4a0d-a34b-1d62e9e27014>.
- 31 World Bank, *World Bank Group Azerbaijan Partnership Program Snapshot*, 2015: <https://www.worldbank.org/content/dam/Worldbank/document/Azerbaijan-Snapshot.pdf>.
- 32 Accessed through the UN E-Government Knowledgebase, *UN E-Government Survey 2022*, 2022: <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2022>.
- 33 The Economist Intelligence Unit, *Azerbaijan’s Gas Exports to the EU Face Challenges*, 10 July 2023: <https://www.eiu.com/n/azerbajans-gas-exports-to-the-eu-face-challenges/>.
- 34 Accessed through the OECD, “OECD FDI Regulatory Restrictiveness Index”, 2023: <https://stats.oecd.org/Index.aspx?datasetcode=FDIINDEX>.
- 35 Government of Azerbaijan, *Strategic Roadmap for Development of Telecommunications and Information Technologies*, 2016: <https://monitoring.az/assets/upload/files/6683729684f8895c1668803607932190.pdf>.
- 36 LTE stands for long-term evolution. This is a standard for wireless broadband communication for mobile devices and data terminals, often marketed as 4G LTE. LTE is designed to increase the capacity and speed of wireless data networks and is a significant advancement over previous mobile network technologies such as 3G.
- 37 Accessed through the Portulans Institute, “Network Readiness Index”, 2023: <https://networkreadinessindex.org/country/azerbaijan/>.
- 38 State Statistical Committee of the Republic of Azerbaijan, “Distribution of Internet Users by Age Group, in Percent, 2022”:
https://www.stat.gov.az/source/information_society/en/002_21en.xls.
- 39 The Ministry of Communications and High Technologies is responsible for establishing and enforcing policy on electronic communications, acting as both a policy-making and a regulatory body.
- 40 Azerbaijan is part of numerous transport corridors including: (1) the South-West Transport Corridor (India, the Persian Gulf, Iran, Azerbaijan, Georgia, Ukraine and Europe); (2) the North-South Transport Corridor (India, the Persian Gulf, Iran, Azerbaijan, Russia and Europe); (3) the Trans-Caspian International Transport Route (China, Kazakhstan, Azerbaijan, Georgia, Türkiye, Ukraine and Europe); (4) the Lapis Lazuli corridor (Afghanistan, Turkmenistan, Azerbaijan, Georgia and Türkiye).

- 41 | Out of the 49 bilateral investment treaties, the treaties currently in force are signed with Austria, the Belgium-Luxembourg Economic Union, China, Croatia, the Czech Republic, Finland, France, Georgia, Germany, Greece, Hungary, Iran, Israel, Jordan, Kazakhstan, South Korea, Kuwait, Kyrgyzstan, Latvia, Lithuania, Moldova, Montenegro, Poland, Romania, Russia, San Marino, Serbia, Spain, Switzerland, Syria, Tajikistan, Türkiye, Turkmenistan, Ukraine, the United Arab Emirates, the United Kingdom, the United States and Uzbekistan.
- 42 | ITU, *Digital Trends in the Commonwealth of Independent States Region 2021: Information and Communication Technology Trends and Developments in the CIS Region, 2017–2020*, 2021: <http://handle.itu.int/11.1002/pub/8186ca52-en>.
- 43 | World Economic Forum, *Digital FDI Policies, Regulations and Measures to Attract FDI in the Digital Economy*, September 2020: https://www3.weforum.org/docs/WEF_Digital_FDI_2020.pdf.



COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

The World Economic Forum, committed to improving the state of the world, is the International Organization for Public-Private Cooperation.

The Forum engages the foremost political, business and other leaders of society to shape global, regional and industry agendas.

World Economic Forum
91–93 route de la Capite
CH-1223 Cologny/Geneva
Switzerland

Tel.: +41 (0) 22 869 1212
Fax: +41 (0) 22 786 2744
contact@weforum.org
www.weforum.org