Report on Turkic Economies:

Digital Trade and Investment

2023

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Report on Turkic Economies 2023: Digital Trade and Investment

Turkic Academy - ERCNET

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Digital Trade and Investment

Project Managers:
Amb. Kubanychbek Omuraliev, Secretary General of the Organization of Turkic States
Prof. Dr. Shahin Mustafayev, President of the Turkic Academy

Author: Group of authors
Editor: On behalf of Turkic Academy, Dr. Erhan Türbedar, Vice-President
Contributing Editors: Participating institutions of the ERCNET

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For inquiries, contact the Turkic Academy:
E-179 Street, No. 32, Diplomatic Town, Astana, Kazakhstan
Telephone : +7 7172 57 49 82
Web page : https://turkicacademy.org
E-mail : officetwesco@gmail.com

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Contents

Acronyms

AFSA	Azerbaijan Food Safety Agency
AI	Artificial intelligence
ARISA	European Artificial Intelligence Skills Association
AZPROMO	Export and Investment Promotion Agency of the Republic of Azerbaijan
B2B	Business-to-business
B2C	Business-to-consumer
B2G	Business-to-government
BETP	Baku Stock Exchange Trading Platform
BFSI	Banking, financial services, and insurance
BİLGE	Electronic Customs Declaration System (Bİlgisayarlı Gümrük Etkinlikleri)
C2C	Customer to customer
C4IR	Center for Analysis and Coordination of the Fourth Industrial Revolution
CBAR	Central Bank of the Republic of Azerbaijan
CDIS	Coordinated Direct Investment Survey
CIF	Cost, insurance, and freight
CIS	Commonwealth of Independent States
CRF	Corporate Register Forum
CTC	Common Transit Convention
CTP	Common Transit Procedure
D2C	Direct-to-consumer
DESI	Digital Economy and Society Index
DTH	Digital Trade Hub
E-commerce	Electronic commerce
EDIH	European Digital Innovation Hubs
E-government	Electronic government
EGDI	E-Government Development Index
ERCNET	Turkic Network of Official Economic Policy Research Centers
ESCAP	Economic and Social Commission for Asia and the Pacific
ESRI	Economic Scientific Research Institute
ETBİS	Electronic Commerce Information System (Elektronik Ticaret Bilgi Sistemi)
EAEU	Eurasian Economic Union
EU	European Union
FDI	Foreign direct investment
FinTech	Financial technology
FIX API	Financial Information Exchange Application Programming Interface
FOB	Free-on-board
GCI	Global Cybersecurity Index
GDP	Gross domestic product

GRPS	Global Risks Perception Survey
GSCPI	Global Supply Chain Pressure Index
GSMA	Groupe Speciale Mobile Association
GTMI	GovTech Maturity Index
HKS	Wholesale Market Registry System (Hal Kayıt Sistemi)
HNDS	Hungarian National Digitalization Strategy
HS	Harmonized System
ICT	Information and communication technologies
ID	Identification
İETTS	Second-Hand Motor Land Vehicles Information System (İkinci El Motorlu Kara Taşıtı Ticareti Bilgi Sistemi)
ILO	International Labour Organization
IMF	International Monetary Fund
IoT	Internet of Things
IP	Intellectual property
IPA	Investment promotion agency
ISO	International Organization for Standardization
ITS	Industry and Technology Strategy 2023
IT	Information technology
ITU	International Telecommunication Union
IVSZ	IT Association of Hungary
İYS	Commercial Electronic Message Management System (İleti Yönetim Sistemi)
KİP	Easy Export Platform (Kolay İhracat Platformu)
KTBS	Jewellery Trade Information System (Kuyum Ticareti Bilgi Sistemi)
M&A	Mergers and acquisitions
MERSİS	Central Registry System (Merkezi Sicil Kayıt Sistemi)
MNE	Multinational enterprise
MoIT	Ministry of Industry and Technology
MoU	Memorandum of Understanding
NCTS	New Computerized Transit System
NDC	National Depository Center
NIA	National investment agency
NTP	National Trade Platform
OECD	Organization for Economic Cooperation and Development
OSS	One-stop-shop
OTS	Organization of Turkic States
PERBİS	Retail Information System (Perakende Bilgi Sistemi)
PMI	Purchasing Managers' Index
PPP	Purchasing Power Parity
R&D	Research and development
SCO	Shanghai Cooperation Organization
SDG	Sustainable Development Goal
SMB	Small and Medium Business
SMBDA	Small and Medium Business Development Agency
SME	Small and medium-sized enterprises
SPE	Special Purpose Entity

SWOT	Strengths, weaknesses, opportunities, and threats
TAKBİS	Land Registry and Cadastre Information System (Tapu ve Kadastro Bilgi Sistemi)
TİSS	Commercial Electronic Message Complaint System (Ticari Elektronik İleti Şikayet Sistemi)
TRNC	Turkish Republic of Northern Cyprus
TTBS	Real Estate Trade Information System (Taşınmaz Ticareti Bilgi Sistemi)
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
VHCN	Fixed very high-capacity network
Vision-2040	Turkic World Vision-2040
WB	World Bank
WEF	World Economic Forum
WITS	World Integrated Trade Solution
WTO	World Trade Organization
YAGA	Cyprus Turkish Investment Development Agency

Preface

I am pleased to present the Report on Turkic Economies for 2023, an annual publication jointly prepared by the Turkic Network of Official Economic Policy Research Centers (ERCNET). This network offers its participants a platform to collaborate proactively, exchange information and experience, and conduct joint studies in areas of common interest. The main objectives of the ERCNET are promoting economic relations, greater economic integration, and stronger partnerships in the Turkic World, in line with the goals of the "Turkic World Vision-2040" - a future-oriented document that outlines the long-term goals and aspirations of the Member States of the Organization of Turkic States. The ERCNET also intends to recognize and encourage long-term growth drivers that support the smart, inclusive, and sustainable growth of the economies of the Turkic states.

One of the goals of the Turkic World Vision-2040 is to establish digital connectivity. In this regard, it supports the usage of digital technologies in various sectors to enable transformation into digital, green, and smart economies. Therefore, the theme of the 2023 edition of the Report on Turkic Economies is devoted to digital trade and investment.

In an era of rapid technological advancements, it is crucial to analyze and understand the impact of digitalization on economies. Along with the opportunities presented by the digitalization of trade and investment, some challenges must also be addressed. Policymakers of Turkic States must develop strategies that foster a conducive digital trade and investment environment while safeguarding national interests.

This report comprehensively analyzes the current state and prospects of digital trade and investment in the economies of Turkic states, including examining the opportunities, challenges, and policy implications. The report is a powerful tool in this direction that rounds up the digital achievements of the Turkic economies and provides a range of useful comparative statistics, enabling direct comparisons among the Turkic economies and insights that can help analyze the main socioeconomic trends, identify issues, and shape future policy. In addition, the wide range of issues the report covers makes it a valuable manual for developing the economic relations among the Turkic States.

I would like to encourage the Member States of the Organization of Turkic States to place the digital economy at the center of their development priorities and to accelerate the adoption of digital tools in international trade and investment promotion services to better adapt to the global digital landscape.

The preparation of this report has involved the dedication, skills, and efforts of many individuals engaged in the ERCNET platform to whom I would like to thank. I am very grateful to the Turkic Academy and Member States, which have coordinated the report's preparation and made significant contributions.

I hope the report will inform policymakers, businesses, researchers, and the general public of Turkic States and stimulate a rich dialogue on the current and future path to the digital development of Turkic economies.

Amb. Kubanychbek Omuraliev
Secretary General of the
Organization of Turkic States

Foreword

Digitalization profoundly impacts the global economy, transforming industries, business practices, and societies. Emerging digital technologies have enabled new business models, increased e-commerce and online marketplaces, and impacted the way people consume goods and services. Digitalization has improved productivity and efficiency in many industries, making it easier for small and medium-sized enterprises to access global markets and compete with larger corporations.

The Turkic economies are also undergoing a digitalization process driven by the availability of digital technologies, supportive government policies, and changing consumer preferences. Although the digitalization of Turkic economies is not happening at the same pace, governments in Turkic economies have recognized the importance of digitalization for economic growth and development.

This report is a joint product of the Turkic Network of Official Economic Policy Research Centers (ERCNET). The Turkic Academy acts as a Secretariat of the ERCNET, in close collaboration with the Secretariat of the Organization of Turkic States. It was a pleasure for the Turkic Academy to coordinate and contribute to preparing this annual report, the first comprehensive and all-inclusive effort dedicated to Turkic economies.

The “Report on Turkic Economies 2023: Digital Trade and Investment” offers a foundation for a thorough understanding of the economic ties between Turkic economies and their digitalization process. The report has the ambition to embed the issue of digital economy and digital transformation high on the agenda of Turkic cooperation and to become a driver for positive change.

More specifically, the report evaluates the current developments in the world economy, provides an overview of the Turkic economies, highlights the key economic indicators, and evaluates the economic relations between Turkic economies. Further, the report offers insights into the growing importance of digitalization in today’s global economy and the impact of digital technologies on traditional trade and foreign direct investment practices. The digitalization of Turkic economies, the e-commerce market, cross-border e-commerce, the landscape of digital investment, and the digitalization of FDI promotion services

in Turkic economies are evaluated separately. The report provides detailed chapters on government initiatives and policies to promote digitalization in Turkic economies and offers examples of developed specific programs or incentives.

The Turkic Academy welcomes the fact that the economic relations between Turkic countries have improved and that governments are introducing policies, regulations, and initiatives that promote and facilitate the adoption of digital technologies across various sectors. However, the report's messages are clear: Turkic economies must continue to reform their economies and further embrace digital technologies to overcome the challenges highlighted in the report. In any case, findings from this report will support the governments of Turkic countries and their institutions in making sound and evidence-based decisions when programming their activities.

As an organization that facilitates and encourages scientific and educational cooperation among Turkic countries and communities, the Turkic Academy will continue to deal with the socioeconomic issues of the Turkic World. In this regard, the Turkic Academy will invest efforts to transform the ERCNET into a significant economic work forum and, through rigorous research and knowledge dissemination, contribute to promoting the sustainable development of Turkic economies.

This report results from a substantial investment in time, effort, and dedication of the ERCNET participants and the staff of the Turkic Academy. I would like to acknowledge their contributions and hope you will enjoy reading this report and benefit from its findings.

Prof. Dr. Shahin Mustafayev
President of the Turkic Academy

Acknowledgments

We would like to express our deepest gratitude to all the individuals and organizations who have contributed to creating the "Report on Turkic Economies 2023: Digital Trade and Investment." This comprehensive report would not have been possible without their valuable insights, support, and contributions.

First and foremost, we would like to thank the Turkic Network of Official Economic Policy Research Centers' (ERCNET) participating institutions and their team of researchers and analysts who dedicated their time and expertise to gathering and analyzing the information necessary for this report. Their meticulous work and commitment to accuracy have ensured that the information presented in this report is reliable and up-to-date.

We are also grateful to the various government agencies for providing the ERCNET participating institutions with important feedback. Their willingness to share valuable information has greatly enriched the content of this report.

Furthermore, we appreciate the investment promotion agencies who contributed to the report by supporting our survey on digital foreign direct investment and the digitalization of investment promotion agencies. Their contributions enabled us to present an overview of the Turkic economies' digital investment landscape.

Additionally, we would like to acknowledge the essential support of Turkic Academy staff for coordinating the preparation of the report and editing efforts to ensure clarity, coherence, and accuracy.

Lastly, we would like to express our gratitude to our Member States and Observers for their continued trust and support, which was instrumental in producing this report.

Contributing institutions and authors are as follows:

Chapter I	Turkic Academy and the Center for Analysis of Economic Reforms and Communication of the Republic of Azerbaijan
	Dr. Erhan Türbedar and Ayhan Satiji
Chapter II	Turkic Academy and the Center for Analysis of Economic Reforms and Communication of the Republic of Azerbaijan
	Dr. Erhan Türbedar, Ayhan Satiji and Ismat Mehraliyeva

Chapter III	Economic Scientific Research Institute of the Ministry of Economy of the Republic of Azerbaijan *Afraim Mammadov and Vugar Abbasov*
Chapter IV	Economic Research Institute of the Ministry of National Economy of the Republic of Kazakhstan *Ruslan Sultanov, MEcon, Dolores Tyulebekova, Ph.D., and Marat Nauruzov*
Chapter V	National Institute of Strategic Studies under the President of the Kyrgyz Republic *Prof. Dr. Kanatbek Aziz, Dr. Asel Dzhailova, and Zhanil Baiguttieva*
Chapter VI	General Directorate of Trade Research and Risk Analysis under the Ministry of Trade of the Republic of Türkiye
Chapter VII	Center for Economic Research and Reforms under the Administration of the President of the Republic of Uzbekistan *Khurshed Asadov, Ph.D. and Fazliddin Nasriddinov*
Chapter VIII	Hungarian Institute of International Affairs *Prof. Dr. László Vasa and Péter Bárkányi, Ph.D. Candidate*
Chapter IX	Eastern Mediterranean University *Prof. Dr. Mustafa Tümer, Assoc. Prof. Dr. Burak Erkut and Salih Kasap*

Note for readers

Information contained in this publication has been researched and analyzed from data sources believed to be accurate and reliable. While every effort has been made to use the most recent updates and backward revisions of data, the authors cannot accept any responsibility for updates that may occur after the time of publication of this report.

Correctly understanding trade patterns necessitates high-quality, consistent, and harmonized statistics on international trade. Several global databases, such as the United Nations Comtrade, the World Bank's World Integrated Trade Solution (WITS), and the IMF's Direction of Trade Statistics, are trying to provide these trade statistics. However, available trade statistics are frequently subject to discussion.

In theory, since exports of country A need to be imports of country B, the value of the trade flow reported by A as exports to B should be equal to the imports reported by B from A. This issue is referred to as mirror statistics. However, in many cases, mirror statistics discrepancies may be observed, referred to as bilateral trade asymmetries. Even when two reporting countries rely on the same broad accounting approach, differences may arise due to, for example, the following reasons: a) Countries may fail to adhere perfectly to the guidelines used to record and report trade data; b) The guidelines on how to treat goods passing through intermediary countries for processing or merchanting may be challenging to follow; c) Some countries use the special trade system (which excludes trade made in free zones), and others use the general trade system (which includes free zones); d) Some economies may report gross weights, and others may report net weights; e) Asymmetries may result if exports are registered in one year and the corresponding imports in the following year; f) Re-exports, re-import, or transit may be taken into account by some countries; g) Differences in customs and tax regimes may also be a potential source of asymmetries; h) If a dataset reports cross-country trade data in foreign currencies, values will vary depending on the used exchange rates; i) Imports are generally reported based on Cost, Insurance, and Freight (CIF). In contrast, exports are reported on a free-on-board (FOB) basis. For this reason, import values tend to be higher than export values. Some countries may compile and publish the value of imported goods as a FOB-type value; and g) Discrepancies in bilateral trade statistics may arise due to confidentiality policies, product classification, and deliberate misinvoicing for illicit purposes.

Data collecting efforts for preparing this report suggest that missing foreign direct investment (FDI) data are not random but rather systematic for Turkic

economies. Therefore, time series of FDI data are primarily based on information from the UNCTAD FDI/MNE database and partly from the IMF Coordinated Direct Investment Survey (CDIS). However, official figures governments use to monitor the evolution of FDI flows frequently differ from UNCTAD and IMF data - collected by a standardized methodology. For example, Türkiye reported its inward FDI stock from Azerbaijan as $4 184 million in 2021, whereas in the same year, Azerbaijan reported $13 986 million as its outward FDI stock in Türkiye. There could be several reasons for such statistical differences. For example, some countries report the book value of FDI, an increasing number of countries report market value, and some use mixed valuation (market value for listed companies and book value for non-listed companies). The Special Purpose Entities (SPEs) further complicate the picture. FDI channeled to SPEs abroad as outward FDI may subsequently return home to the local economy as inward FDI (round-tripping FDI). Similarly, FDI conducted by direct investors to SPE abroad may later be invested in third countries (transshipped FDI).

It should be noted that the availability of reliable official statistics on e-commerce and cross-border digital trade is limited and is not comparable across economies. The efforts to acquire digital trade data are still in the infancy in many nations, especially developing economies. Moreover, there is a lack of consensus about the conceptual measurement of cross-border digital trade. Therefore, some indicators developed by international organizations and estimates of private data sources are used in this report to help get useful information about digital trade development until official statistics are published.

Economic development, trade and investment

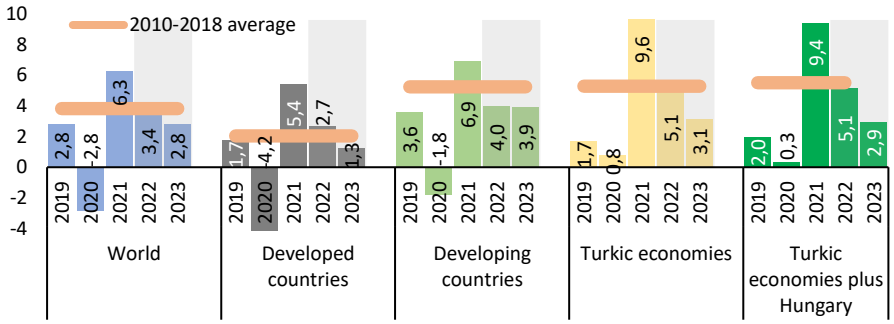
I.A Current developments in the world economy

The world has been moving backward concerning most SDGs in the last five years. Before the Covid-19 outbreak, the world economy grew slower, and substantial risks arose. Heaviness in the world economy was present due to different risk factors, including the rising threat of protectionism, vulnerabilities in emerging markets, Brexit, and growing geopolitical factors in Asia.

In 2020, Covid-19 became the world's most challenging crisis since World War II. The global economy decreased to -2.8% in 2020, far worse than during the 2008-2009 Global Financial Crisis. More than three years after the Covid-19 outbreak and efforts for economic recovery, the world economy remains under pressure from mutually reinforcing shocks and interconnected crises.

Recovery from economic difficulties resulting from the Covid-19 outbreak was quickly disrupted by the Russian-Ukrainian war. The domino effect of this war became global and boosted food and energy prices, which were already rising. Consequently, persistent inflation, aggressive monetary tightening, rapidly shifting macroeconomic conditions, and heightened uncertainties are challenging sustainable growth in many countries. Further, negative trends in multilateral cooperation, accelerating geopolitical competition, pressure on supply chains, mass migration, and climate crisis also shadow the global economy's outlook.

Figure I.1: Real GDP growth *(percent change)*



Source: IMF (2023a). World Economic Outlook database, April 2023 update.
Note: Shaded area indicates forecasts. Real GDP growth rates are computed as a weighted average, with the weights reflecting the relative importance of each country within the group's total GDP in PPP.

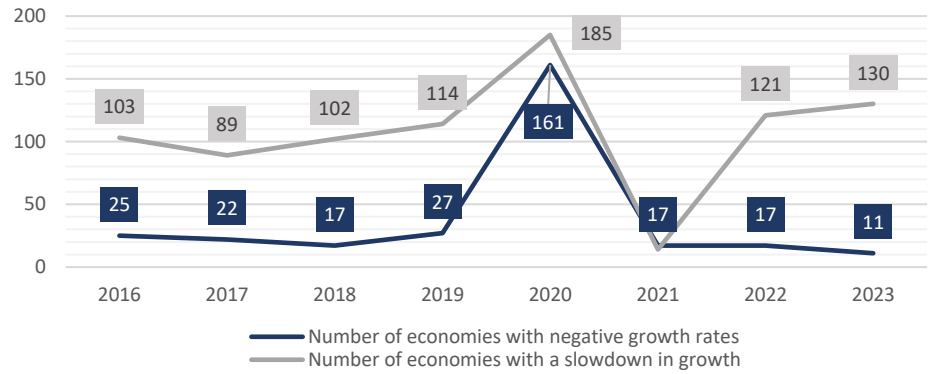
The disappearance of successive pandemic waves and the removal of lockdown measures has led to a global recovery, causing a significant increase in the world's real GDP growth rate from -2.8% in 2020 to 6.3% in 2021. Developing countries, on average, grew at 6.9% in 2021, faster than developed countries.

The Turkic economies registered an even higher average growth of 9.6% in 2021 (Figure I.1).

2021 witnessed a significant increase in the world's real GDP growth rate. However, the world economy grew slower in 2022, and substantial risks arose. Number of economies with slower growth rates are projected to increase in 2023.

In 2022 the world economy grew slower, and substantial risks arose. From 2021 to 2022, the number of countries in recession has remained unchanged at 17. However, 62% of world economies experienced slower growth rates, which decreased the growth of the world economy to 3.4% in 2022. According to the International Monetary Fund estimates, 66% of the economies in the world will experience weaker growth in 2023 (Figure I.2), and real GDP growth of the world economy will decelerate to 2.8% in 2023.

Figure I.2: Number of countries with negative or slowing growth rates



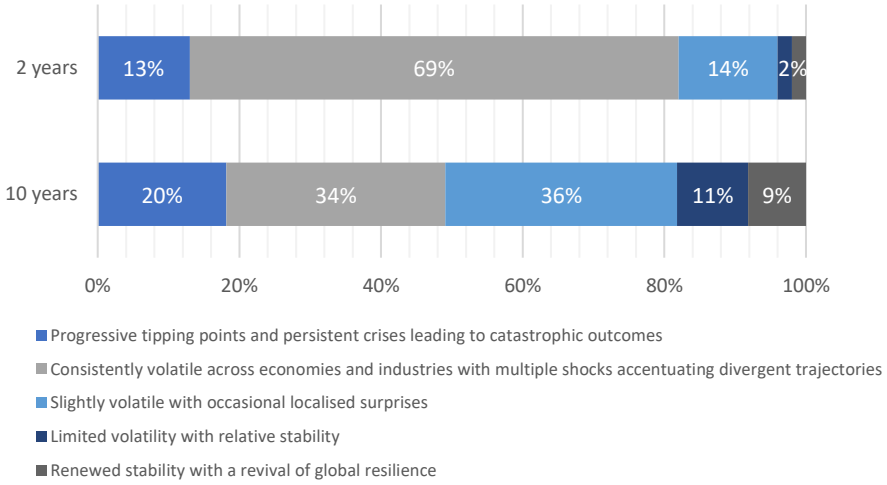
Source: IMF (2023a). World Economic Outlook database, April 2023 update.

Turkic economies recorded high average growth of 9.6% in 2021. Turkic economies' average real GDP growth has slowed from 9.6% in 2021 to 5.1% in 2022 and is expected to slow further to 3.1% in 2023.

From 2021 to 2022, the growth momentum has significantly weakened in the world's biggest economies by GDP, such as China (from 8.5% to 3%), the United States (from 5.9% to 2.1%), India (from 9.1% to 6.8%), Japan (from 2.1% to 1.1%), Germany (from 2.6% to 1.8%), Russia (from 5.6 to -2.1), Brazil (from 5% to 2.9%) and United Kingdom (from 7.6% to 4%). Economies of countries such as the United States, Germany, Brazil, the United Kingdom, and France are expected to experience even slower growth rates in 2023, adversely impacting the rest of the world economy through several channels.

The Global Risks Perception Survey (GRPS) conducted by the World Economic Forum shows that almost 82% of surveyed experts anticipate persistent crises or consistent volatility in the world economy between 2023 and 2024. Further, 54% of respondents share the same perception of the world economy (persistent crises or consistent volatility) for the next decade. Interestingly, only 4% of the GRPS surveyed experts had more positive sentiments for the next two years, expressing expectation for limited volatility with relative stability in the world economy or renewed stability with a revival of global resilience (Figure I.3).

Figure I.3: Short-and long-term global outlook:
Which of the following best characterizes your outlook for the world over the short-term (2 years) and longer-term (10 years)?



Source: WEF (2023: 9)
Note: The survey has brought together leading insights on the evolving global risks landscape from over 1,200 experts across academia, business, government, the international community, and civil society. Responses were collected from 7 September to 5 October 2022.

A particularly strong economic slowdown is anticipated for developed economies, going from 2.7% in 2022 to 1.3% in 2023 (Figure I.1). Most developed economies will experience weaker growth in 2023.

The global inflation rate increased from 3.2% in 2020 to 8.7% in 2022, which is the highest global inflation rate since 1997. Food and energy prices are responsible for a significant amount of the elevated inflation levels.

The developing countries, on average, grew 4% in 2022. International Monetary Fund (IMF) expects this growth rate to slow slightly to 3.9% in 2023. Turkic economies' average real GDP growth has decelerated from 9.6% in 2021 to 5.1% in 2022.

Inflation timeline

Covid-19 pandemic (2020): The first wave of the pandemic resulted in varying severity of economic restrictions.

An increase in the money supply (2020): Governments pumped money into the economy to avoid an even worse economic shock in 2020.

Supply stops meeting demand (2021): As countries emerged from the first wave of the pandemic, demand for goods and services returned faster than supply.

Food prices rise (2021): Global food prices started rising in the summer of 2020 and continued to rise throughout 2021. Poor harvests, supply chain issues, and fertilizer costs all contributed.

Energy prices spiral (2022): Although fuel demand increased, energy supplies decreased. Energy began to contribute significantly to high inflation towards the end of 2021.

Russian-Ukrainian War (2022): Although energy and food inflation rates were already high, the war caused even more problems in these critical sectors.

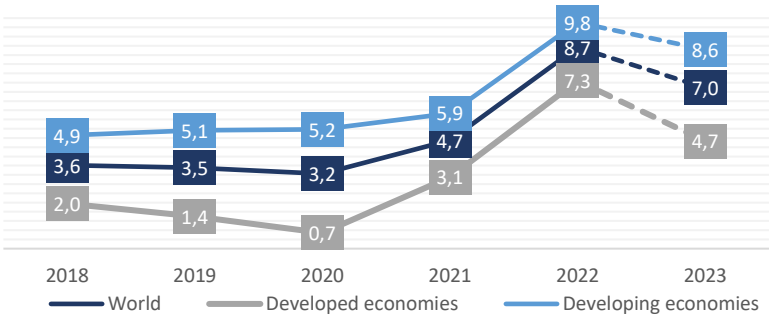
Source: Statista (2023a).

Moreover, the average growth rate of Turkic economies is expected to slow to 3.1% in 2023 (Figure I.1).

Global economic activity decelerated in 2022, particularly due to synchronized monetary policy tightening to contain high inflation, weaker external demand, and supply chain disruptions caused by the Russian-Ukrainian war.

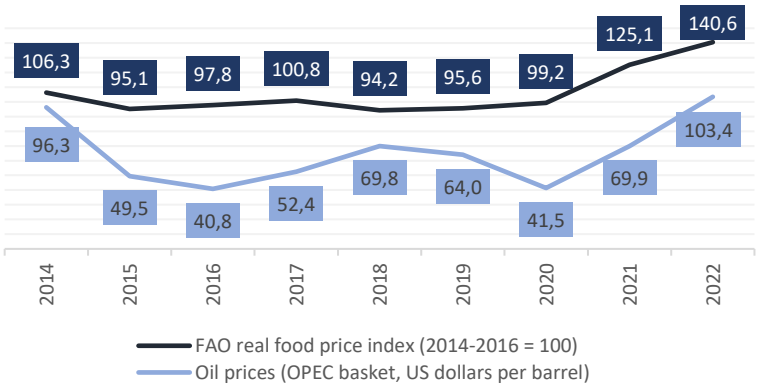
Demand pressures, such as those resulting from earlier policy support, supply shocks, high import costs, and the availability of essential commodities, have increased global inflation. Inflation started to increase in 2021 and peaked in mid-2022. Inflation has risen sharply, even in places where it was low before.

Figure I.4: Inflation, average consumer prices *(percent change)*



Source: IMF (2023a). World Economic Outlook database, April 2023 update.
Note: Dashed lines are projections.

Figure I.5: Global food and energy prices

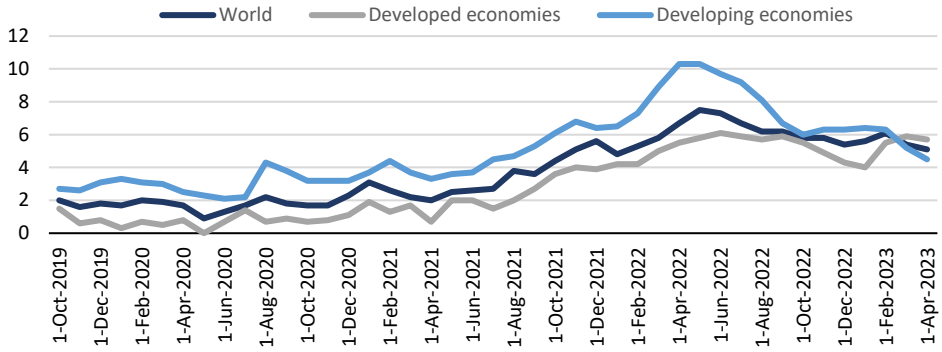


Source: FAO (2023), UN (2023a). p. 114.

The global inflation rate increased from 3.2% in 2020 to 8.7% in 2022, which is the highest global inflation rate since 1997. From 2021 to 2022, inflation rates in developed and developing countries have moved in the same direction – increasing from 3.1% to 7.3% in developed countries and from 5.9% to 9.8% in developing countries (Figure I.4).

Rising prices in the food and energy sectors are responsible for a significant proportion of the high inflation witnessed by major economies in 2022 (Figure I.5). Exposure to a disrupted energy supply from Russia has caused a substantial increase in energy prices. Still, even when the volatility of energy and food prices is removed from overall inflation, it is clear that prices were rising across several economies due to an increase in core inflation.

Figure I.6: Core inflation *(percent change)*



Source: WB (2023).
Note: Core inflation is the change in prices of goods and services, except for those from the food and energy sectors.

Inflationary pressures have begun diminishing and are expected to moderate gradually through 2023, reflecting softening demand and easing commodity and energy prices. Still, as shown in Figure I.4, average consumer prices in 2023 will remain much higher than in 2018-2020.

The tight monetary policy is the most significant reason driving the slowdown in inflation rates. According to the findings of the World Economic Situation and Prospects 2023 report of the United Nations, over 85% of central banks worldwide tightened monetary policy and increased interest rates in 2022 to put down inflationary pressures and avoid a recession (UN, 2023: 12). Current monetary policy tightening cycle, it is by far the fastest and the steepest one since the 1980s.

Global economic activity decelerated in 2022, mainly due to synchronized monetary policy tightening to contain high inflation. Over 85% of central banks worldwide increased interest rates in 2022.

Global Financial Stability Report 2023 names the existing developments as a period of global monetary tightening, stressing that most central banks are expected to continue tightening policy. Further, the report points out that before the recent financial stress, banks were already tightening lending standards because of rising concerns about the economic outlook, borrower risks, and bank funding conditions (IMF, 2023b: 10).

Figure I.7 shows the central bank policy rates in several economies, as provided by the Bank for International Settlements. The central bank policy rate is the rate a central bank uses to implement or signal its monetary policy stance. An increase in policy rates is a means of slowing down growth in the money supply and, therefore, fighting inflation. Almost all major developed and developing economies listed in Figure I.7 have increased central bank policy rates from July 2021 to April 2023. The main exceptions to this trend were China, Japan, Türkiye, and partly Russia (Figure I.7).

Figure I.7: Central bank policy rates
in major developed and developing economies

	31-Jul-2021	31-Jul-2022	30-Apr-2023
Argentina	38	60	91
Australia	0,1	1,35	3,6
Brazil	4,25	13,25	13,75
Canada	0,25	2,5	4,5
Switzerland	-0,75	-0,25	1,5
Chile	0,75	9,75	11,25
China	3,85	3,7	3,65
Colombia	1,75	7,5	13
Czechia	0,5	7	7
Denmark	-0,5	-0,1	2,6
United Kingdom	0,1	1,25	4,25
Hong Kong SAR	0,5	2,75	5,25
Hungary	1,2	10,75	13
Indonesia	3,5	3,5	5,75
Israel	0,1	1,25	4,5
India	4	4,9	6,5
Iceland	1	4,75	7,5
Japan	-0,1	-0,1	-0,1
South Korea	0,5	2,25	3,5

	31-Jul-2021	31-Jul-2022	30-Apr-2023
Morocco	1,5	1,5	3
N. Macedonia	1,25	2,5	5,5
Mexico	4,25	7,75	11,25
Malaysia	1,75	2,25	2,75
Norway	0	1,25	3
New Zealand	0,25	2,5	5,25
Peru	0,25	6	7,75
Philippines	2	3,25	6,25
Poland	0,1	6,5	6,75
Romania	1,25	4,75	7
Serbia	1	2,75	6
Russia	6,5	8	7,5
Saudi Arabia	1	3	5,5
Sweden	0	0,75	3
Thailand	0,5	0,5	1,75
Türkiye	19	14	8,5
United States	0,125	2,375	4,875
Euro area	0	0,5	3,5
South Africa	3,5	5,5	7,75

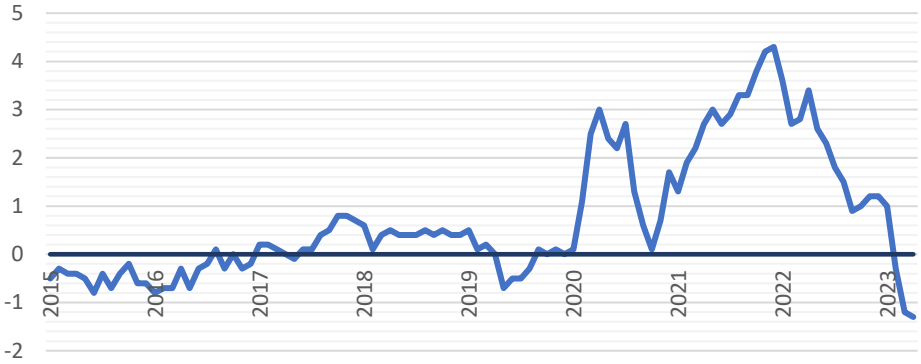
Source: BIS (2023). Policy Rates.

The increase in the interest rate raises the cost of credit, which weighs on spending by businesses and households and indirectly slows down investment in the country. On the global level, monetary tightening and rising borrowing

costs increase many developing economies' fiscal and debt vulnerabilities (especially those with lower credit ratings) (WB, 2023: 28-35).

Disruptions in global supply chains have also challenged the global economic outlook. Before the Covid-19 pandemic, the US-China trade war affected supply chains. Later, the Covid-19 pandemic led to massive supply chain disruption that contributed substantially to the global surge in inflation. The difficulties caused by the war in Ukraine have prolonged these disruptions and added pressure on companies in many sectors.

Figure I.8: Global supply chain pressure index *(percent change)*

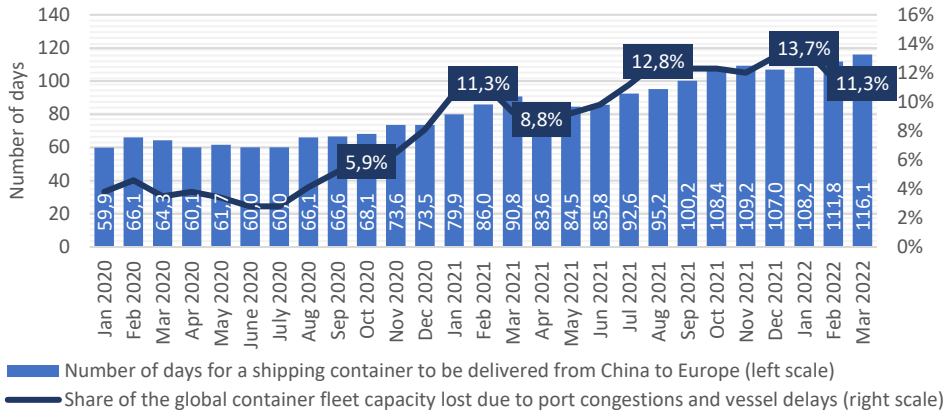


Source: WB (2023).
Note: Zero indicates that the index is at its average value, with positive values representing how many standard deviations the index is above this average value and negative values representing the opposite.

Disruptions in global supply chains have also challenged the global economic outlook. The time needed for shipping containers from China to Europe almost doubled in January 2022 compared with two years ago.

The Global Supply Chain Pressure Index (GSCPI) integrates several commonly used metrics to summarize potential supply chain disruptions. The February-August 2020 period witnessed significant disruptions in supply chains caused by the pandemic. During 2021 and the first half of 2022, the pressure on the global supply chains significantly grew again (Figure I.8). This situation has also been reflected in the delivery times for shipping containers from China to Europe, as shown in Figure I.9.

Figure I.9: Delays in container delivery



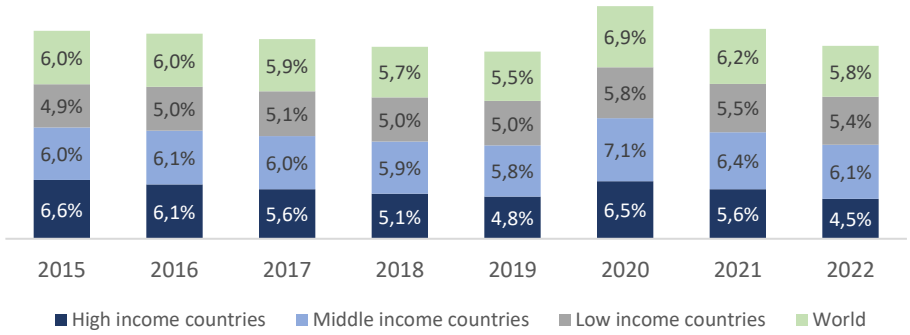
Source: Statista (2023a) based on Flexport and Sea-Intelligence.

While it took about 60 days for a shipping container to be delivered from China to Europe in January 2020, the delivery time almost doubled in January 2022. Moreover, delays of container ships and trade imbalances were among the main reasons for the lower container capacity utilization rates in 2021 and 2022. The share of the global container fleet capacity lost due to port congestions and vessel delays in January 2022 was 13.7% (Figure I.9).

GSCPI value started to improve after the second half of 2022 and fell to -1.3 in April 2023, below the historical averages of the index. Therefore, it could be said that supply chain disruption returned to normal values as of the beginning of 2023, and supply chain stress became lower than pre-pandemic levels.

Still, recently experienced supply chain disruptions illustrated that different shocks affect almost all countries. This led to a paradigm shift, and governments became interested in restructuring their global value chains, diversifying supplier networks, and building resilient ones more flexible to global

Figure I.10: Unemployment *(percent)*

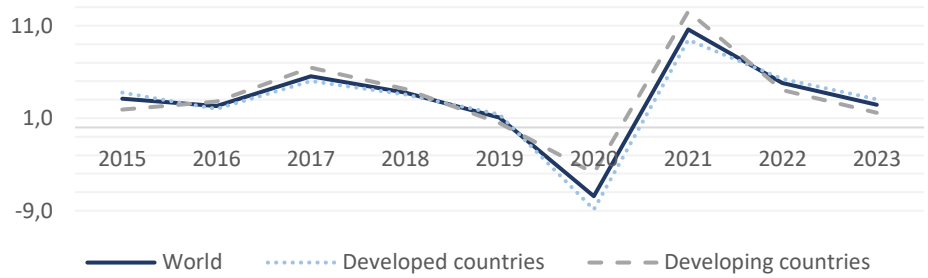


Source: ILO (2023).

disruptions. Pharmaceutical, agriculture, and automotive companies have already started shifting to more local and regional production to limit complexity and interdependence in the supply chains and move closer to end-users (Passport, 2021). On the other hand, companies with very concentrated supply chains search for substitute suppliers and different locations to diversify reliance on particular suppliers and build resilience. Ongoing changes in global supply chains may offer new economic opportunities and challenges for many countries.

Interestingly, the global growth slowdown did not affect labor markets, which remained surprisingly strong in major economies. Labor markets in many developing economies have also shown resilience, and employment rates have become higher, evident from decreasing unemployment rates from 2020 to 2022 (Figure I.10). Resilience of labor markets can partly be explained by the large-scale implementation of telework and implementation of flexible work arrangements, which have intensified as the Covid-19 pandemic responses (ILO, 2023).

Figure I.11: Exports of goods and services *(percent change)*



Source: IMF (2023a). World Economic Outlook database, April 2023 update.
Note: Values for 2023 are projections.

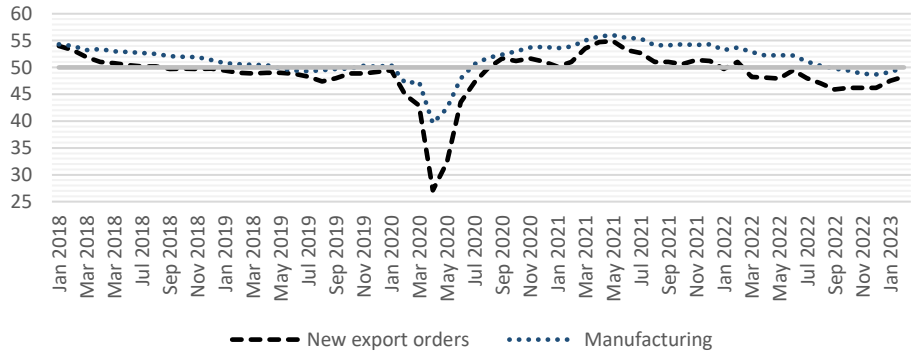
In contrast to the labor markets, slower growth of the world economy has significantly affected international trade. Global exports of goods and services fell by -7.4% in 2020 following the outbreak of the Covid-19 pandemic. In 2021, the global value of goods and services exported worldwide quickly recovered and grew by 10.6%. However, a significant global export slowdown occurred in 2022 (4.8%), which is projected to be even weaker in 2023 (2.5%). The general decrease in international trade during 2022 hit developing countries harder than developed ones (Figure I.11).

As shown in Figure I.12, manufacturing and new export orders measured by the Purchasing Managers' Index (PMI) had lost considerable momentum in 2020 compared to the beginning of 2018, indicating a contraction in economic activity. The global economic environment was much more favorable in mid-2021,

From the second half of 2021 until 2022, new export orders diminished, and global trade became more protective, causing a significant global export slowdown.

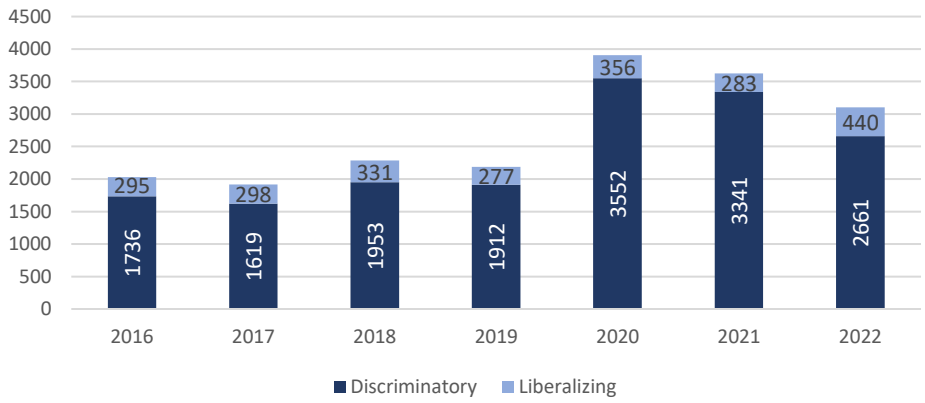
supported by expansion in manufacturing and new export orders, while new export orders fell significantly in the second half of 2022. In February 2023, the global PMI amounted to 50 for new export orders and 48.3 for manufacturing. Numbers of the PMI above 50 denote increased economic activity, while numbers below 50 denote decreased economic activity.

Figure I.12: Global manufacturing and new export orders



Source: Statista based on World Bank, Haver Analytics, IHS Markit and JPMorgan Chase.
Notes: Manufacturing and new export orders are measured by Purchasing Managers' Index (PMI). PMI readings above 50 indicate expansion in economic activity; readings below 50 indicate contraction.

Figure I.13: New trade measures worldwide in force as of 26 May 2023



Source: Global Trade Alert.

According to the Global Trade Alert database, from 2016 to 2022, governments worldwide have introduced 16,774 discriminatory and only 2,280 liberalizing

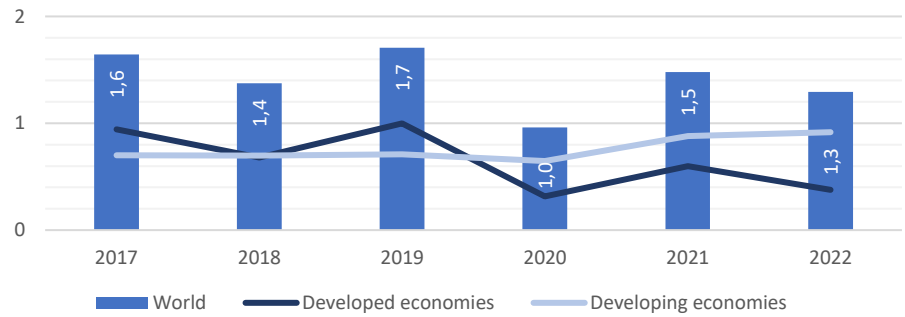
trade measures, affecting at least one economy, and are still in force as of 26 May 2023 (Figure I.13). Thus, the cumulative number of measures liberalizing global trade was outnumbered by discriminatory and restrictive policy interventions by more than 7.3 times in this period. In 2020 and 2021, restrictive trade policies exceeded much more liberalizing measures, partly explaining the slowdown in global exports of goods and services.

UNCTAD's World Investment Report 2023 shows an overall confidence problem and uncertain prospects dampening foreign direct investment (FDI) as well. Global FDI declined by 12% in 2022, to $1.3 trillion, after a strong rebound in 2021 following the steep drop induced by Covid-19 in 2020.

Global foreign direct investment declined by 12% in 2022 to $1.3 trillion. UNCTAD expects the downward pressure on global FDI to continue in 2023.

The decline was mainly a result of lower volumes of FDI flows in developed countries, where FDI fell by 37% to $378 billion. Thanks to increased openness to foreign companies, developing countries have significantly deepened their integration into the international production system in the last decade. According to UNCTAD, after a significant drop in 2020, FDI flows to developing countries reached $881 billion in 2021, showing a stronger than expected rebound. FDI flows to developing countries in 2022 slightly increased by %4, reaching $916 billion. Particularly after 2009, China continued to lead in FDI growth in the developing world. From 2017 to 2023, almost 21% of FDI inflows to developing countries went to China. Asia remains to be the largest FDI recipient in the developing world.

Figure I.14: FDI Inflows in the world *(trillion $US)*



Source: UNCTAD, FDI/MNE database.
Note: Data labels show the FDI inflows to the world.

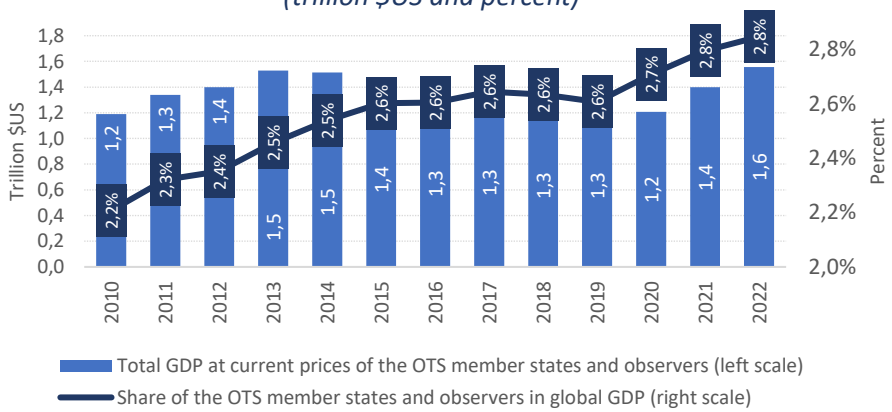
I.B Economic growth, macroeconomic stability and employment in Turkic economies

The Turkic economies have shown resilience in a challenging global economic context. The OTS group of economies' total GDP was worth nearly $1.6 trillion in 2022, the highest value achieved so far. Calculations based on the World Bank's GDP in constant 2015 prices data show that the economic output of this group of economies has become 1.8 times higher in 2022 compared to 2010. The OTS group of economies' share in the global GDP has increased from 2.2% in 2010 to 2.8% in 2022.

I.B.1 Economic growth

Real GDP growth figures for 2021 and 2022 continued to display stable growth momentum for Turkic economies. The recovery of the OTS group of economies from the Covid-19 crisis was remarkable, whose average real GDP growth rate increased from 0.8% in 2020 to 9.6% in 2021. In 2021, except for Turkmenistan, almost all OTS economies grew faster than the 2010-2018 average growth rates (Table I.1). However, affected by the slowdown in the world economy, economic growth performance slightly lost its momentum in 2022, and the deceleration of growth became visible in almost all OTS economies, causing a slowdown in the OTS average real GDP growth rate at 5.1% (Table I.1).

Figure I.15: Total GDP of OTS economies and share in global GDP
(trillion $US and percent)



Source: World Bank, World Development Indicators; IMF (2023a). World Economic Outlook, April 2023 update; Central Bank of the TRNC.
Note: All OTS member states and observers are included. The share in the global GDP is expressed in percent of world GDP in PPP dollars.

Table I.1: GDP growth rates
(real change in % against the preceding year)

	2010-2018 average	2019	2020	2021	2022
Azerbaijan	1.7	2.5	-4.3	5.6	4.6
Kazakhstan	4.5	4.5	-2.5	4.3	3.2
Kyrgyzstan	4.1	4.6	-8.4	6.2	7.0
Türkiye	6.4	0.8	1.9	11.4	5.6
Uzbekistan	6.6	6.0	2.0	7.4	5.7
Hungary	2.6	4.9	-4.5	7.2	4.6
TRNC	3.2	0.2	-16.2	3.9	..
Turkmenistan	9.0	6.3	-3.4	4.6	1.8
OTS average	**5.5**	**1.7**	**0.8**	**9.6**	**5.1**

Source: World Bank, World Development Indicators; IMF (2023a). World Economic Outlook, April 2023 update for 2021 and 2022 data of Turkmenistan; Central Bank of the TRNC.
Notes: The OTS average is computed as a weighted average, with the weights reflecting the relative importance of each economy within the group's total GDP in PPP.

The real GDP of the OTS group of economies has become 1.8 times higher in the last twelve years, reaching nearly $1.6 trillion in 2022.

The OTS group of economies displays a heterogeneous structure in terms of economic development (Table I.2). Different economic development levels can be explained by many factors, including difficulties of transition from planned to liberal economies, restrictions caused by geolocation, differences in structural and macroeconomic reforms, the performance of central banks, dynamism of the private sector, urbanization level, and the like. Türkiye dominates within the total GDP at current prices of the OTS group of economies, accounting for 58% in 2022. In the same year, 14% of OTS GDP belonged to Kazakhstan, 11% to Hungary, and nearly 16% to the rest of the OTS economies. The performance of the economies of Türkiye, Kazakhstan, and Hungary heavily influences the average figures of the OTS group of economies.

In 2022, Hungary recorded the highest GDP per capita among the OTS economies, at $18,463. Kazakhstan was second with $11,244, while $10,616 GDP per capita puts Türkiye in third place in 2022 among the OTS group of economies. Between 2000 and 2022, most OTS economies became substantially richer in relation to the European Union (EU-27). OTS economies, on average, went from 24% of EU-27 per capita GDP (at purchasing power parity) in 2000 to 53% by 2022, including levels of 77% in Hungary, 73% in Türkiye, and 56% in Kazakhstan (Table I.2). In this regard, most OTS economies have demonstrated a strong convergence dynamic towards GDP per capita of the developed world. Still, it is evident from Table I.2 that the distance of some Turkic economies from EU-27 average welfare remains significantly high.

Table I.2: GDP and GDP per capita levels

	GDP at current prices *(billion $US)*		GDP per capita *($US)*		Real GDP per capita, PPP, constant int. $, as a percent of the EU-27 average	
	2021	**2022**	**2021**	**2022**	**2000**	**2022**
Azerbaijan	54.8	78.7	5408	7737	12%	32%
Kazakhstan	197.1	220.6	10374	11244	29%	56%
Kyrgyzstan	8.7	10.9	1306	1607	9%	11%
Türkiye	819.0	906.0	9661	10616	43%	72%
Uzbekistan	69.6	80.4	1993	2255	9%	18%
Hungary	182.3	178.8	18772	18463	56%	77%
TRNC	3.4	3.0	11129	..	..	..
Turkmenistan	64.4	78.0	7585	8665	13%	35%
OTS average	**1399.3**	**1556.5**	**8138**	**8941**	**24%**	**53%**

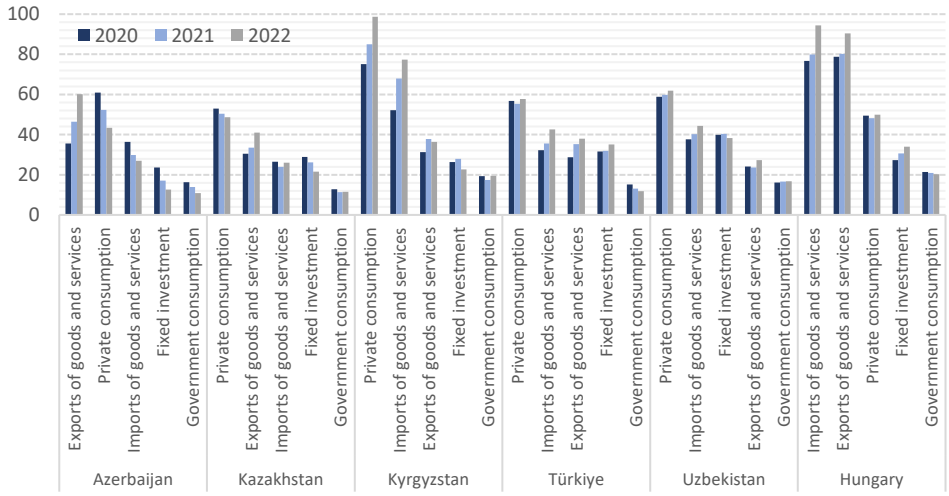
Source: World Bank, World Development Indicators; IMF (2023a). World Economic Outlook database, April 2023 update; Central Bank of the TRNC.
Note: Real GDP per capita values use the European Union's average GDP per capita as a basis of comparison at 100. The GDP per capita average of OTS economies is computed by dividing the total GDP of OTS economies by their entire population. The 2022 GDP value for TRNC is estimated.

I.B.2 Structure of GDP and drivers of growth

Private consumption typically makes up well over 50% of the economic output of all Turkic economies and acts as the primary driver of growth. In 2022, there was a significant increase in private consumption in Kyrgyzstan and a slight improvement in private consumption in Hungary, Türkiye, and Uzbekistan, providing stimulus to economic growth. Kyrgyzstan and Uzbekistan have experienced a slight increase in government expenditure, while a slight increase in domestic investments (fixed investment) was realized in Hungary and Türkiye. In Kazakhstan and Azerbaijan, net exports significantly contributed to GDP growth in 2022 (Figure I.16).

Azerbaijan has substantial hydrocarbon reserves and is among the world's top 10 most energy-dependent economies. With energy accounting for nearly 90% of Azerbaijan's total exports, energy price movements significantly influence the country's economic performance. The increase in oil prices has substantially offset the Covid-19 pandemic's adverse economic effects on Azerbaijan's economy. Despite the strong growth rates in the non-oil sector in recent years (particularly in construction), diversifying from the energy sector is crucial for Azerbaijan's economy's long-term economic stability and growth. The socioeconomic development strategy for 2022-2026 of the Republic of Azerbaijan prioritizes these issues and sets out a vision of a more sustainable, inclusive, and innovative environment (Azərbaycan-2026). Rehabilitation and reconstruction activities in Azerbaijan's Karabakh and East Zangezur regions are also on the agenda. Still, over the next decade, hydrocarbons will remain Azerbaijan's dominant economic sector and budgetary revenue source.

Figure I.16: Components of GDP *(percent of GDP)*



Source: World Bank, World Development Indicators. 2022 data for Kazakhstan and Kyrgyzstan from IMF, International Financial Statistics.

Many of the OTS group of economies are integrated with the world economy, mainly through their natural resources. Resource wealth has significantly benefited national economies. However, poorly diversified resource-driven economies are exposed to substantial systemic risks. At the macro level, resource dependence implies a high vulnerability to external shocks, mainly where government revenues rely heavily on export income. More diversified economies tend to be more resilient to external shocks and able to generate high-productivity employment on a sufficient scale.

Kazakhstan is also known for its significant hydrocarbon and mining resources. Kazakhstan's real GDP in 2022 grew by 3.2%, slowing from the 4.3% noted in 2021. In 2022, oil and gas accounted for 20% of Kazakhstan's GDP, nearly 45% of total industrial production, 60% of goods exports, and 40% of government tax revenues. The State Program of Industrial and Innovative Development of the Republic of Kazakhstan for 2020 – 2025 (SPIID, 2020) aims, among other things, to advance economic diversification, import substitution, and green energy transition. In 2022, $4.3 billion was invested in the light and chemical industry, the food sector, mechanical engineering, pharmaceuticals, metallurgy, construction, and oil refining (Astana Times, 2023).

The rich mineral resources and potential for developing the hospitality industry offer opportunities for Kyrgyzstan to fund the country's development projects.

Gold production primarily drives overall GDP growth in the Kyrgyz economy. Moreover, Kyrgyzstan exports are significantly dependent on economic activity in Russia, and labor remittance inflows from migrant workers in Russia accounted for over 27% of Kyrgyzstan's GDP in 2021. Diversifying the economy by encouraging external investment, improving the business environment, and developing new trade routes would contribute to Kyrgyzstan's more robust economic progress.

The Turkish economy was one of the few to avoid contraction in 2020, growing by 1.9%. In 2021, it expanded tremendously, with a GDP growth of 11.4%, the most robust rate among major developing countries. In 2022, GDP growth slowed to a still-strong 5.6%. Massive earthquakes in February 2023 devastated southern and central Türkiye. Around 13 million people in ten provinces were affected by the disaster. The affected provinces contribute 9.3% of GDP and 8.5% of exports. The earthquake cost was estimated at $103.6 billion (SBB, 2023: 8). High government spending to support the necessary reconstruction and rebuilding of the region shifted growth drivers from consumption and net exports to fixed investment and government consumption in 2023.

Following the May 2023 election, the new government of Türkiye has introduced structural reforms and pro-growth economic policies. A large domestic market, an ambitious infrastructure investment program, and a strong recovery of the tourism sector will continue to boost Türkiye's economy. Türkiye attracted 44.6 million foreign visitors in 2022, nearly as many as before the pandemic (KTB, 2022).

Uzbekistan's economy has proven resilient despite the global economic slowdown. Its GDP grew by 2% in 2020, 7.4% in 2021, and 5.7% in 2022, with positive dynamics in all sectors. The government of Uzbekistan remains committed to ongoing structural reforms and diversification of the economy to enable a shift from public to more private sector-led growth, which will support economic activity. Given the heavy dependence on Russia for trade and remittances, sanctions against that economy pose a risk to Uzbekistan. Remittances from Russia accounted for about 13% of Uzbekistan's GDP in 2022.

Hungary's GDP decreased by 4.5% in 2020 due to the Covid-19 pandemic but recovered strongly in 2021 (7.2%). In 2022, the economy recorded a growth rate of 4.6%, a slowdown compared to 2021 due to the impact of the Russia-Ukraine War. The war negatively impacted the Hungarian economy, mainly through increased energy costs directly affecting consumers and enterprises. Figure I.16 illustrates how vital trade is to the Hungarian economy, particularly with other European countries. Most of the nation's trade in 2022 was with European countries. Due to this, Hungary is susceptible to economic shocks in Europe.

Hungary should diversify its export destinations to counteract shocks and periods of poor economic activity across Europe and enhance its total export industry.

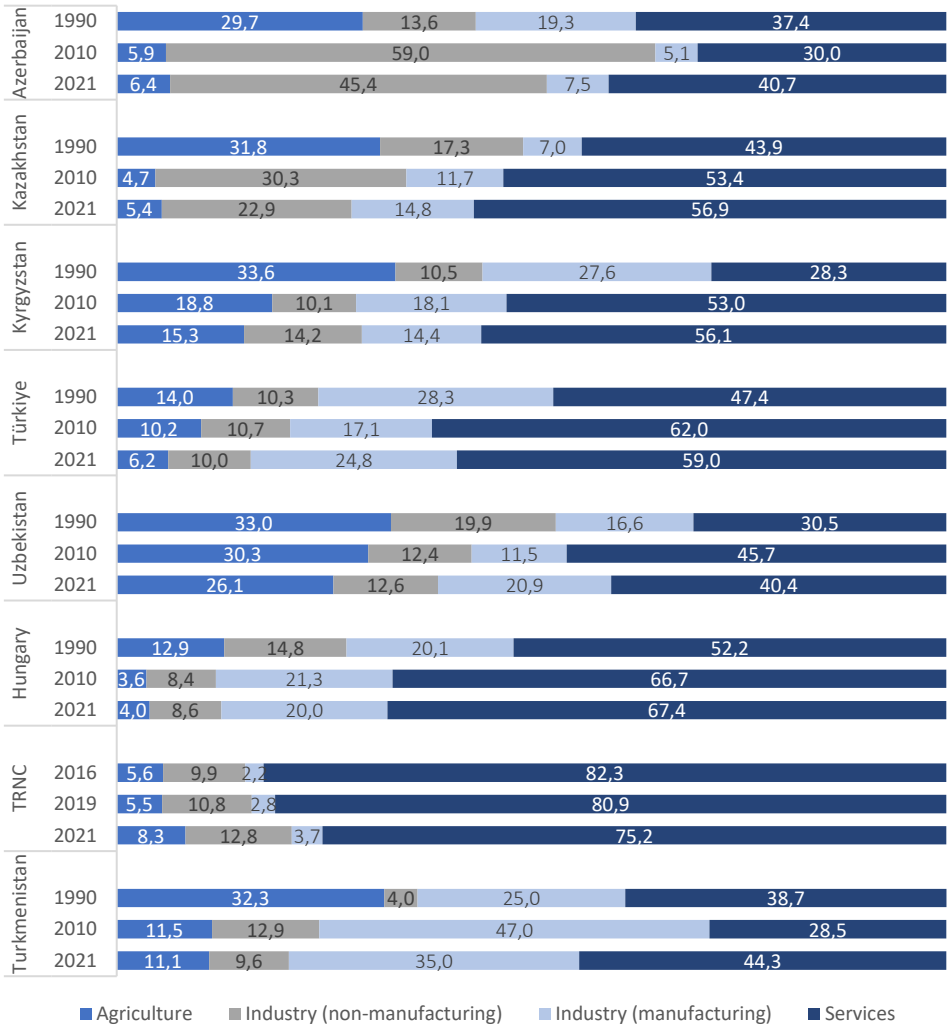
Hungary benefits from EU structural funding, supporting large investment outlays. Moreover, Hungary has a high level of human development. However, like most Western European countries, the nation will witness demographic challenges due to the declining birth rate and an aging society.

Data related to the components of GDP are not available for the Turkish Republic of Northern Cyprus (TRNC) and Turkmenistan, avoiding a more detailed analysis of GDP growth drivers from the demand side. The TRNC was most affected within the OTS group of economies by the consequences of the Covid-19 pandemic, and its real GDP was reduced by 16.2% in 2020. In 2021 TRNC economy grew by 3.9%. TRNC's economy is heavily dependent on Türkiye and its economic policies.

Turkmenistan is endowed with abundant natural resources of oil and gas deposits. According to the World Bank, Turkmenistan's gas reserves are considered the fourth-largest globally, making up nearly 10% of global reserves. Before dropping to 1.8% in 2022, Turkmenistan's real GDP growth rate increased by 4.6% in 2021. (Table I.1). The bulk of Turkmenistan's exports are hydrocarbons, and the country's economy is heavily dependent on its gas exports to China, which also account for most of its government income. China receives more than 75% of all Turkmen gas exports. Turkmenistan's economy is anticipated to continue to rely on natural gas and, to a lesser extent, oil and cotton exports. As a result, changes in the natural gas export market and Chinese demand will significantly impact Turkmenistan's economic performance.

The government of Turkmenistan continues to place a strong premium on diversifying the export market. In August 2022, Turkmenistan announced plans to speed up work on the Turkmenistan-Afghanistan-Pakistan-India gas pipeline project. Turkmenistan's government is also working to diversify the country's economy and reduce its dependency on fossil fuels. Under the National Programme of the President of Turkmenistan on the socioeconomic development of the country for 2019-2025, the government has committed to allocate more than $68.4 billion to transform Turkmenistan into an industrially developed state and implement reforms based on knowledge and innovation that provide diversification of the economy (Turkmenistan.gov, 2019).

Figure I.17: Share of economic sectors in GDP *(percent)*



Source: UNSD National Accounts Main Aggregates Database; Statistical Institute of TRNC.
Note: Non-manufacturing industry includes construction, mining, and utilities (electricity, gas, and water supply).

Figure I.17 shows the proportions of the economic sectors in the GDP. On the supply side, the critical weakness of some OTS economies is the low share of manufacturing. From 1990 to 2021, the share of manufacturing in GDP has significantly fallen in Azerbaijan and Kyrgyzstan. The non-manufacturing industry (particularly the extraction industry) is proliferating in Azerbaijan and Kazakhstan (Figure I.17). The share of manufacturing remains more significant in Hungary, Türkiye, Turkmenistan, and Uzbekistan, contributing above 20% to the GDP of these countries. Still, the reforms should promote innovation in

manufacturing to improve efficiency and make production more environmentally friendly.

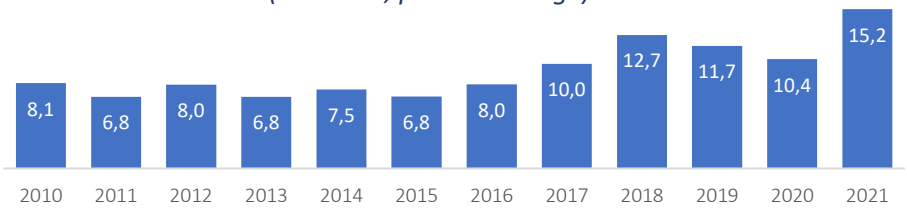
Agriculture's share in the OTS group of economies has progressively declined from 1990 to 2022. However, agriculture's importance in the economic and social fabric of the OTS economies goes well beyond this indicator due to the food security dimension and many families being dependent on rural incomes. For example, according to the UN estimations, in 2022, 63% of Kyrgyzstan's population, 50% of Uzbekistan's population, 47% of Turkmenistan's population, 43% of Azerbaijan's population, and 42% of Kazakhstan's population were living in rural areas. Agriculture continues to provide significant inputs to Uzbekistan's GDP.

As shown in Figure I.17, the services sector accounts for most of the rise in the OTS economies' GDP growth. The services sector contributes 50%-60% to the GDP of Kazakhstan, Kyrgyzstan, and Türkiye, 60%-70% to the GDP of Hungary, and 70%-80% to the GDP of TRNC. For example, the GDP share of services in OECD countries averaged 70.2% in 2021.

I.B.3 Inflation, fiscal position, and employment

Inflation in the OTS group of economies averaged 7.4% during 2010-2016. However, in 2017, it increased to double digits at 10% and 12.7% in 2018. After a slowdown in inflationist pressures in the 2019-2010 period, the average inflation of the OTS group of economies increased to 15.2% from 10,4% in 2021 (Figure I.18). From 2021 to 2022, average consumer prices have increased in all Turkic economies except for Turkmenistan (Figure I.19). The reasons for the high inflation rates in 2022 do coincide in part with the situation in other countries, reflecting elevated global food and commodity prices, inflationary pressures from interrupted supply chains, the rocketing cost of imported energy and the

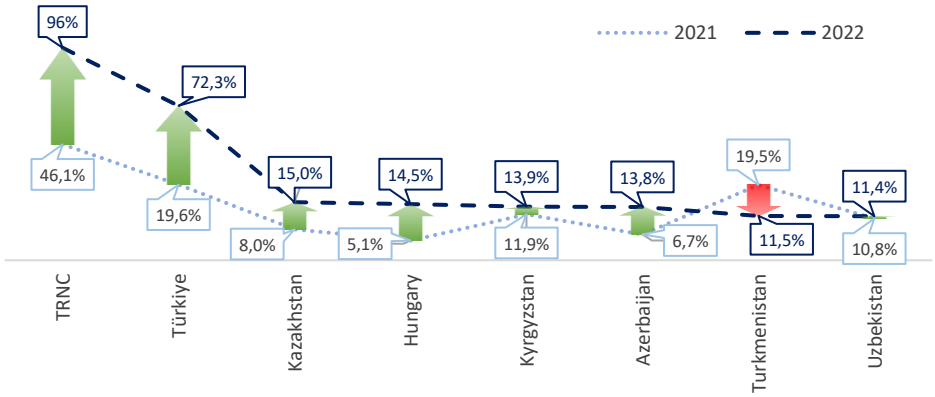
Figure I.18: Inflation, average consumer prices
(OTS level, percent change)



Source: IMF (2023a). World Economic Outlook database, April 2023 update; UNSD National Accounts Main Aggregates Database.
Note: Weighted with the household consumption expenditure of each OTS economy since this component of the GDP is composed primarily of expenditures by resident households on new durable and non-durable goods and services. TRNC is not included because household consumption expenditure data was unavailable.

impact of the war in Ukraine. However, there are several other, more country-specific reasons as well, including demand-side inflation pressures, bad harvest in agriculture, and the depreciation of the domestic currencies against the dollar.

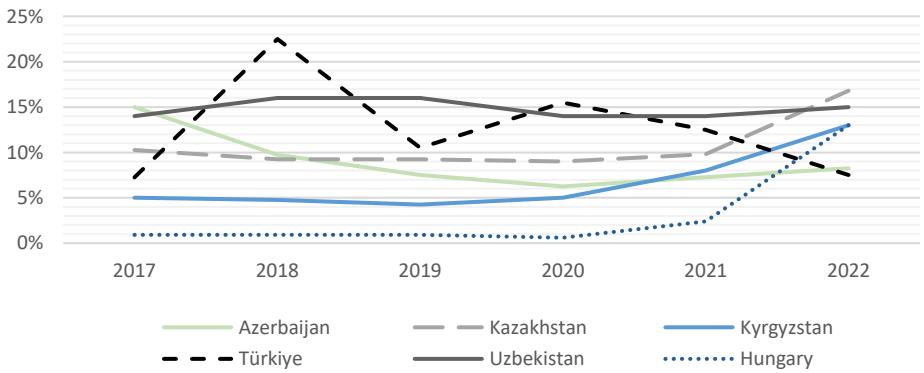
Figure I.19: Inflation, average consumer prices
(country level percent change)



Source: IMF (2023a). World Economic Outlook database, April 2023 update; Statistical Institute of TRNC.

Most of the OTS group of economies raised central bank policy rates in 2022 to counter inflation (Figure I.20). Still, import price and producer price inflation is expected to keep pressure on consumer price inflation, but slowing household consumption (constrained by persistently higher inflation that keeps real income growth negative) will likely have a disinflationary impact in 2024.

Figure I.20: Central bank policy rates *(percent, average)*



Source: IMF, International financial statistics. 2021 and 2022 data for Kazakhstan and 2022 data for Hungary from Oxford Economics.

OTS group of economies have a broadly healthy fiscal position. The fiscal measures adopted by the governments to combat Covid-19 and lessen its adverse effects on the population and businesses and the low level of business

activities due to the lockdown led to declining tax revenues in 2020. Accordingly, the general government balance (fiscal balance) moved to larger deficits, according to the IMF data. With the pandemic being fought and the economies being reopened, the fiscal balance of the OTS group of economies improved in 2021 and moved from deficit to surplus in the cases of Azerbaijan and Turkmenistan. In 2022, Kazakhstan joined Azerbaijan and Turkmenistan in achieving a surplus in fiscal balance (Table I.3).

Most OTS economies have a broadly healthy fiscal position and stable debt-to-GDP ratio.

Data for fiscal balance indicates that in 2022, most of the OTS economies had introduced fiscal consolidation measures to improve the sustainability of the fiscal position. Only in Kyrgyzstan the unexpected evaporation of gold exports (reduction from $1.4 billion in 2021 to $13.1 million in 2022) led to a more significant fiscal deficit compared to the previous year.

In most OTS economies, the debt-to-GDP ratio is stable and below 50%. Moreover, from 2021 to 2022, this indicator has shown improvement in all OTS economies. High GDP growth rates and favorable financing conditions in 2022 have brought down general government gross debt as a share of GDP. Fiscal pressures appear to be more significant only in Hungary. According to the IMF data, Hungary's general government gross debt decreased slightly, from 76.8% of GDP in 2021 to 76.4% in 2022.

Table I.3 Government budget and debt

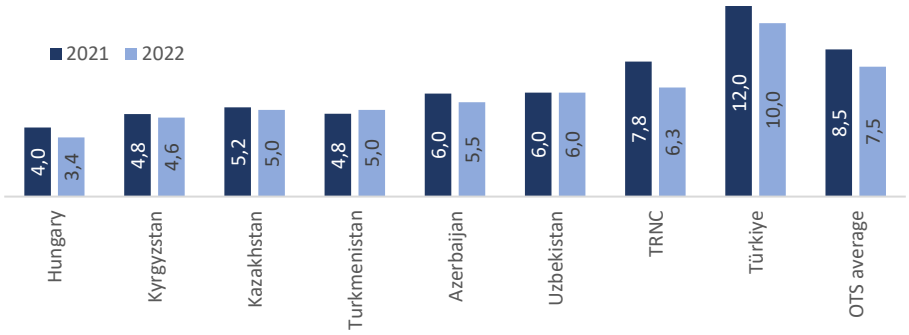
	Government budget balance/GDP (%)				General government gross debt/GDP (%)			
	2019	2020	2021	2022	2019	2020	2021	2022
Azerbaijan	9.0	-6.7	4.1	6.1	17.7	21.3	26.4	20.7
Kazakhstan	-0.6	-7.0	-5.0	0.1	19.9	26.4	25.1	23.5
Kyrgyzstan	-0.1	-3.3	-0.8	-1.3	51.6	67.6	59.5	53.5
Türkiye	-4.8	-5.1	-4.0	-1.6	32.6	39.7	41.8	31.2
Uzbekistan	-0.3	-3.3	-4.6	-3.9	28.5	37.1	35.4	34.3
Hungary	-2.0	-7.5	-7.1	-6.1	65.3	79.3	76.8	76.4
TRNC	3.3	-5.7	-3.2	..	..	..	..	..
Turkmenistan	-0.3	-0.1	0.4	0.9	15.3	13.1	10.1	5.2

Source: IMF (2023a). World Economic Outlook database, April 2023 update; Statistical Institute of TRNC.
Note: The government budget balance is the difference between general government revenue and general government total expenditure.

Real GDP growth has stabilized the unemployment rate, which averaged 7.5% in 2022 for the OTS group of economies (Figure I.21). From 2021 to 2022, all Turkic economies' labor situation improved. However, in some economies,

employment growth is under the shadow of the increased number of people entering the labor market, thus paving the way for unemployment to remain at higher rates.

Figure I.21: Unemployment rate *(percent)*

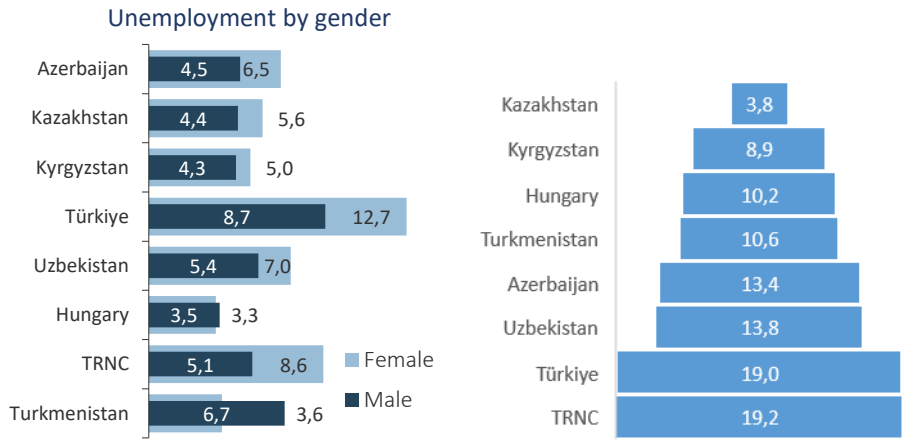


Source: ILO modelled estimates, Statistical Institute of TRNC.
Note: The OTS average is calculated by dividing the total number of unemployed people from OTS by the total number in the labor force of the OTS economies.

The lack of employment opportunities for youth remains challenging for most OTS economies

The unemployment rate of women was higher in 2022 than men's, except for Hungary and Turkmenistan, according to estimates by the International Labour Organization (ILO). Although differences in unemployment rates between women and men are relatively small (Figure I.22), it still indicates that for women, it is harder to get a

Figure I.22: Unemployment rate by gender and youth *(2022, percent)*



Source: ILO modelled estimates and Statistical Institute of TRNC.

job in some OTS economies. The lack of employment opportunities for youth (i.e., those between 15-24 years of age) remains challenging for most OTS economies. In 2022, the youth unemployment rate was between 10% and 20% in Azerbaijan, Hungary, Türkiye, TRNC, Turkmenistan, and Uzbekistan.

I.C External sector: Foreign trade and investment

Foreign trade and investment play a crucial role in the economic development of countries. The OTS group of economies has actively engaged in international trade and attracting foreign direct investment (FDI) to promote economic growth, diversify economies, and enhance global competitiveness. There are several opportunities for doing business in Turkic economies, including a growing consumer market, strategic location at the crossroads of Europe and Asia, rich natural resources and mineral deposits, a highly skilled workforce, and an innovative entrepreneurial spirit.

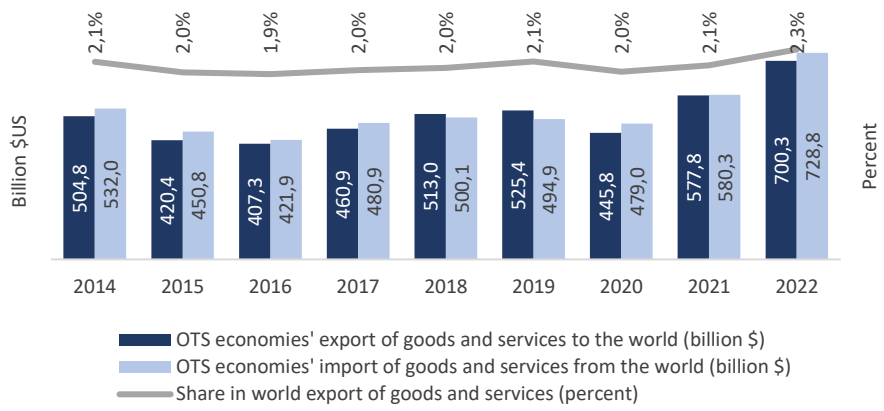
I.C.1 International trade

Calculation based on the official data reported to the IMF shows that the international trade of the OTS group of economies expanded over the 2015-2025 period, reflecting their increasing integration into the global economy. The total export of goods and services of this group of countries has increased from $420.4 billion in 2015 to above $700 billion in 2022. However, the proportion of these countries' exports of goods and services in relation to global exports indicates an almost stable trend over the last decade, taking its highest share of 2.3% in 2022 (Figure I.23). In 2022, export of goods of OTS group of countries was $556.7 billion (an increase of about 17.4% from 2021). The export of services totaled $ 143.5 billion (an increase of approximately 38.7% from 2021). As global economic power shifts to Asia, changes in global supply chains will happen, offering new economic opportunities for the OTS group of countries.

The total export of goods and services of the OTS group of economies has increased from $420.4 billion in 2015 to above $700 billion in 2022, with goods being dominant with a share of 80%, compared to a 20% share of services.

The import of goods and services trend of Turkic countries closely follows the direction of their exports. The value of Turkic countries' total import of goods and services reached $728.8 billion in 2022, from $580.3 billion in 2021. Import volume of goods and services grew by about 26% in the OTS group of economies in 2022, up from 21% in the previous year (Figure I.23).

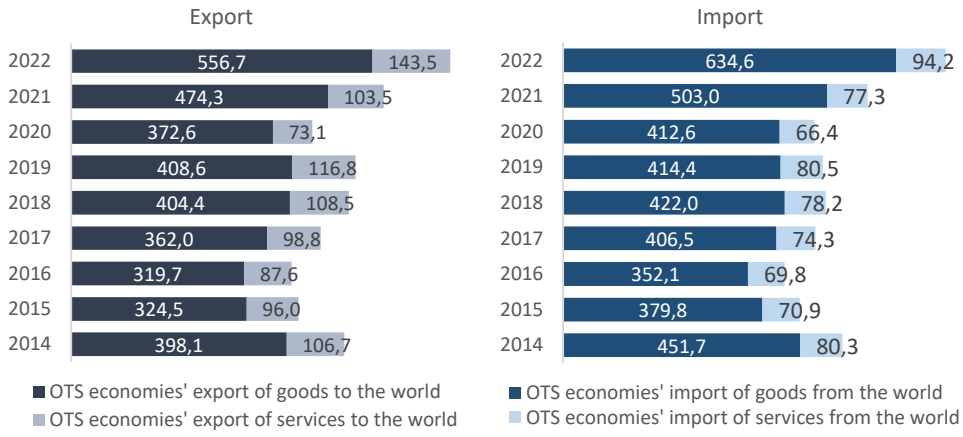
Figure I.23: Value of international trade of OTS group of economies
(regional level, billion $US and percent)



Source: IMF Direction of Trade Statistics for trade in goods and IMF Balance of Payments Statistics for trade in services. TRNC data from the Trade Department of the TRNC Ministry of Economy and Energy. OECD-WTO Balanced Trade in Services Statistics for trade in services of Turkmenistan.
Note: All OTS member states and observers are included. TRNC export and import of goods data for 2022 covers the period from January to August. Trade in services data is not available for TRNC.

Export and import of goods dominate the value of Turkic economies' international trade. In 2022, almost 80% of the combined exports of the OTS group of economies were goods, and only 20% consisted of services. On the import side, 87% of these countries' imports comprised goods and 13% of services in the same year (Figure I.24).

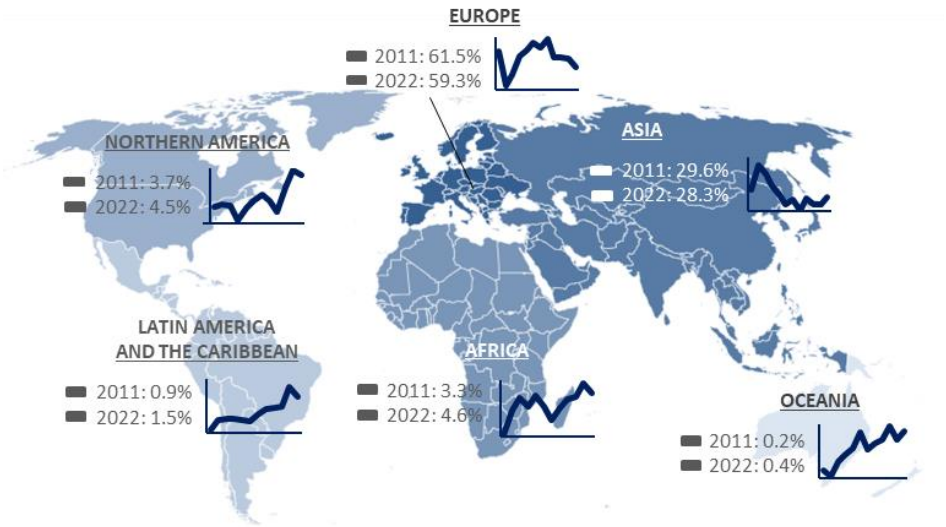
Figure I.24: Export and import of OTS group of economies
(regional level, billion $US)



Source: Same as in Figure I.23.

59.3% of the exports of goods of OTS economies went to European countries in 2022. Asia was the second biggest destination for the exports of OTS economies, where 28.3% of the goods were exported. In the same year, 4.6% of OTS exports of goods went to Africa, 4.5% to Northern America, 1.5% to Latin America and the Caribbean, and only 0.4% to Oceania (Map I.1).

Map I.1: Export of goods of OTS group of economies by continents
(regional level, percent of total export of OTS economies)



Source: IMF Direction of Trade Statistics for trade in goods and IMF Balance of Payments Statistics for trade in services. OECD-WTO Balanced Trade in Services Statistics for trade in services of Turkmenistan.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable.

Germany, Italy, China, Russia, and the United States were the top five markets for the OTS group of economies in 2022, receiving almost 34% of the export of goods. Türkiye was the thirteen biggest destination market for exporting goods from the rest of the OTS economies. The top ten destinations for the export of goods of OTS economies did not undergo a remarkable change in the last decade (Table I.4)

In 2022, within the OTS group of economies, Türkiye was the largest source of global exports, with a total export valuing approximately $344,5 billion, or 49% of the total export of goods of the OTS group of economies. (Table I.5). Within the same group, Türkiye was the world's leading importer of goods and services as of 2022. That year, Türkiye accounted for 56% of the OTS economies' imports. With $181.3 billion, Hungary was the OTS group's second-largest exporter in 2022. In the same year, the share of Kazakhstan in the OTS group of economies exports of goods and services was 10.6% and was followed by shares of Azerbaijan (4.6%), Uzbekistan (3.9%), Turkmenistan (1.8%) and Kyrgyzstan

(0.9%) (Table I.5). From 2019 to 2022, Azerbaijan, Kazakhstan, Hungary (except for 2022), and Turkmenistan (except for 2020) had a positive trade balance.

Table I.4: Top 20 destinations for export of goods of OTS group of economies
(regional level, billion $US and percent)

2011			2022		
	Value of export (billion $US)	Share in OTS export		Value of export (billion $US)	Share in OTS export
1. Germany	43.8	11.5%	1. Germany	60.5	10.9%
2. Italy	38.2	10.1%	2. Italy	51.2	9.2%
3. China	27.9	7.3%	3. China	31.2	5.6%
4. France	21.5	5.7%	4. Russia	23.3	4.2%
5. Russia	20.3	5.4%	5. U.S.	22.5	4.0%
6. U.K.	15.0	3.9%	6. France	20.3	3.6%
7. Netherlands	12.8	3.4%	7. Netherlands	19.9	3.6%
8. Romania	12.0	3.2%	8. U.K	19.1	3.4%
9. Austria	11.3	3.0%	9. Romania	18.1	3.3%
10. U.S	10.3	2.7%	10. Spain	16.9	3.0%
11. Switzerland	8.6	2.3%	11. Iraq	13.9	2.5%
12. Iraq	8.5	2.2%	12. Poland	12.8	2.3%
13. Ukraine	8.4	2.2%	13. Türkiye	11.8	2.1%
14. Spain	8.3	2.2%	14. Israel	9.8	1.8%
15. Poland	7.4	2.0%	15. Czechia	9.2	1.7%
16. Slovakia	7.1	1.9%	16. Austria	8.9	1.6%
17. Türkiye	6.0	1.6%	17. Belgium	8.6	1.5%
18. U.A.E.	5.9	1.6%	18. Slovakia	8.4	1.5%
19. Iran	5.6	1.5%	19. Greece	8.1	1.5%
20. Czechia	5.3	1.4%	20. Ukraine	7.3	1.3%

Source: IMF Direction of Trade Statistics for trade in goods and IMF Balance of Payments Statistics for trade in services. Note: All OTS member states and observers are included, except TRNC, for which data is unavailable.

Table I.5: Value of international trade by economies
(billion $US and percent)

Export volume of goods and services					Import volume of goods and services			
2019	2020	2021	2022		2019	2020	2021	2022
23.4	16.4	26.0	44.6	Azerbaijan	20.0	16.2	17.6	22.3
65.4	52.1	65.7	90.9	Kazakhstan	50.0	46.6	50.0	60.5
3.0	2.4	2.2	2.8	Kyrgyzstan	5.9	4.3	6.3	10.4
248.0	207.9	286.6	344.5	Türkiye	239.0	243.4	301.0	404.1
17.2	14.8	16.4	20.2	Uzbekistan	27.3	23.5	28.8	35.5
153.9	143.3	168.7	181.3	Hungary	142.8	134.1	164.0	185.3
0.083	0.106	0.135	..	TRNC	1.6	1.3	1.6	..
14.3	8.7	12.1	16.0	Turkmenistan	8.3	9.5	11.1	9.4

Source: IMF Direction of Trade Statistics for trade in goods and IMF Balance of Payments Statistics for trade in services. TRNC data from the Trade Department of the TRNC Ministry of Economy and Energy. OECD-WTO Balanced Trade in Services Statistics for trade in services of Turkmenistan.
Note: Trade in services data is not available for TRNC.

Table I.6 shows a significant trade concentration in the OTS group of economies and dependence on particular countries. For example, from 2011 to 2022, on

average, 32% of Azerbaijan's goods exports went to Italy. Azerbaijan's energy importance to the European Union has increased significantly since the beginning of the war in Ukraine, as the EU seeks ways to reduce its dependence on hydrocarbon imports from Russia. This was reflected in signing of the Memorandum of Understanding on Energy Cooperation between Azerbaijan and the EU in July 2022. Although this document is not binding, it provides for an increase in Azerbaijani gas exports to Europe.

From 2011 to 2022, 35.9% of imported goods to Kazakhstan originated from Russia. In the same period, Kyrgyzstan imported 30% of its goods from China, whereas Uzbekistan realized approximately 20% of its trade with China. Hungary's trade significantly depends on Germany (almost 25%), and the trade dependence of TRNC on Türkiye was 46.8% from export and nearly 62% from the import side. In the case of Turkmenistan, from 2011 to 2022, 74% of exports went to China, and nearly 27% of imports came from Türkiye. (Table I.6).

Significant trade concentration in some OTS economies and dependence on a few countries increases vulnerability to external shocks.

Nearly 90% of the trade of Kyrgyzstan, TRNC, and Turkmenistan is conducted with the Top ten countries listed in Table I.6, which means significant dependence on economic conditions in these partner countries. Similarly, around 70% of Hungary, Kazakhstan, and Uzbekistan trade is conducted with the Top ten partner countries (Table I.6). Within the OTS group of economies, Türkiye has significantly more diversified international trade, which means greater resistance to external shocks.

Table I.6: Top 10 destinations for trade in goods by economies
(2011-2022 average, percent of total)

Azerbaijan			
	Export		Import
Italy	32.0%	Russia	16.7%
Türkiye	7.9%	Türkiye	14.2%
Israel	5.3%	China	9.7%
France	4.6%	Germany	6.2%
Germany	4.1%	U.S.	5.6%
India	3.9%	U.K.	4.6%
Indonesia	3.9%	Ukraine	4.1%
Russia	3.7%	Italy	3.2%
U.S.	2.6%	Japan	2.6%
Georgia	2.5%	Iran	2.5%
Total	70.6%		69.5%

Kazakhstan			
	Export		Import
Italy	17.2%	Russia	35.9%
China	15.5%	China	16.4%
Netherlands	8.9%	Korea	5.4%
Russia	8.9%	Germany	5.2%
France	5.7%	U.S.	4.2%
Switzerland	5.0%	Italy	3.1%
Türkiye	3.3%	Ukraine	2.7%
Romania	2.9%	Türkiye	2.2%
Uzbekistan	2.5%	Uzbekistan	2.2%
Spain	2.4%	France	2.0%
Total	72.3%		79.5%

Kyrgyzstan			
	Export		Import
Switzerland	20.1%	China	30.0%
Kazakhstan	18.1%	Russia	29.5%
Russia	16.5%	Kazakhstan	11.0%
U.K.	13.9%	Türkiye	4.5%
Uzbekistan	8.8%	U.S	3.3%
Türkiye	5.1%	Uzbekistan	3.0%
U.A.E.	4.1%	Germany	2.3%
China	3.3%	Japan	2.1%
Tajikistan	2.0%	Ukraine	1.5%
Belgium	0.8%	Belarus	1.5%
Total	92.6%		88.8%

Türkiye			
	Export		Import
Germany	9.3%	Russia	10.5%
U.K.	6.2%	China	10.4%
Iraq	6.1%	Germany	9.2%
U.S.	5.1%	U.S.	5.3%
Italy	5.0%	Italy	4.8%
France	4.2%	France	3.3%
Spain	3.6%	Iran	2.8%
U.A.E.	3.0%	Korea	2.8%
Russia	3.0%	India	2.8%
Netherlands	2.7%	U.K.	2.5%
Total	48.3%		54.4%

Uzbekistan			
	Export		Import
China	19.0%	China	20.2%
Russia	14.7%	Russia	19.8%
Türkiye	8.7%	Korea	9.1%
Kazakhstan	7.0%	Kazakhstan	8.4%
Afghanistan	5.4%	Türkiye	4.8%
Iran	3.6%	Germany	4.2%
Kyrgyzstan	3.2%	India	2.5%
Korea	1.8%	U.A.E.	2.4%
Bangladesh	1.1%	Japan	2.2%
Tajikistan	1.1%	Brazil	2.0%
Total	65.9%		75.6%

Hungary			
	Export		Import
Germany	26.9%	Germany	24.5%
Romania	5.5%	China	7.2%
Slovakia	5.3%	Austria	6.6%
Italy	5.1%	Slovakia	5.4%
Austria	5.1%	Russia	5.4%
France	4.4%	Poland	5.3%
Poland	4.1%	Netherlands	4.7%
Czechia	4.1%	Czechia	4.6%
U.K.	3.6%	Italy	4.4%
Netherlands	3.3%	France	3.8%
Total	67.4%		71.9%

TRNC			
	Export		Import
Türkiye	46.8%	Türkiye	61.7%
Kuwait	8.9%	China	6.0%
U.S.	8.1%	Israel	4.3%
Russia	6.4%	Germany	4.1%
S. Arabia	5.6%	U.K.	3.8%
S. Cyprus	4.8%	Japan	3.0%
Iraq	4.2%	Ukraine	1.9%
U.A.E.	3.5%	Italy	1.7%
Jordan	1.7%	Russia	1.1%
Iran	1.3%	Netherlands	1.1%
Total	91.6%		88.6%

Turkmenistan			
	Export		Import
China	74.0%	Türkiye	26.9%
Türkiye	5.4%	Russia	14.9%
Afghanistan	2.6%	China	14.6%
Italy	2.5%	Germany	6.5%
Uzbekistan	2.2%	Italy	3.9%
Russia	1.5%	Ukraine	3.7%
Ukraine	1.4%	Korea	2.7%
Bangladesh	1.2%	U.S.	2.6%
Azerbaijan	1.0%	France	2.5%
Georgia	1.0%	Kazakhstan	2.2%
Total	92.9%		80.5%

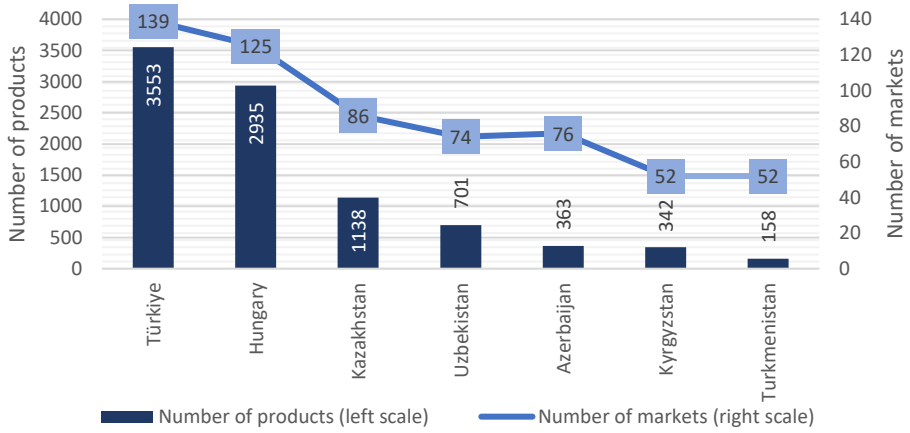
Source: IMF Direction of Trade Statistics. TRNC data from the Trade Department of the TRNC Ministry of Economy and Energy. Note: 2020-2021 averages for TRNC.

Figure I.25 testifies that exports of Turkmenistan, Kyrgyzstan, Azerbaijan, and Uzbekistan are concentrated in a relatively limited number of export markets and products compared to Türkiye and Hungary. In 2021, Türkiye was best integrated into the global economy by reaching 139 markets and offering 3,553 products to them. Hungary closely followed Türkiye with access to 125 markets and offering 2,935 export products. The number of partner markets and the

number of products exported were most limited in the case of Turkmenistan (Figure I.25). Exports from Kazakhstan reached 86 markets and offered 1138 products in 2021.

Concerning exported commodities, from 2020 to 2022, energy accounted for nearly 90% of Azerbaijan's and 58% of Kazakhstan's export of goods (Table I.7). Over 30% of the export of goods from Kyrgyzstan and Uzbekistan comprised gold (including gold plated with platinum). Tables I.6 and I.7 and Figure I.25 are a weak-up call for some OTS economies to intensify their reforms towards diversification of economies and trade partners.

Figure I.25: Export diversification *(2021)*



Source: WITS based on Uncomtrade.
Note: This indicator gives the number of partner markets and number of products exported. A market is counted if the exporter ships at least one product to that destination in the given year with a trade value of at least $10,000. A product is counted if it is exported to at least one destination in the selected year with a value of at least $10,000.

Table I.7: Top ten export commodities (2020-2022 average)

Azerbaijan	
Petroleum oils and oils obtained from bituminous minerals; crude	56.8%
Petroleum gases and other gaseous hydrocarbons	30.7%
Petroleum oils, other than crude	2.0%
Gold (including gold plated with platinum)	0.8%
Tomatoes; fresh or chilled	0.7%
Cotton; not carded or combed	0.7%
Other fruit, fresh	0.6%
Polymers of ethylene, in primary forms	0.5%
Polymers of propylene or of other olefins, in primary forms	0.5%
Other nuts, fresh or dried, whether or not shelled or peeled	0.5%

Kazakhstan	
Petroleum oils and oils obtained from bituminous minerals; crude	52.9%
Refined copper and copper alloys, unwrought	5.1%
Ferro-alloys	3.7%
Petroleum gases and other gaseous hydrocarbons	3.5%
Radioactive chemical elements and radioactive isotopes	3.2%
Copper ores and concentrates	2.8%
Wheat and meslin	2.3%
Iron ores and concentrates, including roasted iron pyrites	1.8%
Petroleum oils, other than crude	1.6%
Flat-rolled products of iron or non-alloy steel	1.1%

Kyrgyzstan	
Gold (including gold plated with platinum)	35.5%
Precious metal ores and concentrates	6.1%
Petroleum oils, other than crude	3.8%
Dried leguminous vegetables, shelled, whether or not skinned or split	3.2%
Copper; waste and scrap	3.2%
Float glass and surface ground or polished glass, in sheets	2.3%
Electrical apparatus for line telephony or line telegraphy	2.0%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05	1.8%
Articles for the conveyance or packing of goods, of plastics	1.5%
Cotton; not carded or combed	1.5%

Türkiye	
Motor cars and other motor vehicles principally designed for the transport	4.4%
Petroleum oils, other than crude	3.6%
Articles of jewellery and parts thereof, of precious metal	2.9%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05	2.6%
Motor vehicles for the transport of goods	2.3%
Other bars and rods of iron or non-alloy steel	1.8%
Commodities not specified according to kind	1.6%
Women’s or girls’suits, ensembles, jackets, blazers, dresses, skirts	1.5%
Insulated (including enamelled or anodised) wire, cable	1.4%
T-shirts, singlets and other vests, knitted or crocheted	1.2%

Uzbekistan	
Gold (including gold plated with platinum)	32.9%
Cotton yarn (other than sewing thread), containing 85 % or more	9.2%
Petroleum gases and other gaseous hydrocarbons	5.2%
Refined copper and copper alloys, unwrought	4.5%
Commodities not specified according to kind	2.8%
Polymers of ethylene, in primary forms	2.0%
Wheat or meslin flour	1.8%
Grapes, fresh or dried	1.6%
Copper wire	1.5%
Dried leguminous vegetables, shelled, whether or not skinned or split	1.5%

Hungary	
Motor cars and other motor vehicles principally designed for the transport	8.6%
Parts and accessories of the motor vehicles of headings 87.01 to 87.05	5.4%
Electric accumulators, including separators therefor	3.6%
Automatic data processing machines and units thereof	2.9%
Electrical apparatus for line telephony or line telegraphy	2.9%
Medicaments (excluding goods of heading 30.02, 30.05 or 30.06)	2.8%
Reception apparatus for television	2.6%
Spark-ignition reciprocating or rotary internal combustion piston engines	2.2%
Insulated (including enamelled or anodised) wire, cable	1.8%
Boards, panels, consoles, desks, cabinets and other bases	1.8%

Source: UN (2023b).

I.C.2 Intra-group trade among OTS economies

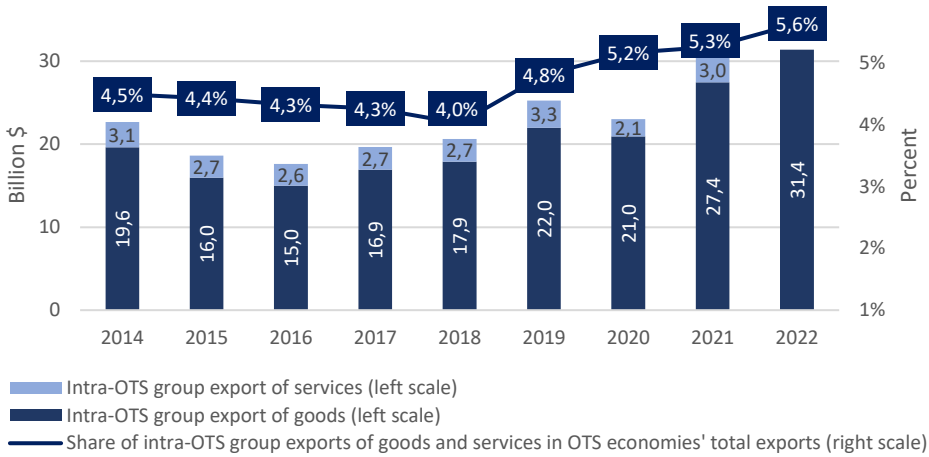
In recent years, there has been a growing interest in strengthening economic cooperation among Turkic countries, particularly through international trade. Intra-group trade has several benefits for both the countries involved and the related geography as a whole.

Intra-group trade helps to promote economic integration by creating a more interconnected and cohesive economic space. This can lead to increased investment, tourism, and cultural exchange, all contributing to economic development. By trading with each other, Turkic countries can reduce their dependence on external markets and diversify their trade partners. This can help mitigate risks associated with global economic downturns and geopolitical tensions. Intra-group trade can also encourage competition and innovation among Turkic economies, leading to higher-quality products and services.

Intra-group trade among OTS economies has increased considerably since the contraction in the 2014-2016 period. Total intra-group trade measured through exports rose from $17.6 billion in 2016 to $27.4 billion in 2021 (Figure I.26). The total export of goods among the OTS group of economies was $31.4 billion in 2022. That year, the OTS group of economies exported only 5.6% of their goods to each other and 94.4% to the rest of the world. Further, service exports between Turkic countries remain symbolic, amounting to only $3 billion in 2021 (Figure I.26).

The export of goods between OTS economies reached $31.4 billion in 2022. Still, the OTS group of economies sold only 5.6% of their exported goods to each other in 2022, whereas intra-group export levels were 73% of total exports in OECD group of countries and 61% of total exports in EU countries.

Figure I.26: Export of goods and services between OTS group of economies *(billion $US and percent)*



Source: IMF Direction of Trade Statistics for trade in goods and IMF Balance of Payments Statistics for trade in services. OECD-WTO Balanced International Trade in Services for Turkmenistan's export of services. TRNC export of goods data from the Trade Department of the TRNC Ministry of Economy and Energy.
Note: All OTS member states and observers are included. Data for TRNC's export of services not available. 2022 export of services data at a bilateral level not available. For 2022, the share of intra-OTS group exports within OTS economies' total exports reflects the share in the export of goods.

Intra-group trade integration varies significantly among OTS economies. Türkiye and Kazakhstan had the largest shares both in intra-group exports and intra-group imports from 2014 to 2022 (Table I.8). Above 39% of goods and 66% of services subject to trade between OTS economies were exported by Türkiye. In the same period, 21.5% of intra-OTS exports belonged to Kazakhstan, whereas around 31% originated from Azerbaijan, Hungary, and Uzbekistan.

Table I.8: Shares in intra-OTS trade *(percent)*

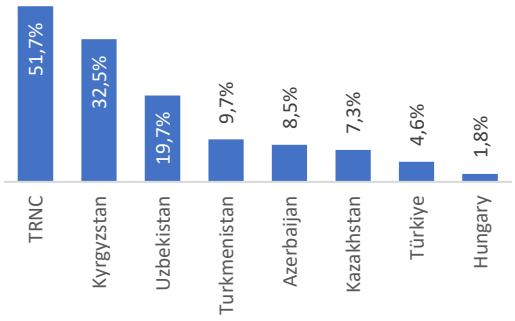
	Export of goods *(2014-2022 average)*	Export of services *(2014-2021 average)*
Türkiye	39,3%	66,0%
Kazakhstan	21,5%	7,9%
Hungary	10,7%	8,1%
Uzbekistan	10,6%	6,4%
Azerbaijan	10,0%	3,5%
Turkmenistan	4,7%	3,1%
Kyrgyzstan	2,8%	4,9%
TRNC	0,3%	..

Source: IMF Direction of Trade Statistics for trade in goods and IMF Balance of Payments Statistics for trade in services. OECD-WTO Balanced International Trade in Services for Turkmenistan's export of services. TRNC export of goods data from the Trade Department of the TRNC Ministry of Economy and Energy.

Regional trade integration varies significantly among OTS economies. Kyrgyzstan and Uzbekistan appear to be most integrated into the trade among the OTS economies. From 2011 to 2022, 32.5% of Kyrgyzstan's total exports of goods went to other OTS economies. OTS markets were the destination for 19.7% of Uzbekistan's export of goods, 9.7% of Turkmenistan's export of goods, 8.5% of Azerbaijan's export of goods, and 7.3% of Kazakhstan's export of goods in the same period. Türkiye's and Hungary's exports of goods appear to be less dependent on OTS economies' markets. From 2011 to 2022, 4.6% of Türkiye's exports and only 1.8% of Hungary's exports were realized in other OTS economies (Figure I.27).

Trade between the OTS group of economies is on the rise. However, it is unevenly distributed between the economies of this group and, in most cases, heavily concentrated on particular OTS member states.

Figure I.27: Share of export of goods to OTS economies within the export to the world



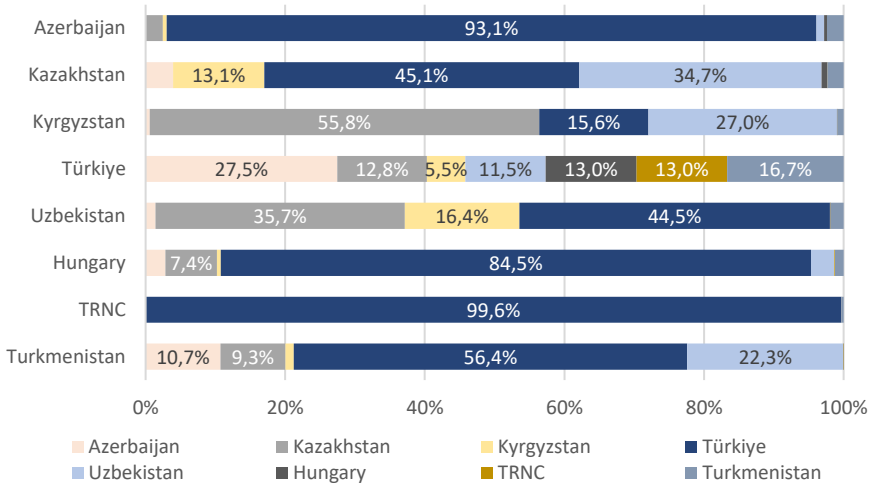
Source: IMF Direction of Trade Statistics. TRNC export of goods data from the Trade Department of the TRNC Ministry of Economy and Energy. 2011-2021 averages for TRNC.

From 2011 to 2021, the share of exports of goods to OTS economies within the total export of goods appears to be 51.7% in the TRNC. However, a more detailed analysis reveals that 99.6% of the value exported by the TRNC to OTS economies is actually exported to Türkiye. Regarding intra-OTS trade, the Türkiye market is highly important for Azerbaijan and Hungary and essential for Turkmenistan, Kazakhstan, and Uzbekistan. From 2011 to 2022, 93.1% of intra-OTS exports from Azerbaijan and 84.5% of intra-OTS exports from Hungary ended up in the Turkish market. Again, in the framework of trade between OTS economies, Kazakhstan's market appears very important for Kyrgyzstan and Uzbekistan, while the importance of the market of Uzbekistan was relatively higher for Kazakhstan, Kyrgyzstan, and Turkmenistan (Figure I.28).

Industrial supplies, fuels and lubricants, and capital goods dominate the export of goods between OTS economies. These three components accounted for around 70% of intra-OTS exports in 2021 and 2022. The share of transport equipment was 13% in 2021, and data for 2022 indicates a rise in food and

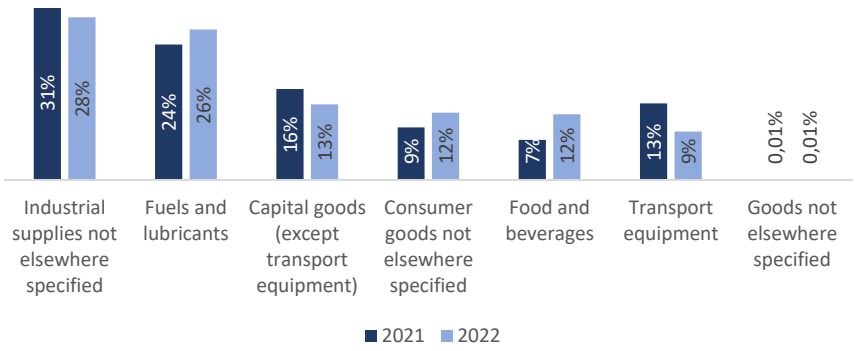
beverage exports, whose share within intra-OTS export of goods increased to 12%. Share of other consumer goods also increased from 9% in 2021 to 12% in 2022 (Figure I.29).

Figure I.28: Distribution of shares in intra-OTS export of goods by economies *(2011-2022 average)*



Source: IMF Direction of Trade Statistics. TRNC data from the Trade Department of the TRNC Ministry of Economy and Energy.

Figure I.29: Sectoral shares in export of goods between OTS group of economies *(percent)*



Source: WITS - World Bank based on Uncomtrade.

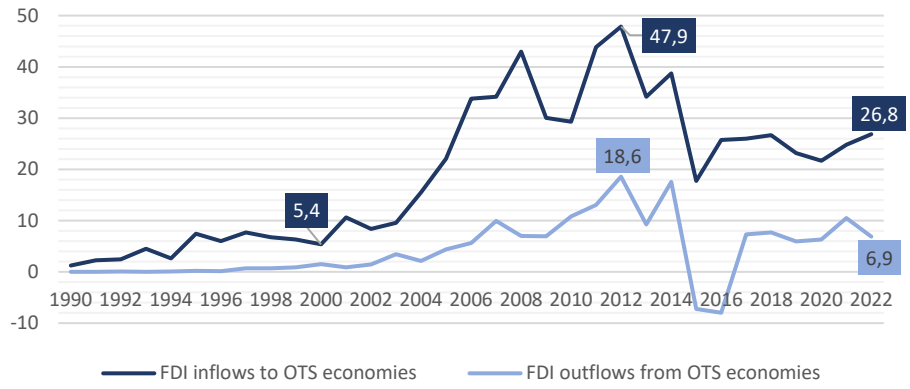
I.C.3 Foreign direct investment

Foreign trade is closely related to foreign direct investment (FDI) (Goh and Tham, 2013). Companies expand internationally gradually and frequently test foreign markets through exports, and after acquiring enough familiarity with foreign markets, they decide to carry out FDI (Wei, Y. et al., 2014; Johanson and Vahlne,

1990). Some recent findings of the literature on international trade highlight that FDI encourages the export of the host economy (Voica et al., 2021). Moreover, local companies may also develop access to new foreign markets through links with multinational enterprises (MNEs) due to arrangements such as subcontracting.

Governments of Turkic countries accept FDI as a vital long-term source to alleviate domestic capital accumulation constraints and advance national development goals. Consequently, recent years have witnessed increased openness of Turkic economies to FDI. Governments seek to attract FDI by creating a more appropriate climate for investment and providing different incentives and facilities to foreign investors.

Figure I.30: Foreign direct investment in OTS economies
(billion $US)



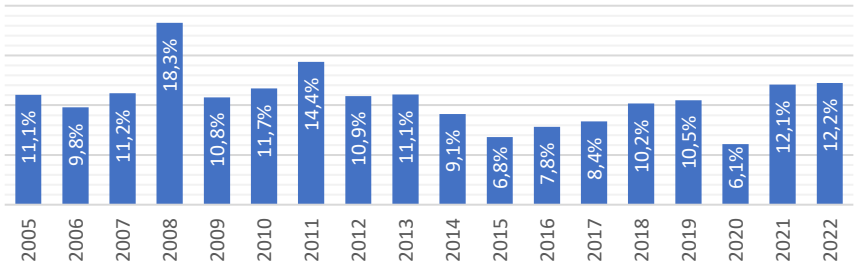
Source: UNCTAD, FDI/MNE database.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable. FDI outflow data for Turkmenistan is not available.

FDI inflows into OTS economies declined by 6.4% in 2020 to nearly $21.7 billion, compared with the 2019 data, then increased in 2021 to $24.8 billion, and in 2022 to $26.8 billion - the highest level seen after 2015. Still, in 2022, FDI inflows to the OTS group of economies were far below the 2012 record of $47.9 billion, after which until 2015, a continuous decline in FDI inflows is evident (Figure I.30). Falls in the average profitability of foreign capital stock can explain the worsening performance of OTS economies in attracting FDIs from 2012 to 2015 (Figure I.31).

The rate of return earned by foreign investors on FDI capital exceeded 12.2% in 2022, the highest rate since 2011. From 2016 to 2022, except for 2020, FDI returns in the OTS group of economies demonstrated an increasing trend, which, in a good way, explains the recent increase in the inflow of FDI to the OTS group

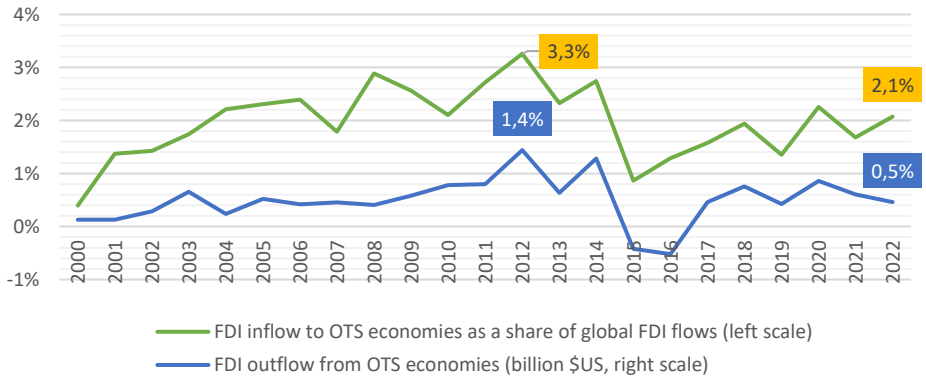
of economies. The OTS economies' share of global FDI inflows rose from 1.7% in 2021 to 2.1% in 2022, whereas their share in the global FDI outflow was 0.5% in 2022 (Figure I.32).

Figure I.31: Rates on return on inward foreign direct investment in OTS group of economies *(percent)*



Source: UNCTAD (2023), IMF BoP.
Note: Average profitability is calculated as the quotient between FDI income and the FDI stock. FDI income data from IMF BoP, Primary Income - Direct Investment Debit; FDI stock data from UNCTAD, FDI/MNE database. TRNC and Turkmenistan are not included (no data).

Figure I.32: Share in the global FDI flows *(billion $US)*



Source: UNCTAD, FDI/MNE database.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable. FDI outflow data for Turkmenistan is not available.

Most of the OTS countries do not actively promote or incentivize outward investment. However, the OTS governments do not restrict domestic investors from investing abroad, although some OTS countries' conditions for outward investments differ. OTS economies' total outward FDI flows grew significantly from 2004 to 2012. In 2012, OTS outward FDI flows reached the historically highest value of $18.6 billion. After 2012, significant fluctuations and a downward trend are visible in the OTS outward FDI. In 2022, the total value of

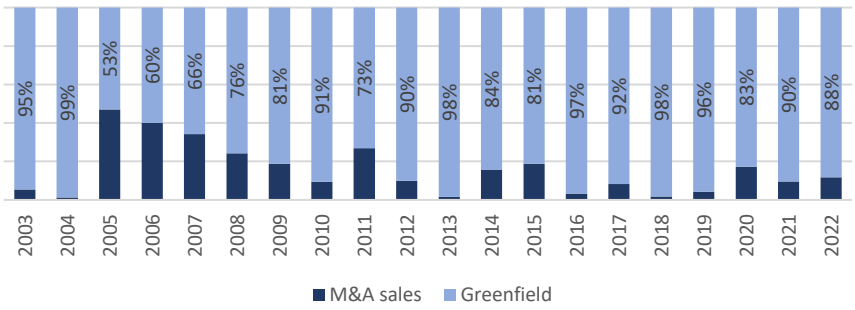
OTS economies' outward investment flows accounted for $6.9 billion, a 35% decrease compared to the previous year (Figure I.30).

FDI inflows into OTS economies increased to $26.8 billion in 2022. Significant component of FDI inflows were greenfield investments.

Two important forms of FDI are greenfield investments and cross-border mergers and acquisitions (M&A). Greenfield investment involves creating a subsidiary, a completely new operation in a target market from scratch, with fresh capital from one or more non-resident investors. Unlike greenfield investment, cross-border M&A does not directly contribute to productive capacity but relates to existing company structures. Mergers arise when resident and non-resident companies abandon their original distinct identities and agree to join forces in a single and new firm. Acquisitions involve purchasing existing companies wholly or partly (10% or more) by a non-resident company or a group of companies.

From 2003 to 2022, the share of greenfield projects flow to the OTS group of economies averaged 85%. While investor purchases of an existing operation are more widespread in developed economies, establishing a subsidiary and building its operations from the ground up is more typical for FDI flows to OTS economies (Figure I.33). From 2005, a decreasing trend of net cross-border M&A transactions targeting OTS economies is visible.

Figure I.33: Shares of values of greenfield projects and net cross-border mergers and acquisitions *(percent)*



Source: UNCTAD cross-border M&A database. For greenfield projects UNCTAD, based on information from the Financial Times Ltd, fDi Markets.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable. FDI outflow data for Turkmenistan is not available.

FDI flows help assess recent developments in FDI, so the direction of change in these flows (except for external shocks) can indicate whether the investment

climate is improving in a particular region, country, or sector. On the other hand, FDI stocks measure the total direct investment level at a given time. The inward FDI stock of OTS economies have significantly increased in the last two decades. It accounted for almost $511.7 billion in 2021, from $55.6 billion in 2000 (Figure I.34). However, in the last years, the relatively worsening FDI performance has been reflected by decreasing shares of OTS economies in global FDI stock, which reduced from 2% in 2012 to 1.2% in 2021 (Figure I.34).

According to the latest results of IMF's Coordinated Direct Investment Survey, in 2021, the top five investors in OTS countries' inward FDI stock were Luxembourg ($102.7 billion), Netherlands ($79.1 billion), Switzerland ($66.9 billion), Canada ($52.2 billion) and United Arab Emirates ($31.4 billion) (Figure I.35).

Box I.1: Special purpose entities and phantom investments

FDI flows usually mean capital inflows from abroad and additions to productive capacity in host countries. However, not all FDI brings capital and productivity gains. The reason for that is the existence of special purpose entities (SPEs) - legal entities set up to obtain specific advantages from a host economy.

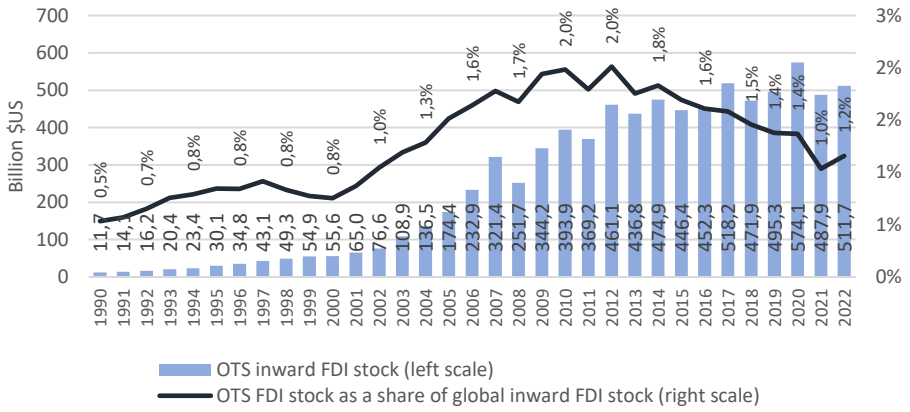
Often SPEs do not have real business activities. They are usually set up to minimize MNEs' global tax bills by benefiting from low-tax jurisdictions (offshore financial centers) such as Luxembourg, Netherlands, Hong Kong SAR, Singapore, Ireland, the British Virgin Islands, Bermuda, the Cayman Islands, and Mauritius. Due to offshore financial centers, a significant proportion of FDI can be flows going in and out of a country on its way to a final destination (Blanchard and Acalin 2016).

Even if SPEs do not pay corporate taxes and do not contribute to productive capacities, they still contribute to the host countries by buying tax advisory, accounting, and other financial services and paying registration and incorporation fees. For the offshore financial centers in the Caribbean, these services account for the leading share of GDP, alongside tourism.

In 2017 almost 40% of global FDI stock was this kind of "phantom investment." Luxembourg and the Netherlands hosted nearly half of them. For that reason, they appear among the top direct investors and investee economies in global FDI datasets (Damgaard, J. et al., 2019). Phantom investments change the accurate picture of global FDI flows.

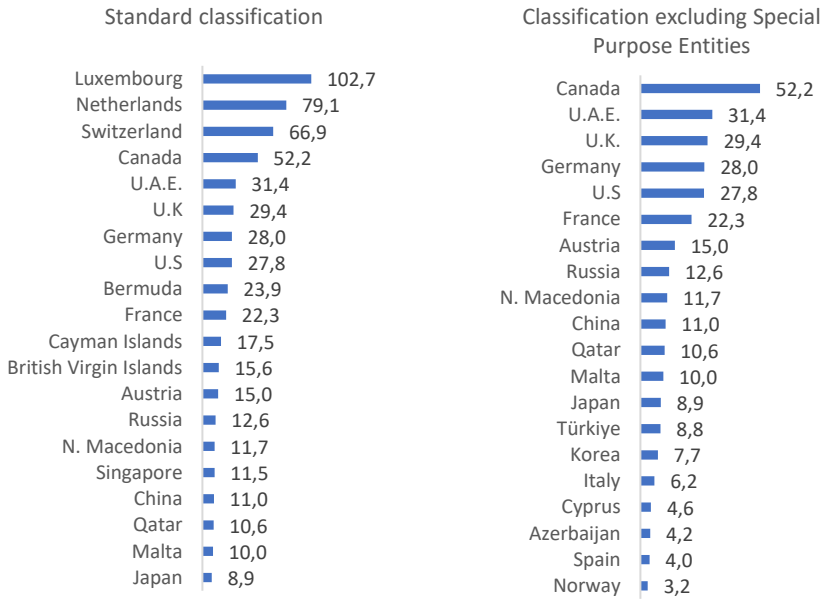
Source: Blanchard and Acalin 2016 and Damgaard, J. et al., 2019; Göksu et al. (2022).

Figure I.34: Foreign direct investment stock in OTS economies and share in world total *(billion $US and percent)*



Source: UNCTAD, FDI/MNE database.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable.

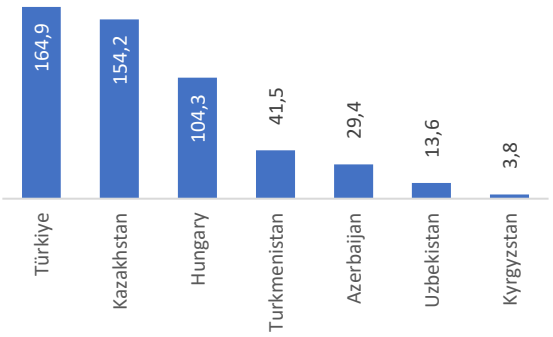
Figure I.35: Top 20 investors in OTS economies *(2021, stock values, billion $US)*



Source: IMF Coordinated Direct Investment Survey.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable. The figures are prepared based on reported bilateral inward FDI stock data. Mirror data for Turkmenistan and Uzbekistan for which bilateral inward FDI stock data is not available.

Luxembourg and the Netherlands, which are at the top of the list in Figure I.35 (left side), are among the countries that act as conduits for investment from other countries and are known as Special Purpose Entities. These entities (including the offshore financial centers in the Caribbean) are inflating reel volumes of FDI entries (see Box I.1). Ideally, investment flows from Special Purpose Entities shall be attributed to their original source countries, but this is impossible. If the Special Purpose Entities were excluded, Canada would take the leadership position as the biggest investor in the OTS group of economies (Figure I.35). Without Special Purpose Entities, Türkiye appears as 14th, and Azerbaijan as the 18th biggest investor in OTS economies.

Figure I.36: FDI stock by economies
(2022, billion $US)



Source: UNCTAD, FDI/MNE database.

According to UNCTAD data, over the long term, Türkiye was the most prominent FDI target among OTS economies, with $164.9 billion FDI instock in 2022, accounting for 32% of OTS inward FDI stock. Kazakhstan accumulated the second-largest stock of FDI in the OTS group of economies ($154.2 billion in 2022, or 30% of OTS instock), slightly below Türkiye. Hungary was in third place with $104.3 or 20% of OTS instock.

I.C.4 Intra-group investment among OTS economies

Intra-group investments are among vital indicators to assess the level of economic integration among a group of countries. The FDI stock between Turkic countries was $13.8 billion in 2021, accounting for nearly 3% of Turkic countries' total inward FDI stock (Figure I.37). A growing number of bilateral economic MoUs and agreements signed between Turkic countries, such as the agreements signed during the Uzbekistan-Kazakhstan Interregional Business Forum in Tashkent (December 2022), gives hope for higher amounts of intra-OTS investments in the coming years.

Inward FDI stock between Turkic countries was substantially concentrated in Azerbaijan as of 2021, accounting for 47% (or $6.6 billion) of the total. Türkiye accumulated 31% ($4.2 billion) and Kazakhstan 10% ($1.4 billion) of the intra-OTS inward FDI stock (Figure I.38).

Figure I.37: Intra-OTS foreign direct investment stock *(billion $US)*

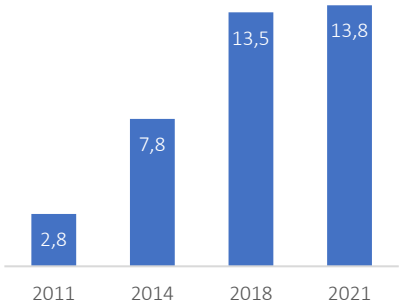
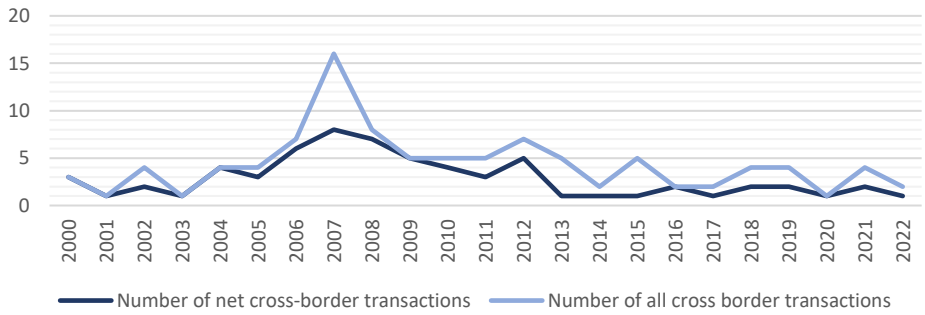


Figure I.38: Distribution of intra-OTS FDI stock by origin of recipients *(% of total)*

Source: IMF Coordinated Direct Investment Survey.
Note: All OTS member states and observers are included, except TRNC, for which data is unavailable. The figures are prepared based on reported bilateral inward FDI stock data. Mirror data for Turkmenistan and Uzbekistan for which bilateral inward FDI stock data is not available. Mirror data are data reported by counterpart economies, which is information reported by the partner countries as their outward FDI. For a given economy A with inward investment from economy B, its mirror data would be the outward FDI reported by B in economy A.

From 2000 to 2022, the number of total cross-border M&As between Turkic countries was 101, according to Refinitiv, EMIS DealWatch, and Marketline, databases that profile all major companies worldwide. However, to have an accurate picture of the contribution of M&A to the FDI stock of a country, cross-border M&As shall exclude sales of foreign affiliates (already owned by foreign MNEs) to other foreign MNEs. In this regard, the number of net M&A cross-

Figure I.39: Cross-border mergers and acquisitions between OTS economies *(regional level, number of transactions)*



Source: Refinitiv, EMIS DealWatch, Marketline.
Note: Net cross-border M&As exclude sales of foreign affiliates (already owned by foreign MNEs) to other foreign MNEs. Divestments (sales of foreign affiliates to domestic firms) are subtracted from the value (number). Data for TRNC is not available.

border transactions between Turkic countries from 2000 to 2022 was 66. Interestingly, most intra-OTS net cross-border transactions occurred in the 2000s (Figure I.39).

Among Turkic countries, Türkiye and Kazakhstan appear to be the biggest acquirer nations in intra-group net cross-border M&As (Figure I.39). From 2000 to 2022, out of 66 net intra-OTS cross-border M&As, 22 were realized by companies of Türkiye, 19 by companies of Kazakhstan and ten by companies of Azerbaijan (Table I.9).

Table I.9: Net intra-OTS cross-border mergers and acquisitions by acquiror economies *(2000-2022)*

Acquiror nation	Number of net cross-border transactions	Number of transactions with disclosed value	Total disclosed value *(million $US)*
Azerbaijan	10	5	722,9
Hungary	15	3	32
Kazakhstan	19	13	506,5
Kyrgyzstan	0	0	0
Türkiye	22	13	1070,2
Turkmenistan	0	0	0
Uzbekistan	0	0	0
TOTAL	66	34	2331,3

Source: Refinitiv, EMIS DealWatch, Marketline.

I.D Concluding remarks

The world economy is under pressure from mutually reinforcing shocks. Persistent inflation, aggressive monetary tightening, accelerating geopolitical competition, and pressure on supply chains slowed the growth rate of the world economy in 2022. Additionally, a rise in the number of economies with weaker growth rates is anticipated for 2023. The slower growth of the world economy has caused a slowdown in international trade and global FDI flows.

The OTS countries are also affected by the world economy's heaviness, and their economic growth performance slightly lost momentum in 2022. Deepening intra-OTS economic cooperation could be a new beginning for Turkic countries and a direct response to the effects of the current economic crisis and the challenges of the 21st century.

The OTS countries have been working on deepening their economic relations for many years. The OTS members have produced various agreements and initiatives to enhance bilateral and intra-OTS group multilateral trade. The OTS

members have also recognized the potential for mutual benefit through foreign direct investment and have taken steps to attract investments from each other. All these arrangements encourage increased economic cooperation and easier market access for businesses.

Economic relations between Turkic states have witnessed significant progress in recent years. However, issues including regulatory harmonization and limited trade diversification must be addressed to fully utilize the potential of economic cooperation between Turkic countries. By overcoming these challenges and fostering deeper economic integration, the Turkic states can strengthen their economies, promote regional stability, and improve the well-being of their citizens.

In the coming period, within the framework of implementing strategic directions and goals of Strategy 2026 and Vision 2040, OTS has to explore new ways of working together, supporting the smart, sustainable, and inclusive economic development of Turkic countries and providing a framework for increased growth, jobs, and competitiveness based on the rule of law. In this context, the recently established Turkic Network of Official Economic Policy Research Centers (ERCNET) shall be supported to grow into a robust platform that promotes economic relations, greater economic integration, and long-term growth engines for Turkic economies.

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Global developments in the digitalization of trade and investment

II.A Global trends and prospects of digital economy development

The global economy is in the midst of a significant transformation due to the swift improvement of digital technologies. The trend of rapid technological change known as the Fourth Industrial Revolution has been going on for some years already, and the Covid-19 pandemic has brought digitalization to the point of no return. Digitalization is no longer optional but has become imperative for governments and the economy.

The following 20 years are expected to witness unprecedented technological development affecting almost every aspect of daily life. The world will become further digitalized, with manufacturers, suppliers, and consumers increasingly connected by technology, e-commerce, and artificial intelligence, affecting economic activities in all sectors.

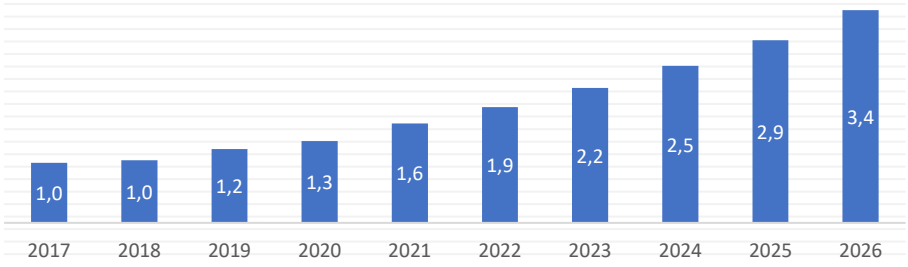
II.A.1. Changes in commerce, consumption, and production processes

Terms such as digital economy, digital transformation, digital trade, digital goods, and digital investments are increasingly becoming a part of everyday economic life. The digital economy denotes all the economic transactions, interactions, and processes conducted online or enabled by digital technologies. Digital transformation is about adopting digital technology into various aspects of an organization's operations to transform business processes and services from non-digital to digital. Digital transformation has become necessary for businesses across industries, enabling them to stay competitive in the digital age (Gong and Ribiere, 2021). Digital transformation spending totaled $1.6 trillion in 2022. Global digital transformation spending is expected to reach $3.4 trillion by 2026 (Figure II.1).

Organizations worldwide spent $1.6 trillion in 2022 to introduce digital technologies.

Digital trade refers to commerce enabled by electronic means, and digital goods do not have a physical form and can be delivered electronically through digital channels. Digital investments are those made in digital technologies and digital-based businesses, and they involve the transfer of capital, knowledge, and technology to enhance digital infrastructure, promote digital innovation, and expand digital services in the economy.

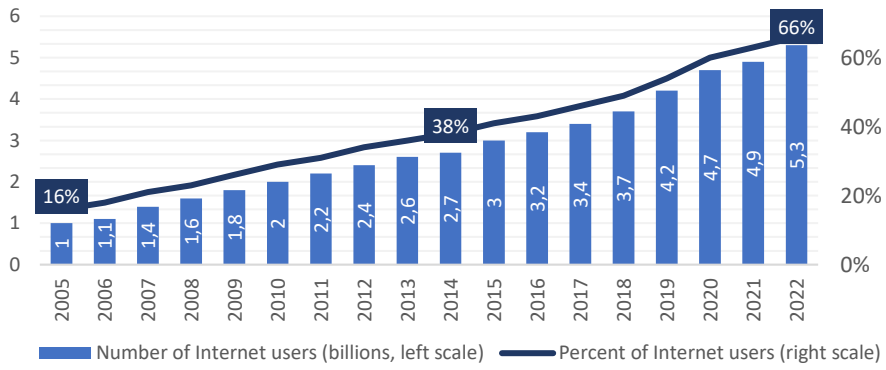
Figure II.1: Digital transformation spending worldwide
(trillion $US)



Source: IDC (2022).

Digitalization processes are driving profound changes in the production, commerce, and consumption of goods and services, with states increasingly looking to use Internet and data policies for economic objectives. Many nations have released digital strategies for building the digital economy in an effort to fully harness the potential of digital technology and spur economic growth. These strategies, among other things, intend to (1) promote the digitalization of trade by encouraging investment in digital technologies, such as cloud computing, the Internet of Things, and big data, (2) improve trade rules and trade standards, to adapt to the requirements of the digital era, (3) strengthen protections of consumer privacy and corporate property rights, including investing on cybersecurity (Chen and Gao, 2022; Ma, Guo and Zhang, 2019).

Figure II.2: Individuals using the Internet worldwide
(billion $US and percent)

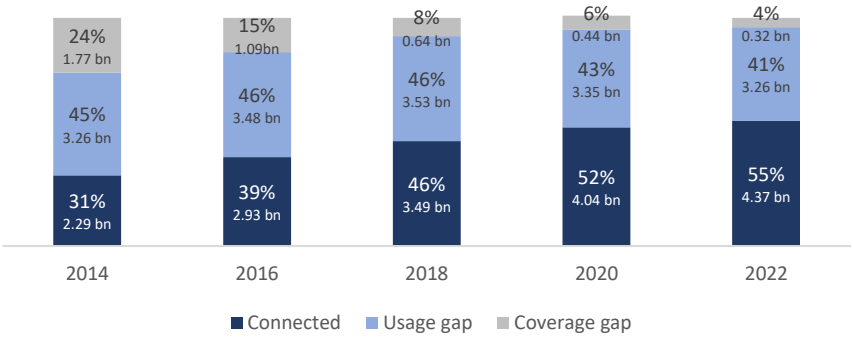


Source: ITU.

Two-thirds of the world's population used the Internet in 2022 (Figure II.2). Moreover, a mobile broadband network covered 96% of the world's population in the same year. In 2022, there were 5.4 billion mobile subscribers globally, of which 4.4 billion (55% of the world's population) were mobile Internet users.

Nearly 3.2 billion people (41% of the world population) live in areas covered by the mobile broadband network but do not use mobile Internet (Figure II.3).

Figure II.3: Evolution of global mobile Internet connectivity



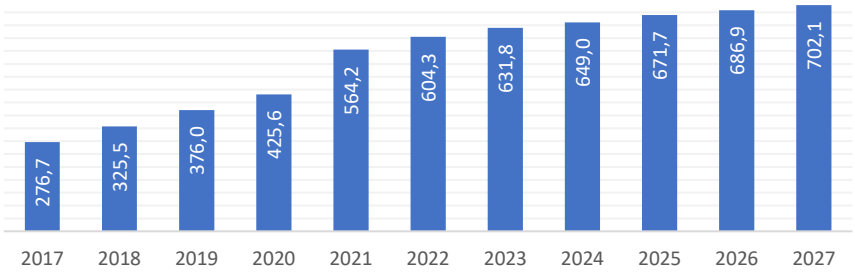
Source: GSMA (2022), GSMA (2023).
Connected: People who use mobile Internet; *Usage gap:* Those who live within the footprint of a mobile broadband network but are not using mobile Internet services; *Coverage gap:* Those who live in an area not covered by a mobile broadband network.

According to Groupe Speciale Mobile Association projections, by 2030, 5G adoption will represent about 54% of all connections worldwide (GSMA, 2023). Additionally, the usage of smartphones reached 76% globally in 2022 and is projected to increase to 92% by 2030. There is also a considerable increase in the adoption of devices like laptops and personal computers, driving up digital content consumption. The increase in the use of smart devices and the growth of a robust network will not only enhance consumer consumption of digital content but also increase digital advertising spending by businesses of all sizes.

In 2022, 66% of the world's population was using the Internet, and 4.4 billion were mobile Internet users. The global digital advertising market had total revenues of $604.3 billion in 2022.

The global digital advertising market (online marketing or Internet advertising) consists of earnings from any Internet-based advertising activity. This market had total revenues of $604.3 billion in 2022 (Figure II.4). With total revenues of $426.3 billion, or 70.5% of the global digital advertising market's overall value, the mobile segment accounted for the most outstanding share in 2022. The desktop market segment generated $178 billion in revenue in the same year, or 29.5% of the total market value.

Figure II.4: Global digital advertising market value
(billion $US)

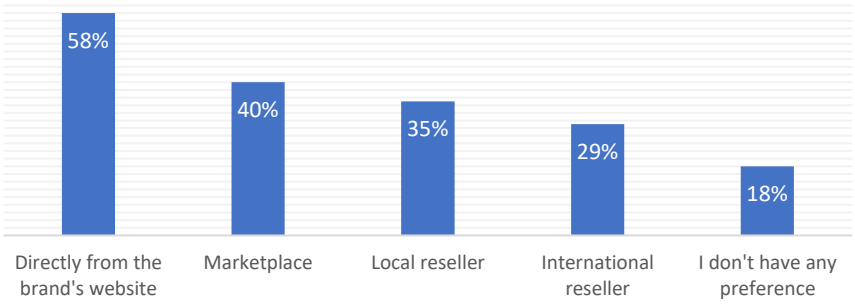


Source: Marketline (2023, May).

According to the MarketLine forecast, the benefits offered by digital advertising platforms promise growth in the global digital advertising market, whose total revenues are expected to reach $ 702.1 billion in 2027. Digital advertising platforms generally attract revenues from traditional advertising markets by offering affordable exposure to the mass markets. Additionally, technologies like mobile ID matching, geolocation, passive metering, and artificial intelligence (AI) make it possible to measure consumer trends and behaviors and boost advertising efficiency.

Technology development, the widespread use of Internet-enabled devices, decreasing cost of ICT services, and broadband Internet connection are reshaping consumer habits by shifting purchases to online platforms, which are becoming the new marketplace. Online platforms provide consumers access to world markets in real time, eliminating the barrier of geographical distance.

Figure II.5: Preferred platform types to buy branded products among cross-border online shoppers *(2022)*

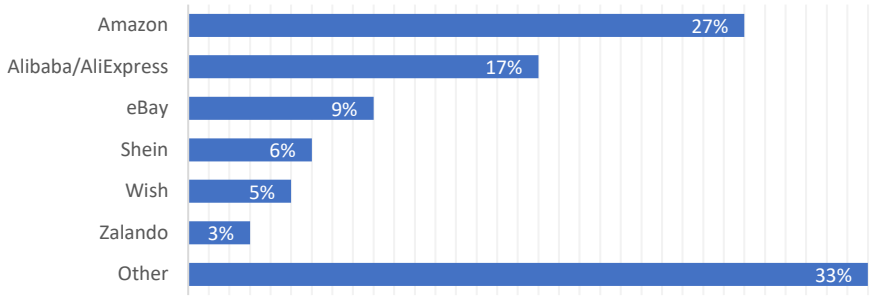


Source: Global-e (2022, November).
Note: Survey with the buyers who have shopped online in the past year and bought from a brand or retailer based outside of their country. Approximately 1,000 respondents per the following markets: U.S., Canada, U.K., Germany, France, China, Japan, UAE, and Australia.

A survey conducted by the Global-e in July 2022 in nine countries revealed that 58% of international online buyers prefer to purchase directly from the brand's website. Online platforms (marketplaces) were the second most chosen platform type, with 40% of respondents (Figure II.5).

According to a survey conducted by International Post Corporation in October 2022 in 40 different countries, 27% of online buyers reportedly used Amazon to make their most recent cross-border transactions. The second position went to Alibaba/AliExpress, where 17% of online shoppers recently placed international orders (Figure II.6).

Figure II.6: Online retailers from which global shoppers made their most recent cross-border purchase *(2022)*



Source: IPS (2023).

The shift in consumer behavior forces businesses to adapt and meet their customers' rising expectations. By adopting digital technologies, such as the Internet of Things, blockchain, augmented reality, artificial intelligence, and cloud computing technologies, businesses can gather and examine consumer data, better understand the preferences and behavior of their clients, personalize marketing campaigns, tailor and broaden product offerings, and provide proactive customer support. Further digital transformation helps businesses optimize their supply chain, adopt more innovative operational processes, improve maintenance processes, and distribute their products at a lower cost (Chawla and Goyal, 2022).

A global survey conducted by Reuters in cooperation with Avalara about cross-border e-commerce adoption among manufacturers and retailers shows that 56% of businesses globally make cross-border sales through online platforms. While 8% of companies plan to do the same, 36% have reported not selling online abroad (Figure II.7).

Figure II.7: Percentage of manufacturers and retailers selling online abroad worldwide *(2023)*

Source: Avalara and Reuters (2023).

Digital transformation enables companies to develop business-to-business (B2B) networking and cultivate business relationships. B2B digital platforms offer a massive advantage, particularly for SMEs, by making it easy for them to find and connect with the right kind of suppliers, learn about their products, and make business transactions, thus facilitating the coordination of global value chains. As people and businesses increasingly use online means of buying and selling, global value chains are becoming increasingly digitalized.

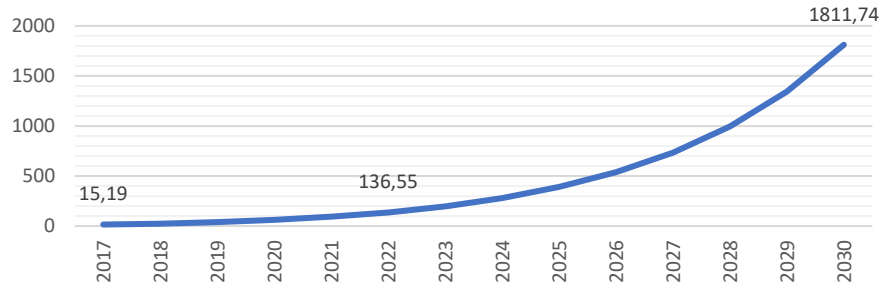
56% of businesses globally make cross-border sales through online platforms. Further, business-to-business online platforms cultivate business relationships and increasingly digitalize global value chains.

Artificial intelligence has enabled businesses to make data-driven decisions, further simplifying their business processes. The demand for artificial intelligence increased the global revenue of this market to nearly $136.6 billion in 2022, whose value is forecasted to reach above $1.8 trillion in 2030 (Figure II.8). From 2017 to 2022, the artificial intelligence market was dominated by the advertising & media sector, which accounted for 21% of global revenue. However, the healthcare sector is expected to take the lead by 2030 (Figure II.9).

From 2017 to 2022, the artificial intelligence market has gained substantial traction in banking, financial services, and insurance (BFSI, 17%) due to the industry's strong demand for risk and compliance applications (Figure II.9). Further, financial technology (Fintech) - computer programs, software, and other innovative technology that supports, facilitates, or delivers both banking and financial services - is a rapidly accelerating trend in the BFSI industry. Fintech has gained significant attraction in recent years, transforming the way individuals

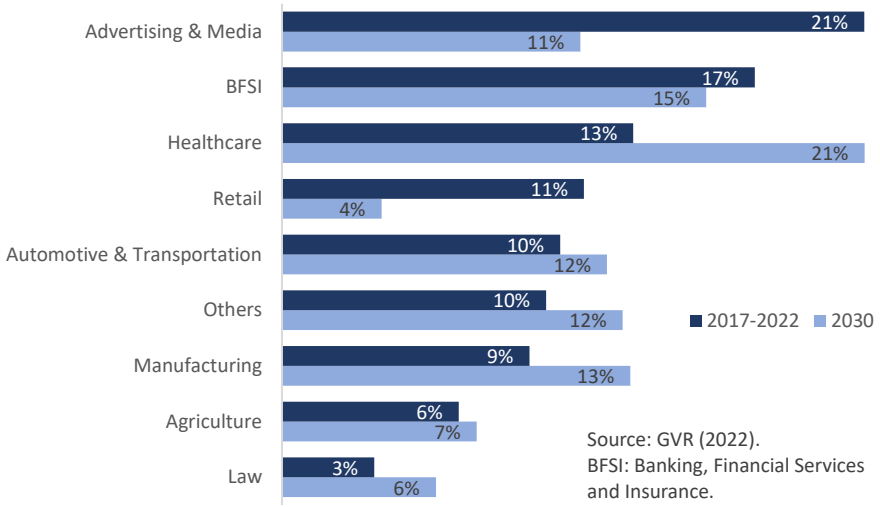
and businesses manage their finances. With the proliferation of mobile devices, individuals now have access to financial services at their fingertips. Consumer confidence in doing financial transactions online has improved as a result of the creation of safe online payment systems and the implementation of strict cybersecurity measures.

Figure II.8: Global artificial intelligence market revenue
(billion $US)



Source: GVR (2022).

Figure II.9: Global artificial intelligence market, by end-use
(shares in market revenue)



Source: GVR (2022).
BFSI: Banking, Financial Services and Insurance.

Another area where fintech has made a significant impact is in the realm of online payments. Companies like PayPal, Venmo, and Square have revolutionized how people send and receive money. Additionally, cryptocurrencies (or virtual currencies) such as Bitcoin, Ethereum, Ripple, Litecoin, and IOTA have emerged as alternative mediums of exchange. Unlike

traditional currencies, cryptocurrencies are not controlled by central banks. Since 2009, the number of cryptocurrencies has increased, and as of April 2022, there were 10,311 different types with an aggregate market capitalization of almost $1.1 trillion (Acquisdata, 2023).

II.A.2 Development of digital trade

Digital trade, or commerce enabled by electronic means, has snowballed in recent years, together with information and communication technology development. All types of digital trade are made possible by digital technologies, but not all digital trade is delivered digitally. In general, it is accepted that digital trade refers to digital trading in goods and services that can be provided physically or digitally and that involves consumers, businesses, and governments (López-González and Jouanjean, 2017).

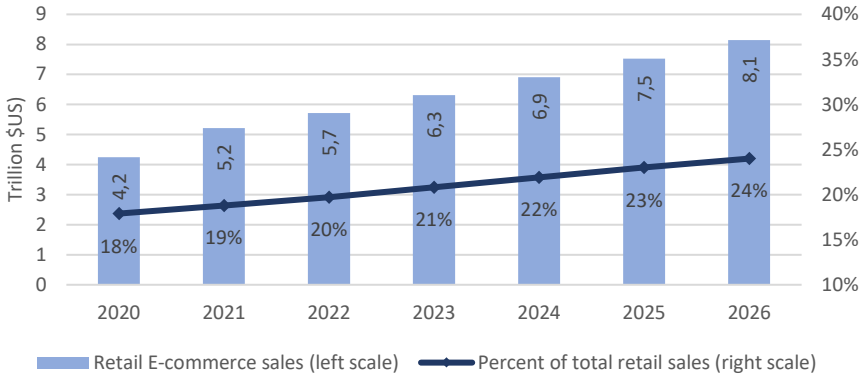
More specifically, digital trade comprises digitally ordered but physically delivered goods and services (e-commerce); digitally ordered and digitally delivered services and products such as entertainment, publishing, software, financial services, music, and games; and digital knowledge and information (Azmeh, S., Foster, C., & Echavarri, J. 2020). Digital trade has highly improved transaction efficiency and significantly reduced trade costs.

Both domestic commerce and international trade are subject to the digital trade. However, reliable official statistics on domestic e-commerce and cross-border digital trade share are limited and not comparable across economies. The efforts to acquire digital trade data are still in the infancy in many nations, especially developing countries.

Global e-commerce spending reached $5.7 trillion in 2022. Physical goods made up 97% of all cross-border online purchases. In 2026, e-commerce is predicted to contribute to nearly 24% of global retail sales.

Numerous data-gathering gaps are unavoidably caused by ongoing digital innovation and shifting business models, causing digital trade data collection efforts to be problematic even for the most developed countries. Therefore, there is a lack of consensus about the conceptual measurement of cross-border digital trade. Still, some indicators developed by international organizations and estimates of private data sources may help get useful information about digital trade development until official statistics are published.

Figure II.10: Global retail e-commerce sales *(trillion $US)*



Source: eMarketer (2022).

Spending on e-commerce increased to $5.7 trillion globally in 2022 from $5.2 trillion in 2021. According to eMarketer's forecasts, the digital trade sector will continue multiplying worldwide. E-commerce is expected to account for almost 24% of global retail sales in 2026 (Figure II.10).

Most cross-border digital trade transactions involve the purchase and sale of physical goods. According to forecasts from April 2022, physical goods would make up 97% of all cross-border online purchases in 2023, while digital goods would make up only 3% (Figure II.11).

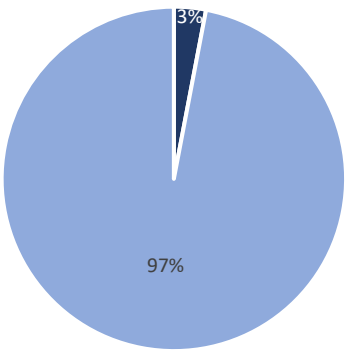
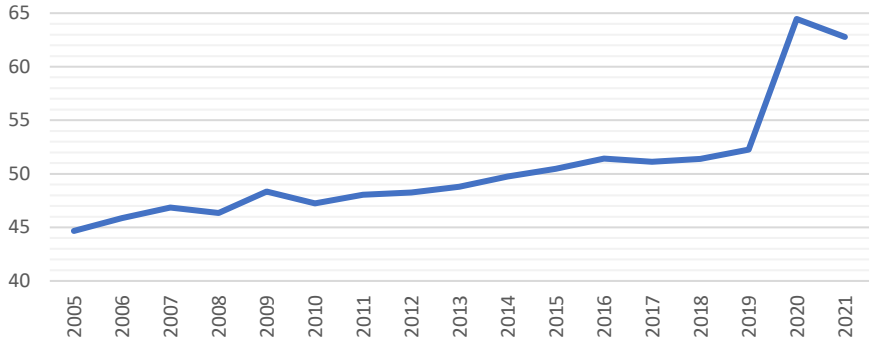


Figure II.11: Physical and digital products share of cross-border e-commerce worldwide *(2023)*

Source: Purnell (2022).

Rapid technical advancements help services to become more prevalent in cross-border e-commerce sales. For example, many services, including travel booking, telehealth, and e-learning, are delivered remotely. ICT services form the backbone of digital trade and enable new services to emerge by providing the necessary infrastructure (Smeets, 2021). According to the UNCTAD data, the

Figure II.12: Global export of digitally-deliverable services
(percentage of total trade in services)



Source: UNCTADstat.

share of digitally deliverable services in total global services exports has increased from 44.7% in 2005 to 62.8% in 2021. In the following years, the role of services in commerce is anticipated to become more significant (Figure II.12). The ranking by revenue in the e-commerce market was led by China in 2022, with above $1.5 trillion, or 26% of global e-commerce market value, and was followed by the United States ($875 billion or 15%) and Japan ($241 billion or 4%). The cumulative share of e-commerce revenues of the rest of the Top-10 countries (Germany, the United Kingdom, South Korea, India, France, Indonesia, and Canada) in the global e-commerce market was 12% in 2022 (Table II.1).

Digitally deliverable services' share in global exports rose from 44.7% in 2005 to 62.8% in 2021, with their significance expected to grow further.

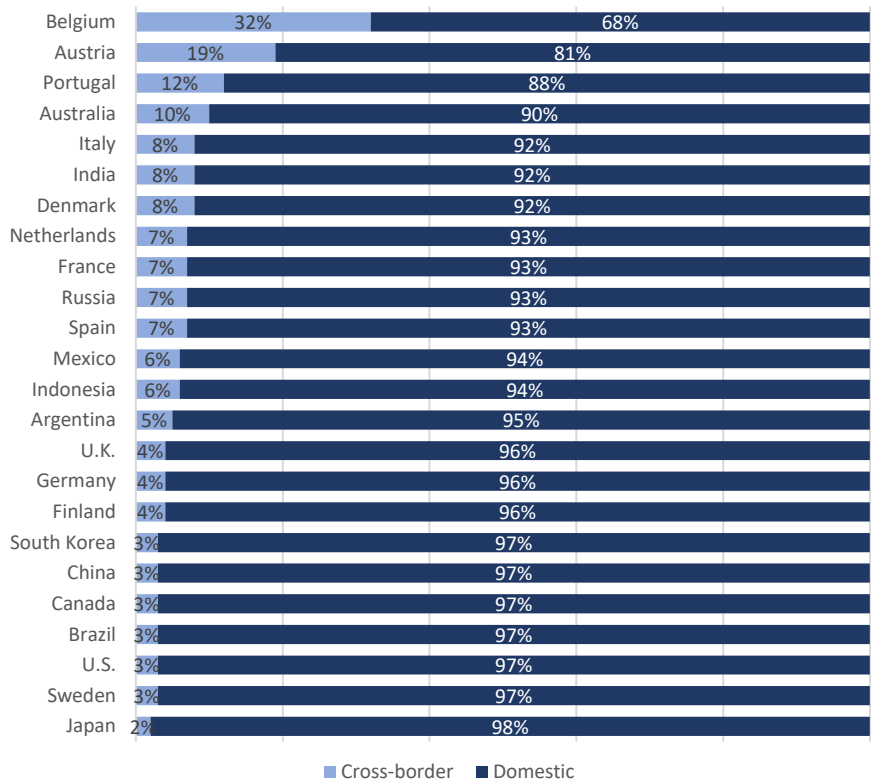
Table II.1: Countries with the highest e-commerce market value in the world
(2022, billion $US and percent)

	Total online sales volume (billion $US)	Global e-commerce market share
China	1538	26%
U.S.	875	15%
Japan	241	4%
Germany	148	3%
U.K.	143	2%
South Korea	118	2%
India	97	2%
France	96	2%
Indonesia	59	1%
Canada	59	1%

Source: E-commerce Nation (2023).

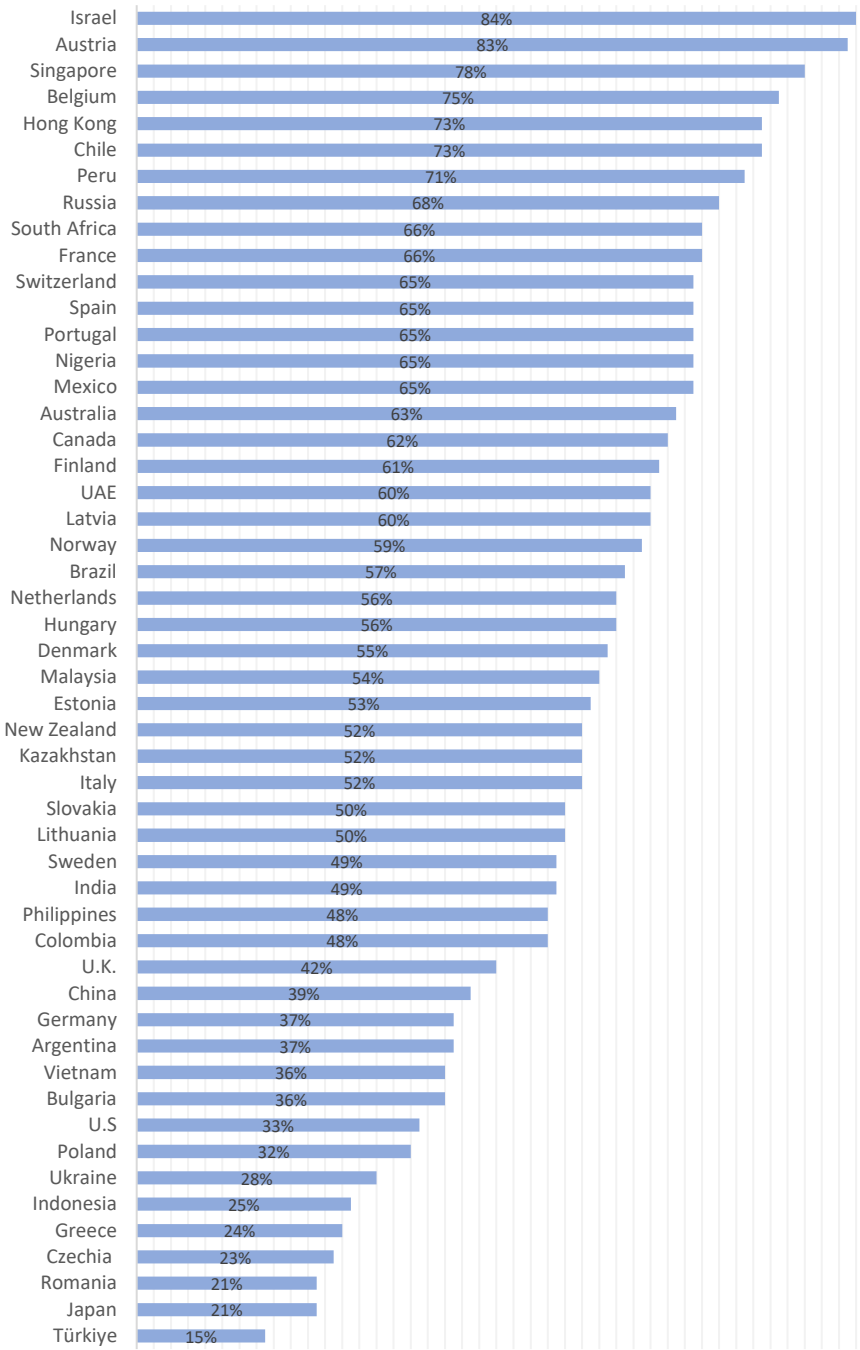
In 2023, Belgium and Austria will produce 32% and 19% of their e-commerce income overseas, respectively, according to Statista's Digital Market Outlook. More than 10% of Australia's and Portugal's e-commerce sales will also come from international digital trade. In contrast, the share of cross-border e-commerce retail revenue in 2023 will be only around two percent in Japan. The United States, Sweden, Brazil, Canada, and China will also have a relatively low share of cross-border revenue in 2023, at 3% (Figure II.13).

Figure II.13: Distribution of domestic and cross-border e-commerce revenues, by country *(2023, percent)*



Source: Statista Digital Market Insights.

Figure II.14: Percentage of cross-border online shoppers in selected countries *(2022)*



Source: PPRO.

Israel citizens are among the most engaged in cross-border e-commerce globally, according to survey results from the "Payments and E-commerce Report 2022." In 2022, 84% of buyers in Israel purchased online from abroad. With 83% of cross-border shoppers, Austria and Singapore ranked second and third among the examined nations. However, at only 15%, Türkiye had the lowest cross-border e-commerce usage among the surveyed countries. In Kazakhstan, 52% of buyers purchased online from abroad (Figure II.14).

According to the data available, digital trade is expanding swiftly. Still, its international component is at lower levels, except for a few countries that are increasingly active in cross-border e-commerce. However, many consulting firms predict that cross-border e-commerce will increase. Therefore, governments should be prepared for this new reality.

II.A.3 Digital foreign direct investment

Extensive governmental and private sector investments, including foreign direct investment (FDI), are needed to develop a robust digital infrastructure and economy and expand access to digital services. Digital FDI is about attracting investment to grow the digital economy. FDI, in general, can assist the host nation in developing its digital economy by supporting the building of physical infrastructure and consumer services of telecommunications and the Internet, helping in the digital transformation of established businesses, and developing indigenous digital businesses (ESCAP, 2023: 2).

FDI enhances a host nation's digital economy by improving infrastructure, transforming businesses, and promoting indigenous digital businesses.

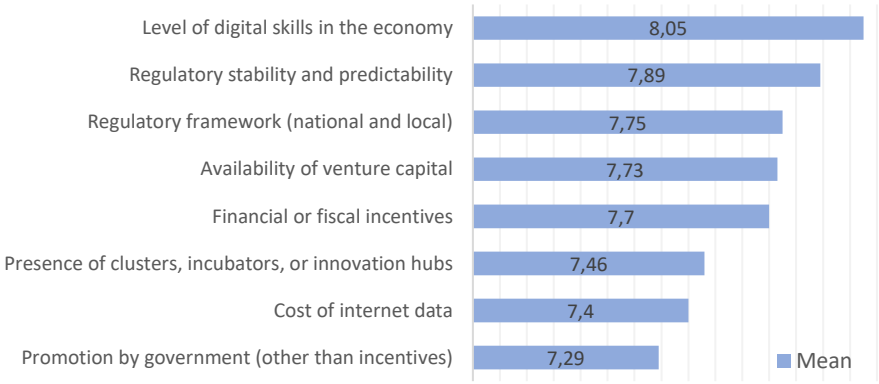
FDI could be realized in digitally oriented sectors, such as acquiring or creating data centers, e-commerce platforms, and other digital infrastructure. FDI plays a crucial role in developing and growing specific technologies due to their potential for innovation, including information technology, biotechnology, renewable energy, artificial intelligence, robotics, nanotechnology, and telecommunications. Further, FDI can significantly impact any sector by facilitating technology transfer, promoting innovation, financial support, and overall infrastructure development. Still, FDI in some sectors, such as communications, computers, electronic components, semiconductors, and software and IT, are relatively more important because they can be enablers for the digitalization of other sectors.

Attracting digital FDI necessitates creating a digital-friendly investment climate and supporting it with relevant policies, regulations, measures, and

infrastructure. One of the critical elements of a digital-friendly investment climate is the presence of supportive government policies for creating an enabling environment for digital FDI. Open and liberal regulatory frameworks shall guarantee equal opportunity for all players in the digital ecosystem while defending the interests of consumers.

The level of digital skills in the economy, regulatory stability and predictability, and the regulatory framework are the top three factors that investors consider when deciding whether to invest in the digital economy, according to a survey conducted by the World Economic Forum with senior representatives of the 310 companies from United States, United Kingdom, India, Japan, Canada, and China (Figure II.15).

Figure II.15: How important are the following for investing abroad in the digital economy?



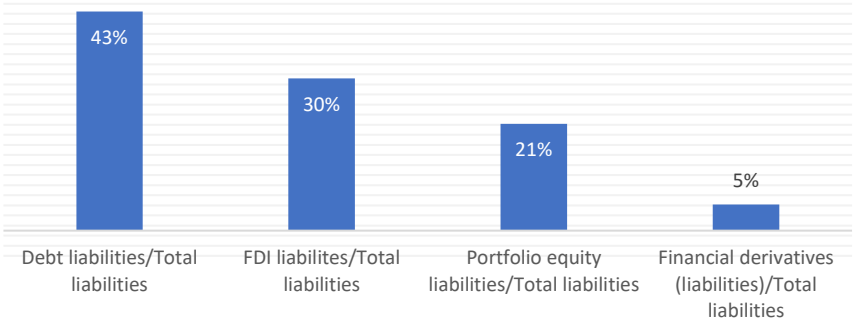
Source: WEF (2020, September).
Note: Survey with 310 firms from the United States (170), the United Kingdom (50), India (30), Japan (20), Canada (20), and China (20).

It should be noted that digital technologies also affect national efforts in promoting and attracting FDI. Countries are increasingly investing in digitalizing the process of investing and establishing a foreign affiliate (business). Further, investment promotion agencies are developing different modules, online interactive platforms, and virtual fairs to promote and attract FDI and are improving their digital customer support services (UNCTAD, 2023, January).

FDI is a significant subset of external financial liabilities. FDI, portfolio investment, debt liabilities, and other financial derivatives held by non-residents on domestic residents are called external financial liabilities. According to the most recent vintage of the External Wealth of Nations Database (based on Lane and Milesi-Ferretti, 2018), FDI stocks accounted for 30% of global cross-border liabilities in 2015-2021 (Figure II.16). In 77 economies, the majority of which

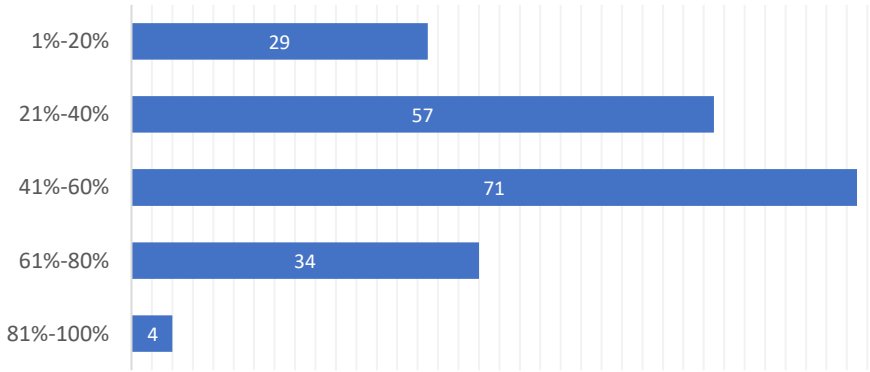
were developing nations, FDI constituted more than half of total external financial liabilities. With statistics on foreign portfolio investment (purchasing financial assets from entities in another country, such as stocks and bonds) and other cross-border investments (such as cross-border bank loans), FDI liabilities reflect financial exposure and international financial integration across countries (Figure II.17).

Figure II.16: Shares of foreign financing instruments in global cross-border liabilities *(2015-2021, percent)*



Source: The Brookings' external wealth of nations database based on Lane and Milesi-Ferretti (2018).

Figure II.17: FDI liabilities' share within total national cross-border liabilities *(2021, number of economies)*

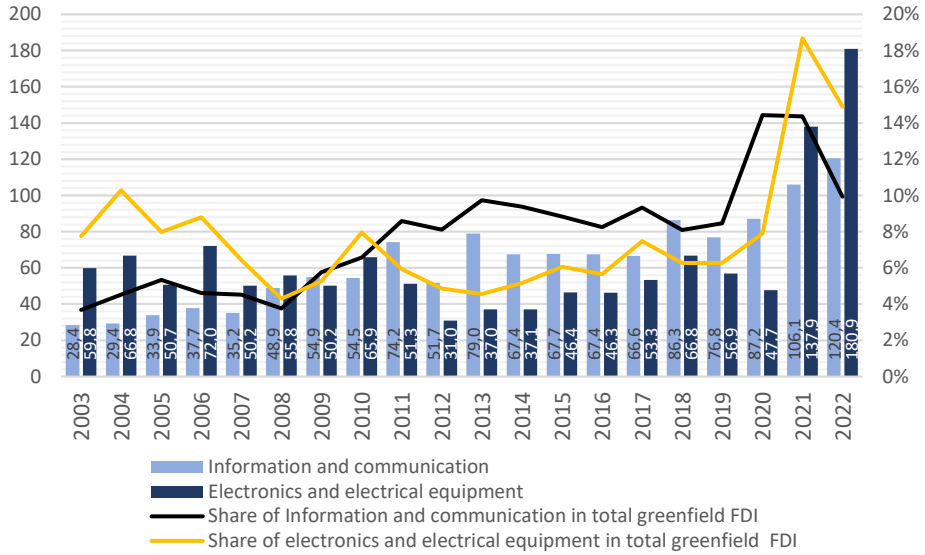


Source: The external wealth of nations database based on Lane and Milesi-Ferretti (2018).

General FDI statistics for 2020 were heavily affected by interruption from the Covid-19 pandemic. Lockdown measures, successive pandemic waves, and economic uncertainty led companies to postpone investments (Chapter I, Figure I.14). Moreover, the recovery of greenfield investment remained fragile even in 2021 in many sectors, especially in developing countries. However, the situation with digital FDI was the opposite. E-commerce has increased the importance of information and communication, which continued to attract more FDI. In 2022,

the value of global greenfield FDI directed to information and communication reached $ 120.4 billion, representing 10% of total greenfield FDI flows worldwide (Figure II.18).

Figure II.18: Global greenfield FDI flow into information and communication, and electronics and electrical equipment sectors *(billion $US)*



Source: UNCTAD FDI/MNE database.

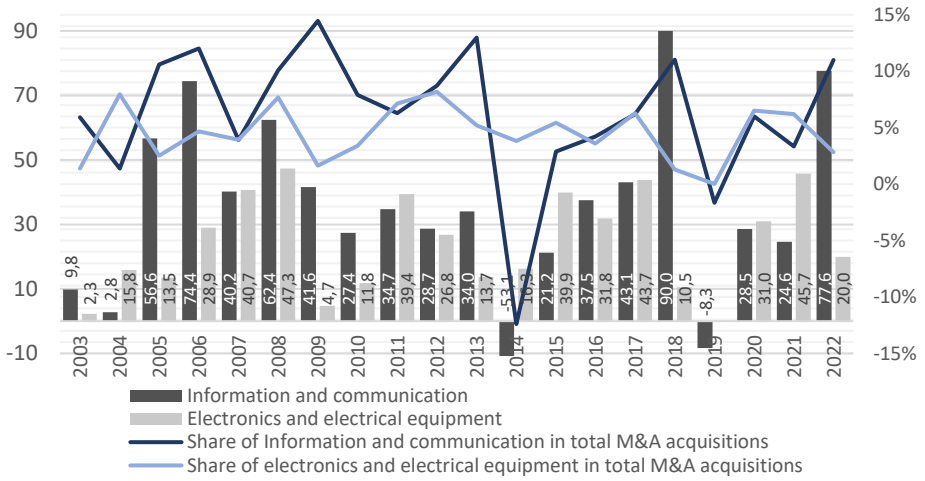
E-commerce significantly enhances the FDI attractiveness of ICT, electronics, and electrical equipment sectors, which had a 25% global greenfield FDI share in 2022.

Another significant part of digital FDI, greenfield FDI to the electronics and electrical equipment sector, skyrocketed in 2021 and 2022. Greenfield flows to this sector increased from $47.7 billion in 2020 to $137.9 billion in 2020 and to $180.9 billion in 2022. The total share of global greenfield FDI directed to information and communication and the electronics and electrical equipment sectors was 25% (Figure II.18).

Existing UNCTAD statistics on greenfield FDI projects and net cross-border M&As show that information and communication and the electronics and electrical equipment sectors are much more attractive for greenfield FDI projects. In 2022, the value of greenfield projects directed to these sectors ($301.4 billion) was more than three times higher compared to net cross-border M&A purchases ($97.6 billion) targeting the same sectors (Figure II.19). On the other hand, while greenfield FDI projects in these sectors display a more stable growth trend, net

M&As stabilized only in the information and communication sector in 2022, with 216% growth compared to the previous year.

Figure II.19: Global cross-border net M&A purchases in information and communication, and electronics and electrical equipment sectors *(billion $US)*



Source: UNCTAD FDI/MNE database.

Digital industries refer to sectors of the economy that primarily rely on digital technologies and platforms for their operations, products, and services. According to the UNCTAD classification, digital industries are grouped into four pillars: digital content, digital solutions, e-commerce, and Internet platforms (see Table II.2). From 2021 to 2022, the value of greenfield FDI to these digital industries slightly increased by only 3%, reaching nearly $ 32.1 billion. However, only the Internet platforms (digitally born firms that operate and distribute through the Internet) saw a 146% growth in the value of greenfield FDI. In contrast, in 2022, greenfield FDI to the digital content pillar has dropped by 72%.

As the global digital landscape is evolving, numerous multinational digital companies are growing and making significant contributions across various sectors. Digital multinational enterprises (MNEs) operate in the digital economy, utilizing advanced technologies and digital platforms to drive their business operations. According to the Forbes rating, in 2019, 26 MNEs out of the global top 100 digital companies were operating in telecommunications services (Figure II.20). The sector plays a decisive role in enabling digital connectivity and communication.

Table II.2 Announced greenfield projects in digital industries
(million $US and percent)

	2020	2021	2022	Growth rate *(2021-2022, %)*
IGITAL INDUSTRIES				
VALUE	***21211***	***31172***	***32057***	***3***
NUMBER OF PROJECTS	***306***	***376***	***338***	***-10***
Digital content *(producers and distributors of goods and services in digital format, including digital media -e.g., video and TV, music, e-books- games, and data and analytics. Digital content can be delivered through the Internet but also through other channels, e.g., cable TV)*				
Value	*506*	*1804*	*506*	*-72*
Number of projects	*30*	*43*	*37*	*-14*
Digital solutions *(Internet-based players and digital enablers, such as electronic and digital payment operators, cloud players, and other service providers)*				
Value	1206	2962	2929	-1
Number of projects	38	48	59	23
E-commerce *(online platforms that enable commercial transactions, including Internet retailers and online travel agencies. Delivery may be digital (if the content of the transaction is digital) or physical (if the content is tangible)*				
Value	*15214*	*23837*	*22368*	*-6*
Number of projects	*199*	*231*	*185*	*-20*
Internet platforms *(digitally born businesses that operate and deliver through the Internet, e.g., search engines, social networks, and other platforms, such as for sharing)*				
Value	*4285*	*2569*	*6254*	*143*
Number of projects	*39*	*54*	*57*	*6*

Source: UNCTAD (2017) and UNCTAD (2023).

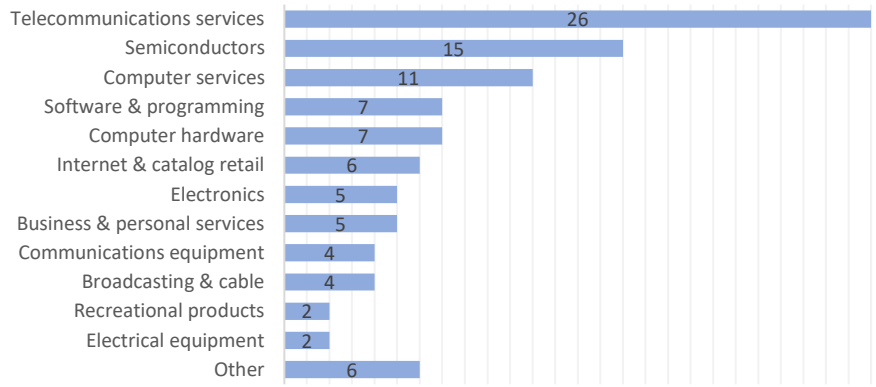
The biggest digital MNEs, primarily focusing on telecommunications, semiconductors, and computer services, are based mainly in the United States, followed by Japan and China.

The Semiconductors sector has experienced significant growth in recent years. In 2019, 15 of the global top 100 digital companies were functioning in this sector. Investments of MNEs in the semiconductors sector led to technological advancements, enabling the production of smaller, faster, and more energy-efficient chips. These advancements have fueled the development of various electronic devices, including smartphones, computers, and automotive electronics.

Digital multinational enterprises (MNEs) in computer services refer to global companies that provide various digital services related to computers and information technology. These MNEs leverage digital technologies to offer services, including IT consulting, cloud computing, cybersecurity, data analytics, and more. The third-most populous digital MNEs in 2019 were those in the

computer services industry. The biggest digital MNEs operating in other sectors are presented in Figure II.20).

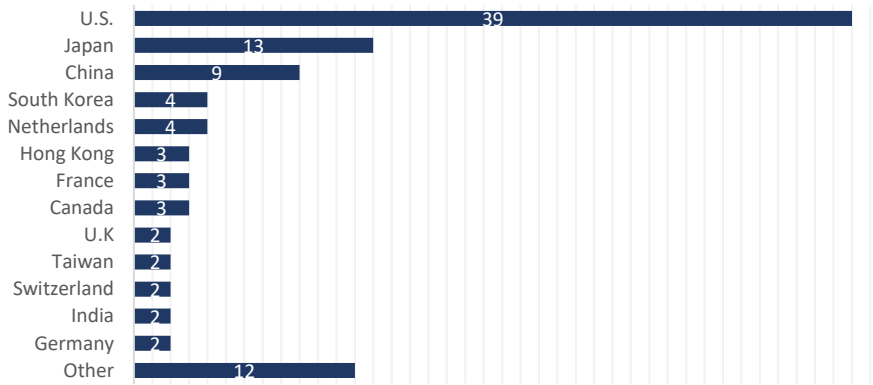
Figure II.20: Distribution of global top 100 digital companies by sectors *(2019, number of companies)*



Source: Forbes.

The United States is home to many of the top digital MNEs in the world. Several largest technology giants, such as Apple, Google, Microsoft, and Facebook, have headquarters in the United States. The country's robust innovation ecosystem, access to capital, and large domestic market contribute to its dominance in the digital industry. In 2019, among the global top 100 digital companies, 39 had their headquarters in the United States (Figure II.21). Japan is also known for its technological competence and has several prominent digital companies headquartered within its borders (13 among the global top 100 digital

Figure II.21: Distribution of global top 100 digital companies by headquarters *(2019, number of companies)*

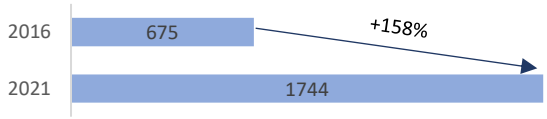


Source: Forbes.
Note: Countries with one company are classified in the other category.

companies). Japan's focus on innovation, research, and development has helped these MNEs thrive.

China has become a significant player in the global digital landscape in 2019, with 9 of the top 100 digital enterprises in the world being located there. Companies like Alibaba, Tencent, and Baidu have become popular names in China and internationally. China's massive population, rapid technological advancements, and government support for the digital sector have fueled the growth of these companies. Distribution of the global top 100 digital companies by headquarters in other countries is shown in Figure II.21.

Figure II.22: Increase in sales of the top 100 digital MNEs (Billion $US)



Source: UNCTAD (2022, April).

The top 100 digital MNEs have experienced significant growth in sales over the years due to their ability to leverage digital technologies and platforms to reach a global audience. According to the UNCTAD calculations, the top 100 MNEs' combined sales increased by almost 160% between 2021 and 2016 (Figure II.22). Furthermore, according to the UNCTAD, the top 100 digital MNEs list is very changing. As many as 39 new digital MNEs entered the top 100 ranking from 2016 to 2021, replacing those that were acquired or outperformed. With the addition of 9, in 2021, there were 15 new Internet platforms on the list, up from 11 previously. In the same period, the number of digital MNEs climbed from 26 to 34 in the digital solutions area and from 18 to 21 in the e-commerce segment (UNCTAD, 2022: April).

II.B Digitalization of OTS economies

Digitalization has become a key priority for the OTS group of economies as they recognize its potential to drive economic growth, enhance competitiveness, improve governance, and empower citizens. The OTS economies have witnessed significant progress in digital development over the past decade, with governments, businesses, and individuals embracing digital technologies to varying degrees.

The digitalization of OTS economies is driven by the increasing Internet penetration rate, changing consumer behavior, government initiatives, and the need for resilience in times of crisis. The ongoing digital transformation presents both opportunities and challenges for the OTS group of economies as they work

to maximize the benefits of digital technologies for economic growth and societal development.

II.B.1 State of digital development

The percentage of individuals using the Internet varies across the OTS group of economies, with some countries having higher levels of Internet penetration than others. Population size, infrastructure development, government initiatives, and socioeconomic factors can influence Internet usage rates. Internet penetration rates in Azerbaijan, Hungary, Kazakhstan, Kyrgyzstan, Türkiye, and Uzbekistan were between 77%-92%, significantly above the global average (see Figure II.2). Only in Turkmenistan, Internet penetration remains low, with only a small portion of the population having access to online sources. As of 2021, Turkmenistan's estimated Internet penetration rate was around 38.1% (Table II.3).[1]

Table II:3: Level of digital development
(2021, unless otherwise specified)

	AZE	KAZ	KGZ	TÜR	UZB	HUN	TKM
Individuals using Internet (%)	86.0%	92.3% *(2022)*	77.9%	83.4% *(2022)*	76.6%	91% *(2022)*	38.1%
Population covered by at least a 3G mobile network (%)	99.5%	96.0%	91.0%	99.0%	95.0%	99.2%	75.8%
Population covered by at least a 4G mobile network (%)	94.0%	83.5%	85.0%	97.0%	75.0%	99.2%	67.0%
Households with Internet access at home (%)	86.5%	94.5%	88% *(2020)*	94% *(2022)*	95.0%	90.8%	49% *(2019)*
Active mobile-broadband subscriptions per 100 inhabitants	68.8	93.8	119.3	83.0	105.5	78.7	13.9
Fixed broadband subscriptions per 100 inhabitants	19.9	14.3	4.4	21.0	22.0	34.8	0.2

Source: ITU.

According to the International Telecommunication Union (ITU), as of 2021, around 97% of the population of the OTS group of economies had access to 3G networks. Further, Azerbaijan, Hungary, and Türkiye developed their 4G network infrastructure significantly. As of 2021, above 90% of the population in these countries had access to 4G mobile networks. Approximately 85% of the people in Kazakhstan and Kyrgyzstan had access to 4G mobile networks. In Turkmenistan, the coverage of 4G networks was not as extensive as in other OTS economies. However, there has been notable progress in recent years. As of 2021, it is estimated that approximately 67% of the population in Turkmenistan was covered by 4G mobile networks (Table II.3).

[1] This part of the Chapter II introduces more sophisticated indicators which are not available in case of TRNC. Therefore, TRNC is excluded from the OTS group of economies' averages.

The mobile network coverage figures represent the potential coverage rather than actual usage or availability in all areas. Moreover, mobile network coverage can vary within each country, with urban areas generally having better coverage than rural and remote regions. Table II.3 shows that there is a significant gap between OTS economies when it comes to mobile broadband penetration. This shows how important it is to keep working to expand mobile broadband connectivity, especially in Turkmenistan.

The ICT Regulatory Tracker and the G5 Benchmark are tools the International Telecommunication Union developed to assess the readiness of national policy, legal, and governance frameworks for digital transformation. The generation of regulation from G1 to G4 of the ICT Regulatory Tracker helps track the maturity of telecom markets and the changes in the ICT environment. G1 and G2 mean that an economy is missing out on development opportunities and global digitization. The G5 Benchmark shifts focus from sector-specific to cross-sector policies and regulations and classifies the evolution of national digital markets from limited to transitioning and advanced to leading (ITU, 2023: 2).

Internet penetration rates in OTS countries are above the global average, while in Turkmenistan, only 38.1% of the population has Internet access. The readiness for digital transformation is reportedly highest in Hungary and Türkiye.

Table II.4: Readiness for digital transformation

	ICT Regulatory Tracker (2022)		G5 Benchmark (2021)	
	Generation	Overall score	Level of readiness*	Overall score
Azerbaijan	G2	64,5	Transitioning	54,9
Kazakhstan	G2	53	Transitioning	44,1
Kyrgyzstan	G3	70	Transitioning	45,4
Türkiye	G4	93,5	Advanced	66,7
Uzbekistan	G2	45	Limited	19,4
Hungary	G4	94	Advanced	72,8
Turkmenistan	G1	6,7	Limited	21,3

Source: ITU.
* Levels of maturity of a national enabling environment for digital markets.
Note: Limited (0-30), transitioning (30-60), advanced (60-80), leading (80-100).

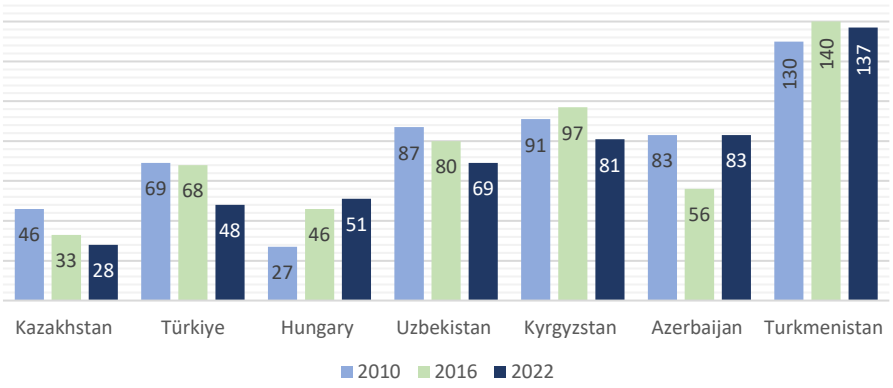
As shown in Table II.4 (ICT regulatory tracker), telecom markets' maturity and ICT environment changes appear to be more developed in Hungary and Türkiye. While Azerbaijan, Kazakhstan, and Kyrgyzstan have made significant progress, much remains to be done. In the case of Turkmenistan, while challenges exist, it has considerable potential to harness the benefits of digitalization. According to the G5 benchmark indicator, only Hungary and Türkiye are ranked among

economies with advanced readiness for digital transformation. Azerbaijan, Kazakhstan, and Kyrgyzstan were in the transitioning category in 2021.

The OTS group of economies has significantly advanced their e-government development over the past twelve years, enhancing citizen engagement and service delivery.

The condition of global e-government development is tracked by the United Nations' E-Government Development Index (EGDI). The EGDI is a composite measure of three essential dimensions of e-government: provision of online services, telecommunication connectivity, and human capacity. The EGDI intends to rate the performance of national governments in relation to one another rather than to represent the development of e-government in an absolute sense. Figure II.23 shows that the OTS group of economies has progressed in their e-government development in the last twelve years, with Kazakhstan, Türkiye, and Hungary leading the way. These countries have implemented various online services and platforms to enhance citizen engagement and service delivery.

Figure II.23: The e-government development index: The state of e-government development *(global rank out of 193 countries)*



Source: UN, 2023a.

Uzbekistan has recently embarked on an ambitious e-government transformation journey. The country has implemented various digital platforms which provide access to over 200 e-services. Uzbekistan's efforts have been recognized internationally, improving its EGDI ranking (from 80 in 2016 to 69 in 2022).

Azerbaijan and Kyrgyzstan have also made considerable efforts to enhance their e-government capabilities. These countries have implemented several online platforms for citizen engagement and service delivery. Turkmenistan has been

relatively slower in adopting e-government practices compared to other OTS countries. Limited internet penetration poses challenges to the development of digital services. However, the government of Turkmenistan has taken steps to improve connectivity and expand online services.

Table II.5: GovTech Maturity Index

	Year	GTMI	CGSI	PSDI	DCEI	GTEI
Azerbaijan	2020	0,604	0,458	0,821	0,423	0,715
	2022	0,775	0,694	0,935	0,841	0,629
Kazakhstan	2020	0,739	0,520	0,883	0,824	0,727
	2022	0,817	0,739	0,983	0,786	0,762
Kyrgyzstan	2020	0,633	0,465	0,661	0,720	0,684
	2022	0,578	0,502	0,684	0,651	0,475
Türkiye	2020	0,785	0,668	0,960	0,661	0,852
	2022	0,873	0,841	0,955	0,848	0,847
Uzbekistan	2020	0,617	0,422	0,795	0,557	0,696
	2022	0,813	0,794	0,951	0,545	0,965
Hungary	2020	0,661	0,651	0,785	0,336	0,871
	2022	0,793	0,756	0,912	0,754	0,752
Turkmenistan	2020	0,099	0,084	0,146	0,051	0,116
	2022	0,125	0,182	0,166	0,011	0,140

Source: World Bank.
Note: *GTMI* - GovTech Maturity Index is the simple average of the normalized scores of the following four components: 1. *CGSI* - Core Government Systems Index (17 indicators) captures the key aspects of a whole-of-government approach; *PSDI* - Public Service Delivery Index (9 indicators) presents the state of online portals, e-filing services, e-payment capabilities and more; *DCEI* - Digital Citizen Engagement Index (6 indicators) measures aspects of public participation platforms, citizen feedback, and open gov/data portals; *GTEI* - GovTech Enablers Index (16 indicators) captures strategy, institutions, regulations, digital skills, and innovation programs. Levels of maturity are classified as Low < 0.25, Medium ≥ 0.25 < 0.50, High ≥ 0.50 < 0.75, and Very High ≥ 0.75.

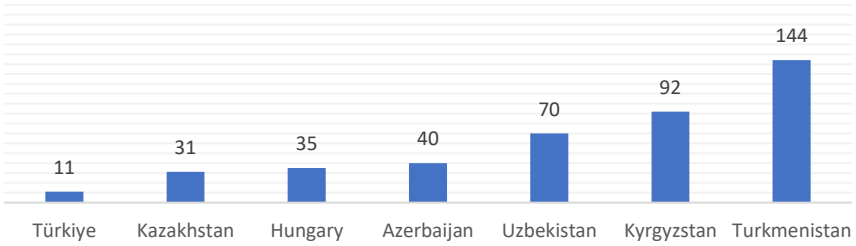
Turkic economies have a high level of digital maturity. Still, more needs to be done to put cybersecurity protections into place.

The GovTech Maturity Index (GTMI) developed by the World Bank is a framework that assesses the level of digital maturity and technological capabilities within government organizations. It provides governments with a comprehensive evaluation of their digital transformation efforts, enabling them to identify areas for improvement, benchmark against best practices, and track progress over time. Digital maturity is categorized by the GTMI as low when it is less than 0.25, medium between 0.25 and 0.50, high between 0.50 and 0.75, and very high above 0.75. Table II.5 shows that from 2020 to 2022, the GTMI score has improved in all OTS economies except for Kyrgyzstan. As of 2022, Azerbaijan, Kazakhstan, Türkiye, Uzbekistan, and Hungary had a very high level of digital maturity, Kyrgyzstan had high maturity, and only Turkmenistan had a low digital maturity level. OTS economies outperform in the Public Service Delivery subindex (PSDI), focusing on online portals, e-filing services, and e-payment capabilities, while the Core Government

Systems (CGSI) and GovTech Enablers subindexes (GTEI, which captures strategy, institutions, regulations, digital skills, and innovation programs) remain below the GTMI scores.

The Global Cybersecurity Index (GCI) is a measure developed by the International Telecommunication Union (ITU) to assess and rank the cybersecurity capabilities of countries worldwide. It provides a comprehensive overview of each country's commitment to cybersecurity and their efforts in implementing cybersecurity measures. It aims to raise awareness about the importance of cybersecurity for the digital economy, encourage governments to prioritize cybersecurity and promote international cooperation in addressing cyber threats. According to the 2020 values of the GCI index, Türkiye, Kazakhstan, Hungary, and Azerbaijan appear better in terms of cybersecurity capabilities. Out of 194 countries, Türkiye was the 11th best-prepared country globally for providing cybersecurity, and it was followed by Kazakhstan (31st place), Hungary (35th place), and Azerbaijan (40th place).

Figure II.24: Global Cybersecurity Index *(2020 ranks)*



Source: ITU.

World Bank's Global Findex database is widely considered one of the most authoritative sources of information on digital financial inclusion and digital payments. According to this database, as of 2021, a significant percentage of adults in Hungary (88%), Kazakhstan (81%), and Türkiye (74%) had an account with a financial institution. This percentage represents a significant increase from previous years, indicating an essential base for e-commerce. However, it is important to note that there are still substantial disparities in account ownership across different OTS economies (Table II.6). For everyone to have access to the advantages of official banking services and e-commerce, efforts to promote financial inclusion through technical advancements, regulatory changes, and financial education are essential.

The percentage of the population with credit or debit card ownership also varies across OTS economies. Credit or debit card ownership appears to be below 40% of the population in Azerbaijan, Kyrgyzstan, Uzbekistan, and Turkmenistan. But

it is safe to say that a sizeable segment of the OTS population now uses credit and debit cards regularly, another important e-commerce component (Table II.6).

Table II.6: Population engaged in online payments and purchases (% of age 15+)

	AZE (2022)	KAZ (2021)	KGZ (2021)	TÜR (2021)	UZB (2021)	HUN (2021)	TKM (2017)
Account with a financial institution	46%	81%	45%	74%	44%	88%	41%
Credit or debit card ownership	38%	63%	28%	60%	36%	79%	38%
Made or received digital payments in the past year	43%	78%	39%	68%	42%	86%	34%
Purchased on the Internet	9%	38%	10%	30%	6%	56%	2%
Used the Internet to pay bills	7%	32%	11%	35%	16%	45%	0%

Source: World Bank, Global Findex Database.

The significant majority of adults in Hungary (86%), Kazakhstan (78%), and Türkiye (68%) made or received digital payments in 2021. On the other hand, other OTS countries have a relatively lower adoption rate of digital payments (Tablo II.6). World Bank's Global Findex Database shows that 56% of adults in Hungary, 38% in Kazakhstan, and 30% in Türkiye purchased online in 2021. The percentage of surveyed adults who bought on the Internet in Kyrgyzstan was 10%, in Azerbaijan 9%, in Uzbekistan 6%, and in Turkmenistan was estimated to be around 2% (Table II.6). Specific data on the percentage of surveyed adults making online purchases is limited. It is crucial to remember that these numbers are based on survey information and may not fully capture the present situation.

II.B.2 The e-commerce market

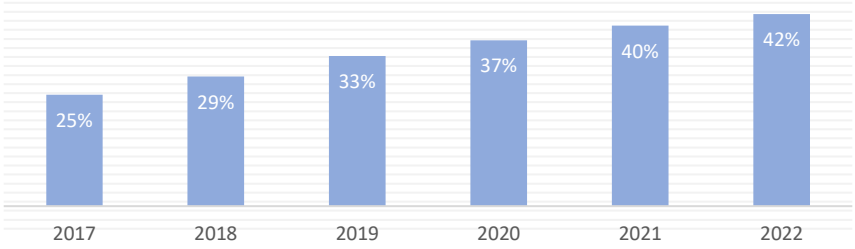
The UNCTAD Global Cyberlaw Tracker provides the first-ever global mapping of cyber laws. It monitors the adoption of e-commerce legislation in 194 countries in e-transactions, consumer protection, data protection/privacy, and cybercrime. It shows if a specific nation has passed laws or drafted laws awaiting approval. OTS countries have adopted laws on electronic transactions, privacy and data protection, and cybercrime. As of 2021, the law on consumer protection was adopted in Hungary, Kazakhstan, and Türkiye, and the rest of OTS countries had this law in draft form awaiting approval (Table II.7).

Table II.7: Adoption of e-commerce legislation (2021)

	AZE	KAZ	KGZ	TÜR	UZB	HUN	TKM
Electronic transactions	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Consumer protection	Draft	Yes	Draft	Yes	No data	Yes	Draft
Privacy and data protection	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cybercrime	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: UNCTAD, Global Cyberlaw Tracker.

Figure II.25: The percentage of OTS population that conduct online shopping *(regional level, percent)*

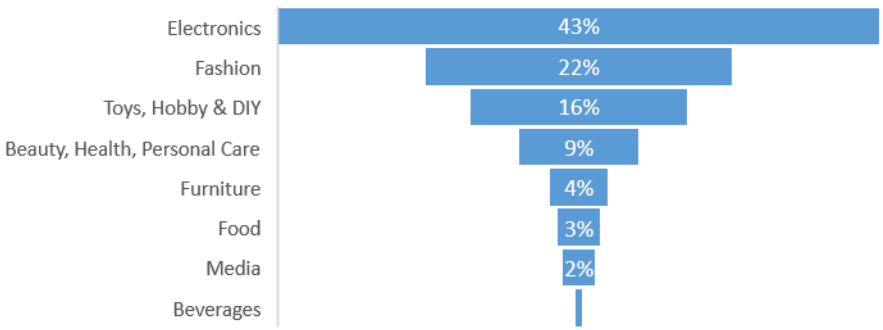


Source: Statista, Digital Market Insights.

OTS countries have implemented e-commerce legislation, resulting in a significant increase in e-commerce penetration from 25% in 2017 to 42% in 2022.

Online shopping has become increasingly popular in the OTS group of countries due to the convenience and accessibility it offers. People are increasingly using online buying platforms, as shown by Figure II.25. According to Statista data, the e-commerce penetration rate at the OTS level (percentage of OTS population that conducts online shopping) has increased from 25% in 2017 to 42% in 2022. Younger generations tend to favor online purchasing more than older generations do.

Figure II.26: Market shares of e-commerce in OTS economies *(2017-2022, regional level, percent)*



Source: Statista, Digital Market Insights.

The e-commerce in the OTS group of economies is dominated by electronics, fashion, toys and hobby and beauty, health, and personal care markets, whose total sales represented 90% of OTS e-commerce from 2017 to 2022 (Figure II.26). Share of food and beverages consistent only 4% of e-commerce sales in Turkic economies. Still, the e-commerce landscape constantly evolves, and new

markets may emerge, or existing ones presented in Figure II.26 may gain or lose market share over time.

Table II.8: Online and offline revenue shares *(percent)*

		2017	2018	2019	2020	2021	2022
Azerbaijan	Offline	95,8	95,1	94,6	92,6	91,2	91,9
	Online	4,2	4,9	5,4	7,4	8,9	8,1
Kazakhstan	Offline	98,4	98,3	97,9	97,0	96,3	96,4
	Online	1,6	1,7	2,1	3,0	3,7	3,6
Kyrgyzstan	Offline	97,6	97,2	96,8	95,6	94,4	94,5
	Online	2,4	2,8	3,2	4,4	5,6	5,5
Türkiye	Offline	95,5	95,6	95,2	93,0	92,4	93,9
	Online	4,5	4,5	4,8	7,0	7,6	6,1
Uzbekistan	Offline	97,6	97,0	96,4	94,9	94,0	94,0
	Online	2,4	3,0	3,6	5,1	6,0	6,0
Hungary	Offline	97,3	96,8	96,0	94,3	93,0	94,0
	Online	2,7	3,2	4,0	5,7	7,0	6,0
Turkmenistan	Offline	98,0	97,8	97,6	96,6	96,3	96,6
	Online	2,0	2,2	2,4	3,4	3,7	3,4

Source: Statista Market Insights.
Note: Revenues are derived from annual filings, national statistical offices, Google and Alibaba - Trends, and industry knowledge. The market only displays B2C revenues. C2C, B2B, reCommerce, digitally distributed services, and digital media are omitted.

Despite the growing importance of online sales channels, offline retail still accounts for most of total retail sales. In 2022, offline sales generated above 90% of revenues in the OTS group of economies, according to Statista estimates. Still, online retail revenues have grown from 2017 to 2022. The Covid-19 pandemic has accelerated the shift towards online shopping. Several factors, including technological advancements, changing consumer preferences, and the ongoing evolution of omnichannel retailing, will likely shape the future of e-commerce revenue shares in OTS countries. As more consumers turn to online channels for shopping, online revenue will likely continue growing faster (Table II.8).

Desktop e-commerce sales (transactions made through a personal computer or laptop) play a significant role in online retail. Many consumers still prefer using desktops for certain purchases, such as big-ticket items (expensive products) or complex transactions requiring extensive research and comparison. Additionally, desktops offer a more immersive browsing experience with larger screens, making viewing product details and images more accessible. According to Statista, from 2017 to 2022, desktop e-commerce sales in OTS economies averaged between 55% and 64% of total e-commerce revenues. Still, the shift from desktop to mobile commerce has been evident in the same period. As smartphones become more advanced and Internet speeds improve, consumers

increasingly turn to their mobile devices (smartphones or tablets) for online shopping. The convenience and portability offered by mobile devices have made them a popular choice for online shopping (Table II.9).

Table II.9: Desktop and mobile sales distribution *(percent)*

		2017	2018	2019	2020	2021	2022
Azerbaijan	Desktop	66,4	65,0	63,7	62,6	61,4	60,6
	Mobile	33,6	35,0	36,3	37,4	38,6	39,4
Kazakhstan	Desktop	63	62,4	61,6	60,9	59,7	58,8
	Mobile	37	37,6	38,4	39,1	40,3	41,2
Kyrgyzstan	Desktop	56,1	55,6	55,3	55,1	54,9	54,9
	Mobile	43,9	44,4	44,7	44,9	45,1	45,1
Türkiye	Desktop	73,2	68,4	63,4	58,9	55,7	54
	Mobile	26,8	31,6	36,6	41,1	44,3	46
Uzbekistan	Desktop	59,8	59,0	58,4	58,3	57,7	57,1
	Mobile	40,3	41,0	41,6	41,7	42,3	42,9
Hungary	Desktop	73	68,8	64,8	61,3	59	57,6
	Mobile	27,1	31,2	35,2	38,7	41	42,4
Turkmenistan	Desktop	58,4	58	57,7	57,3	57,1	56,8
	Mobile	41,6	42	42,3	42,7	42,9	43,2

Source: Statista Market Insights.

In 2022, offline retail accounted for 90% of OTS economies' revenues, while from 2017 to 2022, desktop e-commerce sales averaged 55%-64%, with a visible shift towards mobile commerce.

Retailers must adapt their e-commerce strategies to cater to both desktop and mobile users. Responsive web design and mobile app development are crucial in providing seamless experiences across different devices. Businesses can maximize their reach and capture a broader customer base by optimizing their online platforms for desktop and mobile users.

Türkiye is the largest e-commerce market in the OTS group of economies. From 2017 to 2022, Türkiye's total e-commerce revenues were $80.4 billion. Kazakhstan and Azerbaijan are other top players in the OTS e-commerce landscape (Figure II.27). It may be claimed that the e-commerce market in the OTS group of economies is expanding quickly. E-commerce revenue climbed by 207% in Uzbekistan, 190% in Turkmenistan, 176% in Kazakhstan, 170% in Hungary, and 135% in Azerbaijan in 2022 compared to 2017 (Figure II.28).

Figure II.27: E-commerce revenues *(2017-2022, billion $US)*

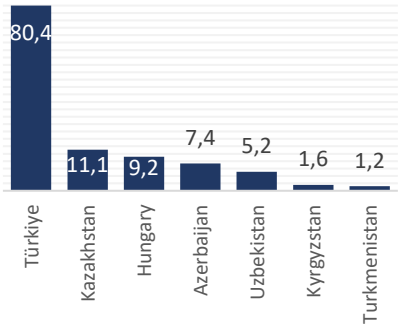
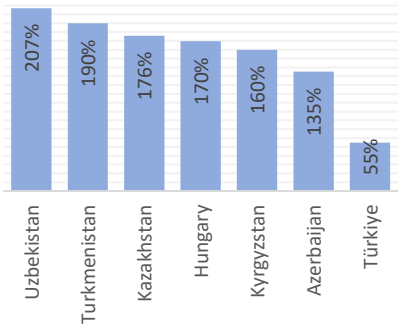


Figure II.28: E-commerce revenues *(2017/2022 change, percent)*



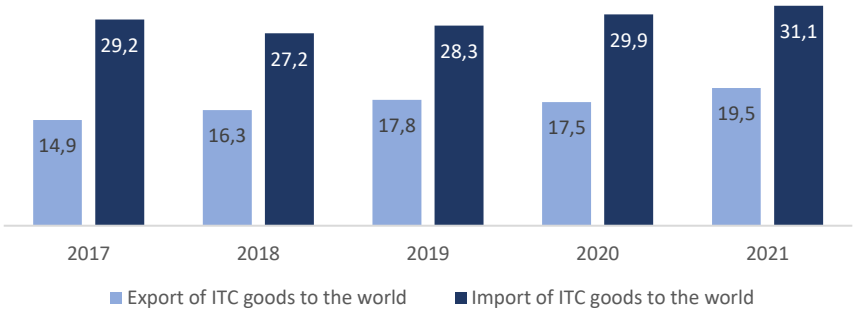
Source: Statista, Digital Market Insights.

II.B.3 Cross-border e-commerce

Official data or estimates on the volume or revenues from cross-border e-commerce for the OTS group of economies are unavailable. However, some related data sets can provide insights on this issue. The digital economy is an economic system that relies heavily on digital technologies and Information and Communication Technology (ICT) goods. UNCTAD data shows that the OTS group of countries, except for Hungary, have no well-established ICT export industries. Export of ITC goods (computers and peripheral equipment, communication equipment, consumer electronic equipment, electronic components, and miscellaneous) at the OTS level has increased from $14.9 billion in 2017 to 19.5 billion in 2021, mainly due to the performance of Hungary. The OTS group of countries imported 2.5 times more ITC goods in the same period (Figure II.29). As shown in Table II.11, the export of ITC goods remains at symbolic levels in most of the OTS economies. From 2017 to 2021, only in Hungary were the ICT goods exports as a percentage of the economy's total exports significant at an average of 12.1%. The import of ITC services is reaching more meaningful levels in all OTS economies (Table II.10).

The export of ITC goods from OTS economies increased from $14.9 billion in 2017 to 19.5 billion in 2021, mainly due to Hungary's performance. OTS economies appear to be net importers of ITC products.

Figure II.29: OTS economies' export and import of ITC goods
(regional level, $US)



Source: UNCTADstat.
Note: Azerbaijan, Hungary, Kazakhstan, Kyrgyzstan, Türkiye and Uzbekistan are included. ICT goods cover computers and peripheral equipment, communication equipment, consumer electronic equipment, electronic components and miscellaneous.

Table II.10 Share of ITC goods in total goods exports
(2017-2021, percent)

	ICT goods exports as a percentage of the economy's total goods exports	ICT goods imports as a percentage of the economy's total goods imports
Azerbaijan	0,05%	4,7%
Kazakhstan	0,1%	5,9%
Kyrgyzstan	0,9%	4,4%
Türkiye	1,1%	4,5%
Uzbekistan	0,1%	3,2%
Hungary	12,1%	13,2%

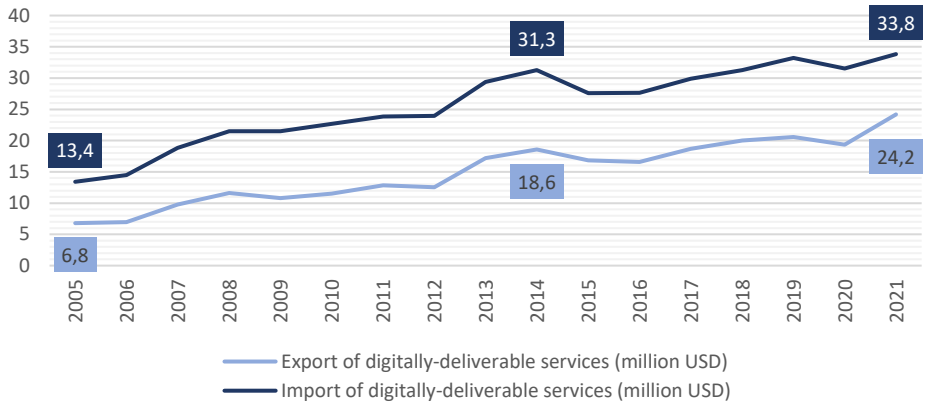
Source: UNCTADstat.

International trade in digitally-deliverable services refers to exchanging services that can be delivered electronically over the Internet or other digital networks. Digitally deliverable services have become increasingly important in today's global economy due to technological advancements and the widespread adoption of the Internet. This form of trade allows businesses and individuals to provide services to clients located in different countries without needing physical presence or transportation of goods. As a result, companies now have more opportunities to grow their clientele and enter foreign markets. The OTS group of economies' exports of digitally deliverable services increased from $6.8 billion in 2005 to 24.2 billion in 2021. From 2014 to 2021, around 20% of exports of services of OTS economies were

OTS economies' digitally deliverable service exports increased from $6.8 billion in 2005 to 24.2 billion in 2021. From 2014 to 2021, approximately 20% of the services exports of OTS economies were digitally-deliverable.

digitally-deliverable. The import of digitally-deliverable services is also increasingly becoming an integral part of the OTS economies, reaching $33.8 billion in 2021 (Figure II.30).

Figure II.30: International trade of OTS economies in digitally-deliverable services *(billion $US)*



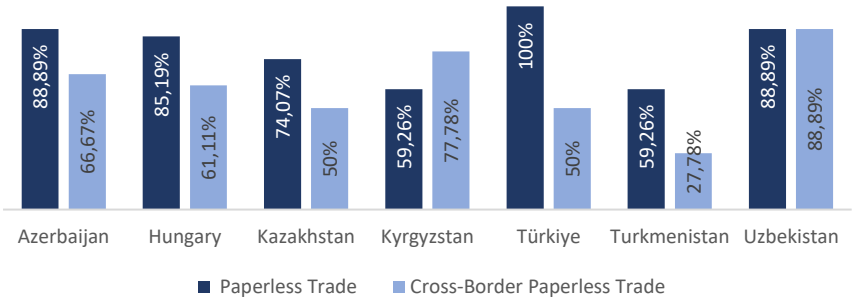
Source: UNCTADstat.

Paperless trade uses electronic documents and digital technologies to facilitate international trade transactions. It involves exchanging information and documents electronically, eliminating the need for physical paperwork. This shift from traditional paper-based processes to digital systems has numerous benefits and is becoming increasingly important.

Businesses can significantly reduce administrative tasks and associated costs by eliminating the need for physical documents, such as invoices, bills of lading, and customs declarations. Electronic documents can be created, shared, and processed faster than paper counterparts, allowing quicker turnaround times in trade transactions. This efficiency saves time and reduces operational costs, such as printing, storage, and transportation expenses.

The UN Global Survey on Digital and Sustainable Trade Facilitation allows tracking the implementation of paperless trade practices in national economies. Paperless trade infrastructure is widely developed for domestic trade in Azerbaijan, Hungary, Kazakhstan, Türkiye, and Uzbekistan, whereas in Kyrgyzstan and Turkmenistan, around 60% of requirements for paperless domestic trade are fulfilled. Regarding cross-border paperless trade requirements, Uzbekistan leads among the OTS group of economies, with 89% of requirements being realized, and Kyrgyzstan and Kazakhstan follow it (Figure II.31).

Figure II.31: Paperless trade (*2023*)



Source: UN, 2023b.

Table II.11 provides a full breakdown of the requirements for paperless trading by each of its constituent parts. Azerbaijan, Türkiye, Uzbekistan, and Hungary have partially adopted trade facilitation measures for cross-border e-commerce, and Turkmenistan is in the planning stages of implementing these measures. The UN Global Survey on Digital and Sustainable Trade Facilitation does not give information regarding Kazakhstan and Kyrgyzstan concerning this metric. (Table II.11).

Table II.11: Digital and sustainable trade facilitation

Paperless Trade	Azerbaijan	Kazakhstan	Kyrgyzstan	Türkiye	Uzbekistan	Hungary	Turkmenistan
Automated Customs System	FI	FI	PI	FI	FI	PI	PI
Internet connection available to customs and other trade control agencies	FI	FI	FI	FI	FI	FI	FI
Electronic Single Window System	FI	PI	PI	FI	PI	PI	PI
Electronic submission of Customs Declarations	FI	FI	PI	FI	FI	FI	PI
Electronic application and issuance of import and export permit	PI	PI	PI	FI	FI	FI	PI
Electronic submission of Sea Cargo Manifests	NI	DK	NI	FI	NI	PS	PS
Electronic submission of Air Cargo Manifests	PS	PS	PS	FI	FI	FI	PI
Electronic application and issuance of Preferential Certificate of Origin	FI	FI	NI	FI	PS	PI	PS
E-Payment of customs duties and fees	FI	FI	PI	FI	FI	FI	PS
Electronic application for customs refunds	FI	DK	PI	FI	FI	PI	PS
Cross-Border Paperless Trade	Azerbaijan	Kazakhstan	Kyrgyzstan	Türkiye	Uzbekistan	Hungary	Turkmenistan
Laws and regulations for electronic transactions	PI	PI	PI	PI	FI	PI	PI
Recognised certification authority	FI	PI	PI	FI	FI	PI	NI
Electronic exchange of Customs Declaration	PI	PS	PI	PI	FI	PI	PS
Electronic exchange of Certificate of Origin	PI	NI	PI	NI	PS	NI	PS
Electronic exchange of Sanitary & Phyto-Sanitary Certificate	PS	PI	FI	NI	FI	PI	NI
Paperless collection of payment from a documentary letter of credit	PI	PI	FI	PI	FI	FI	PS
Trade Facilitation measures for cross-border e-commerce	PI	DK	DK	PI	PI	PI	PS

Source: UN, 2023b.

FI: Fully implemented; **PI:** Partially implemented; **PS:** Planning stage; **NI:** Not implemented; **DK:** Do not know.

II.B.4 Digitalization of investment promotion services: Survey results

Investments made by foreign entities in digital industries or technologies in a host country are increasingly gaining significance. These investments include establishing digital infrastructure, investing in digital startups, or acquiring digital companies. The availability of data on digital FDI is crucial for policymakers, researchers, and businesses to understand the trends, patterns, and impacts of these investments. However, the availability and comprehensiveness of digital FDI data vary across countries and regions. Further, data specifically focused on the digitalization of FDI promotion services is also very limited compared to general FDI data.

The Turkic Academy conducted an online survey between June and September 2023 directed at the investment promotion agencies (IPAs) of the Turkic economies as part of the preparation of this Chapter. Focal points responding on behalf of the related IPAs were management team members. Following IPAs from Azerbaijan, Kazakhstan, Kyrgyzstan, Türkiye, Uzbekistan, and TRNC supported the survey by sharing their insights, which helped analyze the effectiveness and challenges regarding the digitalization of FDI promotion services:

- The Export and Investment Promotion Agency of the Republic of Azerbaijan (AZPROMO)
- The National Company KAZAKH INVEST JSC (KAZAKH INVEST)
- The National Investments Agency under the President of the Kyrgyz Republic (NIA of Kyrgyzstan)
- The Investment Office of the Presidency of the Republic of Türkiye (Investment Office of Türkiye)
- The Investment Promotion Agency under the Ministry of Investments and Foreign Trade of the Republic of Uzbekistan (IPA of Uzbekistan)
- The Cyprus Turkish Investment Development Agency (YAGA)

The IPAs included in the survey identified themselves as national investment promotion agencies. Only the Investment Office of Türkiye and YAGA reported being older than 15 years; most IPAs had less than 10 years of experience.

The common feature of surveyed IPAs is that they are public institutions. They are sometimes integrated within a ministry (IPA of Uzbekistan) or are semi-autonomous agencies reporting to a ministry (KAZAKH INVEST and YAGA). The AZPROMO, the NIA of Kyrgyzstan, and the Investment Office of Türkiye were founded as autonomous public bodies, the last two being under the President's Office's supervision (Table II.12).

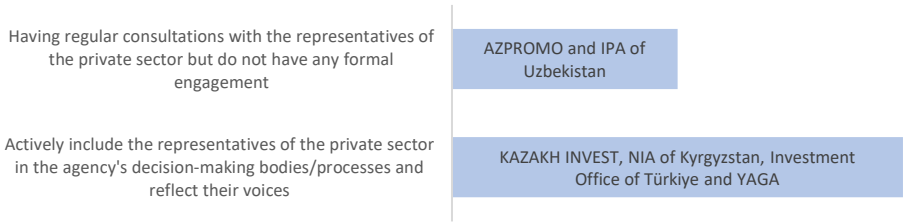
Table II.12: Basic institutional features of IPAs

	Year of establishment	Status	Number of employees	Operating as a one-stop-shop
AZPROMO	2021	Autonomous public body	66	Yes
KAZAKH INVEST	2017	Semi-autonomous agency reporting to a ministry	105	Yes
NIA of Kyrgyzstan	2014	Autonomous public body (under the President's Office)	42	Yes
Investment Office of Türkiye	2007	Autonomous public body (under the President's Office)	143	No
IPA of Uzbekistan	2019	Sub-unit of ministry	20	Yes
YAGA	2008	Semi-autonomous agency reporting to a ministry	8	No

The Investment Office of Türkiye (143 employees) and the KAZAKH INVEST (105 employees) had the most considerable variances in staff numbers among the IPAs surveyed, as stated in Table II.12. In the situations of the IPA of Uzbekistan (20 employees) and the YAGA (8 employees), staff size does not appear to be strongly correlated with the levels of the national GDP. Additionally, the reported personnel figures do not inform about the number of professional staff members and should be interpreted cautiously. IPA size does matter, and larger IPAs are anticipated to be more successful at attracting FDI.

The survey has shown that the AZPROMO, the KAZAKH INVEST, the NIA of Kyrgyzstan, and the IPA of Uzbekistan are mandated with a one-stop-shop operation (OSS) (Table II.12). Functioning as OSS may lessen the burden faced by investors in countries with complex administrative settings, but it may also overshadow IPAs' other core investment promotion activities.

Figure II.32: Cooperation of IPAs with the private sector



As is the case with OECD countries, the degree of autonomy an IPA has from the government is thought to affect how the agency conducts business and its capacity to attract FDI (OECD, 2018). Moreover, when the agency works with the private sector, IPAs' efficacy and visibility are improved. All surveyed IPAs benefit from the private sector when planning and deciding their activities. KAZAKH INVEST, NIA of Kyrgyzstan, Investment Office of Türkiye, and YAGA actively include the private sector representatives in the agency's decision-making bodies/processes and reflect their voices to improve the effectiveness of the

agency's operations. On the other hand, AZPROMO and IPA of Uzbekistan are having regular consultations with the private sector representatives without formal engagement (Figure II.32).

The survey shows that surveyed IPAs in Turkic economies rely less on a network of secondary offices abroad but have a greater presence at the local level. Only the KAZAKH INVEST and the Investment Office of Türkiye have offices abroad. Since having offices or staff abroad is costly, the rest of the surveyed IPAs probably use their country's embassy channels to promote FDI overseas. The IPA of Uzbekistan has domestic representative offices, whereas AZPROMO, NIA of Kyrgyzstan, and YAGA only work from the headquarters (Figure II.33).

Figure II.33: Having representative offices other than headquarters

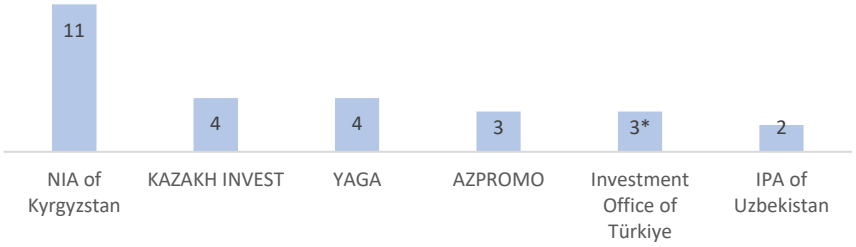
IPAs have been established worldwide with the primary goal of promoting and attracting inward foreign investment. However, the surveyed IPAs from Turkic economies have duties (mandates) that go beyond encouraging inward FDI. Additionally, Turkic IPAs differ significantly in terms of their obligations. For instance, the NIA of Kyrgyzstan reported having 11 duties, whereas the YAGA and the KAZAKH INVEST have four. The Investment Office of Türkiye and the AZPROMO reportedly have three mandates each (Figure II.34). However, the Investment Office of Türkiye reported providing investment facilitation, aftercare, and policy advocacy services. The heterogeneity is also visible in those IPAs with a similar number of duties because they differ in their operational scope.

IPAs can be more specialized when they have fewer duties to perform. However, when faced with financial or human resource limitations, governments frequently combine the duties of IPAs. Nevertheless, expanded responsibilities highlight the IPAs' growing significance within their respective economies' institutional ecosystems. The responsibilities of IPAs often overlap with those of other national institutions due to their extensive mandates.

In addition to promoting inward foreign investment, the surveyed Turkic IPAs are frequently tasked with the promotion of domestic investment (five IPAs), innovation (four IPAs), and regional development (three IPAs). The promotion of

exports and the screening and approval of foreign investors (reported by two IPAs) were additional crucial duties listed as official responsibilities.

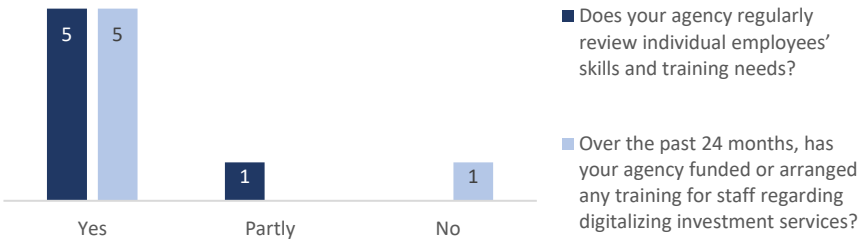
Figure II.34: Number of responsibilities (mandates) by agency



* The Investment Office of Türkiye additionally reported providing investment facilitation, aftercare, and policy advocacy services.

The survey's findings indicate that Turkic IPAs are pretty conscious of the significance of developing staff skills requirements. Five IPAs regularly and one partly evaluates each employee's skill set and training needs. Moreover, five IPAs have undertaken training for their staff regarding digitalizing investment services over the past 24 months (Figure II.35). Only YAGA reported that they did not fund or arrange any training and development for staff in the agency, including any informal on-the-job training over the past 24 months.

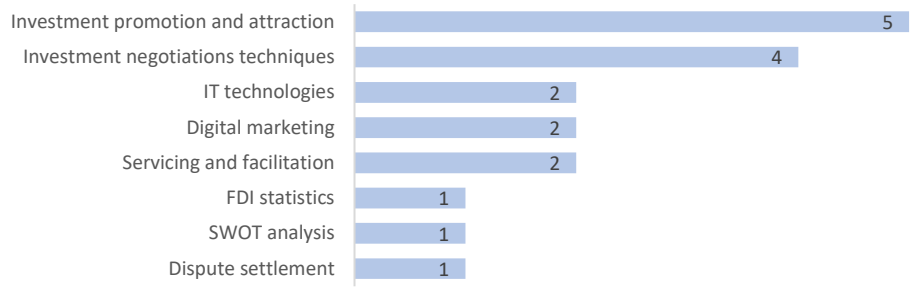
Figure II.35: The situation with IPAs staff skills requirements



Note: N=6 IPAs.

Nearly all management team members of the surveyed IPAs think that staff effectiveness would increase if they received training on investment promotion and attraction. The four responding IPAs also value training in investment negotiating techniques. At least two IPAs said they would prefer training in other crucial areas such as IT technology, digital marketing, and servicing and facilitation. However, the relevance of SWOT analysis, dispute settlement, and FDI statistics remains low because only one IPA for each opted for training in these areas (Figure II.36).

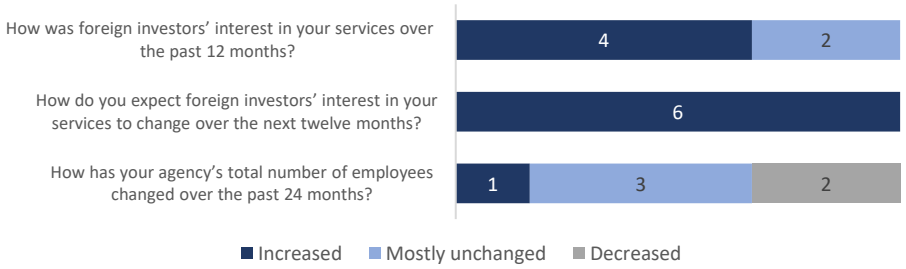
Figure II.36: The situation with IPAs staff skills requirements



Note: N=6 IPAs.

The survey has tried to evaluate the general attractiveness of Turkic IPAs over the last year. According to survey results, the interest of international investors in the services of AZPROMO, KAZAKH INVEST, the NIA of Kyrgyzstan, and the Investment Office of Türkiye has increased during the previous 12 months. Interest from foreign investors in the YAGA and the IPA of Uzbekistan mainly remained unchanged. All the IPAs surveyed anticipate a rise in foreign investors' interest in their services over the following twelve months (Figure II.37).

Figure II.37: General attractiveness of IPAs

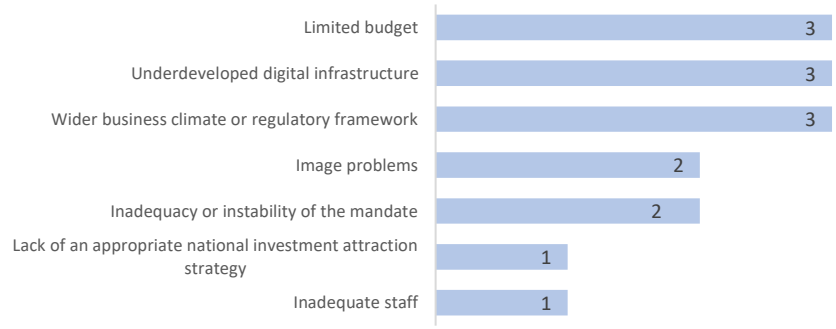


Note: N=6 IPAs.

In the same period, AZPROMO increased the number of its employees, and the KAZAKH INVEST, the Investment Office of Türkiye, and the YAGA have predominantly maintained the same number of workers. According to respondents, the NIA of Kyrgyzstan and the IPA of Uzbekistan have reduced employee numbers (Figure II.37).

The most often-cited answers to the question asking the Turkic IPAs to name the main challenges that limit the ability of the agency to attract investment were limited budget (three IPAs), underdeveloped digital infrastructure (three IPAs), and wider business climate or regulatory framework (three IPAs) (see Figure II.38).

Figure II.38: Most significant challenges that limit the ability of IPA to attract investment



Note: N=6 IPAs.

Since the government largely finances the surveyed IPAs, high citation of the limited budget permits the assumption that the IPA budgets have not changed considerably over the past few years. The magnitude of annual budgets, however, significantly impacts IPA effectiveness. The IPA budget must be sufficient to conduct fundamental FDI promotion activities.

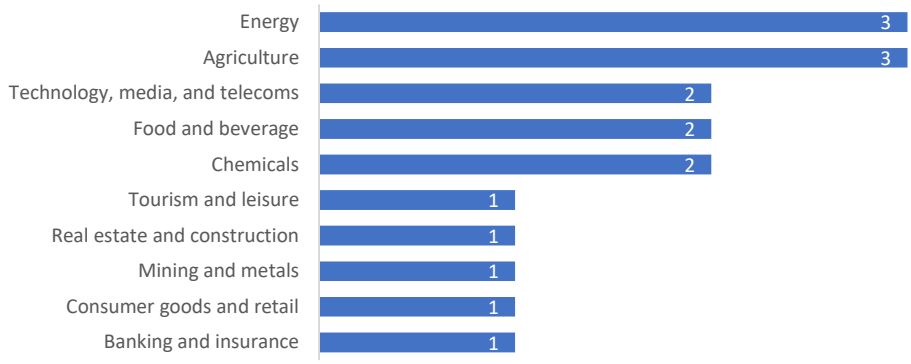
The challenges surveyed IPAs face in attracting FDI also draw attention to image issues in two cases. Image issues directly relate to political stability, security, lifestyle, etc. Investors could also disseminate a negative image of the country within their own business community. Under such circumstances, policymakers might focus better on improving the country's overall business climate and image rather than engaging in expensive promotion campaigns. It should be noted that the two IPAs consider inadequacy or instability of the mandate among their significant barriers to work. Other challenges faced by surveyed IPAs are presented in Figure II.38.

Based on the FDI inflows recorded during the previous five years, the IPAs under survey were asked to identify the sectors of their economy that appealed to foreign investors the most. The Turkic countries are rich in energy and natural resources, making this sector attractive to foreign investors. Therefore, three IPAs reported that the energy sector is among the most attractive sectors for FDI. In Azerbaijan, Kyrgyzstan, and Uzbekistan, foreign investors also favored agriculture over the last five years. Further, chemicals, food and beverage, technology, media, and telecoms were significant sectors in attracting FDI in at least two Turkic economies (Figure II.39).

Among surveyed IPAs, only the AZPROMO, the KAZAKH INVEST, and the Investment Office of Türkiye have reported that their agency has a multiyear FDI promotion strategy. Still, all of the surveyed IPAs reported the sectors that their agencies prioritize as well as the key goals that their agencies and the

government hope to achieve through FDI promotion, which were most likely chosen following the national development objectives.

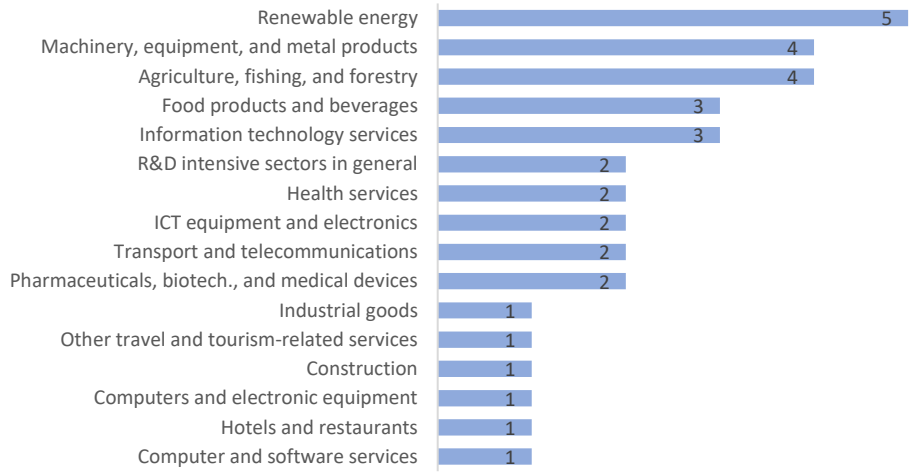
Figure II.39: Most attractive industries for foreign investors in last five years



Note: N=6 IPAs.

According to surveyed agencies, several sectors are considered a priority. These sectors vary depending on the country's specific development needs and agencies' goals, but some common focus areas include renewable energy (five IPAs), machinery, equipment, and metal products (four IPAs), agriculture, fishing, and forestry (four IPAs), food products and beverages (three IPAs), Information technology services (three IPAs). Other prioritized sectors are reflected in Figure II.40.

Figure II.40: Sectors considered a priority by surveyed agencies

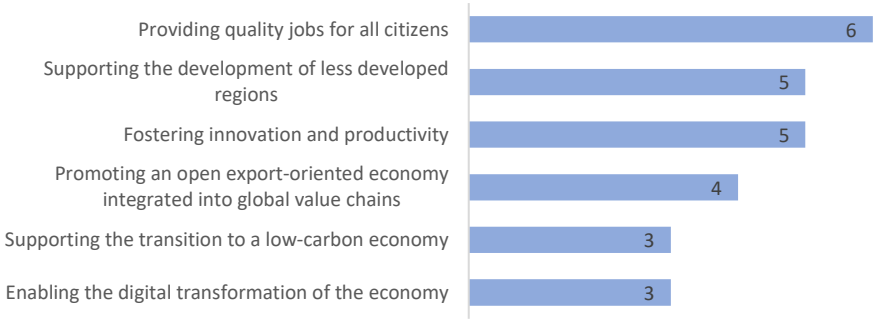


Note: N=6 IPAs.

With increasing concerns about climate change and the need for sustainable development, renewable energy has become the most prioritized sector for Turkic IPAs. On the other hand, machinery, equipment, and metal products are essential components of various industries and play a crucial role in the economy. This sector encompasses various items used for manufacturing, construction, transportation, and other industrial activities. Among the Top 3 most prioritized sectors of Turkic IPAs are agriculture, fishing, and forestry, which are crucial in providing food, raw materials, and other economic opportunities. It is interesting to note that sectors such as computer and electronic equipment, computer and software services, and ICT equipment and electronics, which are directly related to the digitalization of the economy, do not appear among the Top 5 priorities of the Turkic IPAs.

In the case of Turkic IPAs, FDI promotion is mainly driven by the objective of providing quality jobs for all citizens. Foreign investors typically bring in investment projects that require a skilled workforce, creating employment opportunities for local communities. This reduces unemployment rates and contributes to poverty reduction and social development. FDI also plays a significant role in supporting the progress of less-developed regions. It brings in much-needed capital, technology, and market access, contributing to these regions' economic growth and social progress. Therefore, supporting the development of less developed regions and fostering innovation and productivity appear among the top 3 objectives of the Turkic IPAs and governments in promoting FDI (Figure II.41).

Figure II.41: The main objectives the IPA and government seek to achieve through FDI promotion



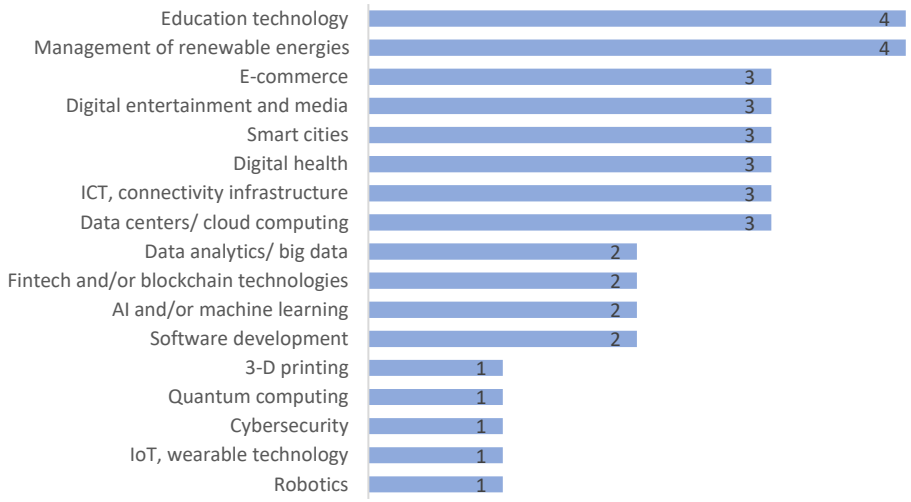
Note: N=6 IPAs.

Enabling the digital transformation of the economy was less opted answer by surveyed IPAs when asked about the main objectives they seek to achieve through FDI promotion. However, prioritizing and targeting FDI in digital sectors

is vital for countries seeking to leverage digital technologies for economic growth and competitiveness.

In the digital economy, surveyed IPAs actively promote and target several sectors and industries that are driving technological advancements. These sectors are characterized by their reliance on digital technologies, data-driven processes, and innovative business models. The sectors/industries that Turkic IPAs primarily focus on in the digital economy include education technology and management of renewable energies (Figure II.42). On the other hand, half of surveyed IPAs actively promote and target e-commerce, digital entertainment and media, smart cities, digital health, ICT (connectivity infrastructure) and data centers/cloud computing.

Figure II.42: Sectors/industries of the digital economy that Turkic IPAs actively promote and target



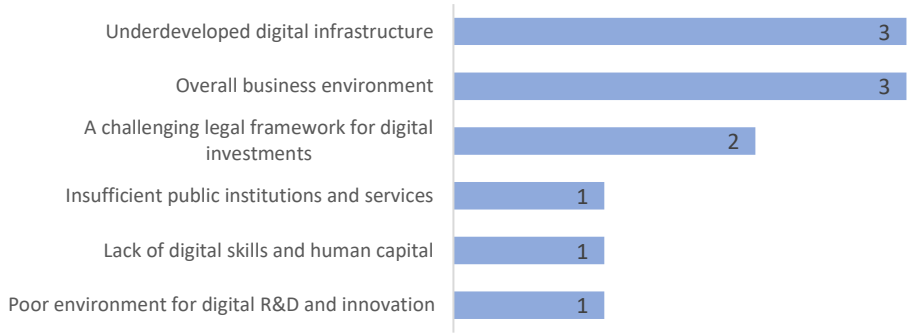
Note: N=6 IPAs.

Half of the surveyed IPAs conduct other digital-related activities regularly, including promoting digital innovation and R&D, advocating policymakers for a more digital-friendly business environment, and supporting the digital transformation of companies in traditional industries. Further, AZPROMO reported actively participating in the government's digitalization strategy design. Four agencies are occasionally consulted in the government's digitalization strategy design, whereas YAGA reported that their government does not have a digitalization strategy. On the other hand, in the last 12 months, two surveyed IPAs allocated between 0% and 10% and four IPAs between 10% and 25% of their resources (time and staff) to attracting FDI in digital sectors, which can be viewed

as insufficient when considering the advantages that digital sectors bring to an economy.

Attracting FDI in the digital economy poses unique challenges for governments and IPAs alike. For half of the surveyed IPAs, underdeveloped digital infrastructure and overall business environment are the main challenges to attracting FDI in the digital economy. A challenging legal framework for digital investments is declared among the most significant challenges by two IPAs (Figure II.43).

Figure II.43: The main challenges to attracting FDI in the digital economy



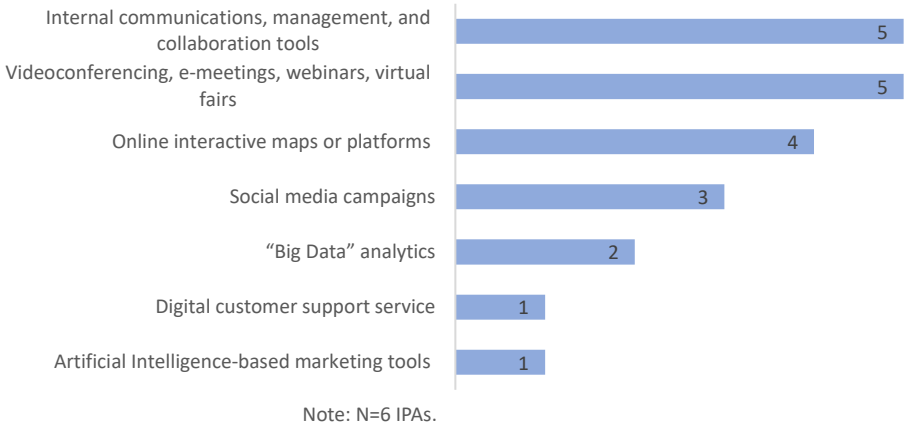
Note: N=6 IPAs.

Regarding investment facilitation, investing and establishing a foreign affiliate (business) is highly digitalized in Turkic economies, where most required procedures and requirements are available online, according to the survey results. Compared to the pre-pandemic period, the Covid-19 pandemic prompted the use of digital tools substantially in half of the surveyed IPAs' investment promotion activities and, to a certain extent, in other IPAs. Further, all Turkic IPAs have declared that they plan to extend the use of digital tools and processes for investment promotion and facilitation.

IPAs utilize various digital tools to promote and attract FDI effectively. These tools leverage the power of technology and the internet to reach a wider audience, provide information, and facilitate communication with potential investors. Some of the key digital tools Turkic IPAs use include Internal communications, management, and collaboration tools; videoconferencing, e-meetings, webinars, virtual fairs; online interactive maps or platforms; and social media campaigns (Figure II.44). Surveyed IPAs do not provide virtual site selection visits and do not utilize from Virtual Reality-based technologies. Surveyed IPAs also underutilize Artificial Intelligence-based marketing tools and digital customer support services. Costly technology (four IPAs) and the necessity to coordinate

with other agencies (two IPAs) are the main challenges to greater integration of digital tools in Turkic IPA's core activities.

Figure II.44: Digital tools used to promote and attract FDI



Note: N=6 IPAs.

In general, the diversity of responsibilities observed in Turkic IPAs may lead to duplicating tasks with other public entities, meaning that other national agencies or ministries may also carry out functions performed by IPAs. For that reason, Turkic countries should design effective institutional coordination mechanisms. Moreover, keeping in mind that IPAs operate in a dense and complex network of stakeholders – public and private, domestic and international- ideal institutional coordination mechanisms would be the ones that operate at three different levels: international, national, and sub-national.

On the other hand, prioritized sectors by Turkic IPAs also offer a potential for an increase in intra-OTS group investment. In this regard, more intensive cooperation among Turkic IPAs could bring value-added. Three surveyed IPAs reported that they frequently collaborate and exchange information about investment opportunities with IPAs located in other Turkic economies. Another there IPAs sometimes do the same.

All respondents from the surveyed IPAs are aware of the advantages of increased cooperation among Turkic IPAs. Moreover, there is one topic on which all respondents concur: coordination of investment policies and promotion among the Turkic economies will enhance their investment ecosystem and increase competitiveness on a global scale. To boost intra-OTS group investments, the OTS and its related and affiliated institutions can put more effort into the IPAs and issues highlighted by the respondents.

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Changing trade and investment: Digital transformation journey of Azerbaijan

This chapter explores the digitalization of trade and investment in Azerbaijan, focusing on key achievements, challenges, and future goals in these areas. The digital landscape in Azerbaijan is analyzed, considering digital transformation indexes and their relevance to the country. The report highlights the significant measures implemented by the Azerbaijani government to develop digital trade. It also examines the digitalization of investment in Azerbaijan, focusing on recent developments such as improving the securities market and introducing digital infrastructure. Case studies and best practices from benchmark countries, including Estonia, Singapore, and the United Arab Emirates, are reviewed to provide insights and recommendations for businesses and policymakers in Azerbaijan. The chapter concludes with a summary of key findings and insights, emphasizing the positive impact of digital trade and investment on the country's economy.

III.A Introduction

In today's fast-paced world, technology plays a major role in various sectors worldwide. Azerbaijan is also embracing this digital revolution. The country is making significant progress in digitalizing trade and investment, supported by its digital landscape and the people who live there.

As of July 2023, Azerbaijan has a population of 10,148,057 people. Many of these individuals are actively involved in the digital world. According to the State Statistics Committee, Internet usage in Azerbaijan reached 88% in 2022, giving most people access to the online sphere. Looking deeper into the user demographics, 73% of Internet users in Azerbaijan are between the ages of 26 and 64. This age group is typically economically active and more likely to engage with digital tools for trade and investment.

When it comes to devices used for Internet access, mobile phones are the most popular, with a usage rate of 61.8%, whereas laptops come next at 26.5%. This shows that Azerbaijan relies more on portable technology to stay connected. As of 2021, 88.3% of the population started using smartphones to access the Internet, while only 11.7% used other types of mobile phones.

However, Azerbaijan still has a digital divide, especially regarding Information and Communication Technology (ICT) skills. While 48% of individuals have basic ICT skills, the number drops significantly to only 15% for those with intermediate skills. Only 1% possess advanced ICT skills (ITU, 2023). Moreover, according to the public survey of the Social Research Center of Azerbaijan, 72.2% of the population (over 18 years old) use social media (SRC, 2023).

Azerbaijan has made significant progress in developing a digital government over the last few years. Along with initiatives such as the e-government portal, the Data Center, the DOST network, and the ASAN Service, several works have been done to digitalize customs, taxes, healthcare, education, trade, and investment. It is intended to examine the digitalization of Azerbaijan's economy and its investment separately in this chapter, review recent developments, explore countries' experiences that can serve as benchmarks for Azerbaijan, and provide suggestions for businesses and politicians.

III.B Digitalization of trade in Azerbaijan

Digital trade holds substantial significance for Azerbaijan across several dimensions. Primarily, it possesses the potential to catalyze economic augmentation and advancement. Digital commerce helps businesses conduct seamless international trade and stimulates the creation of new job opportunities and an increase in export volumes. Secondly, digital commerce is instrumental in optimizing the efficiency of trade operations. By automating bureaucratic processes and financial transactions, digital commerce effectively curtails expenses while expediting the seamless flow of commodities and amenities. Thirdly, digital commerce plays a pivotal role in augmenting trade transparency. By optimizing the monitoring of commodity and amenity movements, digital commerce is a powerful deterrent against corrupt practices and fraudulent activities.

The development of digitalization of trade in Azerbaijan has been accompanied by significant measures implemented by the Azerbaijani government. In early 2017, a presidential decree initiated the establishment of the Digital Trade Hub (DTH), which functions as a comprehensive e-trade and e-commerce portal under government guarantee. This hub offers an extensive range of invaluable cross-border electronic services that aim to streamline trade processes. These services include various segmentation of business models, customs operations among collaborating DTH countries, online company registration, online banking facilities, and other features. Moreover, the government has established the Small and Medium Business Development Agency (SMBDA) in Azerbaijan, which is authorized to support the growth of small and medium businesses (SMBs) in the country. The SMBDA offers many services to SMBs and ensures the coordination and regulation of services provided by government entities to SMBs. Additionally, in 2017, the government established the One-Stop Shop through a decree by the President of the Republic of Azerbaijan. This centralized portal allows businesses access to all the information and services necessary for exporting their goods and services. Lastly, the Center for Analysis and Coordination of the Fourth Industrial Revolution, inaugurated by a decree of the

President of the Republic of Azerbaijan on 6 January 2021, holds the mandate of overseeing and evaluating digital economy challenges, initiatives, strategies, and projects.

The Azerbaijani government's efforts to develop digitalization of trade are positively impacting the country's economy. In 2022, exports of digital services from Azerbaijan increased by 25%, and the government expects this growth to continue in the years to come. Digital trade is helping to create new jobs, boost exports, and promote economic growth in Azerbaijan.

III.B.1 Digital Trade Hub

Established in February 2017 by a presidential decree, the Digital Trade Hub (DTH) in Azerbaijan serves as an electronic public-private partnership platform to enhance Azerbaijan's standing as a regional digital trading hub (Presidential Decree No. 1255, 2017). After Estonia, Azerbaijan stands out as the second country with its DTH implementation that offers e-residency, providing mobile and electronic residency for non-residents. DTH extends various e-services to foreign citizens, including m-residency, virtual personal identification numbers, electronic business certificates, access to electronic public services, and business service benefits. Moreover, DTH streamlines online company registration with a user-friendly interface, multilingual support, virtual addresses, and assistance services. Additionally, the hub offers electronic signature and document services, corporate and individual bank accounts, and access to various banking services. DTH features an online single export application process, adhering to the "only once" and one-window principles, with electronic declarations and export subsidies accessible. Another standout offering is the fully digitalized free sales certificate, eliminating the need for physical interaction between public officials and entrepreneurs. Azerbaijan offers the Free Trade Certificate, a recently introduced regulatory control mechanism in global trade, making it the third country in the Commonwealth of Independent States (CIS) to provide this certificate. It is a mandatory document in numerous countries, ensuring the safety of products like food, cosmetics, textiles, medical equipment, and hygienic items that encounter the human body. This certificate proves that the exported goods freely circulate within the Republic of Azerbaijan, meeting the required standards and being officially certified by the appropriate public authorities and bodies (Hatam, 2019: 104).

Between 2018 and 2020, DTH empowered over 100 foreign nationals from 30 countries with virtual personal identification numbers and individual and business e-signature certificates, enabling them to access government and business e-services in Azerbaijan.

The ongoing Azerbaijan Digital Hub program envisages the establishment of a digital economy that will contribute to the state GDP growth, lay a 380-400 km long fiber-optic cable line along the bottom of the Caspian Sea, establish a corridor between Europe and Asia, connect the main infrastructure networks of neighboring countries in Azerbaijan, and construct new telecommunications and digital architecture. The program is expected to create new opportunities for developing the state economy and improve the country's connectivity with the rest of the world. It is also expected to attract foreign investment and create jobs in the IT sector (Guluzada, 2020).

More specifically, in 2018, the Trans-Caspian Fiber-Optic Line project was initiated by Azertelecom, which connects Azerbaijan to the global Internet network. Following the Azerbaijan Digital Hub program, the project comprises the Azerbaijan-Kazakhstan and Azerbaijan-Turkmenistan routes. The Trans-Caspian Fiber-Optic cable line, facilitated through Azerbaijan, will contribute to the formation of a digital telecommunications corridor between Europe and Asia, essentially a new "digital Silk Road" along the historical Silk Roud, allowing Asian countries to obtain data traffic and content through Azerbaijan. The realization of this project will transform Azerbaijan into a Regional Digital Center between Asia and Europe, encompassing regions such as Europe, South Caucasus, Central Asia, South Asia, and the Far East. Through the cable lines on both routes, the total data transmission capacity will range from 6 to 9 terabits per second. On 21 August 2023, the telecommunications companies of Kazakhstan and Azerbaijan, Kazakhtelecom and AzerTelecom, signed a document to register a joint institution responsible for the construction and operation of the fiber-optic communication line on the Kazakhstan-Azerbaijan route. The line laying along the bottom of the Caspian Sea will commence soon. Besides strengthening regional digital connectivity, this project will also contribute to digitalize trade and investment. The project will also enhance the effectiveness and economic potential of the Middle Corridor initiative.

III.B.2 Small and Medium Business Development Agency

The decline of oil prices in 2015 and an economic slowdown with key regional trade partners resulted in a substantial contraction in 2016-2017, emphasizing the need to ensure sustainable and stable growth for Azerbaijan by diversifying the non-oil economy.

In response to this situation, Azerbaijan introduced the 'SME Roadmap' in December 2016, which outlines a strategic plan for fostering consumer goods production at the small and medium entrepreneurship level (CERAC, 2016). The primary objectives of the SME Roadmap are to strengthen the role and competitiveness of SMEs in the economy, enhance the business environment,

improve the regulatory framework for entrepreneurial activities, facilitate access to financial resources, and provide more robust institutional support for SMEs. Since adopting the roadmap, the government has made notable advancements in implementing the reforms outlined in this strategic document. In this regard, the Small and Medium Business Development Agency (SMBDA) of Azerbaijan was established by Presidential Decree in 2017 to regulate SME activities while implementing a flexible supervision system that aligns with international standards and modern requirements (Presidential Decree No. 148, 2017). The agency aims to enhance the contribution and participation of micro, small, and medium-sized businesses in the national economy. This is achieved by improving their competitiveness, facilitating access to financial resources, strengthening institutional support mechanisms, coordinating efforts between public and private entities, fostering a favorable business environment for entrepreneurship across the country's regions, and attracting domestic and foreign investments. SME Houses are organizational units within the SMBDA responsible for coordinating the services provided to entrepreneurs by both government bodies and private entities within a unified framework. SME Friends, representing the SMBDA, are allocated to 29 regions in Azerbaijan to offer timely assistance and support to SMEs. They aim to establish and expand new businesses, contributing to regional development. SME Friends identify potential investment projects and ensure their implementation by SMEs. SME Development Centers are established to enhance the knowledge and skills of micro, small, and medium-sized entrepreneurs. They provide training, valuable advisory services, and access to innovations to address the modern challenges businesses face. These centers conduct training sessions, seminars, individual and group consulting, and support SMB networking in various areas such as business planning, marketing, sales, business legislation, financial management, and human resources management. It also engages in international cooperation by collaborating with relevant agencies from other countries to exchange best practices and develop relationships with small and medium businesses. The agency acts as an intermediary between international financial institutions, foreign investors interested in investing in Azerbaijan's economy, and local entrepreneurs and SMBs. Micro and small businesses can apply for a Startup Certificate from the SMBDA. Upon receiving this certificate, entrepreneurs engaged in micro and small businesses are granted a three-year exemption from income tax and tax on income from innovation activities, as stipulated by the Tax Code of Azerbaijan. The SMBDA also provides funding for educational, scientific, research, and support projects related to micro, small, and medium business development. These projects are financed through competitions following the provisions of the "On Grants" Law of Azerbaijan and the established procedure. Additionally, the SMBDA funds domestic market research initiatives to promote competitive production among the country's micro, small, and medium-sized businesses.

III.B.3. One-Stop Shop

The One-Stop Shop Export Support Centre was established in 2017 by the Decree of the President of the Republic of Azerbaijan to simplify export procedures for businesses (Presidential Decree No. 1255, 2017). It serves as a centralized facility where businesses engaged in export can efficiently obtain all the required certificates without additional time and resources. The center supports local businesses, including consultations, assistance in developing business plans, export subsidies, and real-time completion of customs declarations. Collaborating with seven government agencies, the center ensures that businesses can obtain the necessary certifications seamlessly. These organizations include the Ministry of Economy for certificates of origin, the Azerbaijan Food Safety Agency (AFSA) for food safety certificates and other related documents, the Ministry of Ecology and Natural Resources for CITES permits, the State Committee for Work with Religious Organizations for permits related to religious materials, the Ministry of Culture for certificates on cultural assets, the Azerbaijan Institute of Standardization for conformity certificates, and the Association of Azterminalcomplex of the State Customs Committee for assistance in completing customs declarations.

Previously, starting a business in Azerbaijan was a lengthy and complex process. Entrepreneurs had to register with five agencies, complete 15 procedures, and file 33 documents (World Bank, 2007). The entire process took more than two months. In 2008, the Azerbaijani government launched a new company registration system that streamlined the process (Presidential Decree No. 2458, 2007). The reform was implemented in just three months, and the new system required entrepreneurs to submit only seven documents and complete six procedures. The new system also created a one-stop shop for business registration, which made it easier for entrepreneurs to navigate the process. Since the launch of the new system, 3465 limited liability companies have been registered at 14 different state business registries nationwide. The electronic registry is also linked to other one-stop-shop secondary agencies, such as the State Social Protection Fund and the State Statistics Committee. The reform of the business registration process in Azerbaijan has made it easier and faster for entrepreneurs to start businesses (Figure III.1). This has helped to improve the country's business environment and attract foreign investment.

The main index used to measure the business environment created by digitalization and regulation at the level of laws in the country is the Ease of Doing Business Index. The Doing Business report by the World Bank evaluated the business climate in 190 economies worldwide, using a set of 10 indicators. These indicators include starting a business, dealing with construction permits, obtaining electricity, registering property, accessing credit, protecting minority

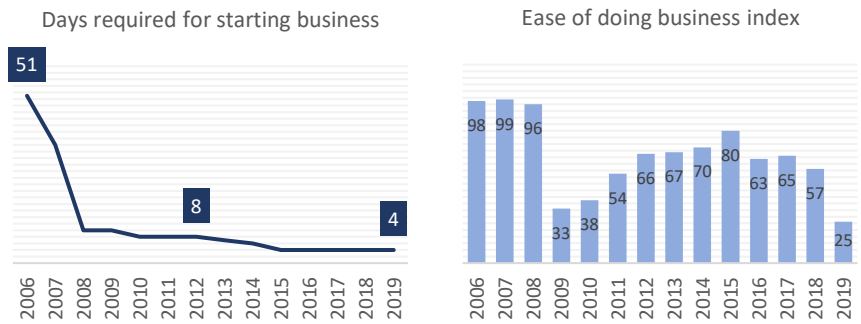
investors, fulfilling tax obligations, facilitating international trade, enforcing contracts, and resolving insolvency (World Bank, 2019). As shown in Figure III.1, Azerbaijan's rank has improved significantly with the abovementioned reforms.

III.B.4 Center for Analysis and Coordination of the Fourth Industrial Revolution

Center for Analysis and Coordination of the Fourth Industrial Revolution (C4IR) was founded by the President of Azerbaijan on 6 January 2021 to optimize the opportunities arising from the Fourth Industrial Revolution (Presidential Decree No. 1245, 2021). Its objectives include enhancing collaboration with both local and global organizations in this domain and overseeing the growth of the digital economy.

Additionally, C4IR serves as the host for the World Economic Forum's (WEF) Fourth Industrial Revolution Center in Azerbaijan, which was established following a memorandum of understanding signed by President Ilham Aliyev and President Borge Brende of WEF during the World Economic Forum in Davos, Switzerland, on 21 January 2020. Notably, the C4IR is the first center of its kind initiated by the WEF in the CIS.

Figure III.1: Ease of doing business in Azerbaijan *(2019)*



Source: World Bank, Doing Business.

III.B.5 Other steps that have a positive impact on the digitalization of trade

In 2017, the Ministry of Communications of the Republic of Azerbaijan was reformed into the Ministry of Communications and High Technologies, and in 2021, into the Ministry of Digital Development and Transport to optimize the establishment of the relevant technological infrastructure for the digitization of the economy.

In recent years, in order to increase the integration of digitalization into Azerbaijani society, the Ministry of Digital Development and Transport has established a project named Towards Digital Azerbaijan, which aims to increase digital literacy, develop ICT knowledge and skills, accelerate banking and credit operations, provide online insurance services designed by SIMA digital solutions platform based on electronic signature cloud technology. Further, the project founded the Azerbaijan Cyber Security Center and "Technion" Institute to strengthen cyber security capabilities and train professional personnel in this field.

III.C Digitalization of investment in Azerbaijan

The digitalization of investment in Azerbaijan is a comprehensive effort aimed at leveraging digital technologies to attract investments, improve efficiency, and enhance transparency in the country's investment ecosystem. The government's commitment to digitalization and its efforts to develop a favorable business environment make Azerbaijan an attractive destination for domestic and foreign investors.

III.C.1 Recent developments in digital investment

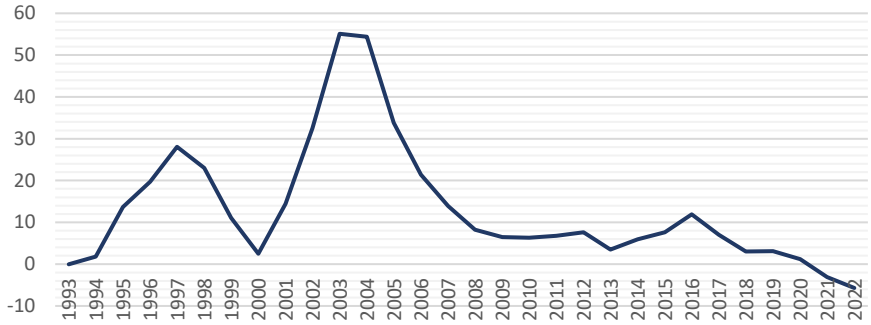
The Ukraine-Russia crisis and Covid-19 pandemic brought instability to the world economy and jeopardized national growth prospects worldwide, including in Azerbaijan. The country faced high fluctuations in oil and gas revenue and Foreign Direct Investment (FDI) inflows. That puts a greater emphasis on economic diversification and intensifying the efforts toward digital transformation. As shown in Figure III.2, FDI as a percentage of GDP has fallen sharply, especially in the last two decades. As investment is a key determinant of economic growth, with the reduction and volatility of FDI, financial market development becomes necessary to maintain the GDP growth rate in Azerbaijan.

Developing financial markets through digitalization was a key strategy to help recover the FDI inflow in Azerbaijan. Such an approach also aligns with the country's development roadmap under the Strategy of Socio-Economic Development in 2022-2026, in which action 1.2.2.6 stated, "To develop corporate securities markets, legal framework, and infrastructure must be improved."

Several agents and institutions in the financial market, such as the Central Bank of the Republic of Azerbaijan (CBAR), the Baku Stock Exchange (BSE), and the National Depository Center (NDC), have shown significant progress. The

progress covered regulatory change, simplifying administrative tasks, and infrastructure development to boost productivity.

Figure III.2: Foreign direct investment net inflows to Azerbaijan
(% of GDP)



Source: World Bank data.

The CBAR, for example, has improved its legal framework to be on par with international standards by enacting two new regulations in September 2021: "Rules for investment banks to perform investment operations" and "Margin trading rules." Through these regulations, investment companies were provided with opportunities such as remote account opening, determining elements of the Anti-Money Laundering/Combating the Financing of Terrorism compliance program, shaping credit limit adjustments, creating contracts, and receiving orders electronically (CBAR, 2021).

Furthermore, the CBAR also improved its infrastructure to boost trading volume by introducing Bloomberg's FXGO solution and Securities Issuance System, which was put into force last year. Bloomberg's FXGO was adapted to reduce commercial bank liquidity risk by increasing transparency and liquidity in local markets. It also provides data, news, analytics, and communication tools to help make better transactions.

> "The growing integration of the financial sector into the "Bloomberg" trading system provided short-time funding opportunities for commercial banks to finance daily operations and meet current obligations. Likewise, banks with high liquidity efficiently utilized their monetary reserves through short-term investment." (Official statement of the CBAR, 2022).

As a result, trading activity in the interbank money market increased significantly. Within the first three months, the number of transactions in the market more than doubled, rising from 69 in September to 168 in November. Most transactions (93.6%) recorded in November were short-term (1-3 days). Also, 3.6 times increase in repo operation was recorded in November compared

to previous months. The value of money market transactions reached 3.9 billion AZN, and repo operations amounted to 305 million AZN on the Bloomberg trading platform between September and November 2022.

Meanwhile, the Securities Issuance System was created to serve financial inclusion and to provide faster access to funding opportunities. The new digital system allows companies to perform securities registration, approve prospectus and offering memorandum, register stock splits and stock merges, change the nominal value of shares, withdraw securities, and rolls of securities issued overseas. Previously, issuers used to apply to three government agencies separately for each of these operations, and the necessary documents were sent in paper carriers. The system operates as an e-portal on the CBAR's website (CBAR, 2022).

In addition, other than the CBAR, the Baku Stock Exchange, together with the National Depository Center (NDC) and Montran, have successfully launched the "CEDAR"[1] system, which applied to NDC's Central Securities Depository platform, and "Baku Stock Exchange Trading Platform" (BETP). The development of those systems has been marked as a critical milestone in the digitalization of financial markets infrastructure and sustainable management of securities.

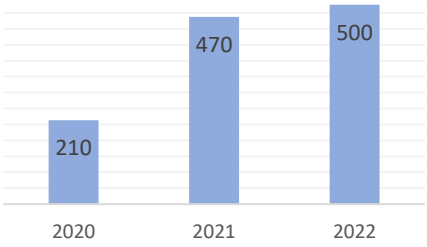
BETP allows transactions and repurchase agreements to be conducted in real-time, and the system uses FIX API[2] messaging protocol for information exchange (Azərbaycan -2026, 2022; MDM, 2023; Montran, 2023; ZagTrader, 2023).

In the case of NDC, the CEDAR system effectively performs tasks such as record-keeping, transfer of ownership, reporting, integration with external systems, user management, data backup, and recovery. The electronic platform was built with complete support for straight-through-processing using ISO 20022 messages. As a result, NDC can more efficiently manage digital (dematerialized) securities using the new platform.

In addition, NDC started operating a new Investor Portal platform, allowing investors to keep track of all the details of their accounts. The electronic portal provides an opportunity for legal entities and individuals using depo accounts to view information about the names of the securities holders and the number of

[1] A system used to manage the secure storage and transfer of securities, as well as to track ownership and facilitate the settlement of trades.
[2] Electronic communications protocol for real-time information exchange for financial securities transactions.

Figure III.3: Bonds trading volume *(million AZN)*



Source: Baku Stock Exchange (2023).

securities they own, stock ownership, transfer of ownership, and dividend distribution.

Digitalization initiatives in financial markets have been effective, and the signs of progress in the bond market are apparent. A constant increase in the trading volume of the bond market indicates that government policy toward digitalization has been successful (Figure III.3).

III.C.2 Key challenges and future growth prospects

Despite significant developments, some key challenges that delay digital transformation in the investment environment remain, such as lack of mutual trust among commercial banks, low financial inclusion, and education resulting in low financial literacy rate among SME owners/managers. For most SMEs, the major finance source is bank loans, and because of low literacy and high interest rates, they have limited access to finance. The low financial literacy rate also affects investment demand and the development of digital finance tools (ADB, 2019). Through the socio-economic development strategy for 2022-2026 of the Republic of Azerbaijan, the government aims to address all major problems and achieve a highly developed investment environment to foster economic growth.

According to Strategy Action 1.1.8.1, the Azerbaijan government is preparing a digital economic strategy that considers numerous initiatives to be implemented covering various sectors and will act as a single national strategy determining the direction of future digital growth. In addition, digital infrastructure will be improved to facilitate growth and promote the active participation of citizens in economic activity. Furthermore, to promote FDI inflows to the country, the "investinazerbaijan.gov.az" digital platform will be launched to attract foreign investment. Moreover, ten investment projects will be carried out in the initial stage using investment obtained through this platform. At the same time, to encourage entrepreneurship, the platform used to register legal entities will be regularly supervised, and its functionality will be improved. Also, according to Strategy 1.2.2, the government plans to adapt the regulation of stabilizing financial markets, including all its subsectors, to international standards. To that end, Investment banks' risk-based prudential regulation will be formed. Another initiative will be executed to increase SMEs' access to finance. To do so, the volume of concessionary loans by the central government will be increased by 15%, which is currently 4.4 billion manats. New financial tools will be created to

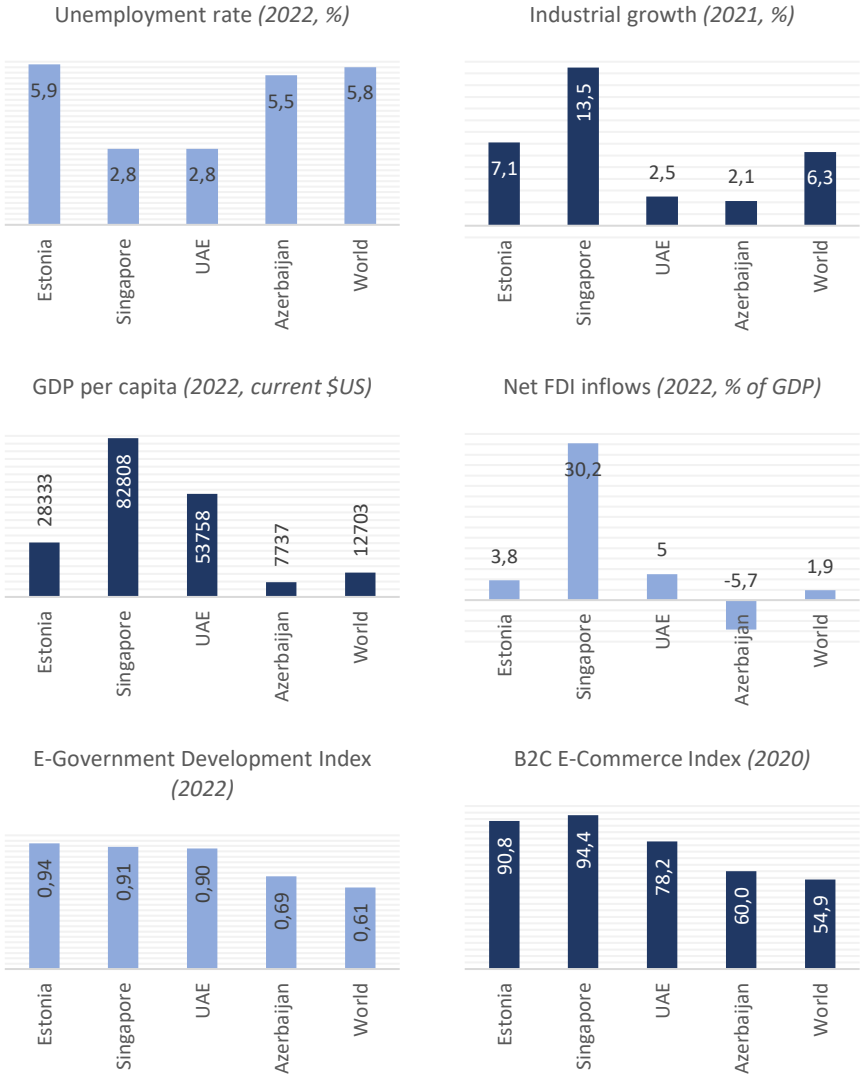
increase access to financial products further. Cooperation between Baku Stock Exchange and Istanbul Stock Exchange for implementing a dual listing model will be considered to expand the securities market. Furthermore, the legal framework on derivatives will be adapted to national standards. Knowing that there is mistrust in financial markets, which becomes a preventive factor for active engagement, a guarantee mechanism for corporate securities will be established to build trust in the securities market. The government will continue encouraging cashless payments among individuals to reduce the informal economy and increase liquidity in commercial banks. A strategy will be established and executed to increase the effectiveness of public debt management. In that regard, a single electronic platform will be created, and all relevant government agencies will be integrated into the system. The legal framework for venture activity and crowdfunding will be established and applied to support financial inclusion. Various programs will be administered in the education sector to develop the curriculum by incorporating practical components, including improving digital skills. One important factor to shed light on is creating effective communication between government and investors. In order to identify and resolve the challenges investors face, a CRM system will be launched. With this platform, an investor can register an online complaint Azərbaycan-2026).

Money and securities markets in Azerbaijan are still underdeveloped, yet there are clear signs of steady progress. Azerbaijan has greatly improved the digitalization of trade and investment to achieve prosperity and meet the Sustainable Development Goals (SDG). In the last few years, financial markets have undergone profound reforms, and today is highly digitalized, which will be transformed into major improvements in the business environment soon. Azerbaijani Government plans to complete digital transformation by 2030, and achieving this strategic goal will increase productivity, foster competition in the private sector, and promote inclusiveness and social prosperity.

III.D Case studies and best practices

This section will examine the digitalization of trade and investment in various countries, focusing on their experiences. The selection of benchmark countries for the case of Azerbaijan considered statistics obtained from multiple sources. Figure III.4 shows that advances in digitalization bring benefits in terms of new business and investment opportunities, lower unemployment rates, foreign investment flows, and increased economic prosperity. Singapore, Estonia, and the United Arab Emirates (UAE) are suitable benchmark countries for Azerbaijan

Figure III.4: Improvements in digitization and its advantages



Source: World Bank data, UN data, UNCTADstat.

in digitalizing trade and investment due to their good performance across various indicators:

1. These countries have high scores on the B2C E-Commerce Index, indicating their advanced digital capabilities.
2. Their strong industrial growth rates suggest a conducive digital transformation and investment environment.

3. Their high E-Government Development Index scores reflect the effective utilization of digital technologies in governance.
4. Their comparatively high GDP per capita indicates a robust economic foundation for digitalization initiatives. Lower unemployment rates signify a skilled workforce and potential for innovation.
5. The net inflow of foreign direct investment, particularly in Singapore and the UAE, indicates investor confidence in their digital ecosystems.

By reviewing these indicators, it becomes evident that Singapore, Estonia, and the UAE possess a strong track record in digitalization in trade and investment, making them relevant benchmarks for Azerbaijan's aspirations in this domain.

Estonia

Estonia, which achieved independence around the same time as Azerbaijan, a former Soviet country, serves as an intriguing benchmark for Azerbaijan in terms of its impressive progress in digitalization. Estonia's digital environment facilitates various social, economic, and political activities for its citizens. They can engage in online voting, contract signing, property transactions, tax payments, and business establishment. Estonia has been recognized as a leading digital government worldwide, per the UN e-Government Survey of 2022 (UNRIC, 2022).

E-Residency: In 2014, Estonia introduced the pioneering e-Residency concept to establish an international digital community without borders. This program grants users a secure digital identity and access to the European Union market and the Estonian government's electronic services. Regardless of their location, e-residents can establish and grow their companies online. The benefits of e-Residency include rapid company formation, business bank account opening, utilization of international payment services (such as PayPal and Braintree), online document signing, secure encryption and transmission, and online declaration and payment of Estonian taxes, all achievable within a single day.

Furthermore, e-Residency fosters a transparent business environment, minimizing costs, bureaucracy, and negative elements like corruption. According to the data provided by the E-residency platform website (www.e-resident.gov.ee), over 25,000 e-resident companies and over 100,000 e-resident individuals have registered in the system. The total revenue generated by e-resident companies amounts to 12 billion euros. Presently, Estonia leads Europe in terms of startups per capita, with the number of businesses per capita being four times higher than in France and twice as high as in Singapore, according to World Bank data for 2020.

The negative side of the e-residency program lies in its potential for facilitating money laundering through a fast and easy process of establishing businesses. This concern was highlighted in the MONEYVAL report published in 2022 regarding Estonia (MONEYVAL, 2020).

Singapore

Another country that can be considered a benchmark for Azerbaijan is Singapore. Singapore, which is not known for its natural resources, is one of the most developed countries in the world, with a population of 5.6 million. According to the UNCTAD B2C E-commerce index, it ranks 4th in the world (UNCTAD, 2020), 4th in FDI as a percentage of GDP (World Bank. 2022), 1st in the World Openness Index (CASS, 2022), 4th out of 63 countries in the digital competitiveness ranking (IMD World Competitiveness Center. 2022), and 10th based on GDP per capita with 82.806 $ (World Bank. 2022). According to the latest data from the World Bank, the country has a new business density of 10 per thousand people (World Bank, 2020). It is four times higher than the UAE and three times higher than the Netherlands. The country's geo-strategic position, infrastructure, possession of advanced digital technology, and skilled labor force make it one of the leading countries mentioned in the above statistics. In addition to the digitization in all sectors, the free trade zones in the island country also facilitate the growth of trade and investment.

The Smart Nation initiative, established in 2014, aims to achieve full digitalization across all sectors, including healthcare, education, transportation, and the economy (Prime Minister's Office Singapore, 2014). Notably, Singapore has made significant progress in digitizing trade and investment processes thanks to the following initiatives:

1. Tradenet: TradeNet is Singapore's National Single Window for trade declarations. It combines the processing of import, export, and transit documents through a single-entry point with various regulatory agencies. It enables trade entities to fulfill trade formalities at trade and logistics events. TradeNet reduces costs and time for preparing, submitting, and processing trade documents. It expedites the clearance of goods and allows for the electronic storage of duties and taxes.

2. National Trade Platform (NTP): NTP is a platform that offers a secure, convenient, and seamless method for managing trade documents. It also includes networking functions for businesses to connect with local and foreign partners, share information, and obtain new insights and services. NTP offers several benefits to stakeholders, including:

- Development of new services and applications based on market needs.
- Secure cross-border information sharing, leading to potentially valuable industry insights.
- Fast and secure digitization of documents, reducing costs and simplifying processes.

Furthermore, NTP provides users with a service to track and obtain information on containers from the origin to the final destination, including all procedures. Currently, this service is available for shipments between Singapore and Yangshan Port in Shanghai and Qinzhou Port in Guangxi, China.

3. Singpass and Corppas: Singapore has developed Singpass and Corppass, providing digital identities for residents and enterprises for government and private transactions. Singpass is for residents, while Corppass is for enterprises.

4. PayNow and InvoiceNow: PayNow, a highly adopted secure funds transfer service with cross-border connections to Thailand and India, facilitates millions of monthly transactions between individuals and enterprises. InvoiceNow is a nationwide e-invoicing network that enables the direct transmission of e-invoices across enterprise finance systems, reducing costs and errors while providing access to a global network of companies (IMDA, 2023).

United Arab Emirates

The United Arab Emirates (UAE) serves as a benchmark country for Azerbaijan due to its strategic geographical position, robust infrastructure for digital trade, advancements in innovation and technology within the country, its leadership in trade and digitization in the wider Middle East region, and the significant contribution of the oil and gas sector to its exports. Regarding GDP per capita, the UAE ranks among the top countries globally, surpassing developed economies such as the United Kingdom, France, and Germany (World Bank, 2022). The UAE government has taken significant steps to promote and advance the digitalization of trade and investment. Here are some key initiatives and achievements:

Basher, a platform initiated by the UAE government, enables businesses to establish and operate efficiently. Utilizing blockchain technology provides a digital experience for market exploration, business establishment, and document approvals. It allows investors to commence their businesses within 15 minutes from anywhere worldwide (UAE Ministry of Economy).

The Smart Dubai Project, launched after implementing Dubai's transformation into a Smart City in 2017, introduced the "Smart Dubai 2021 Strategy." This

strategy aims to integrate daily life services, optimize the utilization of city resources, enhance security measures, and enrich business experiences (UAE Ministry of Economy).

UAE Pass, established in 2018, gives citizens and residents a digital identity, granting them access to various digital services. This application facilitates access to government services and enables the utilization of semi-government and private sector services (UAE Ministry of Economy).

The Emirates Blockchain Strategy 2021, introduced by the UAE government in April 2018, aimed to transition 50% of government operations to blockchain within three years. Smart Dubai has taken significant strides in digitizing various aspects, including the centralized payment gateway, Dubai Pay, and the national digital identity platform, UAE PASS. The Dubai Paperless Strategy, which utilizes blockchain technology, fully digitalizes internal and external government operations (Fintechnews, 2021).

With over 40 **"free zones"** established across the seven Emirates, the UAE government has focused on centralizing its approach to Fintech. Each free zone operates under separate regulatory and management structures, significantly independent from the mainland authorities. Consequently, the regulations and rules applied to companies in free zones differ from those applied to companies operating on the mainland (Fintechnews, 2021).

One of the steps taken by the government to stimulate trade and investment in the country is not imposing income tax on individuals, except for corporate taxes levied on oil companies and foreign banks.

III.E The Economic Scientific Research Institute and its role in digitalization

The Economic Scientific Research Institute (ESRI) has contributed to the digitization process of the Azerbaijani economy at various times by preparing different legislative projects and providing suggestions. During the past period, the proposal to establish the Innovation Agency through agreements with several government institutions led to the creation of draft laws on "Innovation Activity" and "Venture Activity," including the "State Program for the Development of Innovation Activities for 2019-2021", as well as methodological recommendations for the preparation of innovative business plans by SMEs and opinions and suggestions on several legislative projects in the field of innovation have been prepared and presented by the ESRI.

Moreover, to identify the challenges and needs of various entities in Azerbaijan, including SMEs, public and private sectors in the direction of digitalization, ESRI has also been surveying the entities mentioned above in collaboration with an influential consulting company, as part of the process of preparing the Digital Economy Strategy. This strategy aligned with the "Azerbaijan 2030: National Priorities for Socio-Economic Development" as approved by the Decree of President Ilham Aliyev in 2021.

III.F Recommendations for businesses and policymakers in Azerbaijan

In order to effectively secure the socio-economic development of Azerbaijan, encompassing the crucial aspect of digitization, the government has introduced an extensive plan titled the "Socio-economic Development Strategy of the Republic of Azerbaijan in 2022–2026" for the forthcoming years. This strategic plan serves as the primary phase for executing the comprehensive "Azerbaijan 2030: National Priorities for Socio-economic Development" plan, designed to fulfill the commitments from the United Nations' "Transformation of Our World: Agenda for Sustainable Development until 2030." The document mentioned above encapsulates various social, economic, and structural transformations while emphasizing the digital economy's significant expansion.

Notwithstanding the commendable accomplishments attained in the digitization strategy in recent years, the current circumstances necessitate a more resilient, transparent, and profoundly accountable course of action. Although Azerbaijan holds the second position globally after Estonia in terms of the e-residency service and ranks first in the world for the m-residency service, a report published by the MONEYVAL, an entity operating under the umbrella of the European Council, exposed substantial issues prevalent within Estonia's e-residency service. These issues primarily revolve around facilitating money laundering activities and financing terrorist endeavors through residency to individuals residing outside Estonia without rigorous scrutiny, coupled with the absence of a centralized database (MONEYVAL, 2022).

To safeguard against similar predicaments, Azerbaijan must proactively establish monitoring initiatives encompassing the Digital Trade Hub and collaborating with third-party entities. These projects should entail the creation of a shared database that can be subject to monitoring, if deemed necessary, in partnership with other countries. Furthermore, it is imperative to ensure that legal responsibility is attributed to individuals utilizing e-residency services in the event of involvement in illicit money laundering activities.

In addition to these crucial measures, the government can further reinforce its commitment to digital trade by formulating a comprehensive National Digital Trade Strategy and instituting financial incentives for businesses that embrace and adopt digital trade technologies. By doing so, Azerbaijan can cultivate a coherent and steadfast vision for digitizing trade, encouraging businesses to invest in and integrate digital trade technologies into their operations.

For instance, a viable approach could involve the government offering a substantial 50% tax exemption for businesses that make noteworthy investments in digital trade technologies. Such a fiscal incentive would undoubtedly motivate enterprises to embrace these innovative technologies, fostering economic growth and promoting the digital transformation of trade practices within Azerbaijan.

To promote the application of financial technologies in the private sector, government and fintech associations need to stimulate the creation of "Fintech innovation hotbeds." "80RR Fintech Hub SG" is a hub in downtown Singapore where more than 50 international and local and international Fintech companies and startups share working space. The concept of these innovation hotbeds is to create an ecosystem where companies can collaborate and network with one another. The center was established as a joint venture between the Fintech association and Hong Leong Holdings Ltd, and the idea is gaining popularity in Singapore. Applying this idea in Azerbaijan will help to increase financial literacy and to gain skills among SMEs and startups (Paul and Förster, 2019).

A major deterrence to the expansion of Fintech is security concerns arising from using Fintech tools, and experts recognize blockchain technology as a good solution. The original function of this technology was to store and send cryptocurrency, but after technologies became commonplace worldwide, blockchain technology arose as a cyber security tool. This technology operates in decentralized databases, storing data and recording cryptography transactions. In contrast to conventional systems, this technology keeps data not on a central server but disperses it on many computers. Therefore, public access to even tiny details of transactions does not cause any threat. In this way, the system proves to be highly secure against hacker attacks (Paul and Förster, 2019). Reflecting on this, the Azerbaijani government has to support the adoption of blockchain technology in the real economy and make necessary changes to legislation and financial policy.

III.G Conclusion

Azerbaijan has significantly progressed in developing its digital infrastructure and promoting digital trade and investment. The country's Digital Trade Hub and One-Stop Shop portal have facilitated cross-border trade and investment. The Digital Trade Hub provides a platform for businesses to connect with potential partners, access market information, and obtain trade-related services. The One-Stop Shop portal streamlines obtaining licenses, permits, and other regulatory approvals needed to establish and operate businesses in Azerbaijan.

In addition to these initiatives, Azerbaijan has also made strides in digitalizing its securities market. The country's Central Depository has introduced a digital infrastructure that enables investors to access and trade securities electronically. This has made the securities market more accessible and efficient, attracting more investors and boosting liquidity.

Despite these achievements, Azerbaijan still faces challenges in its digital transformation journey. One of the main challenges is the need to enhance cybersecurity and ensure the safety of digital transactions. To address this challenge, the government must establish monitoring initiatives encompassing the Digital Trade Hub and collaborate with third-party entities to safeguard against money laundering and terrorist financing.

Another need is to formulate a comprehensive National Digital Trade Strategy that outlines the country's goals, policies, and initiatives related to digital trade. The strategy should prioritize issues such as enhancing digital infrastructure, promoting e-commerce, and facilitating cross-border trade and investment. Additionally, the government can institute financial incentives for businesses that embrace and adopt digital trade technologies, such as tax breaks and subsidies.

Azerbaijan can also promote the application of financial technologies in the private sector by creating "Fintech innovation hotbeds." These hotbeds would provide a supportive environment for Fintech startups, facilitating collaboration between startups, established businesses, and investors. This would foster economic growth and promote the digital transformation of trade practices within Azerbaijan.

In conclusion, Azerbaijan has made significant progress in its digital transformation journey, particularly in digital trade and investment. However, more work must ensure the country's long-term socio-economic development. By implementing the recommendations outlined in this report, Azerbaijan can continue building a robust digital economy that benefits businesses and citizens.

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Leveraging digitalization for trade and investment growth in Kazakhstan

IV.A Introduction

Kazakhstan, situated at the crossroads of Europe and Asia, has emerged as a critical player in the global economy, primarily owing to its abundant natural resources and strategic geographic location. Over the past few decades, the country has witnessed substantial economic growth, diversification, and liberalization of its markets. With a burgeoning middle class and a burgeoning entrepreneurial spirit, Kazakhstan is poised to harness the benefits of digitalization to advance its economic potential. Kazakhstan's economy has historically relied on its rich natural resources, notably oil and gas, driving its GDP. The nation has deliberately diversified its economy, emphasizing industries like agriculture, manufacturing, and services to lessen exposure to global commodity price fluctuations.

Kazakhstan's pro-business policies and strategic location have attracted significant foreign investment, making it a regional trade hub bridging Europe and Asia through initiatives like the Eurasian Economic Union and the Belt and Road Initiative. Investment in infrastructure, financial sector growth, and human capital development further support its economic transformation. Despite facing challenges like income inequality, corruption, and commodity price volatility, Kazakhstan's unwavering commitment to digital transformation and sustainability positions it for continued growth and influence in the global economy.

Adopting digital technologies is pivotal for any nation's economic development and competitiveness in today's interconnected world. The ongoing digitalization has revolutionized trade and investment dynamics, rendering traditional approaches outdated. As countries worldwide embrace digitalization, the ability to participate seamlessly in the global digital economy becomes crucial for sustained growth. Digitization, a transformative force in the global economy, has revolutionized business processes, improving efficiency and productivity through automation, data analytics, and AI. It erased geographical barriers, granting companies access to global markets via e-commerce and digital advertising, fostering worldwide economic growth. This digital wave fuels innovation across industries, encouraging competition and consumer-centric improvements. Data has become a valuable currency, shaping informed decisions and optimizing supply chains. Traditional business models adapt to this digital landscape, with subscription services and sharing platforms redefining value exchange. Financial inclusion is bolstered by digital banking and wallets, while environmental sustainability benefits from resource optimization. In times of crisis, digitization enables swift pivots through remote work, e-commerce, and digital communication tools, maintaining economic activity. Ultimately, digitization is not just a technological trend but a defining force in the modern

global economy, shaping how nations and businesses compete and succeed on the world stage.

The primary objective of this chapter is to provide a comprehensive analysis of the digitization initiatives in Kazakhstan's trade and investment sectors. Through an interdisciplinary approach encompassing economics, technology, and policy studies, this chapter evaluates Kazakhstan's current state of digitalization and its implications for the nation's economic prospects. Moreover, it aims to offer actionable insights and policy recommendations for policymakers, businesses, and stakeholders, thereby contributing to the ongoing discourse on Kazakhstan's economic development in the digital age.

IV.B Historical perspective on trade and investment in Kazakhstan

Examining Kazakhstan's economic past is essential to comprehend the current trade and investment environment. Kazakhstan's journey from a constituent republic of the Soviet Union to an independent nation in 1991 marked a pivotal turning point. Initially reliant on a centralized and state-controlled economy, Kazakhstan undertook significant economic reforms in the early 1990s, transitioning towards a market-oriented system. This transformation laid the groundwork for its emergence as an essential player in the global economic arena. A comprehensive examination of Kazakhstan's economic history unveils the gradual evolution from a planned economy to a dynamic, market-driven one. In the early 2000s, a resource-driven economic boom emerged due to surging global oil and gas prices. Kazakhstan launched economic diversification initiatives in non-oil sectors like agriculture, manufacturing, and services to mitigate vulnerability to commodity price fluctuations. Additionally, regional integration efforts were materialized through its 2015 Eurasian Economic Union (EAEU) membership. In the 21st century, Kazakhstan has actively pursued modernization and digitization, focusing on digital infrastructure, e-government programs, fintech, and technology adoption. Despite facing challenges, including income inequality and corruption, Kazakhstan's adaptability, and commitment to sustainability position it for continued growth and global relevance in the contemporary economic landscape.

Over the years, Kazakhstan has made noteworthy strides in expanding its trade and investment horizons. It forged vital partnerships and established trade agreements with neighboring countries, the European Union, and various international organizations. The Astana International Financial Centre creation in 2018 further solidified Kazakhstan's commitment to becoming a regional financial hub. These milestones underscore Kazakhstan's commitment to

creating an environment conducive to trade and investment, fostering economic growth, and positioning itself as a dynamic global player. Kazakhstan's continued efforts in this direction highlight its determination to adapt to the evolving demands of the modern global economy.

Before the advent of comprehensive digitalization, Kazakhstan grappled with various challenges in its trade and investment sectors. These challenges included bureaucratic red tape, inefficient logistics, and limited access to global markets. Moreover, the reliance on traditional paperwork and manual processes often hindered the efficiency and competitiveness of Kazakh businesses. Understanding these challenges underscores the remarkable progress that Kazakhstan has made in its journey towards digitization. The subsequent digitization efforts have addressed many of these issues, improving trade and investment efficiency, transparency, and accessibility and positioning Kazakhstan as a more competitive player in the modern global economy.

IV.C The digital transformation wave

In the context of trade and investment, digitization refers to the comprehensive integration of digital technologies, data-driven processes, and online platforms to streamline, optimize, and enhance various facets of these sectors. It encompasses a wide array of technologies, including but not limited to blockchain, artificial intelligence, big data analytics, and e-commerce platforms, all of which play pivotal roles in reshaping the landscape of global trade and investment. Digitization in trade and investment signifies a paradigm shift from traditional, paper-based processes to a dynamic, data-driven ecosystem that prioritizes speed, efficiency, transparency, and accessibility. Embracing digitization can unlock new levels of economic growth, global market access, and innovation for nations and businesses in an increasingly interconnected world.

As the global community undergoes a profound digital transformation, it is crucial to recognize the overarching trends reshaping trade and investment worldwide. The emergence of e-commerce as a dominant force, the automation of supply chains, and the growing importance of data-driven decision-making are just a few of the transformative trends shaping the modern global economy. Kazakhstan stands at the intersection of these global digitization trends, presenting challenges and opportunities. While these trends promise greater efficiency, expanded markets, and enhanced competitiveness, they also require proactive measures to address cybersecurity risks, ensure digital inclusion, and adapt to evolving regulatory environments. Kazakhstan's ability to navigate these trends will be instrumental in shaping its role as a dynamic player in the global trade and investment landscape.

Recognizing the strategic importance of digitization, the government of Kazakhstan has undertaken a series of initiatives and policies to foster a conducive environment for digital transformation. Kazakhstan launched the "Digital Kazakhstan" program, a comprehensive strategy to accelerate the country's digital transformation. This program encompassed various initiatives and projects to improve digital infrastructure, enhance e-government services, promote digital literacy, and support the growth of the digital economy. These initiatives and policies reflect a strategic vision to position Kazakhstan as a regional digital leader, foster economic growth, and improve the country's global trade and investment standing. While challenges remain, the government's commitment to digitization is a testament to its determination to adapt to the demands of the modern global economy.

IV.C.1 Infrastructure and connectivity

Kazakhstan's rapid digitalization of trade and investment is intricately linked to the development of robust digital infrastructure. Over the past decade, the nation has significantly invested in expanding its broadband network, data centers, and cloud computing capabilities. These initiatives have increased the availability of high-speed Internet and paved the way for advanced digital services and solutions. Kazakhstan's development of digital infrastructure is a testament to its commitment to becoming a digital leader in the region. The government's investments in broadband Internet, 5G networks, data centers, and cybersecurity are laying the foundation for a digitally enabled economy. This robust digital infrastructure supports domestic digitization efforts and strengthens Kazakhstan's position as a significant player in the global digital landscape, facilitating trade, investment, and innovation.

The accessibility and reliability of Internet connectivity are pivotal in fostering a thriving digital ecosystem for trade and investment. Kazakhstan has embarked on ambitious projects to bridge the digital divide, particularly in remote and rural areas. Initiatives to enhance broadband penetration and reduce the digital divide have led to increased access to online markets and financial services for all citizens. Kazakhstan's efforts to improve Internet connectivity and accessibility are central to its vision of becoming a digitally advanced nation. These initiatives empower citizens and businesses with enhanced access to information and services and support the country's participation in the global digital economy. As Kazakhstan continues to make strides in improving connectivity, it is better positioned to leverage the benefits of digitization, foster economic growth, and enhance its role on the global stage.

The advent of 5G technology and other emerging technologies is poised to revolutionize the way trade and investment are conducted in Kazakhstan. The

high-speed, low-latency capabilities of 5G networks promise to unlock new opportunities in areas such as IoT applications, real-time data analytics, and autonomous systems. Furthermore, emerging technologies like blockchain and artificial intelligence are reshaping supply chain management and investment decision-making processes. Moreover, Kazakhstan's adoption of 5G and emerging technologies catalyzes its digital transformation. These technologies enhance connectivity and efficiency and create opportunities for innovative trade and investment practices. As Kazakhstan continues to invest in 5G and emerging tech, it strengthens its position as a dynamic player in the global digital economy, offering new possibilities for businesses and stakeholders in the country and beyond.

IV.C.2 Initiatives for electronic government

Kazakhstan has embarked on a transformative journey towards establishing a modern and efficient e-government infrastructure. The nation's e-government programs aim to leverage digital technologies to enhance the delivery of public services, streamline administrative processes, and foster greater transparency and accountability within the government. These initiatives encompass the digitization of administrative procedures, the introduction of electronic document management systems, and the development of online portals for citizen engagement. In addition to that, Kazakhstan's e-government programs have reshaped the country's public administration and service delivery. These initiatives have streamlined government processes, improved transparency, and fostered a more favorable environment for trade and investment. As Kazakhstan continues to advance its e-government capabilities, it stands poised to enhance its position as a globally digitally progressive nation, offering significant benefits to citizens and businesses alike.

Adopting e-government solutions profoundly impacts trade and investment by simplifying regulatory compliance, reducing bureaucratic hurdles, and providing a conducive environment for business growth. E-government initiatives in Kazakhstan have ushered in a new era of efficiency, transparency, and convenience for businesses engaged in trade and investment. By simplifying processes, reducing costs, and enhancing access to critical information, e-government has become a valuable tool in promoting economic growth and positioning Kazakhstan as a competitive player in the global trade and investment landscape. These digital advancements not only benefit businesses but also contribute to the overall economic development of the country.

The case study of the development of Kazakhstan's E-Government initiatives and services demonstrates that digitalization is currently among the top priorities on the country's agenda. Kazakhstan has made significant progress in developing e-

government services to facilitate trade and investment. Initiatives like the "E-Gov" portal provided a one-stop platform for various government services and information, streamlining administrative procedures and improving transparency. In addition, Kazakhstan is actively advancing its digital government, focusing on improving citizen services through personalization and various access channels facilitated by platforms like E-Otinish. This platform operates on the principle of a single window for receiving and processing requests to various government agencies. These efforts aim to enhance the efficiency and accessibility of public services in Kazakhstan (Казинформ, 2022)

Kazakhstan has been actively promoting e-government services to simplify administrative procedures and improve business efficiency. The "E-Gov" portal served as a centralized platform for various government services, including business registration, tax filing, and customs declarations, reducing the need for physical paperwork. Moreover, as part of the transition to a digital state for citizens, a paperless document workflow system has been introduced, facilitated by functions such as "Digital by Default" (the translation of government services into electronic formats) and "OPEN API" (access to services through third-party applications) (Borak, 2023). Among the additional existing initiatives, it is noteworthy that in 2020, the National Bank of Kazakhstan introduced an innovative service - remote biometric identification, allowing citizens to access various commercial financial services and conveniently open accounts for receiving social benefits. Furthermore, starting in 2023, real estate transactions will be registered through the "Unified State Real Estate Cadastre," consolidating government systems and private employment agencies into a unified online platform (Zakon.kz, 2023)

Kazakhstan has expanded its e-government services to provide citizens and businesses with online access to various government services, including tax filing, business registration, and public procurement. As part of implementing the "Industrialization and Economic Growth" reform, developing and deploying the Information System "Unified Window for Export-Import Operations" began for exporters and importers in 2019. This system is intended to relieve businesses of the requirement to submit documents in paper format to customs (Naceks.kz, 2021). Additionally, to protect businesses from unauthorized inspections and ensure transparency in government control and supervision, the "Unified Registry of Subjects and Objects of Inspections" system and the mobile application "Qamqor" for monitoring the legality of inspections by entrepreneurs were introduced (Atameken.kz, 2023). One of the foundational projects in the field of trade digitalization is the support and development of the export portal "export.gov.kz," which is aimed at providing users of the portal with operational and strategic information in the field of exports. Furthermore, starting from January 2021, the Unified Information System for handling

consumer rights protection complaints has been launched to facilitate prompt consumer inquiries and clarification of legal norms. As of 4 September 2023, 6829 consumer complaints have been registered (Strategy 2050, 2021).

IV.C.3 Digital trade facilitation

Digital platforms and online marketplaces have emerged as pivotal drivers of trade and investment in Kazakhstan's evolving digital landscape. These platforms provide a virtual marketplace where buyers and sellers can connect, negotiate, and conduct transactions seamlessly. By leveraging e-commerce platforms and digital marketplaces, Kazakh businesses gain access to a global customer base, while international investors find simplified entry points into the Kazakh market. Their ability to connect businesses, investors, and governments in a seamless, data-rich environment has accelerated globalization, promoted economic growth, and democratized access to markets and opportunities. As these platforms continue to evolve, they are expected to play an increasingly central role in shaping the future of trade and investment on a global scale.

Digitalizing customs and regulatory processes is instrumental in reducing trade barriers and expediting the movement of goods across borders. Kazakhstan has made significant strides in this regard, implementing digital customs declarations, electronic certificates of origin, and automated inspection procedures. These advancements have reduced the time and cost of compliance for businesses and improved the overall efficiency of cross-border trade. Further, it reduced the burden on businesses and investors and enhanced a nation's competitiveness and attractiveness as a destination for trade and investment. Governments prioritizing these reforms position themselves as facilitators of economic growth and contributors to a more interconnected global economy.

Amidst the backdrop of global transformations and challenges precipitated by the digital revolution, Kazakhstan is actively pursuing adaptation and utilization of digital solutions to bolster its role as a significant player in the global trade and investment sphere. This commitment is underscored by the remarkable growth witnessed in the e-commerce sector, where the market size surged to approximately 2 trillion tenges in 2022, constituting 12.5% of the total retail turnover (Orda.kz, 2023). Furthermore, experts project that the e-commerce sector in Kazakhstan will continue its robust growth trajectory, with an anticipated annual increase of 25% for the foreseeable three years. It is noteworthy that, according to data from the Ministry of National Economy, the e-commerce market in Kazakhstan experienced a 1.8-fold increase in 2020 compared to the previous year, culminating in an estimated value of $1.4 billion. Moreover, to promote e-commerce and digital trade, Kazakhstan had established regulations governing online transactions, consumer protection, and

electronic signatures. These measures aimed to create a favorable environment for digital trade and investment (Tonkonog, 2023).

The growth of e-commerce platforms and online marketplaces facilitated digital trade, connecting businesses and consumers both domestically and internationally. In the context of enhancing trade cooperation in the region, notable examples include platforms such as the "Central Asia Gateway," which leverages the capabilities of all Central Asian portals to strengthen trade cooperation in the region. Additionally, Kazakhstan's Trade Portal facilitates public and entrepreneurs' access to goods and services. Furthermore, the Ministry of Trade and Integration of the Republic of Kazakhstan has approved an action plan for developing national e-commerce until 2025 (QazTrade, 2023). This plan aims to improve key indicators related to the volume of exports by domestic manufacturers and the growth of the e-commerce market. According to the strategic plan for 2025, the launch of the Astana International Smart Technologies Hub, based on the infrastructure of "Expo-2017," will be a flagship project in the field of digitization. This hub represents a unique platform that attracts private investment funds and other interested investors (Primeminister.kz).

Kazakhstan was making efforts to reduce the reliance on paper documentation in cross-border trade. Initiatives included electronic customs declarations, digital certificates of origin, and streamlined import/export procedures through online platforms. Moreover, regarding international projects, at the Samarkand Conference on Relations with the European Union and Central Asia, the idea of creating a digital transport corridor was proposed to facilitate seamless data exchange in cross-border cargo transportation between Central Asian countries and the European Union. Subsequently, the processes of implementing the Framework Agreement on Facilitation of Paperless Trade in the Asia-Pacific Region were discussed during the 7th session of the ESCAP Temporary Intergovernmental Group to facilitate Kazakhstan's access to international markets. In this context, implementing digital tools and investment platforms and improving digital identification systems play a significant role. These measures increase trust in Kazakhstan's investment environment and create conditions for economic growth (QazTrade, 2022).

Blockchain technology has revolutionized supply chain management by enhancing transparency, traceability, and security. In Kazakhstan, adopting blockchain solutions has led to more efficient supply chains, reduced fraud, and enhanced trust among trading partners. By immutably recording every step of a product's journey, blockchain ensures the authenticity of goods, mitigates the risk of counterfeit products, and facilitates real-time tracking of shipments. Kazakhstan explored using blockchain technology in supply chain management

to increase transparency, traceability, and security in industries like mining and agriculture. For example, since 2018, a special module of a virtual warehouse using blockchain technology has been introduced within the Electronic Invoicing System to monitor all movements of goods within the territory, including imports and exports (Pro1c.kz, 2019).

IV.C.4 Fintech and digital payments

Kazakhstan's financial technology (fintech) landscape has experienced a remarkable surge in recent years, marked by the emergence and growth of innovative fintech startups. These startups have capitalized on the nation's increasing digitalization to offer diverse financial services, including mobile payments, peer-to-peer lending, and digital wallets. Fintech entrepreneurs in Kazakhstan have quickly identified opportunities in an evolving digital economy, spurring innovation and competition in the financial sector.

Fintech startups in Kazakhstan were developing and implementing digital financial solutions, including peer-to-peer lending platforms, digital banking services, and mobile payment solutions. Following the implementation of the "Digital Kazakhstan" program, Kazakhstan has witnessed growth in e-commerce and digital payments in the fintech sector. This can be attributed to the development of technologies like Open API and Open Banking, which stimulate the creation of innovative financial services and payment systems, making processes more efficient and convenient for consumers (Haidar, 2023a). Furthermore, despite the current ban on digital assets in the country, in 2022, a pilot project was launched between Kazakhstan's second-tier banks and cryptocurrency exchanges registered with the Astana Financial Services Authority of the Astana International Financial Centre. This project aims to create favorable investment conditions and provide cryptocurrency exchanges access to the Kazakhstan market (Haidar, 2023b).

The evolution of digital payment systems in Kazakhstan has been instrumental in transforming the way financial transactions are conducted. The nation has witnessed a significant shift from cash-based transactions, the introduction of contactless payments and mobile banking apps, to the widespread acceptance of digital wallets and QR code-based payments. These digital payment systems offer convenience and enhance security and transparency in financial transactions. From the early adoption of card payments to the recent embrace of contactless and mobile payments, Kazakhstan's payment landscape continues to evolve in response to technological advancements and changing consumer preferences. As digital payment solutions become more integrated into daily life, they are expected to play a central role in the country's economic growth and financial modernization.

One of the notable outcomes of Kazakhstan's digitalization efforts in the financial sector is the promotion of financial inclusion. Digital banking solutions have expanded access to financial services for underserved populations and remote regions, reducing the financial exclusion gap. The convenience of mobile banking and the accessibility of digital financial products have empowered individuals and businesses alike, enabling them to participate more actively in the formal economy. By leveraging mobile technology, digital wallets, and fintech innovation, Kazakhstan has made significant progress in ensuring that a broader spectrum of its population has access to the financial tools and services needed to participate fully in the modern economy. This promotes economic growth and enhances citizens' overall quality of life. As digital banking continues to evolve, it is expected to expand access to financial services further and drive financial inclusion in Kazakhstan.

IV.C.5 Data security and privacy

As Kazakhstan continues its journey towards digitalization in trade and investment, concerns and challenges related to data security have become increasingly pronounced. The rapid expansion of digital platforms and the exchange of sensitive business and financial information raise apprehensions about data breaches, cyberattacks, and unauthorized access. The potential consequences of such security breaches can be detrimental to businesses, investors, and national economic interests. Addressing these concerns requires a collaborative effort between government agencies, businesses, and individuals. Strengthening cybersecurity defenses, promoting cybersecurity awareness, and ensuring compliance with data protection laws are essential steps to safeguarding sensitive data in Kazakhstan's evolving digital landscape. Additionally, fostering international cooperation in cybersecurity can help mitigate cross-border threats and enhance the overall resilience of the country's digital infrastructure.

Recognizing the paramount importance of data security and privacy, the government of Kazakhstan has implemented a series of regulations and cybersecurity measures to mitigate risks and protect digital trade and investment activities. These measures include establishing cybersecurity standards, incident response protocols, and regulatory frameworks that mandate data protection practices. Government agencies have also collaborated with the private sector to enhance the resilience of critical infrastructure against cyber threats. These initiatives aim to protect critical infrastructure, personal data, and the digital economy, fostering trust in the digital ecosystem and promoting secure digital interactions among businesses and citizens. As cyber threats continue to evolve, Kazakhstan's commitment to strengthening its

cybersecurity capabilities remains crucial for ensuring the resilience of its digital infrastructure.

In an increasingly interconnected and data-driven world, adopting best practices for data security is imperative. This part of the article outlines best practices that businesses, investors, and stakeholders engaged in digital trade and investment in Kazakhstan should adhere to. These practices include encryption of sensitive data, regular cybersecurity training for employees, proactive network activity monitoring, and implementing multi-factor authentication protocols. By adhering to these best practices, stakeholders can bolster their defenses against evolving cyber threats and ensure the integrity and confidentiality of digital trade and investment data in Kazakhstan's dynamic digital landscape.

IV.C.6 Investment in digital infrastructure

Kazakhstan's aspiration to become a digital powerhouse relies significantly on attracting foreign investments in digital infrastructure. The nation has actively sought partnerships with international tech giants and infrastructure developers to leverage their expertise and financial resources. Investment incentives, tax breaks, and regulatory frameworks encouraging foreign participation have been pivotal in attracting capital to fund critical digital infrastructure projects.

Kazakhstan's investment promotion agencies actively seek foreign direct investment (FDI) in the digital technology sector. These agencies work to attract international tech companies, startups, and investors to contribute to the country's digital economy. One example that could be related to investment development is that by the end of 2023, the launch of the "Unified Investment Platform," which is expected as a result of memorandums of mutual cooperation signed between the Committee for Investments of the Ministry of Foreign Affairs of the Republic of Kazakhstan, the Eurasian Development Bank, and JSC "National Information Technologies" during the 46th ADFIAP Conference on "Development Financial Institutions and Sustainable Infrastructure: Operational Models and Methods." It is anticipated that this project has the potential to attract up to $100 billion in FDI for ten years, thus significantly increasing the volume of FDI in Kazakhstan and accelerating the country's development in the digital sphere (Kaztag.kz, 2023).

The synergy between the public and private sectors plays a central role in developing digital infrastructure in Kazakhstan. Public-private partnerships (PPPs) have emerged as a favored mechanism for financing and implementing large-scale digital infrastructure projects. These collaborations enable the sharing risks and resources while tapping into the private sector's innovation and efficiency. Kazakhstan's experience with PPPs in digital infrastructure

development offers valuable insights into the effectiveness of this approach in accelerating digitalization.

Investments in digital infrastructure may involve partnerships with international technology providers and infrastructure developers. Such collaborations help Kazakhstan enhance its digital connectivity and support the growth of digital trade and investment. One of the successful projects within the program is the "Digital Mine" (Inbusiness.kz, 2021). Its objective is establishing a unified information technology infrastructure and ensuring information security in collaboration with Huawei. This project provides cutting-edge solutions for the industrial sector. Kazakhstan has also effectively implemented digital initiatives such as "Digital Ecology," "Digital Substations," and "Digital Field." They leverage advanced technologies like IoT, artificial intelligence, and analytics to monitor processes in oil and gas fields. These innovations provide precise data for informed decisions in the energy resource extraction industry (Aesservis.kz, 2023).

Establishing state-of-the-art data centers and technology parks represents a cornerstone of Kazakhstan's digital infrastructure investment. These facilities provide secure and scalable hosting solutions for businesses and foster innovation and collaboration within the tech ecosystem. The development of technology parks has nurtured a thriving startup culture and served as hubs for research and development activities. These infrastructure projects are pivotal in facilitating innovation, enhancing connectivity, and attracting foreign investments. Kazakhstan's strategic location, commitment to sustainability, and collaboration with global technology leaders position it as a promising destination for digital infrastructure development, fostering economic growth and competitiveness in the digital era.

IV.C.7 Skill development and workforce training

The digitalization of trade and investment in Kazakhstan necessitates a skilled and adaptable workforce capable of harnessing the potential of digital technologies. Addressing the digital skills gap is a pressing concern as the demand for individuals proficient in data analytics, digital marketing, cybersecurity, and other digital domains continues to grow. Recognizing this imperative, Kazakhstan has initiated comprehensive programs to bridge the skills gap by preparing its workforce for the digital age. By prioritizing digital skills development and fostering a culture of lifelong learning, Kazakhstan can equip its workforce with the competencies needed to excel in the digital age, drive innovation, and contribute to the country's economic growth and competitiveness on the global stage.

Vocational and educational programs have emerged as key drivers in promoting digital literacy and competencies among Kazakhstan's workforce. These programs, offered by academic institutions, training centers, and industry associations, are designed to impart practical digital skills and knowledge that align with the needs of the modern workplace. Whether it be through coding bootcamps, data science courses, or digital marketing workshops, these initiatives foster a culture of continuous learning and adaptability. By providing accessible learning opportunities, fostering collaboration with industry leaders, and supporting a culture of continuous learning, Kazakhstan aims to equip its citizens with the skills needed to excel in the digital age and contribute to the nation's economic growth and innovation.

The process of upskilling the workforce is an ongoing endeavor that adapts to the ever-evolving digital landscape. Kazakhstan recognizes the importance of upskilling as a means to future-proof its workforce. Continuous training and professional development opportunities are available to employees across various sectors, ensuring they remain equipped to navigate digital technologies, emerging trends, and industry-specific advancements.

Moreover, the opportunities for international cooperation in this field are vastly welcomed. The country engages in technology transfer and knowledge-sharing agreements with other countries and international partners. These collaborations help Kazakhstan adopt best practices and innovative technologies in various sectors, including digital trade and investment. For instance, it recently became known that a Memorandum of Understanding (MoU) was concluded between the administration of the city of Astana and Presight, a leading company in big data analytics operating on artificial intelligence and based in Abu Dhabi. Under the agreement, they intend to jointly utilize advanced digital technologies to promote the digitization of the urban environment. The primary focus will be on crucial areas such as intelligent traffic management, smart city utility services management, and smart energy management. This collaboration will combine the expertise of the city administration with that of the international company in applying cutting-edge digital technologies to enhance urban infrastructure (Kazinform, 2023).

IV.D Case studies

Kazakhstan's digitalization journey has witnessed remarkable success stories across various industries, each highlighting the transformative power of digital technologies. In agriculture, for instance, implementing precision farming techniques, IoT sensors, and data analytics has revolutionized crop management, increased yields, and reduced resource wastage. Adopting smart factories and automation technologies has enhanced manufacturing efficiency

and quality control. For example, Kazakhstan implemented smart city technologies in cities like Astana and Almaty. These solutions included smart transportation systems, traffic management, waste management, and energy-efficient lighting to improve urban living conditions. In addition, the country is developing a program called "Smart Cities" in nine sectors, including education, transportation, healthcare, and others. The Ministry of Digital Development is working on the methodology for creating such cities involving the public. Five cities are expected to implement the smart city concept (Astana, Almaty, Ontustyk, Aktobe, and Karaganda) (Viktorova, 2023).

The success stories in Kazakhstan's digitization efforts offer invaluable lessons for policymakers, businesses, and stakeholders. First and foremost, these case studies emphasize the importance of strategic planning and collaboration between the public and private sectors to drive digital transformation. They underscore the significance of investing in digital infrastructure, fostering an environment conducive to innovation, and promoting digital literacy among the workforce. Additionally, these case studies highlight the need for adaptability and continuous learning as digital technologies evolve. By studying these examples, stakeholders can draw upon the lessons learned to navigate the complexities of digitalization effectively, ultimately contributing to the sustainable growth of trade and investment in Kazakhstan.

IV.E Challenges and obstacles

While Kazakhstan has made significant strides in its digitization efforts, it is not without its share of challenges in the realm of trade and investment. One of the foremost issues lies in the digital divide, with uneven access to digital infrastructure and skills across different regions of the country. Data security concerns, including cyber threats and privacy issues, remain persistent challenges that require ongoing vigilance and proactive measures. Overcoming these challenges will require concerted efforts from the government, businesses, and other stakeholders, along with ongoing investments in infrastructure, cybersecurity, education, and regulatory frameworks. Addressing these challenges is vital to ensure that Kazakhstan can fully harness the digital economy's opportunities.

Navigating the intricate web of regulatory frameworks and legal constraints is a complex challenge in digitalizing trade and investment. Like many nations, Kazakhstan faces the task of aligning its regulations with the rapidly evolving digital landscape. Ensuring that legal frameworks accommodate emerging technologies such as blockchain, AI, and fintech is a delicate balancing act. Moreover, harmonizing international standards with domestic regulations is an

ongoing endeavor that demands meticulous attention. Addressing these hurdles is essential to create a conducive environment for businesses to thrive in the digital era and to leverage the opportunities presented by digitization for trade and investment.

Resistance to change within both the public and private sectors remains a significant obstacle to digital transformation in Kazakhstan. The inertia associated with transitioning from traditional business models and practices to digital ones can impede progress. Moreover, cultural and organizational resistance may hinder the adoption of new technologies and digital processes. Effectively managing change, fostering a culture of innovation, and providing robust training and support are essential components of overcoming this resistance. Building a consensus among stakeholders and demonstrating the tangible benefits of digitization will be key in ensuring that Kazakhstan can fully harness the opportunities of the digital age.

IV.F Future outlook

The future of digitization in Kazakhstan appears promising, poised further to transform the nation's trade and investment landscape. Predictions suggest that Kazakhstan will continue strengthening its digital infrastructure, leveraging emerging technologies to enhance efficiency and competitiveness. As global markets increasingly rely on digital solutions, Kazakhstan will likely seize new cross-border trade and investment opportunities, becoming a regional digital hub.

The benefits and opportunities of Kazakhstan's continued digitalization efforts are manifold. Enhanced connectivity, streamlined regulatory processes, and improved data security are expected to attract greater foreign direct investment. Additionally, digitalization can catalyze economic diversification, particularly in high-tech sectors such as fintech, agtech, and logistics. As the nation becomes more integrated into the global digital economy, Kazakh businesses are poised to gain access to a broader customer base and international markets, facilitating their growth and competitiveness.

To ensure the sustained growth of digitization in Kazakhstan, strategies must include continuous investment in digital infrastructure, cybersecurity reinforcement, and educational programs promoting digital literacy. Strengthening international collaborations, particularly within the framework of trade agreements and economic partnerships, will further open doors for digital trade and investment. Nurturing local startups and tech enterprises will play a pivotal role in driving innovation and sustaining the country's digital momentum. Moreover, proactive policy measures and regulatory frameworks that encourage

innovation, protect digital rights, and maintain a competitive business environment will be essential in the journey ahead. Kazakhstan is well-positioned to embrace these opportunities and build a future where digitization drives economic prosperity and societal advancement.

IV.G International collaboration

Kazakhstan has actively positioned itself as a participant in regional and global digital trade initiatives. As a member of various international organizations, including the Eurasian Economic Union (EAEU) and the Shanghai Cooperation Organization (SCO), Kazakhstan has engaged in dialogues and agreements to foster digital trade and investment. The nation's commitment to the World Trade Organization (WTO) and its participation in discussions surrounding the Trade Facilitation Agreement further underscores its dedication to aligning with global trade norms and standards.

Kazakhstan is a member of the EAEU, a regional economic organization that includes Armenia, Belarus, Kyrgyzstan, and Russia. The EAEU aims to facilitate economic integration among member states, including in the digital trade and investment domain. Kazakhstan's participation in the EAEU involves cooperation on various trade-related issues, including digital trade regulations. Furthermore, a pilot project in the field of foreign electronic trade is expected to be conducted within the EAEU framework, which may significantly impact trade and investments in Kazakhstan and other EAEU member states. This project aims to improve the business environment, reduce bureaucratic barriers, and facilitate international trade operations (Strategy 2050, 2021).

Kazakhstan's geographical location as a bridge between Europe and Asia places it in a strategic position for fostering collaborative efforts with neighboring countries. Initiatives such as the "Digital Silk Road" and cross-border e-commerce agreements with countries like China have bolstered digital trade links, opening up new markets and business opportunities in the region. Collaborative projects for developing digital infrastructure and interoperability with neighboring nations further underscore Kazakhstan's commitment to regional integration.

Kazakhstan participates in cross-border digital initiatives, such as the Digital Silk Road, which aims to enhance digital connectivity and trade between regional countries, particularly with China. In addition, on 15 August 2023, Kazakhstan presented the digital tenge, aiming to provide expenditure control, budget transparency, and simplify cross-border payments. One of the key aspects of this initiative is the implementation of a digital social wallet for the prompt disbursement of state social obligations. This digital social wallet will enable the

monitoring and tracking of expenses related to social payments, ensuring more efficient fund utilization and enhancing transparency in the targeted allocation of budgetary resources (Trofimova, 2023). Another major project, "ATIS Kazakhstan," primarily aims to create an international electronic platform that provides a full range of information services under the "One Belt, One Road" initiative. This platform will cover all stages of foreign economic operations, from the conclusion of foreign economic contracts to the settlement of delivered goods and services. Implementing the "ATIS" project in the territory of the Republic of Kazakhstan aims to reduce the time and resource costs of participants in foreign economic activities at all stages of foreign economic operations, especially when providing information to government authorities. This project aims to simplify and expedite foreign economic activities, which can contribute to developing international trade relations and reducing bureaucratic barriers for businesses in Kazakhstan (Strategy 2050, 2021).

Bilateral trade agreements and partnerships form the foundation of Kazakhstan's international collaboration in the digital trade and investment sphere. The nation has actively pursued bilateral trade agreements with various countries to facilitate smoother cross-border transactions and investment flows. Notable examples include agreements with the United States, the European Union, and countries in the Middle East. These agreements aim to reduce trade barriers, enhance market access, and create a more favorable digital trade and investment environment.

Kazakhstan collaborates with international organizations and agencies to enhance its digital trade and investment ecosystem. This includes engagements with the World Trade Organization (WTO) and the United Nations Conference on Trade and Development (UNCTAD), where discussions on e-commerce and digital trade take place. Regarding international cooperation, Kazakhstan's initiative to establish a Center for Digital Solutions for Sustainable Development in Central Asia was unanimously approved at the annual 79th session of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in Bangkok. This center will promote digital collaboration and inclusivity and assist regional countries in addressing global digital challenges. Furthermore, it will contribute to the creation of innovative projects under the Central Asia brand. This center is expected to stimulate digital cooperation and ensure inclusiveness for a swift response to external challenges in the international digital arena (The Astana Times, 2023).

IV.H Conclusion

This chapter examined Kazakhstan's multifaceted journey toward trade and investment digitization. From the historical context of economic transformation

to the current landscape of digital infrastructure development, the pivotal role of e-government initiatives, the impact of fintech and digital payments, and the challenges accompanying this transformation were evaluated. Further, the success stories in specific industries and the lessons learned were highlighted, including the importance of addressing regulatory hurdles and resistance to change.

The significance of digitization for Kazakhstan's economic growth cannot be overstated. The nation's commitment to digitalization has enhanced its competitiveness in the global market and fostered an environment conducive to innovation and investment. By embracing digital technologies, Kazakhstan has positioned itself as a regional technology hub, attracting foreign investments and expanding its trade networks. Digitalization has unlocked new opportunities, drived efficiency, and facilitated financial inclusion, contributing to sustained economic development.

In conclusion, it is imperative to underscore the importance of continued efforts in trade and investment digitization. Kazakhstan's journey is ongoing, with numerous opportunities and challenges ahead. Sustained investments in digital infrastructure, regulatory adaptations, and workforce development are essential for staying ahead in the digital age. International collaboration and partnerships will further enhance Kazakhstan's position in the global digital trade landscape. Policymakers, businesses, and stakeholders shall remain committed to digitization, as it holds the key to unlocking Kazakhstan's full economic potential in the years to come.

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Digitalization efforts in the Kyrgyz Republic

V.A Trade and investment in a digital age

The digitalization of trade and investments plays a vital role in the modern economy and helps improve the efficiency, accessibility, and transparency of business processes. During the global pandemic, digital technologies have had great success. The pandemic accelerated the process of adopting digital technologies and digital working methods, such as teleconferencing and hybrid work schedules. The study done by the economists at the International Monetary Fund (IMF) addresses the issue of whether digitalization can improve economic resilience and mitigate the effects of recessions. The authors of Digitalization and Resilience conclude that more digital industries had higher hiring rates and lost less revenue two years after the pandemic-induced recession (Copestake, Estefania-Flores, and Furceri, 2022).

Also, over the past decades, electronic commerce has actively begun to develop, allowing businesses to access global markets without being physically on site. The e-commerce market has no geographical boundaries, and its subjects operate in almost the same conditions. However, in some countries, e-commerce is developing actively and entering the world market. In others, it is in the initial stage of development. In 2021, the number of online shoppers globally reached 2.14 billion people; in 2019, there were about 2 billion, and in 2018, there were 1.79 billion. In total, e-commerce in 2021 accounted for more than 18% of all retail sales worldwide; in 2023, it is expected to reach 22%. According to experts, the volume of the global e-commerce market in 2021 exceeded $5 trillion; by 2026, it can be estimated at $8 trillion. Experts estimate that by 2040, about 95% of all purchases worldwide will be made through e-commerce.

V.B Digital agenda of Eurasian Economic Union

The Kyrgyz Republic became the fifth Eurasian Economic Union (EAEU) member. The accession agreement entered into force on 12 August 2015. On the territory of the EAEU, digital trade is growing by an average of 30% per year. The outflow of buyers from offline trading platforms reaches 10% per year, mainly due to a broader range of products and lower prices. The growth rate of digital trade in the EAEU space, in comparison with the world average growth rates, is explained by the factors of catching up with the development of digital trade in the EAEU countries, which is due to the high degree of integration of the population into the digital space and the high degree of market openness, as well as providing global players with the opportunity to enter the market through new digital channels.

In accordance with the Main Directions for implementing the Digital Agenda of the Eurasian Economic Union until 2025, digital trade is one of the priorities for developing and implementing the digital initiatives and projects of the Eurasian Economic Union.

The Kyrgyz Republic, as a member of EAEU, realizing that electronic commerce is a vector to the future, began to develop its own regulatory framework. Still, it should be noted that since a single market operates on the territory of the Union, independent development of a national regulatory framework without a common framework within the Union can lead to the emergence of various kinds of barriers, discrepancies, and interpretations that will hinder the development of mutual trade.

Today, the member states of the EAEU are actively discussing the issues of regulating electronic commerce in the EAEU, forming a regulatory legal framework at the supranational level, and functioning as a single market for electronic commerce goods. A high-level Working Group was established in 2020 after a directive to construct a regulatory framework came from the heads of the EAEU member states.

Allocation in the Customs Code of the Union of a separate administration of electronic commerce goods, creation of the institute of Internet operators trade (specialized companies that, on behalf of the client, ensure the delivery of goods purchased), and the allocation of goods purchased on foreign Internet sites (over the past ten years, the number of such purchases has increased 50 times) into a separate category of goods were some of the major steps. A decision to develop a distinct electronic declaration form and a streamlined declaration process has also been made.

As part of the execution of the order of the Eurasian Intergovernmental Council dated 9 October 2020 (No. 16), in April 2021, a Pilot project was developed for carrying out customs operations in relation to goods for personal use purchased by individuals using the Internet and imported into the customs territory of the Union in international postal shipments or carrier, or foreign goods sold by individuals using the Internet from a customs warehouse.

V.C Government initiatives for digitalization in the Kyrgyz Republic

In the Kyrgyz Republic, one can also observe trends towards introducing digital technologies in various areas of life and production. The Kyrgyz Republic has designated 2019 as the year of regional development and digitalization of the

country. In this regard, digital transformation and e-commerce have been given priority under the National Development Strategy for 2018-2040 and related development programs (Ministry of Economy and Commerce, 2018). The concept of digital transformation, "Digital Kyrgyzstan 2019-2023" has been developed.

In February 2019, the Prime Minister of the Kyrgyz Republic M. D. Abylgaziev approved the "Roadmap" for implementing the Digital Transformation Concept, which identified the main areas of activity necessary for the qualitative process of the country's digital transformation, including the development of a digital state, development of the digital economy, development of digital skills, ensuring cyber security, as well as managing the process of implementing the Digital Transformation Concept. In the targeted areas, 21 short-term projects and 46 medium-term projects have been identified. Also, in 2019, the successful implementation of the Tunduk interdepartmental electronic interaction system continued, to which all 60 state bodies have already been connected, and 233 services have been implemented (for comparison, only seven services functioned in 2018). Further, 22 government agencies developed 71 databases. It is worth noting that the Estonian Electronic Governance Academy awarded the Kyrgyz Republic for the best implementation of the e-government system — the Tunduk interdepartmental electronic interaction system.

V.C.1 Policy frameworks for promoting digital transformation and e-commerce

For the development of e-commerce, the Ministry of Economy and Commerce of the Kyrgyz Republic, with the support of the International Trade Center, developed a draft program for the support and development of e-commerce in the Kyrgyz Republic for 2023-2026 and the Action Plan for its implementation, both approved by the Resolution of the Cabinet of Ministers of the Kyrgyz Republic (Ministry of Economy, 2022). The Program aims to increase the country's exports and increase the competitiveness of goods, reduce the costs of e-commerce participants, ensure the safety and reliability of e-commerce activities, attract investment, expand access to financial services, and develop digital entrepreneurship. The following tasks will be accomplished to put the Program's priorities into action:

- Improving legislation related to electronic commerce. There is a need for state regulation and the adoption of regulatory legal acts to introduce requirements for ensuring the protection and security of an array of personal data of individuals participating in electronic commerce.
- Resolving difficulties to enable harmonization of legislation with the requirements of the EAEU. As a member country of the EAEU, the Kyrgyz

Republic undertakes obligations to harmonize its regulations with the general provisions of the EAEU.
- Minimizing barriers for e-commerce participants.
- Creation of an e-commerce park.
- Establishment of warehouses for goods in border regions.
- Developing conditions for electronic interaction between state bodies and participants in foreign economic activity based on the "One Stop Shop" principle.
- Launching of an Internet platform.
- Establishment of regional centers for the development and support of digital entrepreneurship.
- Support and strengthening of business associations in the field of e-commerce.

The Law of the Kyrgyz Republic on e-commerce came into force, significantly expanding and clarifying the legal framework for Kyrgyz and international e-commerce operators (Ministry of Justice, 2021). The new Tax Code (January 2022) and the simplified taxation for online retailers, which took effect in June 2022, require organizations and individual entrepreneurs to pay a 2% tax on their electronic commerce-related activities while being exempt from sales tax, income tax, and value-added tax (Ministry of Justice, 2022). Also, changes were made to several legislative acts regarding personal information protection.

The favorable development of digital transformation is directly affected by the digital economy, which radically changes the way of production and cross-border markets for goods and services for business, increasing its productivity and competitiveness. In the Kyrgyz Republic, e-commerce is at the stage of active development. The past decade has seen an acceleration in e-commerce activity. A small number of leading niche firms, including retail, car sharing, tourism, and others, primarily drove this increase in activity. Although this sector has not been widely adopted, it is proliferating thanks to a vigorous entrepreneurial base, a relatively reliable Internet network, and a robust public-private dialogue in the digital economy.

The Kyrgyz Republic launched the Electronic Trading Platform system for holding privatization auctions and electronic registration of legal entities. The procedure for receiving electronic reports from business entities and applying invoices through electronic document management was launched. Further, a project was launched to make payments using QR (making payments in a non-cash form via a mobile phone). Other projects include the "Archive Fund 5" software package for data archiving, the "Unified Register of State Property" for exchanging information on public real estate, "Electronic transport control" for exchanging information on the weight and size parameters of vehicles, the "School Medicine

- IT Polyclinic" pilot project for diagnosing schoolchildren in different parts of the schoolchildren, and the like.

As part of the development of international cooperation for promoting digital transformation, and following the outcomes of the Meeting of the Council of Heads of State of the Member States of the Shanghai Cooperation Organization (SCO), held in Bishkek in June 2019, on the initiative of the Kyrgyz side, the "Concept for Cooperation between the SCO Member States in the Sphere of Digitalization and Information and Communication Technologies" was adopted. This document was developed within the framework of a special working group of the SCO chaired by the Kyrgyz Republic. The Concept consolidates the main areas of cooperation in digitalization and ICT, reveals the goals, and lays down specific mechanisms for its implementation.

It remains necessary to develop international trade logistics centers, specially designed and organized to facilitate and optimize the transportation and storage of goods, customs procedures, and other operations related to international trade. They are essential in ensuring the efficient and uninterrupted supply of goods to companies, especially for small and medium-sized enterprises. Currently, only a few large logistics enterprises can provide a full range of logistics services, including warehousing, transshipment, processing of goods, and other services, using the most innovative technologies, as well as insurance and customs clearance services. Most SMEs do not have access to modern transport services. Moreover, the level of container traffic is insufficient for most companies. Also, the customs authorities of the Central Asian countries report the impossibility of satisfying the volume of cargo flows and overloading the customs authorities with large flows of small parties using paper customs systems, as well as the uncertainty of the application of new international rules on combating terrorism and money laundering applied to small parties.

V.C.2 Cross-border paperless trade

For four years, work has been carried out on the Framework Agreement on the Facilitation of Procedures for Cross-Border Paperless Trade in the Asia-Pacific Region with regional studies, expert assessments, consultations, and negotiations between the participating countries, and its final text was approved by the UN Economic and Social Commission for Asia and the Pacific Ocean in May 2016. The Framework Agreement entered into force on 20 February 2021.

Upon accession of the Kyrgyz Republic to the Framework Agreement on Facilitation of Procedures for Cross-Border Paperless Trade in the Asia-Pacific Region of ESCAP, an analysis of the legal and technical readiness of the country for the transition to cross-border paperless trade was carried out with the

support of the European Union and the International Trade Center. To accelerate the implementation of measures and simplify digital trade, in December 2022, the Ministry of Economy and Commerce of the Kyrgyz Republic prepared a draft Law of the Kyrgyz Republic, "On the Accession of the Kyrgyz Republic to the Framework Agreement on Facilitating Cross-Border Paperless Trade in the Asia-Pacific Region (ESCAP)."

The Agreement is designed as a universal instrument, accessible to countries at different levels of development. It aims to simplify paperless cross-border trade (data exchange) procedures between interested ESCAP economies by creating a specialized intergovernmental mechanism for developing legal and technical solutions.

The Decree of the Cabinet of Ministers of the Kyrgyz Republic dated 20 June 2023 approved the conclusion of the Cabinet of Ministers of the Kyrgyz Republic regarding the Framework Agreement on Facilitation of Procedures for Cross-Border Paperless Trade in the Asia-Pacific Region (ESCAP). At present, the draft Law of the Kyrgyz Republic "On the accession of the Kyrgyz Republic to the Framework Agreement on Facilitation of Cross-Border Paperless Trade in the Asia-Pacific Region (ESCAP)" has been submitted for consideration by the Parliament of the Kyrgyz Republic.

V.D Opportunities and challenges for digital trade development in the Kyrgyz Republic

The development of the country's information and communication technology (ICT) sector is a positive example of state regulation, which has allowed the formation of a solid human resources potential for exporting firms operating through the Hi-Tech Park. From 2014 to 2018, the number of IT companies that export more than 80% of their services abroad has grown five times. The readiness of the Kyrgyz Republic to develop e-commerce is growing. Currently, there are 257 e-commerce websites in the Kyrgyz Republic, 72% of which are department stores, and 28% are online shops with a narrow activity profile. The main goods sold on the domestic market are flowers and gifts, household appliances, clothing, and footwear.

The potential of the manufacturing sectors of the Kyrgyz economy drives economic growth. There is a need to raise the level of manufacturing sectors and undertake several efforts to develop enterprises' export potential. Sectors such as tourism, handicrafts, agro-industry (especially honey and dairy products), light industry, and IT services have recently received significant attention and support from the state. These sectors, which have a high potential for electronic

commerce, are identified as a priority in the Program of the Government of the Kyrgyz Republic for the development of exports of the Kyrgyz Republic for 2019-2022, approved by the Decree of the Government of the Kyrgyz Republic on 20 December 2018.

The e-commerce market of the Kyrgyz Republic has great potential. The clothing and footwear market occupies the largest share in terms of turnover, with the highest predicted growth, followed by segments such as electronics and household appliances, food and essentials, furniture, and toys.

The primary assessment of the success of the development of e-commerce is the indicator of the share of e-commerce in retail turnover of a country. The National Statistical Committee in the Kyrgyz Republic records data on wholesale and retail trade turnover in general for the country and in the context of regions. However, the volume of electronic commerce is not separated from the general data. It is necessary to ensure separate accounting and statistical data collection to be able to assess the e-commerce market and analyze and monitor the strategy's implementation and the digital economy's development.

Today, the national business understands that it must switch to online trading using advanced technologies. Online stores are growing, and domestic buyers are switching to international platforms. At the same time, money is leaving the country, which will negatively affect domestic trade. In this regard, it is necessary to actively develop the internal ecosystem to encourage domestic entrepreneurs to enter the online market and actively sell on the Internet. Foreign businesses may fill this niche if local entrepreneurs are not ready for online trading.

The next problem is the slow introduction of cashless payments. In the Kyrgyz Republic, cash payments are still preferable, hindering the development of electronic commerce. In the economy of the Republic, cash accounts for 90% of the money turnover in the country. The total number of bank payment cards in circulation as of 1 January 2022 amounted to 3,757.1 thousand cards. Thus, for the fourth quarter of 2021, the share of the total volume of transactions using cards in Bishkek amounted to 55%. One of the limiting factors is the problem of connecting to payment systems, which is quite difficult and expensive for entrepreneurs. There is no possibility to make settlements between legal entities without using bank transfers. In world practice, legal entities pay with payment cards with the option of choosing a currency and avoiding double conversion. In the Kyrgyz Republic, the average commission for Internet acquisition is about 3%, which cannot incentivize online businesses to switch to full online payment. Equally important is the security of e-commerce and personal data protection to ensure secure transactions. Further, it is important to note that since e-commerce leads to significantly simplifying trade procedures, the issues of

intellectual property rights contained in goods sold online often go by the wayside. There is a need for better coordination of actions in protecting intellectual property rights in the context of cross-border electronic commerce, considering national obligations under international treaties in the field of intellectual property. As part of the State Program for the Development of Intellectual Property and Innovation in the Kyrgyz Republic for 2022-2026, approved by the Resolution of the Cabinet of Ministers of the Kyrgyz Republic No. 265 dated 20 May 2022, paragraph 5 emphasizes the importance of forming an intellectual property (IP) ecosystem and innovation for the development of the object market intellectual property and innovative products. According to paragraph 5.2, Development of an electronic platform to ensure the interaction of key players in the sector, the task is to bring IP subjects and stakeholders together to commercialize IP and innovative products. A draft regulation and terms of reference were established to build this platform as part of the execution of this item. The amount of funding is currently being worked out, and the digital platform launch is planned for 2023-2024. The following quantitative and qualitative indicators were created:

Quantitative indicators:

- The number of intellectual property entities involved in cooperation or partnership;
- The volume of investments provided by various participants to support the commercialization of innovations;
- Number of created joint initiatives or projects between participants;
- The number of events held (conferences, seminars, etc.) that brought together key industry participants;
- Number of partnerships or intellectual property licensing agreements signed.

Qualitative indicators:

- The level of interaction between the participants (events, joint research, knowledge exchange);
- The degree of success in the commercialization of intellectual property as a result of cooperation;
- The level of trust between participants and their willingness to share information and resources;
- Quality and innovativeness of created products and services as a result of joint efforts.

The regulatory decisions adopted in the Kyrgyz Republic and their further improvement should incentivize entrepreneurs to switch to electronic commerce, using convenient electronic payment systems, and the successful

development of logistics chains for promoting goods, particularly in cross-border trade.

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Unleashing the power of digital trade: A case study on Türkiye's progress

VI.A Introduction

Türkiye has embraced digital transformation to drive economic growth, enhance global competitiveness, and improve efficiency across various sectors. As technology advances, Türkiye is well-positioned to leverage digitalization for further sustainable economic growth.

The Eleventh Development Plan (2019-2023), designed to raise the international position of Türkiye and lay out a general roadmap for increasing the people's standard of living, was released on 23 July 2019. While the Eleventh Development Plan seeks to boost Türkiye's productivity in every field, the "National Technology Move," an economic and social development process that produces higher value, is envisaged to gain competitive power at the global scale. Increasing productivity and competitiveness in priority sectors by accelerating digital transformation has been determined as the primary objective.

Digital transformation is also highlighted in the Medium-Term Program (2024–2026), which takes the Twelfth Development Plan's guiding principles into account and envisages the following actions:

- Achieving growth through increased productivity and exports with a focus on green and digital transformation and a permanent improvement in the current account balance.
- Improving the technology composition of production and exports with a focus on green and digital transformation.
- Giving special attention to green and digital transformation opportunities by focusing on increasing potential growth rates by effectively and efficiently using Türkiye's financial and natural resources, especially its human capital, in economic activity.
- Contributing to green and digital transformation will be among fiscal policy priorities.

This chapter will explore the different aspects of digitalization in Türkiye, focusing on its impact on international trade. The digital investment and trade developments within the context of macro policies are presented under five main headings, including digital transformation strategy and investment policies, domestic trade, export, customs, and international trade in services.

VI.B Digital transformation strategy and investment policies

The Ministry of Industry and Technology (MoIT) of the Republic of Türkiye is establishing its policies on using the advancements in digital technology to benefit Türkiye and the rest of the globe. In this context, the MoIT has prepared a twin transformation incentive program (digital and green transformation) to encourage businesses to implement their digital and green transformation, contributing to net zero emissions.

The "Industry and Technology Strategy 2023" (ITS) document outlines Türkiye's industrial and technology policies in line with the "National Technology Move," focusing on the steps to increase social welfare.

The ITS comprises five main components: High technology and innovation, digital transformation and industrial move, entrepreneurship, human capital, and infrastructure. The main targets of the ITS are the following:

- Accelerating the technological transformation of the industry.
- Becoming a high technology producer.
- Increasing the share of R&D in national income.
- Investing in a qualified workforce.
- Launching unicorns that develop Turkish smart products that the whole world will use.

The ITS focuses and aims to increase the competencies of Türkiye in 5G and beyond connection technologies, artificial intelligence and machine learning, robotics and autonomy, Internet of Things, Big Data and data analytics, cyber security, blockchain, distributed ledger, additive manufacturing, super performance computing, crewless aerial vehicles, space technologies, nanotechnology, biotechnology, agricultural technologies, and energy technologies. Within the scope of ITS, MoIT is preparing strategy documents and road maps covering the areas mentioned above. The following documents are scheduled to be released after the preparations are finished:

- Digital transformation roadmap in finance and commerce (draft)
- Digital transformation of industry (draft)
- Strategy of application areas of 5G and advanced connection technologies in vertical sectors (draft)

Recently, "National Artificial Intelligence Strategy", "Mobility Vehicles and Technologies Strategy Roadmap", and "Smart Life and Health Digital

Transformation Roadmap" documents have been published, and coordination and cooperation efforts are continuing to implement the action plans among all stakeholders.

"Digital transformation of industry" focuses on strengthening the production capacity for digital transformation of the manufacturing industry, increasing the professional skills and capabilities for production, and raising awareness about the effective use of digital technologies. With this road map, the MoIT will determine the needs and digital maturity level of enterprises in order to realize their transformation in a planned and scheduled manner according to their needs. The MoIT will also implement support programs to fund the transformation of these enterprises through various financial mechanisms.

The Digital Transformation Support Program will be implemented to support investments that aim to reduce costs, increase productivity and quality, and improve employee and customer satisfaction by incorporating technological products and solutions. Investments within the Digital Transformation Support Program scope will benefit from regional incentives.

The MoIT continues to support the ecosystem in the development of groundbreaking technologies. For example, the MoIT coordinates the 5G@EndTech program, which was created to help 5G initiatives in Türkiye, develop products and solutions for the manufacturing industry, and support the commercialization and globalization processes for these products. Many essential stakeholders from the public and private sectors have been included in the consortium. 35 projects were examined in this program, which was initiated with the project ideas of startup companies. Those who are successful are directed to public support programs. Entrepreneurs will then have access to training, mentoring, testing and funding opportunities.

On the other hand, Digital Technology Platforms were launched by the MoIT to direct and accelerate the steps that will give Türkiye a say in future technologies by focusing on priority technologies such as mobility, semiconductors, metaverse, blockchain and artificial intelligence. The use of the established platforms aims to improve cooperation between ecosystem stakeholders, increase interaction between the public and private sectors, and develop public policies according to the needs and expectations of the ecosystem.

The above-mentioned actions will accelerate the digitalization of society and businesses in the manufacturing and trade ecosystem.

VI.C Domestic trade applications

Digital trade applications and tools have become increasingly important in today's globalized economy. Türkiye has made significant advancements in this area to facilitate its international trade and enhance economic growth. The below-mentioned initiatives and tools have been crucial in promoting efficiency, transparency, and accessibility in trade-related activities.

VI.C.1 E-Commerce in Türkiye

Over the past 20 years, with the rapid rise of digital technology, e-commerce has emerged as an essential tool through which people do their shopping. Furthermore, the outbreak of the Covid-19 pandemic, which disrupted traditional trade channels and changed customer preferences and habits radically, added impetus to the growth of e-commerce. There is a growing consensus that e-commerce is an indispensable part of trade and the future of retail.

Interest in e-commerce has been increasing in recent years. This situation makes measuring cross-border e-commerce essential, and implementing effective policies will depend on the reliable compilation of cross-border e-commerce data. In this regard, the General Directorate of Trade Research and Risk Analysis of the Ministry of Trade of the Republic of Türkiye is working to accurately compile cross-border electronic commerce statistics.

E-commerce, which has been steadily growing both in the world and in Türkiye in recent years, has reached record levels with the emergence of the Covid-19 pandemic. Although the pandemic is effectively over, the upward trend remains. Total retail e-commerce sales worldwide were estimated to exceed $5.7 trillion in 2022, and this figure is expected to reach new heights in the coming years. In 2022, e-commerce accounted for nearly 19.2% of retail sales worldwide. Forecasts indicate that by 2026, online sales will make up close to a quarter of total global retail sales. Asia leads the world ranking of the e-commerce market, recording $1.8 trillion in revenues. The Americas come right behind with $1 trillion, while Africa follows with $33.95 billion.

The e-commerce market size in Türkiye has increased significantly, especially after 2018. As of the first six months of 2023, e-commerce volume in our country reached 652.7 billion TL, an increase of 109.7% compared to the previous year. In the first 6 months of 2023, the number of orders increased from 2 billion 131 million units to 2 billion 556 million units, an increase of 20% compared to the same period of the previous year. Again, in the first 6 months of 2023, retail e-

commerce volume increased by 119% compared to the same period of the previous year, reaching 390 billion TL. While the share of e-commerce in total retail was 18.5% in the first 6 months of 2022, this rate increased by 3.2% compared to the same period of the previous year and reached 19.1%.

In the first 6 months of 2023, bank transfers made up 32% of the total e-commerce volume in Türkiye with 209.3 billion TL, while cash on delivery with 34.1 billion TL comprised 5.2%, and card transactions constituted 62.7% of the total e-commerce volume with 409.3 billion TL.

The city with the highest number of enterprises engaged in e-commerce in the first 6 months of 2023 was Istanbul (37.9%), and it was followed by Ankara (9.2%), İzmir (7.3%), Bursa (4.6%), Antalya (3.3%), Konya (2.4%) and Kocaeli (2.3%).

As to e-commerce volume by sector in the first 6 months of 2023, that of white goods and small household appliances was 80.6 billion TL, the clothing, shoes and accessories sector 48.9 billion TL, the electronics sector 38.7 billion TL, and the airline sector 29.3 billion TL. These sectors were followed by food and supermarket, travel transportation and storage, and food and accommodation sectors.

In the first 6 months of 2023, the average value of a shopping basket was 14,262 TL in the accommodation sector, 6,287 TL in the home, garden, furniture and decoration sector, 3,391 TL in the airlines sector, 830 TL in the white goods and small household appliances sector, and 712 TL in the clothing, shoes, and accessories sector.

V.C.2. Regulations, applications, and information systems

In line with and in response to the ever-growing e-commerce sector, Türkiye has implemented several regulations and practices over the years, including in the e-commerce information system and trust mark system.

Trust mark

Communiqué on Trust Mark in Electronic Commerce entered force on 6 June 2017. Following the Communiqué, a trust mark was planned to be assigned to the websites by the trust mark provider (GDS) authorized by the Ministry of Trade. The Trust Mark System was created to eliminate security, privacy, and service quality concerns in the e-commerce sector. The Trust Mark System has created a positive impact, especially on small businesses, by enabling them to boost customers' trust and making it easier for them to open up to new markets

and reach new customers, and it has also positively contributed to e-exports. At present, 114 e-commerce platforms have successfully obtained Trust Mark.

E-Commerce law

In Türkiye, the first e-commerce law was released in 2014. However, a need for regulatory action to close legal loopholes and deficiencies arose due to numerous market issues and developments.

Apart from many benefits and innovations, the e-commerce phenomenon has brought several issues that must be addressed. One of the most alarming issues in this regard is the tendency of the e-commerce market towards a monopolistic market structure. High concentration in the market disrupts inter-platform competition and inflicts damage on the merchants on the platforms and, ultimately, the consumers. Additionally, with the increasing concentration, incumbent platforms may exhibit exclusionary behaviors and unfair trade practices against other platforms and merchants, thereby disrupting the entire market.

These problems, which negatively affect the economy as a whole, have led regulatory authorities worldwide to take action to create a well-functioning and fair competition environment in digital markets and e-commerce. Turkish policymakers also needed to make comprehensive amendments to the existing e-commerce law. As a result, the new Turkish e-commerce law was published in the Official Gazette on 7 July 2022. On 1 January 2023, the new law went into force, with few exceptions.

The main objective of the new E-commerce law is to create a well-functioning, fair, competitive, and innovative market structure by eliminating market failures and ultimately protecting consumers. The main provisions of this law can be summarized as follows:

The Ministry of Trade will be authorized to ensure the development of electronic commerce, to maintain an effective and fair competition environment, and to regulate the activities of e-commerce service providers and intermediary service providers.

- E-commerce intermediary service providers will be obliged to prevent violations of intellectual and industrial property rights and the dissemination of illegal content in e-commerce marketplaces.
- E-commerce intermediary service providers will pay the sellers within five business days of receiving the sum from payment service providers (PSP).

- E-commerce intermediary service providers will be obliged to refrain from conducting unfair trade practices in any shape or form.
- E-commerce intermediary service providers must refrain from self-preferencing in ranking goods and services and will not discriminate between sellers.
- The contract between e-commerce intermediary service providers and sellers should be clear and understandable. Furthermore, e-commerce intermediary service providers will not be permitted to change the contract terms unilaterally and retroactively.
- E-commerce intermediary service providers will enable sellers to offer goods or services at the same or different prices through alternative channels.
- E-commerce intermediary service providers will be required not to engage in excessive advertising and discounting activities that will exclude competitors from the market.
- Practices that harm the sellers' right to legal remedies against e-commerce marketplaces will not be permitted.
- E-commerce intermediary service providers shall not charge sellers without providing services.

Electronic Commerce Information System **(ETBİS)**

ETBİS is an electronic platform established in Türkiye to regulate and monitor e-commerce activities within the country. The Ministry of Commerce developed it to ensure transparency and accurate data generation in the ever-growing field of electronic commerce. The system allows businesses to provide detailed information about their products, services, and sales conditions by recording their electronic commerce activities. This information is accessible to both consumers and relevant government authorities.

ETBİS acts as a central database for e-commerce businesses operating in Türkiye. It helps the government monitor and analyze e-commerce activities. Businesses must register to ETBİS before engaging in e-commerce activities. For consumers, ETBİS provides a valuable resource for verifying the existence and legal personality of e-commerce sites. ETBİS plays a vital role in regulating and monitoring e-commerce activities, and it aims to meet the information needs of both SMEs and consumers from a single point.

Commercial Electronic Message Complaint System (TİSS)

Since 2016, Turkish citizens have been able to submit their commercial electronic message complaints via TİSS. The renewed TİSS, which can also be accessed through the e-Government portal, is served over https://tiss.ticaret.gov.tr with its new interface and features. The new TİSS

shortened the process of creating a complaint by ensuring that the data required during the complaint will be automatically entered into the relevant fields through premade integrations with relevant institutions and organizations. Besides, with the automation provided by the new solution-oriented system, the complaint processes will be carried out effortlessly with the automatic categorization of complaint applications and the automatic detection of the sender with the data retrieved from "Optical Character Recognition" (OCR) technology.

Commercial Electronic Message Management System (İYS)

On 28 November 2017, an amendment was made to Law No. 6563 on Regulation of Electronic Commerce. Within the framework of the additional provision, the Ministry of Trade has been authorized to establish or let other parties develop an electronic system that regulates approvals or refusals of unsolicited commercial messages. In this respect, İYS is established to create a central structure on which Turkish citizens can control their commercial message preferences (approvals or refusals) for various companies at a single point.

Retail Information System (PERBİS)

PERBİS is an ongoing project designed to simplify opening, operating, and closure processes for retail businesses while creating a database for the retail sector and providing an information portal for entrepreneurs and companies regarding the abovementioned processes. However, the scope of ongoing software development includes the retail industry and all economic sectors due to the strong possibility of PERBİS becoming a point of single contact for Türkiye. The two fundamental pillars of the PERBİS project are:

Information portal: Entrepreneurs can access all the information needed to open a retail business on the PERBİS website without needing to access any other authority. Information about the relevant public administrations, required documents, estimated application costs, and processing durations based on the type of activity will be provided to the entrepreneurs with a neat and user-friendly interface. Additionally, the portal's Geographical Information System (CBS) feature will allow entrepreneurs to view businesses operating in the same activity on the map and access demographic information of the targeted region. This facilitates more accurate decision-making in selecting the opening location, ultimately reducing business closures resulting from incorrect location choices.

Application module: The PERBİS application module will coordinate services from relevant institutions. Entrepreneurs can perform all necessary transactions

through the system's website using their PERBİS accounts, eliminating the need to visit multiple institutions/organizations.

Upon completion of the project, governmental bodies and local institutions responsible for tax processes, registries, business licenses, and other specific licenses will be integrated into the system.

Central Registry System (MERSİS)

The Central Registry System (MERSİS) is a central information system that provides two essential functions. The first of these is related to the establishment, alteration, and cancellation of the company and commercial enterprises, the trade registry records, and the contents that must be registered, announced, and presented electronically. The system's second function concerns the information public institutions require from legal entities. This information is provided from a single point by combining all legal entities and other economic units in one system with a unique number. Works for the first function have been completed, and works for realizing the second function are ongoing.

Central Legal Entity Information System and Online Company Operations Projects included in the Information Society Strategy and Action Plan dated 28 July 2006 were merged on 8 October 2010 and became the MERSİS. The system was initially tested as a pilot at the Mersin Trade Registry Office.

As a result of the efforts to transfer old records to the system and spread the application in trade registry offices, the system has been used in 238 trade registry offices as of 1 January 2015. The software and technological infrastructure were updated to satisfy the needs resulting from the fundamental legislation changes, and the application's new version was implemented on 6 March 2017. With the latest version, all registration procedures stipulated in the legislation are carried out electronically via MERSİS.

MERSİS is one of the most important projects of the e-transformation process in Türkiye and is one of the four essential databases designed for electronic services of the public. MERSİS works in an integrated manner with the information systems maintained by public institutions (MERNİS, KPS, UAVT, Revenue Administration System, Social Security Institution (SGK), TAKBİS, TÜRKSAT, and Notaries Union). In addition, data-sharing services are currently provided to 60 different institutions. In this context, the information needed by public institutions is provided from a single point with MERSİS.

On the other hand, thanks to the infrastructure provided by MERSİS, e-government services are offered to the business world. Currently, MERSİS is used as a verification source for 316 government-to-business (G2B) services provided by the public, and new ones are added to these services frequently. As of 31 May 2023, the number of MERSİS users was 2.611.410. Further, 5.809.749 registration processes have been made so far.

The studies recently completed within the scope of MERSİS show that this system facilitates the lives of Turkish citizens by transferring the processes to an electronic environment and speeding up business and transactions. The benefits of MERSİS can be summarized as follows:

- Performing all trade registry transactions electronically.
- The signing of company contracts by the founders with e-signature.
- Verification of citizen information at trade registry offices.
- Receiving potential tax number and tax office information electronically via MERSİS and submitting company information to the Revenue Administration after establishment.
- Receiving the information about the Social Insurance Institution from MERSİS and transmitting this information in an electronic environment.
- Undocumented transactions are now carried out by company officials in the land registry directorates thanks to the integration of the Land Registry and Cadastre Information System (TAKBS).
- Signing company contracts at trade registry offices.
- Creation of the signature statement via MERSİS.
- Realization of commercial book certifications from MERSİS.
- Making e-government services available to the companies through MERSİS and using this system as a verification source for the government-to-business services offered by the public to the companies.
- Providing infrastructure for creating e-notification addresses for companies by integrating the National Electronic Notification System (UETS).
- With the General Assembly Module, the Ministry representative application procedures for joint stock company general assemblies are carried out in an electronic environment, and the records of these meetings are kept in the electronic environment.
- The e-Document Application requests that the trade registry documents be entirely electronically created and forwarded to the relevant parties.
- The electronic submission of advertising to the Turkish Trade Registry Gazette and the publication of those adverts within two hours is made possible via the e-Advertisement Application.
- Making it possible to access the trade registry legislation from a single point in the digital environment with the Legislation Module.

- Making appointments for the registration application via MERSİS without switching to another platform is now possible thanks to the Trade Registry Offices Appointment Module.
- Formation of circular type board of directors resolutions in joint stock companies in an electronic environment with e-signature via MERSİS Board of Directors Decision Module.
- Activation of the e-government service "Restriction Procedures for Being a Partner/Authority (MERSİS)" in order to prevent being added as a partner/authority in company/business establishment or change applications.
- The application for creating general assembly resolutions in limited companies electronically with e-signature via MERSİS General Assembly Decision Module.
- Completion of the integration of MERSİS with the National Judiciary Network Informatics System (UYAP).
- Completion of integration of MERSİS and Associations Information System (DERBİS).
- Transferring the signature samples of the persons whose signature samples are in the Population Administration electronically to MERSIS and carrying out the authorization acceptance procedures electronically from MERSİS.
- Commissioning of MERSIS- Revenue Administration integration.

Thanks to the infrastructure offered by MERSİS, trade registry directorates have been made the only point of contact in company establishment, and a significant reduction in costs and convenience in company establishment has been achieved.

MERSİS Mobile Application, another important innovation that will facilitate traders' work, will be put into operation on 29 December 2023. With the "MERSİS Mobile Application," which aims to provide access to MERSİS from the mobile application, provide speed and convenience in trade registry transactions and integrate different digital instruments into company establishment transactions, it is aimed to carry out trade registry transactions via mobile devices and make these transactions even easier.

On the other side, all company establishment processes, including payments to the chamber of commerce/commerce and industry, will be completely moved to the electronic environment, and entrepreneurs will be given the opportunity to establish a company from their homes or offices with an electronic signature or mobile signature, without the need to go to the trade registry office or any other institution. Analysis studies are continuing with the Union of Chambers and Commodity Exchanges of Turkey (TOBB) regarding the transfer of payments

to be made during company establishment (payments such as service fees, etc., separated by 238 trade registry offices) to the electronic environment.

On the other hand, the MERSİS Board of Directors Decision Module and the General Assembly Decision Module have been awarded by the Corporate Register Forum (CRF), which is composed of public authorities responsible for trade registry transactions of 61 member countries around the world, with the most prestigious award within the scope of CRF 2023 Innovation Excellence Award. Thus, the success of MERSİS, which is among the basic information systems leading the digital transformation in Türkiye, has also been registered in the international arena.

Information systems

Within the scope of the Regulation on the Trade of Second-Hand Motor Land Vehicles, the Regulation on Real Estate Trade, and the Regulation on Jewellery Trade, the processes related to the issuance, renewal, and cancellation of the authorization certificate are carried out by provincial directorates of trade.

Second-Hand Motor Land Vehicles Information System (İETTS): Within the scope of the Regulation on the Trade of Second-Hand Motor Land Vehicles, İETTS was put into practice on 13 May 2018 to monitor and control the second-hand motor vehicle trade and reduce bureaucracy by carrying out the process of issuing authorization certificates to the firms engaged in this business easily and quickly. Applications for the authorization certificate of second-hand motor land vehicle trade are made through İETTS without the need to go to the provincial directorates, and these applications are concluded through İETTS by provincial directorates. Likewise, the processes related to the renewal and cancellation of the authorization certificate are also carried out through İETTS. The number of firms engaged in the trade of second-hand motor land vehicles authorized has reached 33,140 as of December 2023.

Real Estate Trade Information System (TTBS): Within the scope of the Regulation on Real Estate Trade, the TTBS was put into practice on 5 September 2018 to monitor and control the real estate trade and reduce bureaucracy by carrying out the process of issuing authorization certificates to the firms engaged in this business easily and quickly. The processes related to the renewal and cancellation of the authorization certificate are carried out through TTBS. As of December 2023, the number of authorized real estate firms has reached 56,605.

Jewelry Trade Information System (KTBS): The KTBS was introduced on 23 September 2021 as part of the Regulation on Jewelry Trade to monitor and control the jewelry trade and cut down on red tape by making the process of

obtaining authorization certificates quick and simple. Jewelry trade authorization certificate applications are made without the need to go to the provincial directorates of trade. Likewise, the processes related to the renewal and cancellation of the authorization certificate are also carried out through KTBS. As of December 2023, the number of firms engaged in the authorized jewelry trade was 9,657.

Through all systems, an authorization certificate is issued to the firms that carry the conditions required for the insurance of authorization certificates, and the firms whose authorization certificate request is rejected are notified of the situation through the Information System.

Wholesale Market Registry System (HKS)

Vegetable and fruit trade in Türkiye is regulated by Law No. 5957 on Regulating the Trade of Vegetables and Fruits and Other Goods with Sufficient Depth of Supply and Demand. The law entered into force in 2012, and many new regulations and practices have been introduced for the vegetables and fruit trade. One of these new practices in the sector is the HKS.

Before providing information about HKS, it will be beneficial to briefly explain the functions of the wholesale markets in the sector. Wholesale markets, where products are sold separately or in bulk, are central to the internal trade of fruits and vegetables in Türkiye. They constitute the basis of the marketing system of fruits and vegetables in terms of their roles in the realization and registration of the wholesale trade and the formation of prices. Wholesale markets also offer an alternative marketing method for mainly small-scale producers without adequate professional organization and storage and transportation facilities. Municipalities or private persons have established 176 wholesale markets in Türkiye. Most of them are located in the Mediterranean and Aegean Regions, which have more plant production capacity than other regions.

All natural and legal persons (intermediaries, traders, exporters, industrialists, retailers, producer organizations, sellers in the marketplaces, etc.) engaged in the vegetable and fruit trade must register the HKS by their business title. By November 2023, 60.213 natural and legal persons with 65.948 business titles were registered in the HKS.

All purchase, sale, and dispatch transactions related to vegetable and fruit (produced or imported) trade must be declared to the HKS instantly. Information such as type, price and quantity of product, destination, buyer, and the like are mandatorily reported during declarations. Declarations may be made by accessing HKS with the personal user name and password or e-government

gateway or via the HKS call center or wholesale market administration office. While the total number of declarations to the HKS was about 209 million in 2022, it accounted for approximately 172 million by the end of November 2023.

As a result of the declarations made to the HKS, a product tag is created for each transaction. These tags contain information about the name and type of the good, its producer, production place, production/import date and amount, owner of the good, name/title of declarer, plate number of the vehicle, etc. By the product tag practice, information such as between whom and at what price and amount the products are bought and sold, where and by whom they are produced can be recorded, and the supply chain can be monitored. The product tags must be kept in the containers or packages of the goods at the retail sale (supermarket and greengrocer) or shipment stages.

Furthermore, the mobile application of HKS, named "HKS Mobil," enables consumers to obtain detailed information about the product by querying the QR code on the tags in supermarkets and thus managing their preferences. Consumers can download the application from the App Store and Google Play Store for free.

The wholesale product prices and transaction volumes resulting from the declarations to the HKS are published on the dedicated web portal to inform the public, members of the profession, and consumers.

Besides registering all purchase, sale, and dispatch transactions and actors in the sector, the HKS has other functions. All wholesale markets, their administrators, and marketplaces are registered in the HKS. Also, application to Wholesale Market Arbitration Committees,[1] formation of committees, and their meeting and decision processes have been transferred to the HKS, and their effective work was ensured. In addition, the wholesale charge is accrued through the System as a result of declarations made and can be collected thanks to HKS's integration with The Bank authorized to collect the charge.[2]

[1] Wholesale Market Arbitration Committees: Wholesale Market Arbitration Committees have been created in each province to settle disputes between producers and professionals in the fruit and vegetable sector and between professionals.

[2] Wholesale charge ("hal rüsumu" in Turkish): A duty collected from the persons who trade vegetables and fruits on the value of the traded goods. It is counted as municipal income and paid through the authorized bank. The wholesale charge rate is 1% for the sales within the wholesale market and 2% for the sales outside the wholesale market.

VI.D Digital export applications

Digital export applications have revolutionized international trade by leveraging digital technologies to facilitate cross-border transactions. These applications refer to the use of digital technologies and platforms to facilitate the export of goods and services across national borders. As technology advances, these applications will play an increasingly vital role in driving the economic growth of Türkiye and fostering its global connectivity.

The designing of end-to-end export processes (within the country) via blockchain technology

This project has been completed by the Ministry of Trade of the Republic of Türkiye in coordination with the European Bank for Reconstruction and Development (EBRD), financed by the Ministry of Treasury and Finance. In this project, a Proof-of-Concept study was carried out, which consisted of transferring foreign trade transactions to blockchain technology, considering the partners' roles.

The project consists of two phases. In the first phase, the conventional export of electric bicycles to the European Union using TCGB (Republic of Türkiye Customs Declaration) through the land route was analyzed and redesigned. In the second phase, cologne was chosen as a sample product, and the United States of America as a sample destination to study through the electronic export process analysis. During this phase, the transactions carried out with the Electronic Commerce Customs Declaration (ETGB), also known as the Simplified Customs Declaration (BGB), were examined.

The project was implemented to determine the improvement to be achieved through restructured processes using blockchain technology. The project scope covers implementing a blockchain network and improving and innovating the foreign trade process, such as accelerating processes through smart contracts, processing only the data of documents instead of the document itself, and automating data control processes. After completing studies on existing processes, the new flow and processes were modeled using blockchain technology after detecting bottlenecks and weak points with operational flow. As an advanced project stage, the foreign trade operations between two countries can be analyzed once a pilot country and product are chosen.

Easy Export Platform (KİP)

KİP started operating in 2020 to provide comprehensive market analysis information regarding target market selection, sector and country analysis

besides market entry strategies with the great extent of scope and serves as a facilitating mechanism for decision-making for exporters.

KİP serves active exporters who export regularly and intends to reach a large segment of entrepreneurs with export-oriented business ideas. In other words, through this platform, in order to select the most appropriate target market and develop market entry strategies, both potential exporters and exporters can access various kinds of information they need to make a healthy export projection, such as foreign trade statistics, market information, opportunities in target markets, and the like.

Through the platform, such information needed by the exporters is gathered and provided by a user-friendly interface to facilitate exporters' access to new markets in an "intelligent" manner. Therefore, a public digital consultancy service focusing on international trade is expected to provide exporters with easy-to-understand outputs.

E-Export support mechanism

Digitalization and changing consumption habits that caused an increase in the share of e-commerce in the retail industry called forth new business models that can reach customers directly (such as B2C and D2C) along with B2B e-commerce models. A support mechanism for promotion activities focusing on e-export has been designed in this context. Encouraging exporters towards cross-border e-commerce, increasing Turkish brand awareness, and promoting Turkish products through digital trade are among the main objectives of this support mechanism.

VI.E Digital customs applications

Today, digitalization significantly impacts international trade, as it does in all areas of life. Customs administrations, a key player in international trade, are increasingly taking advantage of the opportunities and conveniences that digital transformation brings. Digitalization in customs procedures speeds up customs processes and makes them secure and easy, saving time and costs for foreign traders. The Turkish Customs Administration closely follows digitalization activities and implements digitalization projects such as the following customs applications.

BİLGE Customs Platform

The BİLGE system (Electronic Customs Declaration System) and other electronic customs applications, which enable all customs procedures to be carried out

electronically in real-time from the entry of goods into the customs area to their exit, are being developed in a more user-friendly manner to meet the needs of the modern age and in line with goals of strengthening the digital infrastructure. In this context, the "BİLGE Customs Platform" is targeted to be completed in 2023, and thanks to this platform, the Customs administration will unify electronic applications currently used in customs procedures under the umbrella of a single platform.

Customs administration will also provide access to the BİLGE Customs Platform, where customs transactions will be carried out quickly, easily, and securely in a completely paperless environment through a single access point, from anywhere with internet access, web-based, independent of time and space, and also through the e-government gateway. With the mobile applications developed as part of the BİLGE Customs Platform, custom administration makes customs processes easily trackable by all stakeholders with mobile devices.

Port Single Window

The notifications sent by the ship agencies before and after the ship's arrival and departure are entered into a single database to facilitate port operations and make them faster, safer, and more accessible. In this way, the Port Single Window system provides the information needed by the various institutions and ports, enabling one to view the results of the permits and transactions made by public institutions.

Thanks to the system, red tape is eliminated, declarations can be made to different institutions/organizations in a single database, submission of paper documents (except for international documents) to all public institutions and organizations operating in ports is eliminated, and controls can be monitored from a single source. The Port Single Window, which is currently used by the Ministry of Transport and Infrastructure, the Ministry of Health, the Ministry of Interior, the Ministry of Environment, Urbanization and Climate Change, together with the Ministry of Trade, is used in all customs administrations from 2018.

Container and port tracking system

The Container and Port Tracking System is established to electronically record information on containers entering and leaving the country, to enable electronic information exchange between customs authorities, port authorities, and agencies, and to ensure electronic tracking of containers and goods movements in ports. As part of this system, the Container Record and Tracking Form has been submitted electronically to all customs administrations since 2016, and the

system is currently being implemented in a total of 24 ports, representing 93% of container traffic.

On the other hand, for goods arriving by sea, the use of the ship's unloading data from the port operation as temporary storage facility entry data and the automatic execution of temporary storage facility entry transactions based on this data, without the need for further action by the officer, started on 31 March 2023 in all seaports where the Container and Port Tracking System is used.

Digitalization of airline transactions project

The project aims to eliminate paper documents and duplicate transaction steps that slow down the foreign trade transaction processes carried out by air and to realize the electronic exchange of information between parties involved. Customs administrations continue working on the project to simplify airline transaction processes by supporting the processes with mobile applications, reducing transaction times, lowering costs, and monitoring the processes transparently.

Export chain project

Through this project, Customs administrations aim to ensure that all customs and logistics processes related to export transactions can be conducted and monitored electronically from a single screen by all parties involved using blockchain infrastructure. Parties, such as exporters, freight forwarders, and agencies, will submit all information about the goods to the blockchain. This information will be shared with the relevant parties through the blockchain, thus eliminating duplication in export processes and providing both time and cost benefits, as well as a high level of data security since the data in the system cannot be changed.

Border gates analysis program

The program aims to monitor the customs clearance times of vehicles entering and exiting the land border gates and to determine the instantaneous and average customs clearance times of vehicles by using and analyzing the data in the systems. In this way, measures can be taken to eliminate the causes of waiting and delays at the border gates. In addition to determining the average number of vehicles in the customs area and monitoring customs clearance times, the program will also provide performance and efficiency measurements based on vehicle density in the customs area or customs inspection channels.

Single Window System

The Single Window System is a system that allows the required electronic documents to be obtained from a single place during customs procedures and to complete all customs operations through a single electronic application. Under the Prime Ministry Circular numbered 2012/6, which was published in the Official Gazette numbered 28239 on 20 March 2012 and highlighted the inclusion of the "Single Window System in the Customs Services," Customs administration has been delegated the duty and authority to carry out all operations in coordination with other public institutions. The System's main objectives include efficient resource utilization, increased control efficiency, simplified customs procedures and transactions, cost and time savings, transparent customs transactions, and the establishment of a paperless environment. The Single Window System electronically executes and monitors permissions, documents, and approvals prepared by institutions and used in customs operations. Operators apply for licenses, documents, and approvals through the Single Window System, which then verifies the approvals with the relevant institutions. The System generates an ID number to be used in customs declarations, and the operator enters the ID number of the document into the declaration. The system verifies the validity of the ID number and other information in the declaration form, such as the firm's tax ID, HS code, and quantity.

The System consists of two steps: the e-document step and the e-application step. The e-document step facilitates the electronic transfer and direct use of permissions, approvals, and documents without hard copies. On 14 January 2014, the System's first phase was put into operation. The e-application step allows for direct communication with the relevant institution, submitting applications for permissions, approvals, and documents to Customs administration electronically and receiving the application results in the electronic environment. This System phase went into effect on 19 April 2016. On 30 June 2016, the Single Window System went into full operation. It involves 176 e-documents and 22 public institutions that provide permissions and documents for import and export procedures to be used within the System for customs operations.

Simplified customs declaration in fast cargo transport

When the previous 25 years of global trade are examined, a new type of trade that continues to operate outside of established frameworks and steadily grows in scale is evident. Electronic commerce is a new phenomenon that emerged and gained strength in parallel with the dizzying developments in communication technologies. This concept, which covers both local and cross-

border transactions, has brought a brand-new atmosphere with many opportunities and some difficulties due to the widespread use of the Internet and the intensification of business-to-consumer (B2C) and consumer-to-consumer (C2C) transactions. In cooperation with international organizations, including customs administrations, companies operating in this field, such as Amazon, Alibaba, eBay, and all other stakeholders like postal administrations and expedited shipping companies; this fast-developing trade environment required comprehensive and well-thought-out solutions to address the gaps of global standards and guidelines, to identify relevant risks and to manage increasing volumes. A holistic approach has been adopted to facilitate legal e-commerce by addressing issues such as fair and efficient tax collection and the protection of social order and public health.

In this context, to reduce the pressure on customs administration explicitly caused by the expediting customs procedures of continuously increasing volumes of e-commerce shipments, customs clearance of expedited shipments was facilitated and simplified considering the World Trade Organization Trade Facilitation Agreement and the recommendations and principles published by the World Customs Organization and best practices. In this framework, express cargo companies meeting the necessary conditions authorized by Customs administration as operators are enabled to use a simplified customs declaration, including pre-arrival electronic declaration and risk analysis for the goods, the scope of which is determined by Customs administration, and thus, door-to-door delivery of the goods has been made possible. The content of the authorization mentioned above, which is utilized for items delivered by air or land, is as follows:

a) Import

- Document.
- Goods that come to a natural person, do not have a commercial amount or nature, and whose value does not exceed 150 Euros.
- Goods that come to a legal person and whose value does not exceed 22 Euros.
- Books or similar printed publications and medicines for personal use, the value of which does not exceed 1500 Euros.
- Personal belongings of the passenger arriving via express cargo transportation within one month before or three months after the passenger's arrival.
- Goods for educational, scientific, and cultural purposes and scientific instruments and devices.
- Sample items and models of no significant value.
- Goods for examination, analysis, or testing.

- Books or printed publications sent to or provided by public institutions and organizations, libraries, museums, and organizations engaged in education or scientific research.
- Diplomatic items arriving on behalf of embassies, consulates, or international organizations.

b) Export

- Goods whose amount does not exceed 300 kilograms gross and whose value does not exceed 15000 Euros.
- Sample items and models.
- The operator declares the shipments within the scope of its authorization by submitting a simplified customs declaration before arriving at the Customs Territory of Türkiye, and a risk analysis can be made before the arrival of the goods based on the said declaration.

Shipments coming from abroad are classified into the following four categories after automatic barcode reader and x-ray control:

- Documents, subject to document control,
- Other shipments that can be declared within the scope of authority, subject to document control,
- Shipments within the scope of authorization, subject to customs inspection,
- Shipments outside the scope of authorization.

Statistical data on the goods subject to import and export within the scope of authorization and the person on whose behalf the transaction is made are taken into account by the customs administration within the scope of risk analysis. In this way, the shipments coming to real and legal persons are subjected to a statistical evaluation of both the goods, the recipient, and the sender, and risk analysis is carried out. It is possible to take the necessary measures to determine the situations such as making frequent deliveries to the same buyer, whether the goods arriving in this way are commercially used or not.

In the declaration to be made within the scope of authorization, the operator is responsible together with the buyer for the incoming goods and the sender for the sent goods, and it is the operator's responsibility to declare the type, description, and value of the goods accurately and completely. In addition, arrangements have been made in the simplified customs declaration system, allowing for "returned goods" and "return to origin" transactions.

An arrangement has been made that allows the taxes to be paid after the delivery of the goods. Accordingly, the operator can collect the accrued taxes of

the shipments, and the taxes collected by the operator on behalf of the customs administration are paid within seven working days at the latest following the delivery of the goods to the operator. Companies that want to obtain operator authorization must have an X-ray device, an automatic barcode reader, a walking belt system suitable for automatic sorting, and a camera in the temporary storage places where their goods are stored. However, automatic barcode readers and walking belt systems suitable for the automatic classification of goods are not required in temporary storage places where only the goods subject to the export regime will be placed.

The "Simplified Customs Declaration," which enables the customs declaration of incoming and outgoing shipments within the scope of electronic commerce to be made quickly and simply by the operator express cargo company, is an electronic system with a simplified data set in the form of a summary declaration and integrated with the risk analysis system. The number of transport bills that can be added to a simplified customs declaration is limited to a maximum of 2,000 for import and 2,500 for export transactions.

In a release for free circulation, a simplified customs declaration is issued by express cargo companies before the arrival of the goods, and the declaration is registered by selecting the exemption codes defined for the simplified customs declaration system before the arrival and entering data into the mandatory fields determined according to the exemption code.

Transit procedure in Türkiye-Common Transit Convention

Türkiye became party to The Common Transit Convention (CTC-20 May 1987) on 1 December 2012. Common Transit Procedure (CTP) is used for the movement of goods between the 27 EU Member States, the EFTA countries (Iceland, Norway, Liechtenstein, and Switzerland), Türkiye, the Republic of North Macedonia (since 1 July 2015), Serbia (since 1 February 2016), the UK (1 January 2021) and Ukraine (since 1 October 2022). CTP allows customs and excise duties and other charges on goods to be suspended during their movement.

CTP has been developed, for both economic operators and customs administrations, into an instrument of commercial policy essential for facilitating and managing the vast growth of international trade in goods. This system allows goods to be dispatched between Türkiye, EU Member States, and other CTC countries with minimum formalities, customs duties, and national charges suspended.

The contracting parties of the CTC use the New Computerized Transit System (NCTS), which is based on the use of advanced computer systems and the

electronic processing of data. It provides a more modern and efficient management than the paper-based system. This system has been used by Türkiye since 2012.

In addition to the previous points, there are some advantages of CTP. It accelerates the process and simplifies procedures, and it is a non-paper-based process utilizing NCTS. A few simplification choices are shown below if specific criteria are met. It also allows tracing the guarantees used within the transit procedure and eases the border crossing through contracting parties. Moreover, simplifications within common transit procedures are as follows:

Comprehensive Guarantee: A comprehensive guarantee covers a variety of operations. Guarantees are fixed to cover the maximum number of duties and other charges at stake in at least one week, based on past transactions and anticipated trends in the trader's operations.

Authorized consignee: Authorized consignee is the person who wishes to receive goods at their premises or any other specified place entered for the common transit procedure without presenting them and a transit accompanying document at the office of the destination.

Authorized consignor: An authorized consignor is a person who wishes and is allowed to carry out common transit operations without presenting the goods that are the subject of the transit declaration at the office of departure.

Free Zone Information System

This system is used to carry out entry and exit procedures in the electronic environment. The System's aims and objectives are to:

- Enabling all entry and exit operations to be done electronically and allowing integration between systems,
- Accelerating the clearance process of import and export declarations,
- Decreasing bureaucracy and costs thanks to a paperless process.

Tariff search

With the Tariff Search Engine System (TARA), the closest ten results from the Harmonized System(s) that the goods may be subject to from the declarants' description are shown to the obliged party. After the determination of the Harmonized System, by entering the import/export and country criteria, the taxes required to be collected under the export/import legislation and the documents to be added to the declaration are shown to the declarants.

Customs Brokers Information System

In 2014, Customs administrations started to prepare the "Customs Brokers Information System," which aimed at electronic documentation of the registry of information of Authorized Customs Brokers, Customs Brokers, Assistant Customs Brokers, and Customs Trainees. Today, this compact program has decreased the need for paper and has become an essential resource for the Turkish Customs Brokerage System.

With the "Customs Brokers Information System," Turkish Customs Officers and Customs Associations can easily reach home addresses, populations, firm records, working history records, criminal records, discipline records, and electronic user code information of Turkish Customs Brokerage personnel. Besides these, this program has been designed to count the entrance number to the Assistant Customs Brokerage and Customs Brokerage Exams. This way, the number of exam entrances, limited to three for each type according to legislation, is controlled.

Another program, "Authorized Customs Brokerage Information System," was also designed to record and direct warehouse operations of Authorized Customs Brokers. This program also records some personnel affairs of Authorized Customs Brokers.

Also, within the scope of the work of the Council of Facilitation of Trade, the communication information of all living Turkish Customs Brokers has been published on the General Directorate of Turkish Customs website. With this program, anyone worldwide who needs communication information about living Turkish Customs Brokers can take the telephone number, license number, and region knowledge of the customs broker of interest.

Foreign Trade Transactions Reporting System (DTİRS)

The project enables firms to query and pursue foreign trade transactions and benchmark their trade and customs process performance for years. The project was designed as a reporting system that could only be accessed by authorized personnel of foreign trade companies. Thus, companies can collectively access various import and export information, fines, and additional accrual decisions and attain detailed information at the item level as comparable tables. These tables could be downloaded as Excel workbooks. Three companies (Mercedes Benz Türk A.Ş., Bosch Termoteknik Isıtma ve Klima San. ve Tic. A.Ş. ve Arçelik A.Ş.) participated in the project's testing procedure. Ministry of Trade completed the final design and implementation process of the project.

Customs Performance Pursuing System (GPTS)

The system will enable the tracking of transactions and services rendered at customs electronically, facilitating the control and inspection of customs processes and intervening disruptions. The system is fed by the KDS database, which is the database of BİLGE. Examination Approval Time equals the time between Examination Approval Date and Acceptance Date. Extreme values and outliers were omitted by using the IQR (Interquartile Range) formulation.

Within the project scope, users can access two fields: general data and inspection officer data. General data covers the number of declarations processed by the customs administrations in a specific date range, the number of items related to the declarations, and the total value of export, import, customs warehousing, and verbal declarations. Users also might view the inclination of the declarations based on the examination risk line, regime code, and simplified procedure code, as well as the average inspection times on an examination line basis, according to the type of declaration. In addition, users will be able to see the declarations that the customs administration has redressed, the corrections of the closed declarations, the ones sent to the valuation investigation, the deferred closings, and the number of declarations sent to the customs laboratory. In examination officer data, which covers the chief of customs offices and managers of the Ministry of Trade, users might view declaration numbers, item numbers associated with declarations, and the total value of declarations based on examination officers.

Customs Goods Tracking and Analytic Performance Program (GET-APP)

GET-APP application, which enables instant tracking of import and export transactions, has been used since November 2017. Thanks to the application, which was first opened to exporter and importer companies, users started to follow the processes of customs procedures step by step. In response to user requests, the GET-APP eventually provided information on import and export documents.

Currently, there are detailed declarations, NCTS transactions, TIR transactions, arrival procedures, penalty decisions and additional accrual decisions, and electronic document screens in the application, and users can access the transaction dates, transaction parties, and document numbers information on each screen by using the GET-APP. As of June 2019, the application has also been opened to forwarders, logistic service providers, and indirect representatives (customs brokers).

Integrated Data Analytics (Data Mining) Project

Within the scope of risk analysis, with our Integrated Data Analytics (Data Mining) project, structured data in customs and foreign trade are analyzed with artificial intelligence algorithms and advanced analytical modeling to focus on riskier areas. In addition to import-export transactions and transit transports, e-commerce activities are closely monitored, and technological infrastructure is developed to meet the needs created by the increasing volumes of e-commerce. The feedback system is strengthened to increase the effectiveness of the rules and profiles on the system, and artificial intelligence algorithms support the data mining system through necessary updates.

Anomalies relating to the products, nations, and businesses involved in trade can be tracked within the framework of the Foreign Trade Anomaly Detection System developed within the context of the project mentioned above, and, if necessary, quickly intervened thanks to the dashboards created to anticipate changes that may occur in foreign trade and take necessary measures. Import and export statistics are monitored based on various breakdowns, both in terms of value and quantity, and the changes detected are investigated in terms of goods, countries, and firms.

VI.F Digital applications in international services trade

Digital applications are transforming the service trade in several ways. From digital platforms that connect service providers with clients to digital payment systems, personalized experiences, and streamlined operations, digital technology opens up new business opportunities and enables them to compete in the global marketplace.

E-Turquality Program

In line with global developments, Türkiye's information and communication technologies (ICT) sector has shown rapid growth. The market reached nearly $30 billion in 2021 and $24.7 billion in 2022, according to TÜBİSAD ICT 2022 report.

Türkiye's service exports in the ICT sector amounted to nearly $1.5 billion in 2019, $2 billion in 2020, $2.5 billion in 2021, and $2.6 billion in 2022. Since the IT sector interacts with different sectors, it is stated that values are much higher in various sources. While the ICT sector grew by 7% in 2021, exports rose by 30%.

Fintech, cybersecurity, gaming, ICT in healthcare, ICT in mobility, e-commerce, e-government, and telecommunications are just a few sub-sectors within the ICT industry that have seen rapid technological development and growth. There are numerous reasons for Türkiye's ICT sector's success and development. These are the well-trained workforce, competitive costs, excellent telecommunications infrastructure, and a broad government support network.

The e-Turquality (Stars of Informatics) Program includes new support elements specific to the informatics sector. It was prepared to support companies with high-added value in informatics and its sub-sectors. This program aims to promote innovation and create regional and global unicorns in ICT that can compete in international markets.

Software, embedded software, digital games, e-sports, financial software and technologies, blockchain software and technologies, telecommunications, 5G, cloud and communication services, data center, information services, system maintenance and support services, digital brokerage and service platforms, artificial intelligence, big data, cyber security, smart city and green transformation software and services, and related sectors companies located in Türkiye are supported under the E-Turquality (Stars of Informatics) Program.

In this program, as a grant, the Directorate General for International Trade in Services supports the market entry expenses, commission expenses, personnel and license purchase expenses of the companies that develop computer games or mobile applications. Also, the Directorate General for International Trade in Services supports the companies' progress in ICT exports within the scope of the "e-Turquality program.

VI.G Concluding remarks

Technological innovations are reshaping international trade communication, consumption, and production patterns. With this awareness, accelerating digital transformation in Türkiye and increasing productivity and competitiveness in all sectors have been identified as the primary objectives, and the relevant steps have been taken. In this regard, comprehensive policies required by digital transformation in Türkiye's production and trade have been put forward in the Medium-Term Program (2024-2026).

Ministry of Industry and Technology (MoIT) is focused on increasing technological competencies in Türkiye in connectivity technologies, artificial intelligence and machine learning, robotics and autonomy, big data and data analytics, cybersecurity, blockchain, additive manufacturing, super performance

computing, uncrewed aerial vehicles, space technologies, nanotechnology, biotechnology, agricultural technologies, and energy technologies.

This report is believed to accelerate cooperation among Turkic countries and increase awareness of digital transformation. Türkiye aims to increase its digital transformation performance, thereby contributing to developing international digital trade and sharing its experiences with the Organization of Turkic States member states. Increasing digitalization will facilitate Türkiye's and other Turkic countries' further integration into the global economy.

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Unlocking the digital potential of Uzbekistan's economy

"What is the purpose of digitalization? Satisfying the needs of people, upholding human dignity, and ensuring justice."

Shavkat Mirziyoyev,
President of the Republic of Uzbekistan

The digital transformation of economies has become essential to growth and development in the modern era. Like nations across the globe, Uzbekistan strives to harness the power of digital technology by upgrading relevant legislation and taking measures for various sectors where digital technologies have already had a profound impact. This chapter will delve into the details of Uzbekistan's efforts to embrace digitalization and examine the country's current digital landscape.

VII.A Regulatory legislation of the sector

Uzbekistan has made significant progress in developing its legislation to regulate electronic commerce and investment activities. The country recognizes the importance of digital technologies and aims to create a favorable environment for e-commerce and investment to foster economic growth. This comprehensive legislation is designed to provide legal certainty, protect the rights of consumers and businesses, and promote the development of a robust digital economy.

VII.A.1 Legislation of electronic commerce

To improve the regulation of electronic commerce, a new edition of the Law of the Republic of Uzbekistan, "On Electronic Commerce," was adopted in September 2022 (LRU-792 from 29 September 2022). The law defines the basic principles of electronic commerce, including:

- freedom to carry out business activities in the field of e-commerce;
- voluntary conclusion of contracts in electronic commerce;
- equality of conditions for participation in electronic commerce;
- protection of the rights and legal interests of e-commerce entities;
- ensuring the appropriate level of quality of goods and services;
- openness and transparency of processes in electronic commerce;
- ensuring information security in electronic commerce.

Furthermore, the law defines the main directions of the state policy in the field of electronic commerce. In particular, the objectives are to:

- support and encourage business activities carried out in the area of electronic commerce;
- create conditions for attracting investments, modern technologies, and equipment to business activities carried out in the field of electronic commerce;
- create a favorable environment for the development of e-commerce, formation of the necessary technical and logistics infrastructure;
- ensure the protection of the rights and legal interests of electronic commerce subjects;
- create the conditions needed for a competitive environment in the field of e-commerce;
- provide business entities with legal, economic, statistical, production-technological, scientific-technical, and other information necessary for their activities in the area of electronic commerce;
- stimulate scientific and technical research in the field of electronic commerce, training, retraining of personnel, and improvement of their qualifications;
- develop international cooperation in the field of electronic commerce.

In addition to the above-mentioned objectives:

- The Ministry of Digital Technologies *(Ministry of Information Technologies and Communications Development)* is designated as the competent state body in the field of e-commerce;
- in the field of e-commerce, a system of depositing funds ("escrow" service) is being introduced, which allows to hold the paid funds of the buyer until the relevant obligations related to the contract are fully fulfilled;
- self-employed individuals are given the right to carry out activities on the retail sale of goods, works, and services on the electronic trading platform;
- payments in the field of electronic commerce using electronic money are allowed;
- the system of protecting the rights of consumers in the area of electronic commerce has been improved.

To create favorable conditions for the development of e-commerce in the country, introduce modern mechanisms and procedures for the sale of goods and services through the Internet, expand the geography, and increase the volume of exports of products of local business entities, the Decree of the President of the Republic of Uzbekistan "On rapid measures for the development of E-commerce" has been adopted (DP-3724 from 14 May 2018). With this decision, complex measures were defined for the rapid development of e-commerce and the creation of favorable conditions for e-commerce entities. In particular, this decision establishes the following benefits and facilities:

- electronic checks, receipts, messages, and other methods that enable the identification of the parties to transactions, formed by information systems in the process of providing services by electronic commerce participants following legal documents are equated to receipts, vouchers, tickets, and other documents confirming payments for goods and services;
- when carrying out e-commerce transactions by business entities, payment can be accepted in cash with the obligatory sending to the buyer through virtual terminals (E-POS) of an electronic check or other document confirming the acceptance of payment in cash with strict adherence to the rules for collection of funds to servicing banks;
- e-commerce entities, when carrying out trade, have the right to accept payments through corporate bank cards of business entities using payment terminals, as well as electronic payment systems;
- export of goods and services via the Internet with payment through international payment systems in the amount of up to $5000 per invoice does not require the conclusion of a written agreement with buyers and is permitted to all legal entities and individuals without exception, without entering information into the Unified Electronic Information System foreign trade operations and registration of cargo customs declarations, following the rules for the provision of postal services;
- virtual terminals (E-POS) are equivalent to similar cash registers and payment terminals;
- business entities providing services for the delivery of goods sold through e-commerce are granted the right to accept payment from third parties (sellers of goods), with subsequent collection in the prescribed manner;
- the requirement for a mandatory 15% advance payment of the total cost of goods and services sold through e-commerce is canceled;
- in the delivery of goods sold through e-commerce to the seller and the supplier by means of private property, lease, and other rights of use, obtaining a license for the transportation of passengers and cargo in urban, suburban, intercity, and international vehicles is not required, except for specified cases;
- when delivering goods sold through e-commerce, the seller and delivery person on motor transport owned by them by right of ownership, lease, or other rights of use on the territory of the Republic of Uzbekistan does not require obtaining a license for urban, suburban, intercity and international transportation of passengers and goods by road transport, except for cases established by the law;
- it is allowed to sell medicines and medical products through electronic commerce only if it strictly follows the procedures and requirements for ensuring their safety during storage and delivery, taking into account the requirements of legal documents.

Also, under the decision "On rapid measures for the development of E-commerce," the National Registry of Electronic Commerce Entities has been established (http://www.e-tijorat.uz). The maintenance of the national register is carried out electronically in an online regime. Legal entities and individual entrepreneurs are included in the National Registry on a voluntary and free basis, including those engaged in the provision of services of electronic trading platforms, delivery of goods, storage of electronic documents and messages in electronic commerce, whose income from the sale of goods and services through electronic commerce account for at least 80% of the total volume of goods and services sold by them. The business entities start paying a single tax payment at 2% after entering the register. Currently, the number of business entities included in this register exceeds 270.

Several dozen large domestic and foreign electronic stores such as Uzum, Lebazar, Asakhi, Sello, and others are actively working in the Uzbekistan market today. E-commerce turnover is also increasing year by year. For example, e-commerce turnover in Uzbekistan amounted to 6 billion UZS in 2016; by 2021, it reached almost 6 trillion UZS. All this results from measures aimed at developing the field of e-commerce in Uzbekistan.

Unified integrated platforms launched in the sphere of electronic commerce are as follows:

- Trade Uzbekistan is a universal e-commerce platform;
- The uzbtextile.com platform has been launched for those operating in the B2B format in the textile sector;
- The state postal service company has launched a national trading platform known as Unisavdo;
- Uzum marketplace has become the first ecosystem marketplace to integrate its trading platform, digital banking, and delivery service within a single ecosystem.

IMAN - includes three products - marketplace, payment service, and investments. In 2021, it became the first startup from Uzbekistan at the Seedstars World Finals.

VII.A.2 Investment legislation

The Law of the Republic of Uzbekistan, "On Investments and Investment Activities" (LRU-598 from 25 December 2019), has been adopted to govern relations in investment activities carried out by foreign and domestic investors. The main principles of investments and investment activities are defined by this law as follows: (1) legality, (2) transparency and openness, (3) freedom to carry

out investment activities, (4) fairness and equality of subjects of investment activity, (5) non-discrimination against investors, and (6) presumption of investor good faith.

By this law, the Ministry of Investments, Industry and Trade of the Republic of Uzbekistan is designated as the competent state body in state regulation of investments and investment activities.

To further improve the investment environment in the country as well as ensure the provision of legal protection and guarantees for privatization, modernization of production, technical re-equipment and reconstruction, the Decree of the President of the Republic of Uzbekistan "On additional measures to stimulate direct private foreign investment" has been adopted (DP-3594 from 11 April 2005). Following this decree,[1] special tax benefits in the following direct private foreign investment volumes are provided, following the procedure established by the Tax Code of the Republic of Uzbekistan for enterprises established with the attraction of foreign direct investment and specializing in the production of goods (providing services) in the relevant sectors of the economy, including:

- from $300 thousand to $3 million - for a period of 3 years;
- more than $3 million and up to $10 million - for a period of 5 years;
- in the case of more than $10 million - for a period of 7 years.

In general, Uzbekistan has established comprehensive legislative norms for digitizing trade and investments, which aim to develop this sector and fully protect investors' rights.

From 2017 to 2022, the following reforms were implemented in the country for the absorption of investments, in particular attracting foreign investments, along with the introduction of the free conversion of the national currency soum:

- The "Tashkent International Investment Forum" and bilateral business forums with trade partner countries are organized regularly to improve the country's investment environment. Visa-free entry for foreign citizens (for 90 days) and a simplified visa procedure (for 60 days) are introduced.

[1] Production of radio-electronic industry products and components of computer and computing equipment, textile, silk, building materials industry, poultry and egg production, food industry, production of ready-made food products processed on an industrial scale from local raw materials (except for alcoholic and non-alcoholic beverages and tobacco products), meat and dairy industry, production of fish larvae and fry, processing and canning of fish and fish products, chemical industry, petrochemical industry, pharmaceutical industry, as well as veterinary drugs production, production of packaging materials, construction of power stations based on alternative energy sources, coal industry, production of electroferroplastics and metal products intended for production, mechanical engineering and metal processing, machine tool and tool manufacturing industry, glass and porcelain industry, microbiology industry, production of toys, tourism, waste management.

Twenty-three free economic zones specializing in industry, pharmaceutics, tourism, and agriculture were established.

- A "one window" system that helps with all procedures leading up to the start of investment projects was implemented to make things easier for foreign investors. All issues about the repatriation of profits by foreign investors were also resolved, and dividends from their shares were kept tax-free for three years.
- Customs duties on several raw materials and goods (more than 7 thousand) were set at zero value or reduced (about 6 thousand) to liberalize foreign trade policy. A simplified procedure for processing products in the customs was introduced. The process for refunding VAT to exporting businesses within a week has been implemented.
- To reduce the state's participation in business activities and create a healthy and competitive environment, about 200 licenses and permits were canceled or simplified (132 cases). At the same time, state functions for business regulation (500) were abolished.
- The five taxes were reduced to facilitate business activities, and several tax rates (VAT, property, income, and social tax) were lowered.

VII.B Sectoral digitalization measures

Uzbekistan is carrying out systematic measures in the area of digitalization of the activities of State administration bodies. In particular, the digitalization of trade in construction and repair works financed from the State budget, digitalization of processes for monitoring sales dynamics and prices for basic foodstuffs, and especially projects aimed at digitalizing trade in public procurement have been carried out.

VII.B.1 Digitalization of construction and repair works financed from the state budget

The implementation of state investment programs was started in test mode in 2022 online, following the Decree of the President of the Republic of Uzbekistan dated 17 November 2022, "On measures to improve control mechanisms in the implementation of construction projects and to further increase the openness and transparency of the process," in addition to the task of digitizing construction and repair works financed by state budget.

This link dev-auth-new.soliq.uz fully includes several programs developed on the basis of "Development of Social and Production Infrastructure," "Prosperous Village and Prosperous Neighborhood," "Initiative Budget," "Development of

Neighborhood Infrastructure," and "Facilities Financed from the Local Budget and Public Investment."

In order to ensure the implementation of public investment programs according to the criteria of openness, transparency, and fairness, this program is integrated with other systems in the field of construction, in particular, "Transparent Construction," "DMBAT DM," "UZASBO" and electronic tender platforms created to identify contractors for project search and construction.

Each construction object is assigned a special Identifier (ID) number, which can be used to obtain complete information about it, such as general information about the construction object (name, capacity, industry, region and district, type of construction), technical parameters, total cost (amount of work performed, financed and residual amount), passport, technical description, author's book, exact geolocation, and construction state.

VII.B.2 Digitalization of monitoring of food price dynamics

In Uzbekistan, special attention is paid to strengthening the population's purchasing power, ensuring the provision of basic types of food and consumer goods, diversifying global supply chains, and curbing inflation.

The electronic platform www.narx.idm.uz is designed to monitor the dynamics of prices for the main types of food products in the regions (region, district, city) in order to study the impact of seasonality factors on inflation and reduce the harmful effects of these factors on inflation.

VII.B.3 Digitalization of public procurement

In recent years, many measures have been implemented in public procurement to reduce the involvement of the human factor by ensuring openness and transparency in the sphere and digitalization of public procurement processes. These measures include the following issues:

- Under the Law of the Republic of Uzbekistan, "On Public Procurement" from 1 January 2022, a procedure for selecting the best proposals and conducting tender procurement procedures in a fully electronic form was introduced.
- It became possible to submit participants' proposals electronically through the electronic public procurement system, and the process of reviewing and evaluating proposals by the procurement commission became completely electronic.

- The Central Public Procurement Information Portal was established to gather, analyze, and continually monitor all public procurement data in one place. In this regard, cooperative relations have been established with the European Bank for Reconstruction and Development, the World Bank, and the French Development Agency.
- The MQ RABBIT system was launched, and data was transferred to JSON format to realize a unified real-time data exchange with the electronic public procurement system operators, public finance management information system, and other information systems.
- A classification of goods (works, services) used in public procurement has been introduced.
- A module for electronic review of complaints in public procurement was created and put into practice.
- Electronic data exchange with the Ministry of Justice's information system established a real-time mechanism for detecting conflicts of interest between public contractors and procurement procedure participants.
- By ensuring electronic data exchange with the State Tax Committee, those who are terminated, are subject to termination and have tax debts are not eligible to participate in public procurement.

The following actions were taken in this direction in 2023:

- Integration of the unified register of contracting organizations with the national information system "Transparent Construction" was ensured.
- The procedure for providing services through the treasury to unitary enterprises whose founders are budgetary organizations was implemented.
- On the special information portal for public procurement, procurement orders related to creating and implementing software products, software and hardware complexes, and information systems are displayed in a separate module (web page), and procurement processes are implemented on a ranking basis.
- Technological regulations were developed and approved for mutual integration of electronic databases used in public procurement through the dedicated information portal "IT Market." The systems were mutually integrated, and the information placed on the portal on public procurement was reflected on the "IT Market" information portal.

VII.C Main indicators of the digital economy

The leading indicators of Uzbekistan's digital economy reveal the nation's ongoing commitment to embracing the digital revolution. These indicators highlight the progress made in recent years and serve as a roadmap for future

growth and development as Uzbekistan continues to harness the power of technology to shape its economic landscape and enhance the well-being of its citizens.

VII.C.1 General indicators

Ensuring the sustainable development of the country's economy demands a focus on modernizing and enhancing the competitiveness of key sectors, reforming state administration, and accelerating efforts in digitization and fostering investment attractiveness. Collaborative initiatives in high technologies and strategic partnerships with critical foreign nations also play a pivotal role in this pursuit.

A critical aspect involves establishing cooperative platforms and operational mechanisms within realms such as innovation, artificial intelligence, green economy, digitalization, smart agriculture, nano, and biotechnologies.
On 22 February 2023, President Shavkat Mirziyoyev chaired a video conference addressing the expedited digitalization process across sectors and regions, yielding noteworthy outcomes.

In the past three years, considerable attention has been directed towards information technology (IT), with the IT park residents generating services worth 5 trillion UZS, including exports valued at $140 million last year.

The transition of 370 out of 715 public services to digital platforms facilitated usage by 12 million people, rendering over 70 types of information and document requests obsolete.

A targeted plan aims to increase IT service exports to $1 billion, requiring the training and employment of at least 100,000 qualified professionals. Expanding high-speed internet networks, fostering a conducive environment for foreign IT companies, and launching essential electronic services are integral components of this vision.

Over the past two years, the establishment of 215 IT training centers has been instrumental, with financial incentives provided to support these institutions and their graduates. Export companies hiring specialists are eligible for subsidies, and young individuals with limited opportunities can benefit from preferential loans for computer purchases.

VII.C.2. Important digital economy indicators by the end of 2022

The digital economy's share in GDP witnessed growth, reaching 2.77% (2.6% in 2021) in computer programming services and 2.38% (2.32% in 2021) in traditional ICT services. Noteworthy achievements include the following:

- A robust investment influx reached $396.1 million (132% increase) in the ICT sector.
- ICT services amounted to 24.5 trillion UZS (128.8%), of which computer programming services accounted for 4.7 trillion UZS (144.2%).
- The volume of services per capita was 687.5 thousand UZS in the direction of communication and information and 130.5 thousand UZS in computer programming, consulting and other auxiliary services.
- The number of legal entities operating in information and communication was 16,641, including 12,204 ICT enterprises and 4,437 IT enterprises.
- 1,122 IT-Park residents (523 in 2021) and 165 IT companies with foreign capital participation (23 in 2021) were present.
- Large foreign IT companies and over 3,000 foreign IT specialists have started their activities in Uzbekistan.
- The total export of ICT services amounted to $306 million, of which traditional ICT services accounted for $183 million, and computer programming and Business Process Outsourcing (BPO) services accounted for $140 million ($46.5 million in 2021).

In addition, telecommunication services constituted $180 million (2021 - $156 million), computer programming services – $56 million ($5 million), other computer services – $40 million ($8 million), other information services – $28 million ($12 million).

Telecommunication infrastructure

- The length of optical fiber communication lines is 170 thousand kilometers, and the coverage of optical fiber communication is 80% (an additional 50 thousand kilometers are under construction).

- 8,300 base stations have been installed (54,000 in total), and the total coverage of residential areas with mobile Internet is 98%, including 2G at 99%, 3G at 87%, and 4G at 75% (The process of introducing 5G technology has started in Uzbekistan in 2023. In the project's first stage, it is planned to cover the entire city of Tashkent with the 5G network, as well as the city of Nukus and regional centers. Within the framework of the project, more than 3,000 existing base stations across Uzbekistan will be updated according to

the latest technologies, and more than 2,000 new base stations will be built and put into operation).
- The number of broadband ports has reached 4.6 million (the installation of an additional 1 million ports is ongoing).
- The monthly data per user was 8.5 GB in mobile communication and 198 GB through fixed (wired) Internet.
- The total bandwidth of connecting to the international Internet network was increased to 3,200 Gbit/s.
- Internet service users were 31 million (86% of the population), including 29.5 million (82% of the population) mobile Internet users.

As of 1 January 2023, the total number of subscribers (legal and physical) connected to the Internet is 26.7 million. (75% of every 100 permanent residents), including 24.0 million subscribers connected to the Internet through mobile communication (67% of every 100 permanent residents).

The number of electronic state services on the single portal has increased to 370 (300 in 2021), and the number of services in its mobile application has increased to 165. The services have been used a total of 12 million times.

Within the framework of the "Digital Uzbekistan - 2030" strategy, a single data storage and processing center of the "Electronic Government" system, which has a TIER III certificate from the international Uptime Institute, was launched in the Zangiota district of the Tashkent region.

Employment in ICT

The total number of people employed in the ICT sector is 116,900, of which 39,900 are freelancers, 18,000 are IT-Park residents, 15,400 are sales agents in the ICT sector, and 43,600 are employed in other ICT enterprises.

Fifteen remote service centers have been established based on BPO, and more than 400 young people are employed in them.

IT and e-commerce training

More than 2.5 million young people have registered within the framework of the "One million Uzbek programmers" project. More than 1.7 million young people (57% males and 43% females) received a graduation certificate.

In cooperation with the Ministry of Economy and Finance and the United Nations Development Program, a joint project for 2022-2024 on "Expanding the opportunities for the development of the digital economy and digital entrepreneurship of young people" is being implemented in order to expand the

opportunities of young people and women to develop the digital economy and digital entrepreneurship, as well as to improve their e-commerce and digital skills.

In order to attract young people to digital and e-commerce services, 10,364 young people, including 2,038 females, were trained in digital technologies and e-commerce.

VII.D Key investment indicators

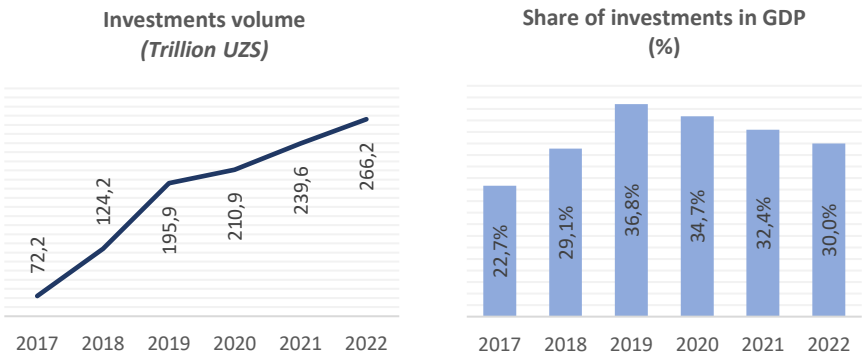
This component provides information about the investment policy pursued in Uzbekistan over the past six years, its macroeconomic significance, and an analysis of investments in sectors and investment efficiency.

VII.D.1 Total investment volume

Investments are one of the crucial factors ensuring sustainable economic growth in the long term. Thanks to investments, capital is formed, one of the essential production components. Capital, in turn, is directly involved in creating gross domestic product (GDP), which is the basis of the country's well-being.

From 2017 to 2022, Uzbekistan realized 1,109 trillion UZS of investments (gross capital formation) with an average annual growth rate of 23.0% (Figure VII.1). The investments paved the way for the high economic growth observed during this period. In particular, average GDP growth in 2017-2022 was 5.2%, while investment accounted for 3.8% of this growth. As shown in Figure VII.1, the share of investments in the country's GDP in 2017 was 22.7%; in 2019, this figure increased to 36.8% and decreased to 30% in 2022.

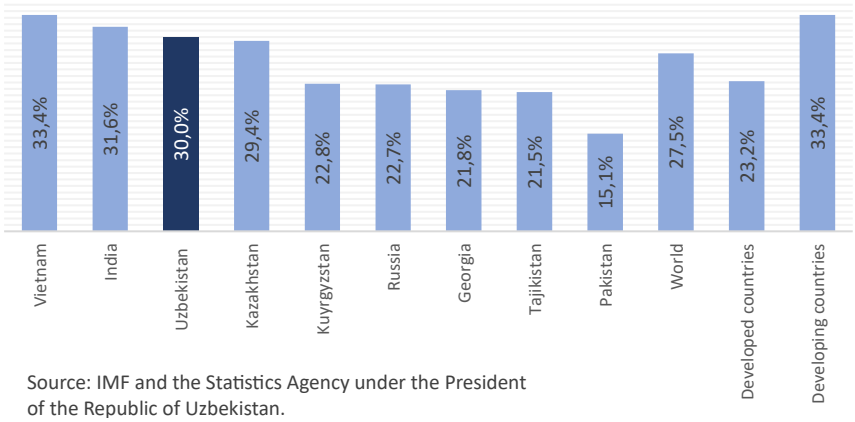
Figure VII.1: Investments in Uzbekistan



Source: Statistics Agency under the President of the Republic of Uzbekistan.

In 2022, the share of investments in GDP averaged 27.5% worldwide. This figure was higher in developing countries (on average 33.4%) than in developed countries (23.2%). As shown in Figure VII.2, Uzbekistan outperformed many nations in absorbing investments.

Figure VII.2: Share of investments in GDP in selected countries
(2022, percent)



Source: IMF and the Statistics Agency under the President of the Republic of Uzbekistan.

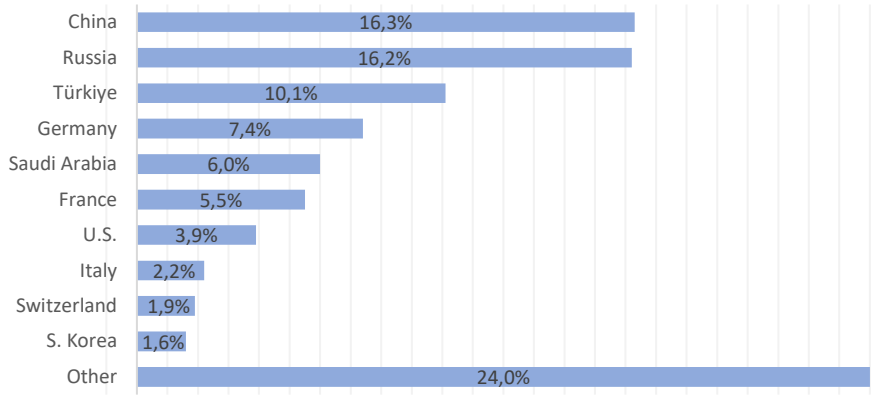
From a macroeconomic point of view, investments are financed by gross savings and funds attracted from outside. Uzbekistan's Savings-Investment (S-I) account-to-GDP ratio was 7.6% in 2017, up from negative -4.5%, -3.2%, and -1.1% in the 2019-2021 period. In 2022, this indicator returned to 5.5% and grew the country's economy, providing an opportunity to finance investments in new production facilities.

VII.D.2 Foreign investment

In 2017, foreign investment and loans accounted for 23.8% of total investment in the economy, while at the end of 2022, it reached 42.8%. At the same time, the share of foreign direct investment (FDI) increased from 3.6% to 4.5%. Over the past six years, foreign investment and loans amounted to $45.5 billion, of which $17.1 billion was FDI.

Recent years have also seen positive changes in foreign investments in Uzbekistan by geographical origin. In particular, in 2017, the bulk of the disbursed foreign investments and loans fell to the share of two countries - Russia (55.5%) and China (15%), while today the share of countries such as Türkiye (10.1%), Germany (7.4%), Saudi Arabia (6%), France (5.5%), United States (3.9%), Italy (2.2%), Switzerland (1.9%) and Korea (1.6%) also increased.

Figure VII.3: Distribution of foreign investments in Uzbekistan by geographical origin *(2022, percent)*



Source: Statistics Agency under the President of the Republic of Uzbekistan.

VII.D.3 Investments by sectors

In 2017-2022, $54.0 billion of investments were disbursed in the industrial sector (of which $31.8 billion were foreign investments and loans), and in the services sector - $51.5 billion ($9.3 billion), in the agriculture economy - $8.1 billion ($2.6 billion) and in construction - $5.6 billion ($1.8 billion).

Over the past six years, investment in industrial sectors has increased by 65%, contributing to high industrial growth (average 5.9%). As a result, the industry's share in gross value added increased from 21.1% in 2017 to 26.7% in 2022.

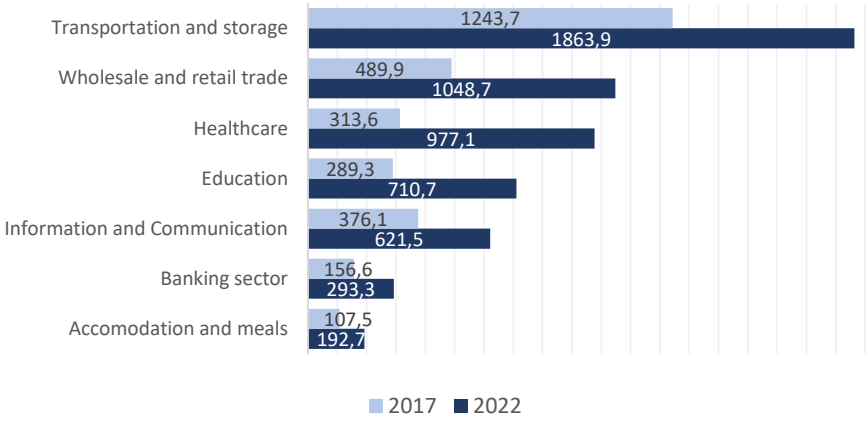
In terms of industries, the volume of investments, including foreign ones, increased significantly: in the automotive industry - by 3.9 times by 2017, in the building materials industry - by 3.7 times, in the metallurgical industry - by 3.1 times, in the textile and clothing and knitting industry – 3.0 times. At the same time, during 2017-2022, investment projects were launched in the following significant industries, achieving positive economic results:

- In the oil and gas sector, $3.6 billion was invested in the "Shurtan gas chemical complex" to produce liquefied synthetic fuel based on purified methane.
- In the chemical industry, the production of ammonia and urea at the "Navoiyazot" enterprise was worth $1 billion.
- In the mining industry, constructing a complex for extracting and processing gold at the "Auminzo-Amantoy" mines was worth $0.5 billion.

- In the metallurgical industry, the "Tashkent Metallurgical Plant" was constructed for $0.4 billion.

Over the past six years, investments in the service sector increased by 70.6%, with the volume of foreign investments increasing by three times and the added value created in the industry rising by 36.1%.

Figure VII.4: The volume of investments attracted by service industries *(2017 and 2022, million $US)*



Source: Statistics Agency under the President of the Republic of Uzbekistan.

The number of hospitals in the healthcare sector increased from 1,135 to 1,322, the number of hospital beds - from 136,000 to 170,000, the number of non-state preschool institutions in the education sector - from 1,400 to 22,800, the number of non-state educational institutions - from 84 to 334, and the number of non-state higher educational institutions - from 7 to 95.

Investment volume in the construction sector increased by 5.3 times compared to 2017, and the volume of foreign investment increased by 205.2 times. As a result, the construction sector recorded the highest growth from 2017 to 2022 (10.9% per annum on average), and the sector's share of gross value added increased from 5.4% in 2017 to 6.7% in 2022. More specifically:

- In 2022, the construction of "new Uzbekistan" massifs began in the regions.
- Eleven large clusters were created to construct high-rise buildings using prefabricated reinforced concrete structures.
- Since 2017, 430.7 thousand new residential units have been put into operation.

In the agricultural sector in 2017-2022, investments increased by 19.1%, and the volume of foreign investment and loans increased by 12.4 times. In the same period, with the creation of new 631 clusters, the following major projects were implemented in the agricultural sector:

- Creation of a greenhouse worth $80.4 million based on “Global Food Impex” LLC.
- Organization of production of organic products worth $35 million at “Bio agro” LLC.
- Construction of a logistics center for packaging, storage, drying, and deep processing of fruits and vegetables worth $21.8 million at “Property Industry” LLC.

VII.E DIGITAL ECONOMY STRATEGY

In order to accelerate the development of the digital industry and increase the competitiveness of sectors of the national economy, the “Digital Uzbekistan-2030” strategy (hereinafter referred to as the Strategy) was approved by decree of the President of the Republic of Uzbekistan (DP - 6079 dated 10 May 2020).

The Strategy was developed to ensure rapid digital development of sectors of the economy, the social sphere, and the public administration system, including further improving the mechanisms for providing electronic public services.

The Strategy defines the strategic goals, priorities, and medium- and long-term prospects for developing the digital economy and e-government of the Republic of Uzbekistan. Also, it serves as the basis for the broader implementation of digital technologies based on the priorities set out in the UN Sustainable Development Goals and the e-government development rating.

In addition, the Strategy covers strategic goals and priorities of digital development, priority areas for developing digital infrastructure, development of e-government, development of the digital economy, growth of the national digital technology market, education, and advanced training in information technology.
By implementing the tasks set out in the Strategy, it is planned to achieve the following results:

- high-quality, high-speed Internet, safe, cheap, and reasonable use of global information networks and mobile communication networks;
- open and competitive communications and telecommunications market;

- increasing the level of coverage of populated areas with high-speed communication technologies (4G, etc.);
- becoming one of the most developed countries in the international ranking of e-government development;
- increasing the share of electronic government services;
- strengthening confidence in electronic government services, ensuring safe and convenient interaction between the population and government authorities;
- efficient distribution and use of computing power depending on the needs of the state, business, and population;
- increasing the advantages of electronic letters over traditional paper or electronic documents;
- expansion of export volumes of software products;
- increasing the number of IT park residents;
- improving the investment environment, increasing the efficiency of investments in the field of information technology;
- developing the population's skills in using the digital economy and e-government tools, etc.

In conclusion, Uzbekistan has made significant strides in embracing digitalization, as evidenced by the country's comprehensive legal framework, ambitious digital economy strategy, and various ongoing projects. As a result, Uzbekistan's digital landscape has witnessed remarkable growth with the rapid expansion of electronic commerce and digital services.

To further promote digitalization, Uzbekistan will continue investing in digital infrastructure and prioritize education and training programs to develop a skilled workforce capable of leveraging digital technologies. By fostering a culture of innovation and collaboration, Uzbekistan will continue to harness the full potential of digitalization and drive its sustainable economic growth.

Hungary's digital economy: An overview of strategies and digital technologies

VIII.A Introduction

The overarching theme of this decade is digital transformation, where countries not only focus on digitizing data and operations but build on them to survive in an entirely new economic system and competitive environment. It is not just that we can perform certain activities more efficiently with the help of our digital devices and applications, but that global digitalization is fundamentally changing the way the economy and society operate. The proliferation of artificial intelligence, machine learning, big data and data science, and cloud-based services generates new opportunities for value creation. As a result, new business models, governance methods, and service delivery models that require new skills and capabilities are emerging. Whether it is increasing customer satisfaction, marketing, or developing and evaluating new policies in the public sector, this transformation will fundamentally affect many areas of daily life. According to research by McKinsey & Company, *the digital sector can add nearly 21 billion euros to Hungary's economy by the end of the decade* - but only if the accumulated backlog is eliminated (Digital Hungary, 2022). In other words, digitalization is not a luxury for its own sake but the foundation of our competitiveness, well-being, and security.

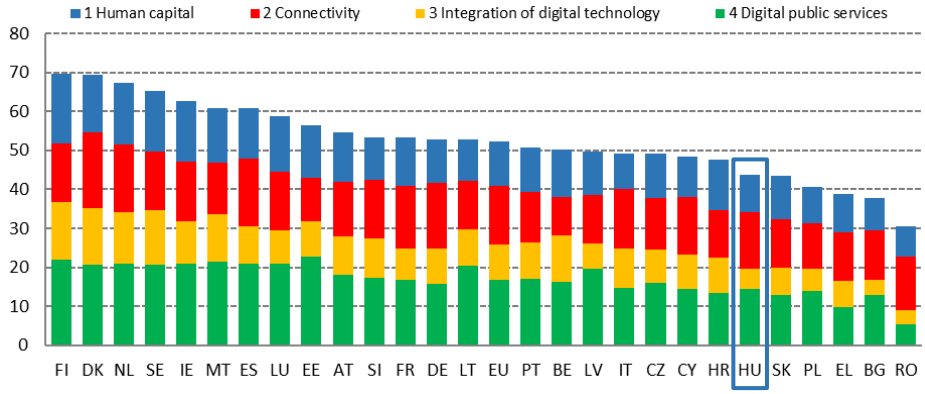
VIII.B Digital economy infrastructure in Hungary

Since 2014, the European Commission has been monitoring Member States' progress in the digital domain and publishing annual reports known as the Digital Economy and Society Index (DESI) reports. These reports include country-specific profiles that help Member States identify areas that need immediate attention. The reports also include thematic sections providing an EU-wide assessment of key digital policy areas. The DESI index assesses and ranks Member States based on their level of digitalization and evaluates their comparative growth over the last five years, taking into account their starting position (European Commission, 2022a). In the Digital Economy and Society Index (DESI) for 2022, Hungary secured 22nd place among the 27 EU member states (Figure VIII.1). It is noteworthy that Hungary has shown progress in line with the overall development of the European Union in recent years.

Regarding human capital, Hungary ranks 23rd with a score of 38, below the EU average of 46. The data show that 49% of individuals have at least basic digital skills, a percentage lower than the EU average of 54%. In addition, only 3.1% of graduates studied ICT, compared to the EU average of 3.9%, and the proportion of ICT specialists in the workforce remains relatively modest at 3.9%, compared to the EU average of 4.5% (Table VIII.1). It's important to stress that a significant increase in both the presence of ICT specialists and the level of digital literacy is

essential for the EU to meet its skills targets under the Digital Decade (European Commission, 2022b).

Figure VIII.1: Digital Economy and Society Index
(2022 ranking)



Source: European Commission, 2022.

Table VIII.1: Hungarian human capital

	Hungary			EU
	DESI 2020	DESI 2021	DESI 2022	DESI 2022
1a1 At least basic digital skills *(% individuals)*	NA	NA	49% *(2021)*	54% *(2021)*
1a2 Above basic digital skills *(% individuals)*	NA	NA	22% *(2021)*	26% *(2021)*
1a3 At least basic digital content creation skills *(% individuals)*	NA	NA	59% *(2021)*	66% *(2021)*
1b1 ICT specialists *(% individuals in employment aged 15-74)*	3.4% *(2019)*	3.8% *(2020)*	3.9% *(2021)*	4.5% *(2021)*
1b2 Female ICT specialists *(% ICT specialists)*	11% *(2019)*	12% *(2020)*	14% *(2021)*	19% *(2021)*
1b3 Enterprises providing ICT training *(% enterprises)*	16% *(2019)*	16% *(2020)*	16% *(2020)*	20% *(2020)*
1b4 ICT graduates *(% graduates)*	4.6% *(2018)*	4.9% *(2019)*	3.1% *(2020)*	3.9% *(2020)*

Source: European Commission, 2022a.

Hungary shows a strong performance in terms of broadband connectivity. It continues to excel in adopting at least 1Gbps broadband, with 22% of households subscribing to such services in 2021, a notable contrast to the EU average of 7.6% (Table VIII.2). In addition, Hungary outperforms the EU average regarding overall fixed broadband penetration, 5G spectrum availability, and fixed very high-capacity network (VHCN) coverage. This achievement is significant, especially in light of the Digital Decade goal of achieving 100% gigabit network coverage for all households by 2030.

Table VIII.2: Hungarian connectivity

	Hungary			EU
	DESI 2020	DESI 2021	DESI 2022	DESI 2022
2a1 Overall fixed broadband take-up *(% households)*	82% *(2019)*	81% (2020)	83% (2021)	78% (2021)
2a2 At least 100 Mbps fixed broadband take-up *(% households)*	51% *(2019)*	56% *(2020)*	61% *(2021)*	41% *(2021)*
2a3 At least 1 Gbps take-up *(% households)*	9.26% *(2019)*	13.21% *(2020)*	21.82% *(2021)*	7.58% *(2021)*
2b1 Fast broadband (NGA) coverage *(% households)*	90% *(2019)*	89% *(2020)*	97% *(2021)*	90% (2021)
2b2 Fixed Very High Capacity Network (VHCN) coverage *(% households)*	43% *(2019)*	49% *(2020)*	79% *(2021)*	70% *(2021)*
2b3 Fibre to the Premises (FTTP) coverage *(% households)*	43% *(2019)*	49% *(2020)*	64% *(2021)*	50% *(2021)*
2c1 5G spectrum *(assigned spectrum as a % of total harmonized 5G spectrum)*	60% *(04/2020)*	60% *(09/2021)*	60% *(04/2021)*	56% *(04/2021)*
2c2 5G coverage *(% populated areas)*	NA	7% *(2020)*	18% *(2021)*	66% *(2021)*
2c3 Mobile broadband take-up *(% individuals)*	71% *(2018)*	71% *(2018)*	84% *(2021)*	87% *(2021)*
2d1 Broadband price index *(Score (0-100)*	64 *(2019)*	64 *(2020)*	70 *(2021)*	73 *(2021)*

Source: European Commission, 2022a.

Table VIII.3: Integration of digital technology in enterprises activities

	Hungary			EU
	DESI 2020	DESI 2021	DESI 2022	DESI 2022
3a1 SMEs with at least a basic level of digital intensity *(% SMEs)*	NA	NA	34% *(2021)*	55% *(2021)*
3b1 Electronic information sharing *(% enterprises)*	14% *(2019)*	14% *(2019)*	21% *(2021)*	38% *(2021)*
3b2 Social media *(% enterprises)*	12% *(2019)*	12% *(2019)*	13% *(2021)*	29% *(2021)*
3b3 Big data *(% enterprises)*	6% *(2018)*	7% *(2020)*	7% *(2020)*	14% *(2020)*
3b4 Cloud (% enterprises)	NA	NA	21% *(2021)*	34% *(2021)*
3b5 AI *(% enterprises)*	NA	NA	3% *(2021)*	8% *(2021)*
3b6 ICT for environmental sustainability *(% enterprises having medium/high intensity of green action through ICT)*	NA	65% *(2021)*	65% *(2021)*	66% *(2021)*
3b7 e-Invoices *(% enterprises)*	10% *(2018)*	13% *(2020)*	13% *(2020)*	32% *(2020)*
3c1 SMEs selling online *(% SMEs)*	12% *(2019)*	13% *(2020)*	18% *(2021)*	18% *(2021)*
3c2 e-Commerce turnover *(% SME turnover)*	11% *(2019)*	9% *(2020)*	11% *(2021)*	12% *(2021)*
3c3 Selling online cross-border *(% SMEs)*	5% *(2019)*	5% *(2019)*	7% *(2021)*	9% *(2021)*

Source: European Commission, 2022a.

While there has been notable progress in the digitization of businesses in 2021, most Hungarian companies have yet to take full advantage of the opportunities offered by digital technologies. For example, only 21% of companies use enterprise resource planning software to share information electronically, a figure well below the EU average of 38%. Similarly, only 13% of companies in Hungary use social media or send e-invoices, both below the EU averages of 29% and 32%, respectively. The situation is similar regarding advanced technologies such as artificial intelligence, cloud computing, and big data, where Hungary's adoption rates are well below the EU average, ranging from 3% to 21%. These figures are far from the Digital Decade target of 75% adoption by 2030. Small and medium-sized enterprises (SMEs) are of particular concern and require special policy attention. Only 34% of SMEs in Hungary have a basic level of digital intensity, in stark contrast to the EU average of 55% and the Digital Decade target of at least 90% (Table VIII.3).

Regarding digital public services, the key metrics show a varied scenario. Significant progress was observed on the demand side of e-government, with 81% of internet users actively engaging with public administration online in 2021. This represents an increase from 64% in 2019, surpassing the EU average of 65% in 2021 (Table VIII.4). However, the quality and comprehensiveness of services offered to individuals and businesses remain somewhat lacking, especially in cross-border service provision. This aspect is paramount in pursuing the Digital Decade goal of making all key public services fully available online by 2030.

Table VIII. 4: Digital public services

	Hungary			EU
	DESI 2020	DESI 2021	DESI 2022	DESI 2022
4a1 e-Government users *(% internet users)*	64% *(2019)*	70% *(2020)*	81% *(2021)*	65% *(2021)*
4a2 Pre-filled forms *(score 0 to 100)*	NA	NA	60 *(2021)*	64 *(2021)*
4a3 Digital public services for citizens *(score 0 to 100)*	NA	NA	64 *(2021)*	75 *(2021)*
4a4 Digital public services for businesses *(score 0 to 100)*	NA	NA	74 *(2021)*	82 *(2021)*
4a5 Open data *(% maximum score)*	NA	NA	58% *(2021)*	81% *(2021)*

Source: European Commission, 2022a.

VIII.C The Hungarian National Digitalization Strategy for 2022-2030

1121/2013 of the Hungarian Government (III. 11.) Resolution "on the tasks related to the fulfillment of ex-ante conditions defined as prerequisites for the use of European Union development funds between 2014-2020" (Government Decision, 2013) set as a task for the Minister of National Development, with the involvement of the Minister of Public Administration and Justice, to prepare and submit to the government the *"National Infocommunication Policy Strategy 2014-2020*," including the plan for the creation of the new generation access network. As a result, the highly fragmented, uncoordinated, and wasteful public administration IT developments before 2010 have been reorganized with a unified and robust state role, and many public services provided to citizens and businesses are now available electronically, at a higher quality level. The purpose of the strategy was also to give a coherent picture of the current conditions of the Hungarian information society and, based on this, determine the development directions, public policy, regulatory and support tasks for the info-communication sector for the period coinciding with the EU 2014-2020 planning cycle, and to take into account the tools/resources necessary for their implementation.

At the same time, despite significant progress in Hungary's digital ecosystem, government decision-makers continued to face challenges, and a new strategy was needed. The purpose of the *Hungarian National Digitalization Strategy (HNDS)* was to guide Hungary by recognizing the need for digital transformation and placing digital infrastructure, business life, education, and digital public services at the center of competitiveness and modernization. The timely impetus for formulating this strategy can be attributed to several factors. First, it stems from completing the National Information and Communication Technology Strategy 2020. Secondly, it is underpinned by the explicit recognition of the importance of digitalization within the investment priority of the "Smarter Europe" central theme of the European Union's regional and cohesion policy for 2021-2027. This elevation of digitalization to the same level as innovation and the development of small and medium-sized enterprises underscores its paramount importance. In digitalization, the key EU document that points the way to 2030 is the Digital Compass policy program (European Commission, 2022d). This program outlines the directions for the digital transformation of enterprises, the digitalization of public services, the establishment of secure and sustainable digital infrastructures, and the improvement of digital skills. These objectives are reflected in the structure of the HNDS, which effectively maps out its pillars and focus areas.

The HNDS pillar structure

The overall goal of the HNDS is for Hungary to recognize and exploit the potential of digital transformation in the economy, education, R&D and innovation, and public administration. As a result, it would significantly contribute to increasing the country's competitiveness and improving the well-being of its citizens.

Table VIII.5: The HNDS pillars and goals

Pillar	Goals
Digital infrastructure	The availability of wired and wireless digital infrastructure with adequate service capacity and quality to prevent the lack of high-capacity infrastructure from becoming a bottleneck in the development of the digital ecosystem.
Digital competence	By continuously improving the digital literacy and user awareness of the population and the workforce's digital skills, increase the proportion of digitally prepared workers and the number of IT professionals (especially women) and reduce the number of those who are not digitally engaged.
Digital economy	Increase the digital readiness of enterprises, integrate digital technologies, promote the development and diffusion of innovative digital solutions in all sectors, and improve the performance of domestic SMEs operating in the ICT sector, especially start-ups, in line with the priorities outlined in the Smart Specialization Strategy (in S3) for the following years in 2021-2027. A priority goal is to support the data economy in accordance with the Hungarian Artificial Intelligence Strategy.
Digital state	Expanding the range of available customer-friendly digital public services and increasing the openness and motivation of the population and businesses to use them, creating cross-border service provision in the areas required by the EU and, to support all this, the administrative front and back office. Increasing the efficiency of processes through automation and creating a network of interoperable data connections necessary for data and cloud-based operations.

Source: Government of Hungary, 2022.

The indicator system of the HNDS defines, on the one hand, the focus areas of the indicator system concerning the pillars of the strategy and, on the other hand, the measurement system of the DESI index (Table VIII.6 to Table VIII.9). These can largely be reconciled with the structure contained in the basic documents of the EU's long-term planning (European Commission, 2022e).

Table VIII.6: The digital infrastructure

Indicator	Base value (year)	Target value (year)
The annual value of the DESI Internet access index (sub-index)	57.6 (2022)	70 (2030)
Percentage of households covered by a network capable of gigabit connectivity	79% (2022)	95% (2030)
5G coverage	18% (2021)	67% (2025)
Provision of regional headquarters with National Telecommunications Backbone (NTB) endpoints	50% (2020)	75% (2025)
The proportion of public education and vocational training institutions with a network connection of at least 1 Gbps bandwidth	9.08% (2021)	100% (2030)
The national supercomputing (HPC) capacity	0.45 Pflops (2020)	15 Pflops (2030)

Source: Government of Hungary, 2022.

Table VIII. 7: The digital competence

Indicator	Base value (year)	Target value (year)
Annual value of DESI Human capital indicator (sub-index)	38.4 (2022)	55 (2030)
The proportion of people without digital skills (proportion of people in the 16-74 age group who do not use the Internet)	9.93% (2021)	5% (2030)
The proportion of regular internet users among the 16-74 age group	82.3% (2021)	95% (2030)
The proportion of IT higher education graduates is in undergraduate studies	4.9% (2020)	10% (2030)

Source: Government of Hungary, 2022.

Table VIII.8: The digital economy

Indicator	Base value (year)	Target value (year)
DESI Annual value of the indicator (sub-index) of the corporate integration of digital technologies	21.6 (2022)	45 (2030)
Proportion of enterprises with integrated (digitalized) company processes (ERP).	20.9% (2021)	32% (2030)
Percentage of enterprises using big data analysis	7% (2020)	15% (2030)
Percentage of enterprises selling online	15.9% (2021)	25% (2030)
The proportion of R&D expenditure in the "Information, communication" sector as a % of all domestic expenditure for this purpose	8.7% (2019)	11% (2030)

Source: Government of Hungary, 2022.

Table VIII. 9: The digital state

Indicator	Base value (year)	Target value (year)
DESI Digital public services index (sub-index) annual value	57.4 (2022)	75 (2030)
Users of e-government services	81.5 % (2021)	90 % (2030)
Automatic filling of forms (0-100 points)	59.7 point (2021)	90 point (2030)
Digital public services provided to citizens (0-100 points)	64,4 point (2021)	95 point (2030)
Digital public services provided to enterprises (0-100 points)	73.8 point (2021)	95 point (2030)
The proportion of electronic public administration services required for digital citizenship and the provision of the necessary data via domestic cloud infrastructure	-	67% (2030)
Open access data	58% (2021)	90% (2030)

Source: Government of Hungary, 2022.

VIII.D Artificial Intelligence Strategy of Hungary 2020-2030

Artificial Intelligence (AI) is a set of algorithmic systems that can learn and improve based on input data. This technology has enormous potential for economic and social processes. Replicating and surpassing human capabilities through machine learning offers efficiency gains that will be felt in many areas,

including business, government, and personal life. These changes are already happening and will continue to accelerate throughout the 21st century. Countries and communities that can plan ahead, set bold goals, and execute effectively will reap the benefits. The economy and society must be prepared for the coming changes, and proactive steps must be taken to facilitate adaptation and innovation. Recognizing the potential benefits of the technology while considering the potential challenges, the Hungarian government decided to develop an Artificial Intelligence Strategy. This document sets goals until 2030 and plans a corresponding action plan until 2025. It is important to emphasize that due to the rapid development of technology and the spread of applications, this strategy must be constantly updated and reviewed at least every two years to ensure that it is always up-to-date (Ministry of Innovation and Technology, 2022).

The Artificial Intelligence Strategy Pillar Structure

The strategy creates basic elements that prepare society to effectively manage the changes brought about by AI and maximize the technology's benefits. These basic elements are the internal and external conditions for developing artificial intelligence in Hungary. The internal conditions are created as part of the AI value chain, which includes:

- Supporting the data economy, which ensures the availability of public and private data.
- Creating a research and development community that operates in a fundamental and demand-driven manner.
- Creating an ecosystem that supports the private and business application of AI technologies.

These fundamental elements will help prepare society for the changes brought about by AI and the exploitation of new technological opportunities. MI frameworks provide the "external" enablers for these processes, which are:

- The human skills that are essential to the safe use of AI.
- The availability of software and hardware resources.
- A clear regulatory environment that supports continued development and innovation.

The measures defined in the sectoral and technological priority areas aim to strengthen the Hungarian economy's growth potential and consciously improve its efficiency. This will be achieved through two main directions:

- The use of already available AI technologies.

- By developing technologies that do not yet exist.

The strategy focuses on supporting specialized systems that can be developed more efficiently with the help of artificial intelligence-based applications. These areas include manufacturing, agriculture, healthcare, public administration, logistics, transportation, and energy. In addition, the strategy evaluates the current Hungarian capacities. It identifies the research and development areas that can contribute the most to the technological support of the above-mentioned specialized systems and in which Hungary can gain a competitive advantage at the international level. Transformative programs, which are highly ambitious long-term plans, create an opportunity for the spin-offs made during their implementation to create value for citizens even before the programs are completed. These programs are not projects in the traditional sense but rather complex systems of goals and tools easily understood by society. The directions outlined by the programs indicate Hungary's ambitions for both domestic and international actors in the artificial intelligence ecosystem. Transformative programs provide long-term guidance on national strategic issues such as:

- Energy and agricultural challenges caused by climate change.
- The proliferation of autonomous systems and the labor market situation.
- The relationship between citizens and the data-driven economy.
- The need to build a modern digital service delivery state.

As artificial intelligence can be used in many different ways, this strategy takes a comprehensive and cross-sectoral approach to its objectives. Accordingly, the detailed elaboration of the objectives and proposed measures defined in the various fields of expertise, as well as the definition of the necessary tools, remain the competence of the competent actors within the given sector. The organizations planned within the framework of the strategy are primarily aimed at supporting the independent initiatives of the actors operating in the given sectors in accordance with the objectives set by them.

The Hungarian Artificial Intelligence Coalition was established in October 2018 to support the Hungarian artificial intelligence (AI) ecosystem and create opportunities for all those who want to actively contribute to the development of the Hungarian AI environment and capabilities. The AI Coalition has been working with the Ministry of Innovation and Technology on the Hungarian Artificial Intelligence Strategy for 2020-2030, which was approved by Government Resolution 1573/2020 (IX.9). Currently, the AI Coalition is working on revising the strategy to integrate the latest directions and aspects of domestic AI development into the document.

VIII. E Promotion of development of digital technologies

The IT Association of Hungary - IVSZ is the primary platform for cooperation among Hungary's IT, telecommunications, and electronics industries (ivsz.hu). In this role, it promotes and supports the development of the digital economy, actively promotes the values of the IT sector, and extols its potential. IVSZ serves not only the direct business interests but also the industrial and social interests. It plays a critical role in increasing the recognition and efficiency of the IT sector in Hungary. The association acts as a compass for business and political decision-makers, helping them to flow information and acquire relevant knowledge. In addition, IVSZ strengthens the industry's network of contacts and promotes cooperation in the IT sector, thus improving the competitiveness and future of the sector in Hungary. The IVSZ is currently implementing several projects that are among the activities that contribute to increasing the openness of companies to digital solutions, especially SMEs, which form the backbone of the economy. The key objective of these projects is to ensure that the businesses involved are fully aware of the efficiency-enhancing opportunities offered by digital solutions. In addition, these projects ensure that companies receive the appropriate training and support to effectively apply and implement these digital solutions, tools, and methodologies in their daily operations. As a result, their projects contribute to the digital transformation of the economy and increase the competitiveness of companies. Below are some of their more significant projects that directly support digitization.

The DigitalTech EDIH

One of its outstanding initiatives is DigitalTech EDIH, which provides free training and consulting services to domestic SMEs as part of a complex program involving government organizations. The main objective of this project is to help and encourage the companies and institutions concerned to use digital solutions more efficiently and in a targeted manner, thus increasing their competitiveness and efficiency. The users of the services provided by DigitalTech EDIH have direct access to the experts of leading Hungarian universities and industrial organizations. These experts offer information and advice covering the latest technologies and digital tools, from basic to advanced levels. This knowledge and solutions, which can be easily put into practice, enable participants to take full advantage of the opportunities offered by digital technology and strengthen their competitiveness in the dynamic business environment (digitaltechedih.hu).

The European Commission defines the European Digital Innovation Hubs (EDIH) as a service-type organization or consortium that supports businesses (especially micro, small, and medium-sized enterprises) and public sector institutions in their digital transformation (European Commission, 2022g). EDIH

provides background support to companies and institutions that want to improve their business/production processes and use digital technologies to improve their services. It does this by testing different technologies (e.g., AI, HPC) before their introduction and providing related advice, skills development, and organizing training. It also assists in identifying funding sources and capital-raising opportunities and connects those interested in the topic. By networking the EDIH, the aim is to create non-profit one-stop shops that make the latest digital technologies accessible to all businesses. DigitalTech EDIH is a reference center operating in Hungary, focusing on the prominent pillars of European priorities, whose central mission is to promote digital transformation. Key players such as start-ups, SMEs, and public sector organizations are at the center of this broad engagement. DigitalTech draws on EDIH's highly versatile ecosystem to address cybersecurity and digital skills, including blockchain technology, education technology, and digital finance, among other priority areas.

EDIH is fundamentally built on the strength of partnerships and a network of experts. Extensive knowledge and support are available to clients through its service catalog. This catalog is based on four key components. First, it supports the development of skills and training to ensure that participants have the proper knowledge and skills during the digital transition. Second, it provides pre-investment testing opportunities to help companies prepare their innovative ideas. Third, it supports the development of innovation ecosystems and networks, encouraging active participation in the sector. Finally, it supports business development activities related to innovation, technology investments, and other technology consulting services supporting digital transformation. In this way, EDIH acts as an engine of digital development, contributing to the success of the digital transition process and promoting innovation in Hungary and on the European scene (ivsz.hu).

FRISCO

As part of the international FRISCO project (friscoproject.eu), the consortium is carrying out many activities to help small hosting providers (and other organizations affected by regulation) comply with legal requirements and improve their preparedness. These service providers often do not have a large team of legal experts and are, therefore, vulnerable to potential conflicts with the law. One of the main objectives is to inform the relevant public about the laws and their requirements. In addition, they pay special attention to developing their training opportunities to increase their knowledge and expertise in legal requirements. It also provides tools and support to help them achieve and maintain compliance. In this way, the project helps organizations adapt more effectively to changes in the legal environment and minimize legal

risk. IVSZ, as the Hungarian partner of the project, would like to contact primarily Hungarian organizations that fall under the scope of the legislation and, as a first step, assess the needs. This could determine how well the organizations concerned know the relevant legislation and, if so, what challenges they face regarding compliance. The main purpose of this is to determine how the project can help these organizations. Based on the survey results, they will develop the training program and tools that best meet the organization's needs. The members of IVSZ affected by the legislation can access concrete, practical services within the framework of the project. These services include the development and provision of a support tool system. It is important to emphasize that the FRISCO project is implemented with the European Union's support in the ISF program's framework. Thus, the project uses EU resources to facilitate and support regulatory compliance (ivsz.hu).

Level Up

The Level Up project (levelup-skills.eu), in which IVSZ is participating, is a large-scale initiative that will enable thousands of employees from SMEs across Europe to develop their digital skills in crucial areas such as artificial intelligence, data analytics, or cybersecurity. The project is a collaboration between seven countries and 13 leading educational, business, and industry organizations. The main objective of the Level Up project is to support the digital transformation of SMEs through the training and development of their employees. The initiative focuses on bridging the digital skills gap and offers upskilling and reskilling programs to help SMEs operate more effectively in the digital world. Participants can choose from a wide range of training programs based on their areas of interest. These programs include high-quality, up-to-date skills in crucial areas such as cybersecurity, data management and analysis, artificial intelligence, IoT (Internet of Things), 3D printing and modeling, cloud technology, and microelectronics. Over two years, nearly 15,000 employees from 3,000 SMEs will participate in the project's training. Funded by the European Union's Digital Europe program, the Level Up project will run from January 2023 to December 2025 (ivsz.hu).

Industry 4.0 project - GINOP-1.1.3-16

In 2019, the GINOP 1.1.3 project was launched, which is implemented using structural resources and aims to promote productive SMEs' digital and automation development by introducing "Industry 4.0" sample applications (ivsz.hu). As a result of the project, the participating SMEs in the manufacturing sector will be able to get to know the whole Industry 4.0 approach and sample applications, get an overview of the latest technological solutions, and at the end of the project will be able to create an individual company development

plan. They can obtain Industry 4.0 certification free of charge, and the most advanced 50 SMEs will receive additional implementation studies and gold certification. The project consists of four interdependent phases, which will be implemented one after the other. In this way, SMEs can prepare to increase their efficiency and competitiveness in the field of Industry 4.0 production with the help of technological, industrial automation, and control solutions. ICT service providers, including IVSZ members, get a wider market open to new technological solutions, which enables them to participate in many more Industry 4.0 projects. In 2020, there was an opportunity to continue the project under the title "Modern Sample Plant I. - Renewal of business processes of micro, small and medium-sized enterprises, as well as the revitalization of digital and automation developments." This project aimed to promote and support the organizational renewal and technological change of micro, small, and medium-sized enterprises operating in the Hungarian convergence regions. Through this, the project supported the increase of competitiveness and the development of the entrepreneurial environment and culture with a series of interventions that enabled a degree of adaptation to the market. The project offers a range of knowledge-based development services for SMEs, such as organizational diagnostics and the preparation of related development plans, individual consultations and advice, the possibility of visiting model factories, model plants, and model workshops, the organization of professional events, professional conferences and training, and the creation and distribution of online content to support SMEs (ivsz.hu).

European Artificial Intelligence Skills Association (ARISA)

IVSZ participates in the European Artificial Intelligence Skills Association (ARISA), where it is one of the 20 sector partners (aiskills.eu). Using the strategy of the ARISA project, IVSZ is working to create systemic and structural changes to reduce the skills gap in the field of artificial intelligence. Its goal is to provide high-quality and appropriate levels of artificial intelligence skills. The project aims to accelerate the training and retraining of workers, job seekers, business leaders, and policymakers for AI-related careers and to alleviate the shortage of AI skills in the marketplace. AI technologies are incredibly versatile and offer new opportunities for almost every industry, from process automation to talent development. The impact of AI technologies is not limited to the information and communications technology sector; it also affects finance, healthcare, supply chains, manufacturing, and education. Currently, only 8% of businesses in the European Union are using some form of AI technology (European Commission, 2022a). One of the main challenges to the broader adoption of AI is the lack of skills (IBM, 2022). The ARISA project, led by DIGITALEUROPE, aims to reduce the skills gap in artificial intelligence, foster the growth of AI applications, and increase its societal benefits. The ARISA project examines

artificial intelligence's human-centered and trustworthy application from a skills development perspective. Basic technical knowledge and skills in AI are essential for people and businesses to build and use reliable and effective AI-based services and solutions. These solutions can bring outstanding benefits to the digital ecosystem and society as a whole. The ARISA project aims to reduce the AI skills gap in the European Union by identifying current and emerging skills gaps in various professions, including business leaders, technology leaders, technologists, and policymakers. The ARISA project report, expected in 2023, will detail the roles and skills of AI-related professions and explore emerging market needs. During the project, which will run from 2022 to 2026, a European-level strategy for AI skills development will be formulated, including specific strategic objectives and actions to address skills gaps. In addition, the project plans to develop curricula and training programs (EQF 4-8) to contribute to the long-term development of the necessary knowledge and skills of employees, job seekers, company managers, and policymakers. The ultimate goal of the ARISA project is to create a community organized around AI skills within the framework of the European Commission's flagship initiative, Pact on Skills. The ARISA project collaborates with various local and European organizations, both public and private, to achieve the highest quality results. DIGITALEUROPE coordinates the ARISA consortium, consisting of 16 full and 4 associate partners who bring significant expertise in technology, training, and community building. They also form a broad network of stakeholders, including education and training providers, qualification bodies, and representatives of industry and the digital ecosystem. Within the project, the IVSZ is primarily involved in the assessment of industrial needs, the creation of profiles and the development of a skills strategy, and as a professional partner and industrial contact, it supports the full implementation of the project. The ARISA project is funded by the Erasmus+ program of the European Union (ivsz.hu).

VIII.F Examples of digital technologies under implementation

The AI Coalition website features many inspiring case studies showing how different companies and organizations have successfully integrated AI into their daily operations. These case studies are available on the AI Hungary website (https://ai-hungary.com/hu/siker-tortenetek). These case studies are valuable examples and resources for companies and organizations interested in the benefits of using artificial intelligence. The studies show how AI can be effectively integrated into various industries and sectors, such as financial services, healthcare, education, industrial manufacturing, and more. These case studies provide concrete examples of how AI can help increase efficiency, automate processes, improve customer relationships, product development,

and innovation. These can help companies and organizations gain a competitive advantage, enhance the quality of service, and operate more efficiently. The case studies will help understand the challenges and opportunities of implementing artificial intelligence and how these technologies can be successfully applied in real life. The examples presented below can also encourage companies and organizations to take advantage of artificial intelligence and further develop their digitization and artificial intelligence activities.

Real-time detection of the purchase intention made in the digital space and stimulation of its realization

Magyar Telekom has always emphasized targeting existing and potential customers with personalized, relevant offers that match their preferences in the online space. They must be able to detect the real purchase intent in the display advertising market and on their website at the right time and with good quality. In this way, they can support the right individual decision and increase customer satisfaction and sales. By applying dimension-reducing AI techniques to the online behavioral activities of visitors, the most suitable individual offers are determined, and the most typical buying patterns are discovered. A proprietary module ensures that offers appear in the right context, at the right time, and through the right channel. If they find the purchase difficult to complete in the digital space, they immediately generate an offer and activity that can be used across channels. On their website, visitors placed six times more orders for the automated, self-learning algorithmic offers compared to segment-based bidding. Real-time bidding programmatic campaigns average 3x more effective conversions with AI segmentation than with other targeting (e.g., retargeting). For letters sent to prospects, machine learning offers resulted in two times more click-through events (ai-hungary.com).

CLEMVOICE – automated quality assurance control in the customer service area

The project's goal was to successfully verify the efficiency of the customer service department and the operators working there in the banking sector, with 100% processing of the audio of phone calls generated during customer interactions. In a competitive market, customer service quality, speed, accuracy, legal compliance, and controllability are becoming increasingly complex. Before implementing the CLEMVOICE solution, the bank's quality assurance department monitored only a fraction of the calls, leaving hundreds of hours of recorded calls unprocessed daily. This led to several business problems: the picture of the contact center's operations was not complete. The evaluation criteria for human monitoring were not consistent enough, making them difficult to use both for objective performance evaluation and for selecting training to

increase efficiency. In connection with implementing the CLEMVOICE solution, the service level was expected to be higher without increasing costs. A system combining various NLP techniques (text mining, speech recognition) was implemented, which was able to transcribe and process audio material that was continuously produced in large quantities within the company. After creating the CLEMVOICE system, hundreds of hours of telephone conversations are transcribed daily using continuous speech-to-text technology with large dictionaries. In order to provide the most accurate assessment of the conversations conducted by the operators, the system examines and evaluates each call according to more than ten quality assurance aspects. A negative index indicator measures which conversations show customer dissatisfaction and which are critical in terms of tone. In addition, important contact center KPIs such as FCR and SQM are automatically measured in calls. The CLEMVOICE system provides a 360-degree view of contact center operations: every element of recorded speech-based data, amounting to hundreds of hours per day, is recorded, analyzed, and evaluated the next morning. Daily, weekly, and monthly reports are automatically generated from the results to support the work of the entire customer service organization. The call transcripts and results are stored so that they can be evaluated at any time in ad hoc queries, and additional performance reports can be generated from the results at the company, department, or individual level (ai-hungary.com).

Automation of WABERER'S freight planning processes

Waberer's company specializes in FTL transportation, i.e., the transportation of full loads within Europe. When planning and implementing business processes, the previous solution based solely on human resources did not deliver the expected results. During the planning process, complex aspects have to be taken into account, ranging from mandatory rest periods in the EU territory to drivers' work schedules, truck depot opening hours, and many other factors. Countless parameters have to be considered for each shipment, and more than a thousand decisions have to be made daily. The solution was provided by Nexogen, a logistics company, as a unique Azure-based artificial intelligence service. Prior to the application, truck utilization was 87%, which was the industry average. By using the artificial intelligence solution, this rate increased to 92% (ai-hungary.com).

FUEL WIZARD - DMLAB artificial intelligence for shipping

Trans-Sped provides transportation in Europe with more than two hundred of its own trucks. The fuel consumption of the drivers has a significant impact on the profitability of the company. In order to promote fuel economy, a real-time feedback and driver motivation system was developed. This application gives

truck drivers real-time feedback on how economically they drive on the given road section and under the current conditions (such as load, traffic conditions, and weather). It also advises the driver on whether to use cruise control for the current route and conditions. As a result, the company's annual savings have increased significantly and now amount to HUF 30-60 million (ai-hungary.com).

VIII.G The current state of digitalization of trade and investment

According to a McKinsey study published in 2022 (McKinsey & Company, 2022), the digital sector's contribution to economic growth in the Central European region has been outstanding over the past five years. However, the size of Hungary's digital economy is moderate compared to other European countries. The report highlights an opportunity to accelerate digital transformation in the future, especially in digital commerce. The study examines the three main components of the digital economy: digital commerce, the ICT sector, and investment in digital devices. Digital commerce has the most significant growth potential. The ICT sector plays a vital role in this process, and investment in digital assets is critical to driving digital transformation. Based on these findings, accelerating digital transformation may be of paramount importance for Hungary, especially concerning developing digital trade and supporting the ICT sector to achieve further growth of the economy in digital areas. Between 2017 and 2021, Hungary's digital economy experienced significant growth, with its output rising from 6.6 billion euros to 9.8 billion euros, an increase of 50%. This increase was particularly pronounced during the Covid-19 pandemic between 2019 and 2021. However, although Hungary's digital economy has made noticeable progress, its performance is still lower than the regional average in several key areas. The digital economy's contribution to GDP is only 6.6%, while that of its digital competitors is 7.7%. GDP per capita, an indicator of breakthrough and innovation, is 20% below the regional average. These factors indicate that there are still significant growth opportunities in Hungary's digital economy. Based on the data, this suggests that more momentum is needed in developing the digital economy. The country could increase its GDP by EUR 20.8 billion by 2030 if it could catch up with the leading countries in the digital economy.

Digital commerce as a critical driver of economic growth

E-commerce has played a prominent role in the digital economy, especially during the pandemic. As a result, the share of e-commerce in the digital economy rose to about 80%, and the pace of development accelerated

significantly, far exceeding the usual forecasts. The average annual growth of e-commerce between 2019 and 2021 was 24%, and during this period, the development jumped forward by 2-5 years compared to the previous trend. It is essential to understand that the development of e-commerce is closely related to digital penetration, as e-commerce solutions are often connected to other digital ecosystems, such as digital payment solutions offered by banks. During the Covid-19 pandemic, older generations and residents of smaller settlements also gradually switched to online shopping, increasing the number of active users of digital solutions across the population. The proportion of people actively using digital services almost doubled, reaching a peak of 91% in 2021, compared to 59% before the pandemic. Although there was a slight decline after the pandemic, the use of digital solutions remained at a higher level, currently at 67%. Overall, the growth exceeds analysts' previous forecasts, and this momentum creates significant opportunities for Hungary to grow further and catch up with the leaders in the Central European region. Several companies in some Central European countries have achieved great success in digital commerce, offering regional alternatives to global players. If Hungary could close this gap, the growth of digital trade would double by 2030, increasing from the current EUR 4.9 billion to EUR 10.5 billion. McKinsey's analysis shows that digital is expected to drive significant growth in many product segments, including personal care, food, media, apparel, home, and electronics. The most considerable growth potential is in e-commerce for household goods and electronics. If one assumes an expansion of around 10% in these sectors, an increase in sales of around EUR 2 billion can be expected by 2030, which is a faster pace of development than can usually be expected at the level of Central Europe. Recently, several initiatives have been launched in Hungary to promote e-commerce, such as establishing the Digital Trade Association, which brings together several market players and develops delivery capabilities. To ensure that the growth of digital commerce is sustainable, companies need to focus on five key customer management factors:

- Wide availability and competitive pricing are critical to building customer satisfaction, with a weight of 50+%.
- Convenience is cited by 38% of consumers as the second most important reason for choosing digital channels.
- Innovation is closely linked to digital developments and expected changes in consumer habits.
- Trust is critical to adopting digital services, yet 44% of users still do not fully trust digital services.
- Sustainability is an increasingly important factor for customers and influences their purchasing decisions as they increasingly show their commitment to sustainability issues with their wallets.

The analysis found that countries with higher average levels of digitization experienced less loss of economic growth during the first wave of the Covid-19 pandemic. Investments in the digital transformation of businesses and public services, larger communication networks, data analytics, and developing digital skills among the population increased countries' resilience to crises and mitigated economic damage. This means that countries that are more mature and developed in their digital sector have been better able to withstand the economic disruptions of recent years. Digitalization can boost economic growth and contribute significantly to stability, an essential factor in crisis management.

VIII. H Closing remarks

Numerous economic analyses underscore the importance of harnessing advanced digital technologies to promote a nation's economic development (OECD, 2022). However, realizing this beneficial proposition is contingent upon the unwavering commitment of national governments to passionately champion the cause of digital transformation and back such aspirations with substantial investments aimed at bridging the gaps and shortcomings in the digital ecosystem. Moreover, the indispensable requirement of a robust regulatory framework is critical in nurturing and facilitating this intricate process. In Hungary, the path of progress since 2010 encompasses many dimensions, the most important of which are the remarkable advances in the digital domain. Virtually every corner of the country now bears witness to the establishment of high-speed Internet infrastructure, which is a significant milestone. The result of these efforts is evident in the remarkable increase in household broadband Internet access rates, which have risen from a modest 50% to an impressive 96.7%. As a result, most Hungarian households are enjoying the privileges of state-of-the-art network connectivity, symbolizing a quantum leap forward. In addition, there has been a concomitant increase in the number of active Internet-connected households, which exceeded 83% in 2021, a commendable jump from the 2010 baseline. This marked upward trend is in line with international trends and can be attributed partly to the widespread adoption of smartphones and the ubiquity of mobile Internet services. Correspondingly, the category of people once disconnected from the digital world has shrunk significantly, from a substantial 33.1% in 2010 to a fraction of less than 10%. This commendable evolution has been driven in no small part by the strategic impetus of government-sponsored programs that have effectively bridged the digital divide. Alongside these striking societal changes, Hungary's corporate terrain has witnessed a growing inclination to integrate cutting-edge digital solutions into both internal and external operational frameworks. This ongoing paradigm shift bodes well for the country's economic robustness and flexibility and equips businesses with the competence to navigate the intricacies of the

digital age. Crucially, it is imperative to underscore the instrumental role played by the government in orchestrating and facilitating these epochal changes. Its active involvement, meticulous coordination, and visionary leadership have collectively led to the demise of the previously disparate and uncoordinated IT initiatives within the purview of public administration. This strategic overhaul has ushered in a cohesive, streamlined, and highly efficient administrative apparatus that is poised to meet the challenges of the digital era. In sum, these diverse developments have converged to drive Hungary's digital metamorphosis, dramatically improving Internet access across the country and catalyzing the inexorable transformation of its business landscape. These laudable strides attest to the catalytic influence of the government's active engagement and unwavering commitment to the cause of digital progress.

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Investment initiatives and digital development in the Turkish Republic of Northern Cyprus

IX.A Investigation of the existing digital infrastructure

The digitalization of the Turkish Republic of Northern Cyprus (TRNC) encompasses various aspects of governance, economy, education, and cybersecurity. It aims to leverage digital technologies to enhance public services, promote economic growth, improve education outcomes, and ensure cybersecurity. While challenges exist, embracing digitalization presents numerous opportunities for the TRNC to thrive in the digital age.

The TRNC economy offers a range of investment opportunities across various sectors, including tourism, agriculture, free trade zones, renewable energy, technology, and healthcare. The TRNC is also home to several universities and research institutions, providing a pool of skilled talent and research expertise that can support innovation and entrepreneurship.

IX.A.1 TRNC economy and its institutions

Cyprus is situated in the Eastern Mediterranean Sea, at the hub of three continents where the trade routes intersect. It is the third largest island in the Mediterranean Sea after Sicily and Sardinia. The total area of the island covers 9,251 square kilometers. The TRNC area is 3,242 square kilometers. The nearest neighboring country to Cyprus is Türkiye, which lies 65 kilometers to the north. Cyprus is located 100 kilometers west of Syria and 420 kilometers north of Egypt. The midyear de-jure population estimate of the TRNC in 2011 was 286,257. The 2021 population projection was estimated at 382,836. The capital Lefkoşa is the largest city of TRNC. The other major towns are Gazimağusa, İskele, and Girne, located on the coast. Güzelyurt and Lefke are two towns famous for their large citrus orchards.

The TRNC has adopted a free market economy. The service sector has the highest share in the TRNC gross national product. The agricultural and industrial sectors support the service sector. The economy of the TRNC consists mainly of the service sector, including the public sector, trade, education, and tourism, with small agricultural and light manufacturing sectors. Tourism and education are the lifeblood of the economy.

With the advantages of its strategic location, the small but fast-growing economy of TRNC offers a favorable and equal-opportunity business environment. It provides a wide range of economic benefits for local and foreign investors. The TRNC has developed infrastructure, and it is an attractive place for investors, providing a quality business environment and generous direct investment incentives.

The qualified and young labor force provided by many universities (23 universities with around 100,000 students) and a high literacy rate is another advantage that TRNC offers investors. Additionally, being one of the closest neighbors and due to cultural and linguistic proximity, Türkiye is the primary source of labor supply for TRNC, with over 85 million inhabitants.

Investments in the manufacturing of goods and services sectors are all welcome at TRNC. Priority on investments leads to increased productivity, employment, export, and the use of new technology in the economy. The TRNC assists all investors and, with its resources and competitive advantages, offers various opportunities for potential investors and exporters in many sectors with growth potential.

The TRNC Ministry of Finance provides effective and people-oriented services at international standards by working in cooperation with relevant stakeholders in line with the principles of transparency and accountability with sustainable and effective fiscal policies and using technology effectively. The Ministry of Economy and Energy works to increase the TRNC's global competitiveness and shape the macroeconomic policies of the economy.

The website of the State Planning Organization (www.devplan.org), which operates under the Prime Ministry, offers more information on the TRNC economy. Detailed statistics can also be found on the TRNC Statistical Agency website (https://istatistik.gov.ct.tr). Information on investment opportunities and incentives in TRNC is presented on the Turkish Cypriot Investment Promotion Agency website.

The Development Bank of the TRNC is another institution that contributes to the sustainable development of the economy by taking the necessary initiatives to improve and develop various sectors of the TRNC economy and provide long-term loans with favorable interest rates.

TRNC uses the Turkish Lira as currency, and the Central Bank of the Republic of Türkiye provides the main central banking functions. The TRNC Central Bank is responsible for implementing monetary/credit policies following development plans and annual programs and taking and implementing the necessary decisions and measures to ensure the effective operation of the credit system.

The Turkish Cypriot Chamber of Industry aims to assist the development of the TRNC industry in a planned and programmed manner, to help develop existing industrial organizations, ensure the development of their fields of activity, and increase their efficiency. On the other hand, the duties of the Turkish Cypriot Chamber of Commerce are to (1) protect professional ethics and solidarity; (2)

work for the development of trade following the general interests; (3) work for the development of the commercial, industrial, tourism and agricultural activities of the TRNC economy, (4) support and encourage business people in different sectors; (5) establish relations and exchange information with international economic organizations, chambers of commerce and similar organizations, institutes or private individuals and companies; and (6) provide advice or references on traders, producers, manufacturers and other business people and/or institutions.

The Famagusta Technology Development Zone (www.kibristeknopark.com) is the first of its kind established in the TRNC. Among other things, its mission is to support the development of products and production technologies of small and medium-sized enterprises in the TRNC, to bring together researchers and technology with innovative entrepreneurs, and to provide the necessary infrastructure for sprouting new products and technologies.

IX.A.2 Digitalization in TRNC

The current data on the supply side of the digitalization infrastructure in TRNC is as follows, according to the TRNC Information and Communication Technologies Authority (BTHK, 2023): As of June 2023, there are one fixed, two mobile communication providers, eight infrastructure operators, five call carriage operators and 36 internet service providers active in the TRNC. Revenues in the electronic communications sector increased from 316 million Turkish Liras (approximately $17 million) in the last quarter of 2022 to 350 million Turkish Liras (about $18.5 million) in the first quarter of 2023. Fixed broadband internet providers had the largest share in this increase, increasing their revenues from TRY 116 million ($6.2 million) in the last quarter of 2022 to TRY 131 million ($6.9 million) in the first quarter of 2023.

The mobile communications sector also recorded significant revenue growth, from TRY 177 million ($9.5 million) in the last quarter of 2022 to TRY 195 million in the first quarter of 2023 ($10.3 million).In the fixed communications sector, on the other hand, there was only a slight increase in revenues compared to the two periods, rising from 19.2 Million Turkish Liras ($1.03 million) to 19.6 Million Turkish Liras ($1.04 million). The employment potential of the electronic communications sector declined in the first quarter of 2023 compared to the last quarter of 2022. While 997 jobs were created in the electronic communications sector in the last quarter of 2022, this figure decreased to 979 in the first quarter of 2023. Of the 979 employees, 29% work in mobile communications, 36% in fixed communications, and 35% in internet service providers. At this point, it is a contradiction that fixed communication, which has the least revenue from the sector, creates the most employment.

Current data on the demand side of the digitalization infrastructure is as follows, as reported by the TRNC Information and Communication Technologies Authority in its June 2023 report (BTHK, 2023): Smart device penetration of subscribers increased from 85% (412,919 subscribers) in the last quarter of 2022 to 88% (458,071 subscribers) in the first quarter of 2023. Of the platforms on smart devices, 69% are Android, 30% are iOS, and 1% are other platforms. The number of mobile communication users was 654,124, while the number of mobile internet users was 433,038. In fixed broadband usage, the number of hotspot users was 267,251, xDSL users were 13,081, and wireless internet users were 150,289. Monthly data traffic per subscriber is 25 gigabytes for uploads and 115 gigabytes for downloads. In the first quarter of 2023, monthly revenues per subscriber reached TL 62.42 for mobile communications, TL 83.96 for fixed communications, and TL 107.66 for broadband internet communications. 83% of active subscribers use 3G internet technology on their mobile devices (433,038), while 17% use 2G (85,791).

IX.B E-government and digitalization attempts

E-government and digitalization efforts in the TRNC started in the late 1990s. In this context, the TRNC established the Kamu Net platform in 1997-1998, following in the footsteps of the e-government efforts that started in 1993 in the light of the first e-government report prepared by the World Bank in 1991 in Türkiye (Kaya, 2019). The Public Net services (www.kamunet.net), which the TRNC Prime Ministry carried out between 1999 and 2013 and the TRNC Ministry of Public Works and Transportation between 2013 and 2015, were later replaced by the TRNC e-government platform in the light of bilateral agreements with Türkiye (https://edevlet.gov.ct.tr).

Within the scope of the new TRNC e-government platform, which entered into force in 2016, it is aimed to research the creation and fusion of apps for the electronic delivery of public services on a common platform and in a citizen-focused way. (Tatar & Taçoy, 2018) (p. 1154). Türkiye continues to stand by the TRNC in the context of the TRNC's e-government efforts in terms of due diligence, needs analysis, and the use of information technologies within the framework of e-government (Över & Kaya, 2021). A three-phase program is envisaged in the TRNC e-government structuring. TÜRKSAT is the main contractor on behalf of the Digital Transformation Office of the Presidency of the Republic of Türkiye. This three-phase program is shown in Table IX.1.

Table IX.1: TÜRKSAT's TRNC digital transformation program

		Projects
Phase 1	1	Detailed current situation and needs analysis
	2	E-population system
	3	Electronic document management system
	4	Electronic identification system
Phase 2	5	Customs information system
	6	Ministry of National Education Information System
	7	Central registry system for companies
	8	Spatial address registration system
Phase 3	9	Health information system
	10	Insurance information system
	11	E-government gateway
	12	Public common data center
Additional Projects	13	Establishment of public certification center
	14	Operation of public certification center
	15	TRNC infrastructure analysis
	16	Public Administration Information System

Source: Tatar & Taçoy (2018) based on https://kktc.turksat.com.tr.

Although the support of Türkiye is essential for the development of e-government applications in the TRNC, public administration needs to pay more attention to the fact that e-government law has not yet been integrated into a legal framework and that the public is skeptical of e-government applications (Över & Kaya, 2021). The e-government services provided by the official institutions of the TRNC are shown in Table IX.2.

Table IX.2: Services provided by official institutions

Service type	Service provider(s)
Electronic document management system document verification	Prime Ministry Deputy Prime Ministry and Ministry of Tourism, Culture, Youth and Environment Ministry of Finance Ministry of National Education Ministry of Agriculture and Natural Resources Ministry of Health Ministry of Public Works and Transportation Ministry of Labor and Social Security Ministry of Economy and Energy Ministry of Interior
The Republic of Türkiye Information and Communication Technologies Authority online education platform	Information and Communication Technologies Authority
Social insurance investments tracking	Ministry of Labor and Social Security, Social Insurance Department
Customs Information System	Ministry of Finance, Customs and Excise Department

Military service postponement, dispatch, personnel, and vehicle mobilization exercise inquiry	Prime Ministry, Security Forces Command, Military Recruitment and Mobilization Branch Directorate
Public management system authentication	Prime Ministry
Marriage information service, lawyer portal	Courts
Daily exchange rates	Central Bank
Ministry of National Education information system authentication	Ministry of National Education
Lottery inquiry	Prime Ministry
E-legal system Commercial company inquiry	Ministry of Finance, Office of the Official Receiver and Registrar
Lab test results Vaccine information Covid-19 test result	Ministry of Health
Import and exporter certificate inquiry	Ministry of Economy and Energy
Car inquiry	Ministry of Public Works and Transportation
Voter registry information	High Electoral Council
Invoice payment	Cyprus Turkish Electricity Authority
Electronic payment	Evkaf Authority
Electronic payment	Information Technologies and Communication Authority
Producer, manufacturer and transporter transactions	Cyprus Turkish Dairy Industry Authority
Package tracking	Postal Department

In addition to these services, Table IX.3 shows services provided by municipalities within the scope of e-government, such as online payment of bills, taxes, and requests. In addition, workplace opening permits can be obtained online in certain municipalities. Considering the municipalities created after the TRNC's local government reform in 2022, only 13 of the 18 municipalities appear to have a website. This has been identified as a deficiency in local governments.

Table IX.3: Services provided by municipalities

Service type	Municipality	District
➢ Earthquake screening application	Lefkoşa Turkish Municipality	Lefkoşa
➢ Invoices, taxes and claims	Lefkoşa Turkish Municipality	Lefkoşa
➢ Invoices, taxes and claims	Gönyeli-Alayköy Municipality	Lefkoşa
➢ Invoices, taxes and claims	Değirmenlik-Akıncılar Municipality	Lefkoşa
➢ Invoices, taxes and claims	Girne Municipality	Girne
➢ Debt inquiry	Dikmen Municipality	Girne
➢ Invoice and tax payment	Lapta-Alsancak-Çamlıbel Municipality	Girne
-	Çatalköy-Esentepe Municipality	Girne
➢ Invoices, taxes and claims ➢ Earthquake screening application ➢ Pet adoption application ➢ Services for the elderly	Gazimağusa Municipality	Gazimağusa
➢ Invoices, taxes and claims ➢ Workplace opening permit	Yeniboğaziçi Municipality	Gazimağusa

➢ Information about garbage collection days		
➢ Invoices, taxes and claims	Tatlısu Municipality	
-	Geçitkale-Serdarlı Municipality	
-	Mesarya Municipality	
-	Beyarmudu Municipality	
➢ Invoices, taxes and claims	İskele Municipality	İskele
➢ Invoice payment	Mehmetçik-Büyükkonuk Municipality	
-	Erenköy-Karpaz Municipality	
➢ Invoices, taxes and claims	Lefke Municipality	Lefke
➢ Invoices, taxes and claims ➢ Workplace opening permit	Güzelyurt Municipality	Güzelyurt

Empirical studies show that awareness of e-government and related issues is high in TRNC. In this context, the surveys conducted by Nuran Öze and Tuğberk Kaya and Anıl Eyüpoğlu point to this finding. In Nuran Öze's interview study (Öze, 2019), it was found that TRNC participants had detailed information about the TRNC's e-government activities and program. At this point, it was determined that the leading information source was the Turkish Cypriot press, which increased the e-government awareness of TRNC citizens. On the other hand, Tuğberk Kaya and Anıl Eyüpoğlu (2020) conducted a more comprehensive survey, and the findings revealed that TRNC citizens are widely informed about e-government services. Nearly 65% of the TRNC citizens participating in this survey were informed about e-government services, and about half of them trusted the e-government services. However, another important finding in the survey is that some interviewees use e-government services but do not know that these services are e-government services. According to Kaya and Eyüpoğlu, awareness of e-government services has increased since the Covid-19 outbreak.

The increased awareness of the TRNC's e-government services means that expectations for these services are also high. According to Suat Yeldener, Chairman of the TRNC E-Government Board of Directors, the biggest expectation is improving public institutions' bureaucratic processes (Çatal, 2022). Launching the electronic document management system service has been a first step in this context. According to Yeldener (Çatal, 2022), in addition to this first step, (a) the electronic population document system project, (b) the electronic identity system project, (c) the detailed needs analysis project, (d) spatial address registration system project, (e) public certification center installation and guarantee, maintenance and support project, (f) infrastructure analysis project, (g) data center building, electronic legal information system project and (h) electronic state gate project will be put into the service of the public one after another. Thus, a critical stage will be achieved in the digital transformation of the public sector. In the long term, new momentum will be gained in the digital transformation of the TRNC with the launch of (1) the electronic health

information system project, (2) the electronic insurance information system project, (3) the public certification center maintenance project, (4) electronic population system maintenance project, and (5) electronic identity system maintenance project. During the TRNC's transition to electronic identity, around 170,000 electronic identities were distributed, and transition services were provided at 17 different points. According to the spatial address registration system, 200,000 buildings and 85,000 roads have been digitized. The fact that electronic population project is progressing in a way to include the population and family ties following the needs of our age, as well as the provision of population services from every point of the country with the preparation of the address registration system, once more confirms the accuracy of the actions taken, according to Suat Yeldener, the chairman of the TRNC E-Government Board of Directors (Çatal, 2022).

The transition to electronic customs services started in 2021, reducing customs bureaucracy. Likewise, introducing an up-to-date database on legal entities with the electronic legal project will facilitate commercial life.

The most significant issue with TRNC e-government services, according to a recent study by Dilan Çiftçi (2022), is the absence of a comprehensive platform and the fact that it is only possible to determine which service is offered by which ministry or organization after searching. This is time-consuming, and Çiftçi claims that creating a highly visible and user-friendly e-government portal will solve the issue.

IX.C Digital Venturing

The TRNC has implemented various investment incentives to attract both domestic and foreign investors. These incentives aim to stimulate economic growth, create employment opportunities, and enhance the competitiveness of the TRNC's business environment. Further, investing in and supporting startups and innovative companies operating in the digital space has been gaining momentum in recent years. The TRNC has seen a growing interest in digital venturing due to its favorable business environment, strategic location, and potential for growth in the digital sector.

IX.C.1 Investment incentives in the TRNC

Encouragement of foreign direct investment (FDI) is among the primary objectives of the TRNC's development policy. Consequently, those wishing to invest in TRNC can be sure of a positive government attitude. Following its development policy, TRNC is giving preferential treatment to export-oriented

industries. Due to its small domestic market, the TRNC authorities focus on the export of goods and services. Priority is given to those projects that facilitate the transfer of modern technology, know-how, and new management techniques into the TRNC and provide the highest value added. However, every project an investor proposes is considered on its own merits.

The TRNC has a favorable climate for investments. The TRNC government, its Investment Promotion Agency, and the State Planning Organization promote active cooperation between local and foreign firms through joint ventures and incentivize foreign investors. If an investment gets an Incentive Certificate, it has the following options given in the Incentive Law:

Firstly, an investment allowance is given as 200% of the initial fixed capital investment expenditure for the investments in the Development Priority regions determined by the State Planning Organization. Investment allowance is 100% of the initial fixed capital investment expenditure for investments in other sectors and regions. Güzelyurt, Lefke, İskele, and Geçitkale were determined as priority development regions by the Council of Ministers.

Secondly, an exemption is given from customs duties and funds for the import of machinery and equipment concerning the project. This exemption is provided for every kind of custom duties and funds. The Prime Ministry specifies regulations on importing raw materials and semi-finished goods and is subject to the approval of the Council of Ministers.

Thirdly, zero rate value-added tax is applied for both imported and locally purchased machinery and equipment in accordance with the Incentive Certificate. Fourthly, state-owned land and building lease is made possible for investments with an Incentive Certificate. Fifthly, investments that are granted Incentive Certificates are exempt from all kinds of taxes and fees related to construction licenses. Sixthly, a stamp duty reduction concerning capital increase is given to the investments granted Incentive Certificate. Finally, a decrease in stamp and registration fees is applied to mortgage procedures necessary when using bank credit for investments granted with an Incentive Certificate.

On the other hand, according to the tax legislation of the TRNC, the following incentives are given: Allowances are given for capital expenditure on acquiring plant and machinery, fixtures and fittings owned and used by a person or corporate body in trade, business, or scientific research. These are initial (investment) and annual (wear and tear) allowances. Allowances are also given on existing buildings or the construction, extension, or adaptation of buildings

owned and used by a person or corporate body. In total, tax allowance is equal to an asset's cost plus the investment allowance.

Allowances are divided into initial and annual allowances. According to the tax legislation, the initial (investment) allowance rate is 50%. The investment allowance rate can be increased up to 100%, or a new rate, which is not less than the legal rate, can be determined by the Council of Ministers with the recommendation of the Ministry of Finance for the investments in priority development regions and sectors with special importance specified under the Incentive Law and the Tourism Industry Incentive Law.

If there are regulations concerning investment allowances under special Incentive Laws, the rates and principles follow the Incentive Law instead of offering the allowance rates under the Income Tax Law.

According to the tax legislation, the annual (wear and tear) allowances are 10% for machinery and equipment, 15% for sedan motor vehicles and motorcycles, 25% for motor vehicles that have a T license (taxi and transportation license), and 25% for other motor vehicles such as trucks, buses, and the like. On the other hand, the annual allowances are 4% for industrial buildings and hotels, 3% for shops and residences, and 10% for furniture and fixtures. Initial allowances and annual depreciation allowances are deducted before setting net chargeable incomes.

In addition, there are other allowances, such as the amortization of expenditures on company formation (amortized in five years) and expenditures on patent and patent rights. The purchased tools and fixtures with the five values not exceeding the monthly gross minimum wage at the beginning of the year may not be subject to depreciation, and the payments for these tools and fixtures may be immediately recorded as expenses.

Twenty percent of earnings of corporate bodies from exports of goods and services are exempt from corporation tax. However, the exempted amount cannot exceed the amount equal to 80% of net income obtained from exports. The exports of all goods and services are exempt from VAT. According to the legislation, the exporters can claim credits or refunds for the VAT paid on their inputs.

Air, land, and sea transportation cross-border and transit services, except passenger transportation services provided by transportation corporations in the TRNC, are exempt from VAT. According to the legislation, carriers can claim credits or refunds for the VAT paid on their inputs.

Services provided in ports or airports for the sea or air vehicles used to produce income are exempt from VAT. Further, a reduction of stamp and registration fees is applied to mortgage procedures necessary when using bank credit for investments granted Incentive Certificate.

In light of this information, it can be said that the main investment areas in TRNC are mass tourism, special interest tourism, higher education, agriculture, and energy investments.

Special interest tourism: In the global context, since the needs of tourists are becoming more diverse, the tourism industry is becoming more and more challenging and competitive. The Investment Promotion Agency is well aware of the changing needs and the importance of satisfying these needs. Considering these, the tourism sector's sustainability is based on developing diversified investment opportunities with the concept called "special interest tourism." With its multicultural history and heritage, TRNC is considered one of the region's main special interest tourism destinations. Investors have tremendous potential in Health tourism, Yacht tourism, and Eco and Agro tourism areas.

Health tourism: With its unspoiled nature, warm weather, and local hospitality together with other facilities, TRNC provides a suitable environment for developing various health tourism products, for instance, care homes for elderly tourists. Convenient airports, health care services, and qualified multilingual human resources enable local and foreign guests to spend precious time in serenity and joy.

Yacht tourism: Due to its geographic location, rich cultural heritage, fascinating nature, and the firm will, TRNC is a promising candidate to become an essential destination in the Mediterranean. As one of the two accepted yachting regions, the Mediterranean has the best climate, suitable winds, natural bays, and a rich multicultural heritage. The rising pollution, berthing/servicing costs, and the progressing berthing demand in the region have been shifting the preference tendencies away from the Western Mediterranean to cheaper and more virgin areas in the Eastern Mediterranean. TRNC is already on the yachting routes of international yachters with convenient coastlines and lower berthing costs. Surprisingly, there exists a negligible amount of berthing capacity at the moment, with two new marinas under construction by foreign investors. Progressing demand reveals the urgent need to invest in additional marinas in TRNC.

Eco-agro tourism: Gaining wide popularity as an alternative to mass tourism, tourists have exhibited a greater tendency to travel to experience different

lifestyles, cultures, and cuisines in other countries. There is a common belief supported by available studies stating that eco-agro tourism is one of the most important types of tourism that will create and maintain sustainability in the sector. TRNC, as a mosaic of numerous civilizations and cultures, possesses and offers various creative investment opportunities for eco and agro-tourism products.

Conference tourism: This kind of tourism has gained significant popularity within the last few years, signaling a growing potential for TRNC to become one of the region's favorite conference tourism destinations and a hub. 5-star hotels providing a full range of conference and casino gaming facilities have been a complementary package and a significant attraction for the sector's prospects.

Higher and continuing education: TRNC strongly emphasizes raising education quality since the sector is perceived as the most crucial factor in the economy, enabling the other sectors to recruit qualified labor tailored to their needs. Due to its competitive and innovative nature, the sector needs to raise and maintain the quality of education and promote research and development through further investments. In line with this, universities' research and development activities and the technological infrastructures and affinity they have been developing possess potential prerequisites for evolving the ICT sector.

Like other sectors, FDIs are perceived to be important in attracting new technologies, which help stimulate the quality and diversity of the existing academic programs. The presence of international stakeholders and the inflow of FDI in higher education will help TRNC become a center of excellence in higher education, research, and development.

Specialized, niche investment, high-value-added agriculture, and food processing (agricultural industry): To contribute to the agriculture sector's competitiveness, alternative crops and products in addition to citrus have to be developed to generate higher market demand and higher value added. The specialized, niche agriculture sector is considered a promising and high-value-creating agriculture sub-sector. Among the products that TRNC offers are Hellim (cheese), Verigo Grape, pomegranate, caper, olive oil, citrus honey, carob, and herbs.

ICT–software development, telecommunications: In light of global trends, available resources, and sector analysis, the TRNC government recognizes the importance of ICT and firmly believes that it could be one of the leading sectors in TRNC. Although the development of this sector has not fully matured, TRNC offers various opportunities for investors in this sector, such as the availability of universities with more than 10,000 students from different countries and young

graduates. As mentioned above, investment support mechanisms are available for foreign investors. In addition, the availability of science and technology parks and a high level of technological affinity with low prices for telecommunications, private and public networks, and internet service providers are additional opportunities for developing the ICT sector.

IX.C.2 Digital venturing and investment

Digital entrepreneurship has become a global phenomenon, transforming the economy and seizing new opportunities along the innovation-growth axis. In the TRNC, with its unique geopolitical and economic conditions, the emergence of digital entrepreneurship appears as a promising pathway for economic development.

The technology sector in the TRNC consists of ICT companies, financial services, e-commerce, other services, and educational technology companies. The largest category is ICT-related companies, and companies in the technology sector can be broadly divided into those that develop software for banking and insurance and those that develop unique software as a business model. According to a recent study by the Turkish Bank, three trends can be seen in the digital entrepreneurship ecosystem (T-Gate, 2022): One of them is the increased resources in the digital entrepreneurship ecosystem. According to the research, the increase in the number of accelerators or incubation centers and the same increase in science and technology parks is a gain for digital entrepreneurs. The second orientation is that the entrepreneurial audience is developing. According to the research, the existence of entrepreneurship and innovation-focused programs put forward by different institutions has positively impacted this. The third tendency is that the collaboration environment is improving. Cooperation between established companies and digital startups can be mentioned in this context.

The geostrategic location of the TRNC at the crossroads of Europe, Asia, and Africa is also becoming an essential factor for digital entrepreneurs. At this point, in terms of accessing the market and customer profile in neighboring countries, digital entrepreneurs are also in a position to take advantage of regional opportunities and build bridges between cultures. The presence of universities and educational institutions in the TRNC has laid the foundation for fostering innovation and entrepreneurship. These institutions have established relevant technology, business, and entrepreneurship programs, equipping students with the knowledge and skills needed to succeed in the digital age. In addition, university-affiliated science and technology parks, entrepreneurship-focused NGOs, and the recent and growing number of entrepreneurship-focused programs are also paving the way for digital entrepreneurship. In short, the well-

educated workforce in the TRNC is close to being able to serve as a talent pool for digital startups.

As noted in the first part of this chapter, the digital infrastructure in the TRNC, including internet connectivity, speed, and telecommunications, is gradually improving. Ongoing efforts to improve this infrastructure, with the support of Türkiye, have created an enabling environment for digital entrepreneurs, as digital entrepreneurs are focused on good quality and fast internet connectivity. Digital entrepreneurship has gained momentum in the TRNC, as in the world, with the impact of developments in information technologies. However, the scope and depth of electronic commerce have changed, especially during the quarantine process that started with the Covid-19 pandemic.

Within the scope of the Competitiveness Report prepared for the Turkish Cypriot Chamber of Commerce for the 2018-2019 period, Hasan Amca, Yenal Süreç and Aytaç Çerkez conducted a digitalization survey (Amca et al., 2020). According to this survey of 100 businesses, only 21% are engaged in electronic commerce; most of this group comes from the financial services and tourism sectors. 57% of businesses engaged in electronic commerce accept electronic payments. Of course, these figures are assumed to have changed after the Covid-19 pandemic. Still, it is impossible to obtain reliable information on electronic commerce either in the subsequent Competitiveness Reports or other statistical data.

It has been observed that the number and visibility of enterprises engaged in electronic commerce have increased simultaneously with the progression of the Covid-19 pandemic. A case in point is www.bitayka.com, the TRNC's first marketplace-format shopping platform that emerged with the Covid-19 pandemic. Although it does not continue its activities now, the platform, which appeared in 2020 when the COVID-19 pandemic was at its peak, has gone beyond the point of performing a task that can act as a bridge between the customer and the supermarket in the words of Technology and Operations Manager Mustafa Abitoğlu, and provide the customer with the opportunity to order from the comfort of their home at supermarket prices (Abitoğlu, 2021). In the same period, according to the figures obtained from the TRNC Post Office, an average of 19,000 small packages and around 2,000 parcels arrived in the TRNC from electronic commerce sites abroad. It is also known that these packages and parcels are subject to customs (Özbil, 2020).

In order to pave the way for electronic commerce initiatives in the TRNC with these developments, Türkiye unconditionally supports the Turkish Cypriot people in this field. The TRNC-Türkiye Commercial and Economic Cooperation Protocol, which entered into force in September 2021, seems to have made a revolution in this sense. According to this protocol, companies in the TRNC have

found the opportunity to sell their products through PTT-AVM, an electronic commerce platform operating in Türkiye. At this point, PTT-AVM acts as a bridge that brings the Turkish market and the world market to TRNC companies.

In addition to these developments, banking and financial services also seem to be digitalized. In terms of positive examples in banking, both private and public banks can be cited as examples. Banks in the TRNC have developed their mobile applications and gradually switched to mobile payment systems. For example, the Cooperative Central Bank, a public bank, launched the HEPi application, which it calls "Cyprus' Mobile Wallet," on Android ("Koopbank'tan Yeni Uygulama: HEPi," 2021). In this context, in addition to the HEPi application, the HEPi Student application for university students has emerged as a mobile payment method that replaces the physical wallet. HEPi, which can be loaded with credit and debit cards from all banks, is an application that allows instant money transfers via mobile phone. In the words of Kemal Ataman, the General Manager of the Cooperative Central Bank, it has started the payment era by scanning the QR code instead of paying by card. In this way, it has introduced a new payment alternative without touching money, cards, and POS devices. Kemal Özçınar, Deputy General Manager of the same bank, stated that with the HEPi application, a different QR code is produced specifically for each transaction and is a first in the TRNC.

Studies to understand consumers' perspectives on electronic wallets and mobile payments in TRNC are minimal. One of these limited studies is the study conducted by Cem Tanova and Fatma Kınış with 300 people in 2022 (Kınış & Tanova, 2022). According to the survey results, consumers' knowledge about electronic wallets and mobile payments affects their perceived usefulness, ease of use, and trust. These indicators were also found to influence attitudes and behavioral intentions. In particular, it has been observed that behavioral intention to use electronic wallets increases significantly when consumers are informed that their losses will be reimbursed immediately. Considering these findings, it can be said that raising awareness about electronic wallets and mobile payments in TRNC will have a positive effect on the use of these applications.

In a survey study conducted by Emrah Öney, Gizem Öksüzoğlu Güven, and Wajid Hussain Rizvi with 299 respondents in 2017, it was found that the perception of security and sense of trust will positively affect consumers using electronic payment systems (Öney et al., 2017). In light of these findings, it can be said that there is potential in this direction in the TRNC, but trust and awareness should be considered.

Çağatay Karip, the General Manager of Asbank, one of the private banks in the TRNC, gave figures on digital banking in the TRNC in an interview with BusinessNews magazine (Karip, 2022). Stating that 85% of banking transactions worldwide are made through the Internet and mobile banking applications, Karip said that this rate is lower in the TRNC and that the active usage rate of Asbank customers is around 20%. According to the same interview, the obstacles to digital transformation are using a 3G internet connection, lacking a research and development-oriented economic model, and insufficient investment incentives. Although the TRNC aims to switch to a 4.5G Internet connection in 2023, much more must be done.

In particular, the sine qua non of entrepreneurship ecosystems, such as access to venture capital and angel investment, are not yet available in the TRNC, and no legislative changes have been made at this point. The number and quality of digital initiatives can be increased by overcoming the barriers to encouraging private entrepreneurs to invest.

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CONCLUSIONS AND POLICY RECOMMENDATIONS

Challenges of the world economy

The world economy faces challenges stemming from a complex interplay of geopolitical tensions, supply chain disruptions, inflationary pressures, monetary tightening, and rapidly shifting macroeconomic conditions. These challenges significantly affect global economic growth, trade and investment dynamics, and people's livelihoods worldwide.

In 2022, the global economy experienced slower growth at 3.4%. Moreover, nearly 66% of world economies are expected to experience even weaker growth in 2023. Inflation is still the number one challenge. The global inflation rate increased from 3.2% in 2020 to 8.7% in 2022, which is the highest global inflation rate since 1997. Food and energy prices are responsible for a significant amount of the elevated inflation levels.

Price stability is a must to have sustained growth. Fiscal authorities and the central banks need to work together on stabilizing their economies concerning inflation, focus on near-term growth prospects, and address broader challenges of development that may require supply-side structural interventions.

Challenges of the world economy in 2022 have created uncertainty for businesses and investors, affecting international trade and investments.

In 2020, the Covid-19 pandemic caused a 7.4% decline in global exports of goods and services. The value of goods and services exported globally rebounded fast in 2021, increasing by 10.6%. However, worldwide export growth slowed to 4.8% in 2022, and recent forecasts show that international trade volumes will further slow in 2023. Similarly, global foreign direct investment (FDI) flows declined by

12%, from $1.5 trillion in 2021 to $1.3 trillion in 2022. UNCTAD expects the downward pressure on global FDI to continue in 2023.

Global digital economy

People and businesses increasingly use online means of buying and selling, and global value chains have become increasingly digitalized. 56% of companies globally make cross-border sales through online platforms. Organizations worldwide spent $1.6 trillion in 2022 to introduce digital technologies. The ability to trade online has become crucial for firms in developing nations.

In 2022, 66% of the world's population was using the Internet, and 4.4 billion were mobile Internet users. In the same year, global e-commerce spending amounted to $5.7 trillion. 97% of all cross-border online purchases were for physical goods. E-commerce is expected to account for almost 24% of retail sales worldwide in 2026. On the other hand, the share of digitally deliverable services in global exports rose from 44.7% in 2005 to 62.8% in 2021, with their significance expected to grow further.

With a 25% global share of greenfield FDI in 2022, the ICT, electronics, and electrical equipment sectors are much more appealing to FDI thanks to e-commerce. In general, FDI enhances a host nation's digital economy by improving infrastructure, transforming businesses, and promoting indigenous digital enterprises. The headquarters of the largest digital MNEs are mostly in the United States, followed by China and Japan. They typically concentrate on computer services, semiconductors, and telecommunications.

Although digital trade is not a brand-new phenomenon, its significance has increased recently. It benefits SMEs whose trade participation is limited by high market entry costs or difficulty obtaining information. Governments worldwide have relaxed cross-border trade regulations and implemented consumer protection laws to boost e-commerce sales.

Performance of Turkic economies

The real GDP of the economies of OTS Member States and Observer (OTS economies) has become 1.8 times higher in the last twelve years, reaching nearly $1.6 trillion in 2022. OTS economies saw strong average real growth in 2021, at 9.4%. However, the OTS economies are also affected by the world economy's heaviness, and their economic growth performance slightly lost momentum in 2022, with economic growth at 5.1%.

OTS economies that are highly dependent on natural resources are exposed to significant risks of external shocks, mainly where government revenues rely heavily on export income. The relevant OTS economies will become more resilient to external shocks and able to create jobs if efforts to diversify their economies continue systematically.

Turkic government maintains their responsible macroeconomic policies, and medium-term fiscal sustainability is secured. The OTS economies have a broadly healthy fiscal position and stable debt-to-GDP ratio.

The total export of goods and services of the OTS group of economies has increased from $420.4 billion in 2015 to above $700 billion in 2022, with goods being dominant with a share of 80%, compared to a 20% share of services. Significant trade concentration in some OTS economies and dependence on a few countries increases vulnerability to external shocks.

Trade between the OTS economies is on the rise. However, it is unevenly distributed between the economies of this group and, in most cases, heavily concentrated on particular OTS member states.

In 2022, the total value of goods exported among OTS economies was $31.4 billion. Still, in 2022, the OTS economies sold only 5.6% of their total exported goods to one another, while in the OECD group of countries and the EU, intra-group exports accounted for 73% and 61% of total exports, respectively.

FDI inflows into OTS economies increased to $26.8 billion in 2022 from $24.8 billion in the previous year. A significant component of FDI inflows was greenfield investments. According to the IMF Coordinated Direct Investment Survey, intra-OTS foreign direct investment stock was 13,8 billion in 2021.

Digitalization of Turkic economies

The Turkic economies are experiencing a significant shift towards digitalization. This shift has been driven by factors such as increased internet penetration, the rise of e-commerce, and the adoption of digital payment systems. As a result, businesses in Turkic countries are increasingly leveraging digital platforms to engage in cross-border trade and attract foreign investment. Even so, there's still a long way to go until Turkic countries become advanced digital economies.

Internet penetration rates in OTS economies (except for Turkmenistan) are above the global average, and they have a high level of digital maturity. The readiness for digital transformation is reportedly highest in Hungary and Türkiye.

The OTS countries have significantly advanced their e-government development over the past twelve years, enhancing citizen engagement and service delivery. Moreover, they have implemented e-commerce legislation, resulting in a significant increase in e-commerce penetration from 25% in 2017 to 42% in 2022.

In 2022, offline retail accounted for 90% of OTS economies' revenues, while from 2017 to 2022, desktop e-commerce sales averaged 55%-64%, with a visible shift towards mobile commerce.

The export of ITC goods from OTS economies increased from $14.9 billion in 2017 to 19.5 billion in 2021, mainly due to Hungary's performance. OTS economies appear to be net importers of ITC products.

OTS economies' digitally deliverable service exports increased from $6.8 billion in 2005 to 24.2 billion in 2021. From 2014 to 2021, approximately 20% of the services exports of OTS economies were digitally-deliverable.

Policy recommendations

Digitalization has become an essential driver of economic growth and development. Governments worldwide are accelerating the digital transformation of their economies to increase productivity and competitiveness in all sectors. In light of the successes achieved to date, Turkic countries should continue investing in digital infrastructure to support the growth of the digital economy.

The digitalization of trade presents significant economic opportunities and efficiency gains. However, it also requires careful policy considerations to address regulatory challenges. Setting up clear and consistent standards will provide a conducive environment for companies to engage in digital trade while ensuring consumer trust and confidence. Regulatory frameworks must support cross-border data transfers that enable trade in digital goods and services, adequately safeguard the privacy of individuals, and address cybersecurity concerns.

In general, by reviewing and updating the existing regulations, governments of Turkic countries must ensure pro-innovative rules and governance that is adaptive to the digital age. On the other hand, promoting secure and efficient digital payment systems can further enhance the growth of cross-border digital transactions. Governments can work with financial institutions to develop digital payment solutions further.

To fully harness the potential of digital trade and investment, there is a need to build digital skills, including investing in education and training programs focused on digital literacy, e-commerce skills, and cybersecurity awareness. This will empower the workforce and entrepreneurs to adapt to the changing international trade and investment landscape.

The digitalization of investment promotion services can transform how governments and investment promotion agencies (IPAs) attract and facilitate foreign investment. IPAs can leverage the power of digital technologies to enhance investor engagement, streamline the investment promotion process, and promote transparency and accountability.

Turkic IPAs shall further develop their digital platforms for investors to access information, communicate, submit applications, and track the progress of their investments. IPAs shall also utilize artificial intelligence, virtual reality, and augmented reality technologies to showcase investment opportunities, facilitate site selection, and improve investor support services.

Multilateral cooperation can significantly contribute to creating a more conducive digital trade and investment promotion environment. Turkic countries are expected to accelerate their collaboration on digitalization issues by adopting the "Partnership Agreement on Digital Economy between the Members of the Organization of Turkic States." This agreement will support the digital transformation performance of Turkic economies and enable the systematic sharing of best practices while promising a significant increase in e-commerce. Achievements of Turkic countries presented in this report show that there is a lot of space for collaboration and for learning from each other.

By developing common standards, collaborating to enhance digital infrastructure and connectivity, providing capacity-building support, and jointly addressing legal challenges, Turkic countries can more efficiently harness the benefits of digital technologies.

Turkic cooperation can be vital in providing technical assistance, training programs, and knowledge-sharing initiatives to help OTS member states and observers further develop their digital capabilities. This can include support for SMEs (with the interest and potential to access international markets) to leverage digital platforms for international trade and provide training, as well as capacity-building programs for IPA staff to enhance their digital skills and enable them to utilize digital tools and platforms effectively.

Turkic Academy
Street E-179/32, Diplomatic Town, Astana, Kazakhstan
Telephone: +7 717 257 49 82; Internet: https://turkicacademy.org
E-mail: officetwesco@gmail.com

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