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ADB-PRC Regional Knowledge Sharing Initiative

CAREC
INSTITUTE

SEVENTH CAREC THINK TANK DEVELOPMENT FORUM

'EMBRACING DIGITAL TECHNOLOGY FOR SUSTAINABLE ECONOMIC DEVELOPMENT'

16-17 August 2023 | Urumqi, the PRC

Disclaimer

This report summarizes proceedings of the Seventh CAREC Think Tanks Development Forum held online on 16-17 August 2023 in Urumqi, the PRC.

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ACRONYMS/ABBREVIATIONS

ADB	Asian Development Bank
AI	artificial intelligence
AIIB	Asian Infrastructure Investment Bank
APTTA	Afghanistan-Pakistan Transit Trade Agreement
BRI	Belt and Road Initiative
CAREC	Central Asian Regional Economic Cooperation
Chat GPT	chat generative pretrained transformer
CI	CAREC Institute
CIN	CAREC Innovation Network
CPEC	China–Pakistan Economic Corridor
CTTDF	CAREC Think Tanks Development Forum
CTTN	CAREC Think Tank Network
DMC	developing member country
DSSC	Digital Strategy Steering Committee
DT	digital technology
EBRD	European Bank for Reconstruction and Development
EC	economic corridor
EGDI	e-Government Development Index
eWTP	electronic World Trade Platform
FDI	foreign direct investment
FI	**f**inancial inclusion
FinTech	financial technology
FTA	free trade agreement
GDP	gross domestic product
GTMI	GovTech Maturity Index
GVC	**g**lobal value chain
ICT	information and communication technology
IGO	intergovernmental organization
IoT	Internet of Things
IsDB	Islamic Development Bank
LLDCs	landlocked developing countries
MENA	Middle East and North Africa
OBM	original brand manufacturing
ODM	original design manufacturing
OEM	original equipment manufacturing
PPP	public–private partnership
PRC	People's Republic of China
PSW	Pakistan Single Window
R&D	research and development
RGP	research grants program
RKSI	regional knowledge sharing initiative
RTAs	regional trade agreements
SAARC	South Asian Association for Regional Cooperation
SEZs	special economic zones
SSC	South–South Cooperation
STEM	science technology engineering and mathematics
TA	technical assistance
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund

UNOSSC   United Nations Office for South–South Cooperation
USD   United States dollar
WTO   World Trade Organization

Throughout history, technology has been a significant driver of improvements in living standards and prosperity, from primitive hunter-gatherers to agricultural mechanization to the industrial revolution. More recently, with its innumerable modern manifestations, digital technology has been instrumental in spurring economic growth with advancements in areas such as e-commerce, cloud computing, Big Data, and the Internet of Things (IoT), leading to new business models and enhanced access to public services. Digital technology has been seen to have a transformative effect on economies and regions. The global digital economy was estimated to be worth 15.5 percent of global GDP in 2016 and forecast to reach 24.3 percent by 2025.[1] In the past decade, it has grown two and a half times faster than physical GDP.[2] Digital technology enables giant strides in production efficiency, eventually bringing about prosperity.

Countries in the Central Asian Regional Economic Cooperation (CAREC) region have tried to adopt digital technologies in business and public services, but significant challenges remain. Two of the most important challenges are the lack of essential digital infrastructure and the low level of digital literacy and lifelong learning, which have hindered investment and growth of technological competitiveness.[3] These challenges have resulted in nearly half of the population in the region being digitally disconnected, negatively impacting their outcomes in education, employment, and healthcare services. The digital divide becomes wider and more deep rooted between men and women, and rural and urban areas. Central Asia, in particular, has some of the lowest rates of digital connectivity, with over half the population in Uzbekistan, the Kyrgyz Republic, and Tajikistan being disconnected and fewer than 20 percent of the population in Afghanistan and Pakistan using the Internet. Most countries in the region are landlocked and not linked to global fiber optic lines, further complicating broadband connectivity provision. A lack of private investment, essential reforms in relevant sectors, barriers to entry, inadequate regulations, and entrenched state-owned monopolies are some of the reasons why mobile Internet and fixed broadband services have limited access.[4] The CAREC region has not benefited fully from the digital economy transformation, as evidenced by the analysis conducted by the CAREC Institute on the regional digital gap.[5]

The Seventh CAREC Think Tank Development Forum
As the knowledge arm of the CAREC Program, the CAREC Institute (CI) creates knowledge and connects various knowledge producers in the region. The forum's thematic focus and proposed topics are aligned with the five pillars of the CAREC Digital Strategy 2030. Organized annually under the auspices of the CAREC Think Tank Network (CTTN), the CAREC Think Tank Development Forum (CTTDF) has become the region's most prominent event. Since its inception in 2016, every year, the forum convenes prominent thought leaders, practitioners, experts, government and business leaders, development partners, and media representatives from the CAREC region and beyond and provides a platform for experience sharing and candid discussion on regional policy challenges to find sustainable solutions for collective benefit. The seventh think tank development forum will occur on 16-17 August 2023 in Urumqi, the People's Republic of China (PRC). The forum will discuss, among other topics, (i) the findings of CTTN Research Grants Program (RGP) studies; (ii) the role of digital technology in spurring economic development; (iii) digital strategies, governance, and

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[1] https://www.oxfordeconomics.com/resource/digital-spillover/
[2] https://www.weforum.org/agenda/2023/01/3-strategies-for-delivering-digital-infrasturcture-in-the-asia-pacific
3 Realizing Digital Potential in North and Central Asia, UNESCAP

4 COVID-19 Prompts Urgency of Bridging Digital Divide in Central Asia, World Bank

5 Questionnaire-based data collected from six CAREC economies: Afghanistan, Azerbaijan, the Kyrgyz Republic, Pakistan, Tajikistan, and Uzbekistan in 2021

infrastructure; (iv) the digital divide and policies for boosting digital skills and competencies; and (v) e-commerce, governance, financial inclusion, and fintech.

WELCOME REMARKS

MR KABIR JURAZODA, DIRECTOR, CAREC INSTITUTE

Dear colleagues,

It is my pleasure to welcome you all to the Seventh CAREC Think Tank Development Forum, held this year under the theme *'Embracing Digital Technology for Sustainable Economic Development'* in this city of Urumqi, in the vibrant region of Xinjiang Uyghur Autonomous Region (XUAR). Xinjiang and Urumqi are not only China's main gateway to Central Asia, the Middle East, and Europe, but also home to our CAREC Institute!

The recent technological advancement and, in part, the COVID-19 lockdowns pushed forward an irreversible shift in digital transformation. It is becoming increasingly evident that countries that have invested in national broadband infrastructure and whose people and businesses are connected through digital platforms fared better than others during the pandemic. Digital technologies have advanced more rapidly than any innovation in our history, reaching around 50 percent of the developing world's population in only two decades and they keep transforming societies. Multiple studies indicate that digital transformation based on effective data management can have an impact on economic growth, new job creation, and social inclusion. It is evident that the digital economy has a significantly positive effect on the economic growth in countries in the CAREC region and along the Belt and Road. It can stimulate economic growth by promoting industry structure, upgrading and restructuring employment.

The CAREC region has not fully and evenly benefited from the digital economy transformation, as evidenced by the analysis conducted by the CAREC Institute on the regional digital gap. To realize

the enormous untapped digital potential in the region, a coordinated and broad-based approach is needed. Countries in the CAREC region have tried to adopt digital technologies in business and public services, but significant challenges remain; two of the most important are the lack of essential digital infrastructure and the low level of digital literacy and lifelong learning, which have hindered the investment and growth of technological competitiveness.

A focus on addressing the existing imbalances in digital development across the CAREC region, regional digital collaboration, and the sharing of best practices will enable CAREC member countries to take advantage of the opportunity presented by this crisis and lay the foundations for sustainable and inclusive economic recovery. Boosting regional cooperation on digital transformation, adopting digital technologies to leverage existing ties and create new ones, and focused investment in regional interoperable digital infrastructure will help not only to accelerate COVID-19 recovery, but also to ensure long-term sustainable economic growth.

Considering the existing challenges and finding a common solution, the 20th CAREC Ministerial Conference has adopted the 2030 CAREC Digital Strategy: Accelerating Digital Transformation for Regional Competitiveness and Inclusive Growth in November 2021. The strategy adopts the mission of creating a data-driven digital economy with fast and reliable online access to relevant information and trusted, realtime, user-friendly digital services for all citizens, businesses, and administrations across the CAREC region.

The role of think tanks is now essential in good governance and policy making, given the importance of collective wisdom, evidence-based decision making, and creative ideas. Think tanks may not be directly involved in governance, but they bring different perspectives, advise, and convince the decision makers. However, to provide better and more adoptable advice, think tanks need to engage with other think tanks, to improve their own institutional capacity and, if possible, play bigger roles that exceed their national boundaries and interests.

We believe the digital transformation also facilitates the work of think tanks in the region with greater access to information and resources, faster communication, and quicker exchange of knowledge. For example, many international forums, conferences, and meetings that were accessible only to limited participants are now open to the public, and today our forum audience is not limited to our guests in this room, but we also have participants joining us online from all over the world.

The CAREC Institute embraced the digital shift, and our capacity building function has been transformed by the launch of an e-learning platform. By leveraging digital technologies, our institute has substantially expanded its reach and increased capacity to offer sustainable knowledge support to an increasing number of the target audience. All delivered capacity building activities are now recorded and uploaded on the CI e-learning platform, and the number of visitors and users is doubling every year.

The forum discussions over the next two days will help think tanks and key stakeholders in the region to share their experiences, research, and information as part of knowledge sharing and building. The forum expects to have deeper discussions on important topics of digital technology and growth in the region—such as digital strategies, infrastructure, investment, boosting digital skills, reducing the digital gap, digital education, digital governance, e-commerce, digital finance and inclusion, and creating digital startup ecosystems. We are happy to have success stories from governments and the private sector, particularly those at the forefront of the digital transformation in China, such as globally known companies Alibaba and Tencent.

Let me express my gratitude to today's forum partners: the China-Eurasia Expo Secretariat, the Finance Department of Xinjiang Uyghur Autonomous Region, and particularly the Asian Development Bank, and ADB-PRC Regional Knowledge Sharing Initiative (RKSI) who have supported the CAREC Think Tank Development Forum.

I would like to extend our invitation for you to visit the Euro-Asia Commodity and Trade Expo on the second day of the forum. The expo provides us with a great opportunity to familiarize ourselves with products, goods, and companies from the region.

Thank you, and I wish you a fruitful discussion!

OPENING REMARKS

MR SHIXIN CHEN, VICE PRESIDENT, ASIAN DEVELOPMENT BANK, MANILA, PHILIPPINES

Good morning, esteemed colleagues,

I am delighted to welcome you to the seventh CTTDF. I would like to thank CI and the ADB-PRC RKSI for organizing this important event, the government of the People's Republic of China and Urumqi City for hosting it, and other CAREC member countries for their support.

During the last few years, CI has increased its focus on effectively utilizing digital technology to foster sustainable economic development in the CAREC region.

Undoubtedly, digital technology has significantly contributed to global growth, expanded opportunities, and enhanced service delivery. The theme for this year's CTTDF, *'Embracing Digital Technology for Sustainable Economic Development,'* is thus very timely and relevant.

The Asian Development Bank is committed to supporting the CAREC region's digitalization. In agriculture, ADB's assistance in improving access to digital communication tools and reliable information is helping increase agricultural productivity and farmers' income. In education, ADB supports access to digital technology to improve learning. For example, an ADB project in Uzbekistan *'Using Information and Communication Technology (or ICT) in Basic Education'* benefited 540,000 students in rural areas. In health, ADB's projects are improving medical consultation, diagnosis, and treatment, particularly in rural areas, through telemedicine. ADB also supports the digitalization of government processes and transactions or e-government to lower the cost of government services, and improve transparency and public accountability.

In the CAREC region, the levels of digital development vary significantly. The CAREC Digital Strategy 2030 aims to help bridge the digital divide by laying out ways for countries to work together to increase investments in broadband infrastructure, to harmonize e-commerce regulations, and to develop digital solutions to the region's most pressing problems.

The strategy also promotes innovation and entrepreneurship. We have launched the CAREC Startup Map, which locates active stakeholders in the startup ecosystem in the region and established the CAREC Innovation Network to link them. We offer them training in business model validation, marketing, and financing. They also have access to the *CAREC Innovation Decoded* series, which, as the name of the series implies, decodes the secrets of successful startup enterprises and ecosystems. For early stage startups, we have the CAREC Regional Bootcamp, a venue to collaborate with accelerators and facilitate connections with potential investors.

Importantly, we help young entrepreneurs through the CAREC University Startup Competition, which attracted over 580 students. We were very impressed with their energy and startup ideas, such as the Know Bus (a convenient, environmentally friendly ride-sharing app) and the AI Office Butler (a productivity enhancing app using artificial intelligence). In the CAREC University Exchange Program, meanwhile, 12 teams of students from the region joined a two-week education program on business innovation and opportunities.

To enhance the participation of small businesses in the global economy through e-commerce, the CAREC Digital Trade Forum was launched in 2022. It promotes the adoption of best practice, policy coherence, and digital solutions to achieve inclusive digital trade in the CAREC region and beyond.

Although we have undertaken numerous initiatives, it is essential to acknowledge that there is still much to be done to address the expanding digital divide among vulnerable populations. Furthermore, our focus should not be solely on digital development, but also on ensuring digital protection as cyberattacks continue to rise globally.

Therefore, I would like to conclude by urging the seventh CTTDF participants to contribute meaningfully to addressing these challenges. Let us strive for today's discussions to identify research areas for developing policies on how the government and the private sector can collaborate to invest in digital infrastructure, expand connectivity access, and reduce connectivity costs for low-income communities. Further, I kindly request that you deliberate on areas of collaboration to ensure an open, secure, trustworthy, and inclusive Internet as we support the development of digital skills, e-commerce, digital governance, digital finance, and startups.

Thank you and I wish you a successful forum.

MR WENCAI ZHANG, VICE PRESIDENT, THE EXPORT–IMPORT BANK OF CHINA, PRC

Distinguished guests, good morning!

It gives me great pleasure to visit the beautiful Xinjiang Autonomous Region and attend today's forum to have discussions with you on the topic of 'digital technology and sustainable economic development.'

At present, the digital wave is sweeping the world and digital technology is undergoing profound changes every day. New technologies such as 5G, IoT, cloud computing, and AI are being widely integrated into the fields of trade, finance, agriculture, and many others, accelerating the reconstruction of production and our lifestyle and becoming an important driving force for sustainable economic development. The CAREC member countries are seizing the new opportunities of the digital economy and are actively promoting the digitalization process. However, restricted by factors such as capital, technology, and talents, digital transformation still faces many challenges, and there is a long way to go to mitigate the 'digital divide.' CAREC member countries need to work together and take practical measures to tap into the potential for regional digital development and promote inclusive and sustainable economic growth. At present, there are four areas of cooperation, which are both important and urgent.

First, we should strengthen the building of digital infrastructure. Digital infrastructure is the base of connectivity. According to the calculation of the G20 Global Infrastructure Center, by 2035 around USD367 billion will be needed for Asia to achieve basic network coverage. We should give full play to the leading role of governments as well as multilateral and bilateral institutions and mobilize more

public and private funds to form synergy in financing regional digital infrastructure, enhancing connectivity, and rendering solid support for the development of the regional digital economy.

Second, we should strengthen standardized construction in the digital field. We should uphold the principles of joint participation with shared dividends and responsibility, strengthen exchanges and consultations regarding digital governance and data standards, and explore standards and rules that are in line with the actual development conditions of CAREC member countries and are conducive to regional economic cooperation to promote the alignment of rules and mutual recognition of standards.

Third, we should facilitate capacity building and knowledge sharing in the digital field. We should pay equal attention to financial and hardware investment and capacity building. While spending more on incubating specialists in the digital sector, we should also improve the ability of ordinary people to use digital applications. We should cooperate more intensively in research on cutting-edge areas such as 5G/6G, cloud computing, and AI. By promoting knowledge sharing and technology transfer, we will be able to make better use of digital technology and contribute to digital transformation and sustainable economic growth.

Fourth, we should safeguard digital security. With the popularization of digital technologies, cyber attacks, privacy infringement, data leakage, and other issues are emerging, and digital security cannot be ignored. It is necessary to strengthen data supervision and jointly develop data protection laws and regulations, to effectively safeguard the digital security of all countries.

China EXIM Bank has been actively supporting the development and application of digital technologies, and it has promoted the digital transformation of developing countries. The bank has financed a number of projects that have enhanced the level of informatization in the host country, including the Fourth-Generation National Data Center in Bangladesh, the national submarine fiber cable network in Papua New Guinea, and the modernization of the communications network in Madagascar.

China EXIM Bank looks forward to working with all parties to mobilize resources from governments, societies, and the international community, to leverage our strengths in providing both financing and expertise, so as to enlighten the digital future of CAREC members and contribute to the sustainable development of the regional economy.

Last, but not least, I wish the forum complete success! Thank you!

MR CHENG ZHIJUN, **DIRECTOR GENERAL**, INTERNATIONAL ECONOMIC AND FINANCIAL COOPERATION DEPARTMENT, MINISTRY OF FINANCE, PRC

Distinguished guests, good morning!

I am pleased to attend the seventh CTTDF. On behalf of the Department of International Economic and Financial Cooperation of the Ministry of Finance of the PRC, I would like to express my sincere gratitude to the CAREC Institute, the ADB, the Finance Department of Xinjiang Autonomous Region, the Secretariat of the China-Eurasia Expo, and RKSI in organizing this forum. I would also like to extend a warm welcome to all guests presenting here today.

The theme of this year's forum, 'Embracing Digital Technology for Sustainable Economic Development,' is highly relevant to our times and responsive to our shared concerns. At present, global economic recovery remains sluggish. CAREC countries face serious challenges to achieve sustainable development and urgently need to find new sources of economic growth. At the same time, the new round of scientific and technological revolution and industrial transformation have brought unprecedented opportunities. In particular, the pandemic boosted the flourishing of new industries and new forms of business in the digital economy, such as telecommuting and e-commerce. This is accelerating the profound transformation of production methods, lifestyles, and modes of governance, which is becoming a critical force in reordering global production factors and reshaping global economic structure. Meanwhile, the development of the regional digital economy is encountering challenges such as underdeveloped infrastructure, insufficient investment, different development levels, and misaligned policies. It is important for all CAREC countries to solve these problems effectively and to vigorously develop their respective digital economies.

With strong support from the ADB, the CAREC Digital Strategy 2030 endorsed by the CAREC Ministerial Conference in 2021 pointed the way to strengthen digital economic cooperation in the

region. The seventh CTTDF will contribute to the implementation of this strategy. China is willing to work with CAREC member countries and the ADB to further explore how to enhance regional digital cooperation and promote the sustainable development of the region in light of the current challenges facing the region and the urgent need for countries to develop the digital economy. In this regard, I would like to share some proposals on strengthening digital economic cooperation in the CAREC region:

First, we should strengthen strategic and policy coordination to promote joint and coordinated development. We need to promote the synergy between the CAREC Digital Strategy 2030 and the development strategies and priorities of all member countries. We need to enhance policy dialogs and coordination among member countries on international data governance rules and accelerate the development of digital trade. In this way, we can jointly build an open, fair, and non-discriminatory digital development environment. Further, we need to promote the synergy between the CAREC Digital Strategy 2030 and the Digital Silk Road, as well as other global and regional initiatives to improve the coordination of our development.

Second, we should deepen cooperation in key areas to enhance the resilience of regional development. We need to speed up regional digital infrastructure connectivity, accelerate the development of new types of digital infrastructure—such as data centers, cloud computing platforms, cross-border e-commerce parks—and break bottlenecks in development. Focusing on the urgent needs of member countries, we should strengthen the integration of the digital economy with agriculture, food security, climate change, transportation, energy, and other key areas; promote the digitization and intellectualization of traditional industries; and cultivate new drivers for economic growth to further enhance the resilience of regional economic development.

Third, we should foster development partnerships and provide more resources. We hope that all member countries can deepen their cooperation with international organizations and development partners, including the ADB, the World Bank, and Asian Infrastructure Investment Bank (AIIB), and further explore the establishment of innovative financing mechanisms to mobilize more public and private resources to support the development of the digital economy and bridge the financing gap for digital economy projects in the region. At the same time, we should fully leverage the multilateral platform advantage of regional think tanks such as the CAREC Institute and ADBI and strengthen coordination with regional digital economy research institutions to advance theoretical and technological innovations, and promote knowledge sharing to provide intellectual support for the development of the digital economy.

In recent years, China has made great efforts to promote a digital development strategy, continuously improved its digital infrastructure, fostered new industries and new business models, and made important progress in the industrialization of digital systems and the digitalization of industry. The overall size of China's digital economy has been groundbreaking in the world for several years running.

China attaches great importance to international cooperation in the digital economy and has been working to join the Digital Economy Partnership Agreement. The Global Development Initiative proposed by President Xi Jinping has identified the digital economy as one of the priorities of this cooperation. Meanwhile, at the China-Central Asia Summit held in May this year, President Xi Jinping proposed that we should pursue common development and create new growth drivers such as digital innovation. China is willing to actively participate in Central Asia's digital economic cooperation, share China's experience and technology, enhance the level of digital economic development in Central Asia, and contribute to the stable recovery and sustainable development of the regional economy.

Finally, we look forward to insightful remarks from all the guests of the Think Tank Development Forum for the promotion of the digital economy and sustainable development of the CAREC region in the future. I wish you a successful forum today.

Thank you!

MR YUSUPJAN MAMAT, EXECUTIVE VICE GOVERNOR, XINJIANG UYGHUR AUTONOMOUS REGION (XUAR), PRC

Distinguished guests, good morning!

We are gathered here today in Urumqi, the 'Heart of Asia,' to attend the seventh CAREC CTTDF On behalf of the People's Government of Xinjiang Uygur Autonomous Region and the people of Xinjiang of all ethnic groups, I would like to extend a sincere welcome to the Chinese and overseas guests attending the forum!

Historically, Xinjiang has been a must-pass place of the ancient Silk Road, making positive contributions to the promotion of the communication and integration of Eastern and Western civilizations, as well as the economic and cultural cooperation and exchanges between Eurasian countries. Today's Xinjiang is in a new period of important development opportunities. Under the guidance of Xi Jinping's Thought on Socialism with Chinese Characteristics for a New Era and the joint efforts of the people of all ethnic groups in Xinjiang, the comprehensive economic strength has been steadily improved, the infrastructure facilities have been constantly upgraded, the living standards of the people of all ethnic groups have been significantly raised, and the various economic and social undertakings have demonstrated a good momentum of development, great potential and a bright future. Moving forward, we will deeply implement Xi Jinping's thought of socialism with Chinese characteristics in the new era, completely and accurately implement the Party's strategy of ruling Xinjiang in the new era, based on the advantages of the region, adhere to the high level of opening up to the outside world, and strengthen the economic cooperation with the countries in the Central Asian region.

With the theme of 'Embracing Digital Technology for Sustainable Economic Development,' the seventh CAREC Think Tank Development Forum has set up a professional, international, and open

platform for international digital technology exchanges and cooperation between Xinjiang and the CAREC member countries, and expanded new practices, achievements, and channels of international exchanges and mutual understanding between Xinjiang and the Central Asian countries. Xinjiang will take this opportunity to improve digital infrastructure, accelerate the application of digital innovation, expedite the bridging of the digital gap, and optimize the digital economic governance system to join hands with other countries and jointly promote the comprehensive rejuvenation of the Silk Road.

At present, the world is facing a great change, the like of which has not been seen in a hundred years; the changes in the times and in history are unfolding in an unprecedented way. Throughout the history of world civilization, mankind has experienced the agricultural revolution, the industrial revolution, and the information revolution. Each industrial and technological revolution has had a huge and profound impact on human production and on life. With the rapid development of AI, information and communication and other digital technologies, the digital economy—driven by digital technological innovation—is profoundly changing the traditional mode of economic development and has become a new and important growth engine for global economic development; the role of the digital economy in leading the recovery of the world economy and reshaping the global economic pattern is becoming increasingly prominent.

Based on China's practice, the digital economy is becoming an important pillar of China's economic growth with the in-depth implementation of the strategy of Network Power and Digital China, and the comprehensive application of data technologies such as 5G, Big Data, AI, biomanufacturing, sensing technology, IoT, blockchain and quantum computing. China has always played a role in accelerating digital transformation and promoting the integration of digital technologies into all fields and processes of economic and social development, contributing Chinese wisdom to accelerate the realization of strong, green, and healthy global development.

Digital technology is changing rapidly, and the digital economy is booming. Xinjiang is willing to work with countries under the Central Asia Regional Economic Cooperation program to deepen exchanges and cooperation in digital technology under the Silk Road spirit of 'peace and cooperation, openness and inclusiveness, mutual understanding and learning, and win–win results,' to promote the sustainable development of the economy through digital technology, and to work together to build a new pattern of open and win–win international cooperation in the field of digital technology to promote the common development and progress of all countries. We hope that this forum will achieve a successful outcome.

Finally, I wish this forum a complete success, and wish all the guests good health and good luck in their endeavors.

Group Photo of Seventh CTTD Forum Participants

Moderator: Mr Ayumi Konishi, Senior Advisor to CEO, Multilateral Cooperation Center for Development Finance (MCDF), Beijing

SPEAKER I: MR THOMAS ABELL, DIRECTOR, DIGITAL TECHNOLOGY FOR DEVELOPMENT DIVISION, ADB (VIRTUALLY)

Technology has significantly improved living standards and prosperity. More recently, with its innumerable modern day manifestations, digital technology has played a crucial role in fostering sustainable economic development by enabling businesses to increase their productivity and efficiency while reducing their environmental footprints. Digital technology has enabled the development of new products and services that address environmental challenges, such as renewable energy, intelligent transportation on systems, and sustainable agriculture. This session takes stock of the CAREC region's readiness for digital adoption by reviewing the progress in formulating dedicated digital strategies, developing crucial infrastructure, and creating an investment-friendly business environment.

Moderator: Even though this is a context-setting session, our first session already provided a lot of contexts in which this discussion is taking place. The theme chosen by the CI for this year's forum is particularly significant for two reasons. One is that we are in the post-COVID era; COVID-19 has really changed the way we live and work and how human society systems everywhere work. People have started adopting/accepting a nomadic style of work. The CI itself also delivers all the capacity-building programs online. The post-COVID era we are in now has not seen us simply going back to pre-COVID conditions but rather we are looking at human society, which will now function in a different way. Looking at the CAREC region, as a subregion, we have to think about whether the strategies thought of before COVID-19 are still relevant.

The second point is the introduction of Chat GPT (chat generative pretrained transformer) on 30 November last year by OpenAI. This period has shown us that coexistence with AI is not an event in the future, but a reality that needs to be dealt with as a current issue. In the pre-pandemic era, one did not really think about the singularity of AI catching up and replacing human capabilities. This is another very important context that must be looked at.

In the past, technology was discussed simply in terms of being an ICT issue as a single sector. However, digital technology is both an enabler and a transformer of human society. The transformation is not going to be linear but will inevitably be disruptive. How can we cope with that as a region? CAREC must consider the most appropriate strategies and the CI, as a think tank of the region, has a major role to play. I would like to congratulate the leadership of the CI for having chosen this topic. The key message here as the context for today's discussion is that the digital strategy we thought about pre-COVID and before the introduction of AI may no longer be relevant. In many governments, ICT is often dealt with by transport and communication. However, when one really thinks about it, digital technology cuts across all sectors such as education, health, climate change and so on. How should we deal with this ICT issue in a governmental context? This is another interesting debate.

Introduction
This presentation looked at digital trends and opportunities, an overview of the Asian Development Bank's (ADB) digital technology portfolio, ADB's approach to digital development programs, and current areas of digital focus.

In terms of context, we know that technology is transformative and has been accelerated by the pandemic; it is no longer a choice but a necessity. The number of tech users has exploded globally and the influence of these platforms is clear to see. Data is driving everything and has become of fundamental importance.

There are many opportunities as a development partner. Digital development opportunities are a key strategy of all developing member governments. Frameworks for the ethical use of technology are urgently needed and, in this regard, governments are adopting guidance or governance frameworks on the ethical use of technologies. Education and training have a crucial role to play in fostering digital literacy and in upskilling the workforce. It is crucial to foster digital entrepreneurship, innovation, and a tech startup ecosystem. The ADB's long experience and deep cross-sectoral knowledge of countries and its strong track record as an advisor, convener, and knowledge partner make the ADB uniquely placed to support developing member countries (DMCs). Among potential digital investments, one of the top priorities is to have accessible, affordable, and meaningful broadband connectivity to bridge the digital divide. To enable the flow of data, goods and services, and to generate investment there is a need for a comprehensive regulatory framework, effective policies, and implementation arrangements.

Digital technology components have been integrated in ADB operations across all sectors and thematic areas in line with Strategy 2030.
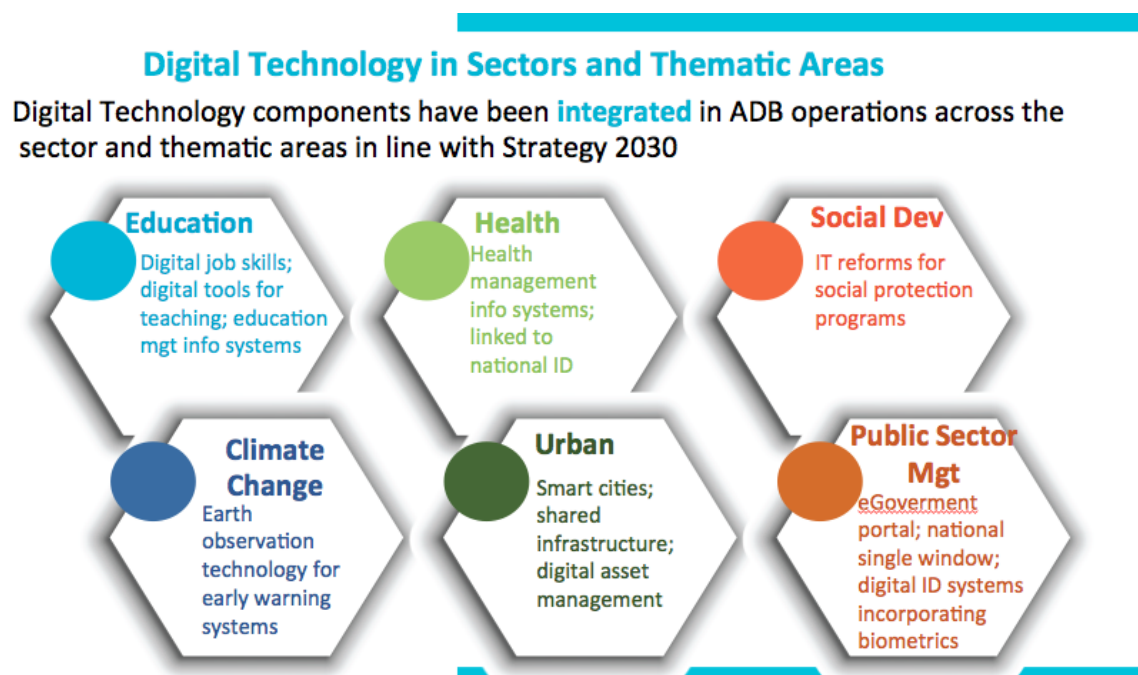
Figure 1: Digital Technology Components in Sectors and Thematic Areas

The ADB decided that digital technology would be a thematic unit and not a sector unit. Digital technology needs to be supported and the ADB is focused on purely digital opportunities across all sectors and thematic areas.

ADB's digital projects are spread across a variety of sectors.

DT in ADB Operations

- Water, 10%
- Agriculture, 14%
- Education, 8%
- Energy, 10%
- Finance, 9%
- Health, 5%
- Industry and Trade, 6%
- ICT, 5%
- Multisector, 4%
- PSM, 17%
- Transport, 11%
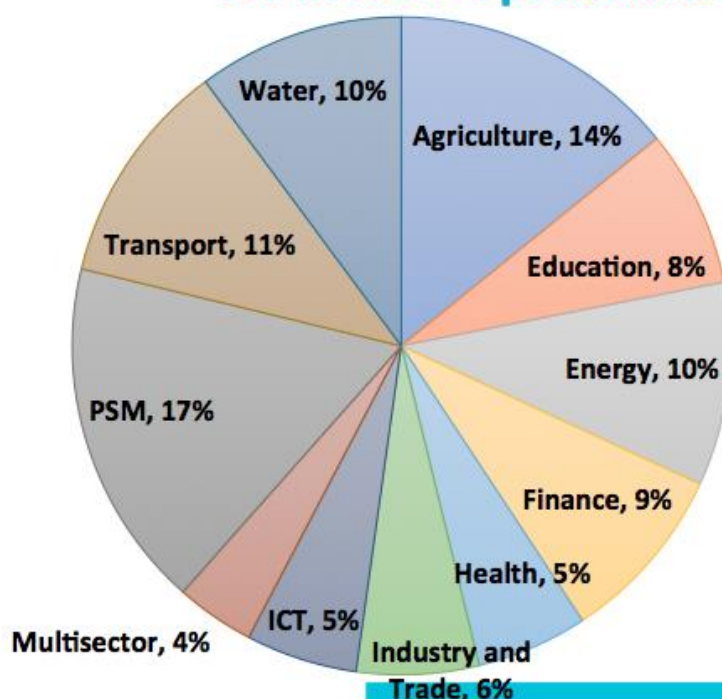
Figure 2: Percentage of Digital Technology Components in ADB Operations

There is a wide distribution and digital technology is impacting all the ADB's work, not just one sector or thematic area. The ADB is heavily increasing the number of digital projects at this point; almost 40 percent of the ADB's projects have digital outputs.

The ADB is developing digital strategies in line with ADB's Strategy 2030. Country-level readiness assessments are carried out to ensure that the pipeline of digital interventions is robust. Capacity development of countries is carried out to maximize the benefits of digital technology and innovative digital technology is promoted and scaled up in ADB operations. Knowledge sharing is promoted and strategic knowledge partnerships with the private sector, academia, and governments are utilized to achieve this, in addition to the establishment of multistakeholder groups to gain new insights.

The ADB has published a document on how it is approaching digital technology and development as a part of Strategy 2030. There are four main components that underpin the digital technology strategy:
1. Digital Transformation
   - Promote innovation using digital technology in partnership with the private sector.
   - Support prefeasibility studies on DT projects.
   - Support pilot projects where the possibility of scaling up is high.
2. Integrated Approach
   - Deliver integrated solutions through cross-sector/thematic collaboration (such as smart city, e-government).
   - Support cross-cutting areas (such as Internet, digital ID, digital payment, cyber security).
3. Inclusive Digital Development
   - Support equitable access to digital infrastructures and technologies.

- Promote innovative technologies meeting the needs of underserved groups such as the poor, women, people with disabilities.
4. Improve Digital Safeguards
   - Support the management of privacy and security risks associated with digital technologies and platforms.
   - Promote responsible use of technologies and data.

Keeping these four components at the forefront, the ADB develops a differentiated approach based on a country's digital readiness and demands. This involves conducting digital technology readiness assessments for DMCs, providing tailored support for DMCs based on digital technology readiness, and supporting the development of digital strategies for DMCs in line with country partnership strategies. Every country must be looked at individually as the same approach does not work in each case, which makes things complicated, as each government must be worked with individually to ascertain their needs and develop solutions.

There are currently seven key areas of digital focus for the ADB: connectivity, digital economy, digital risk, geographic information systems, earth observation, e-government, and AI.

1. Connectivity/Digital Infrastructure
There is still a large digital divide, which needs to be worked on; development partners now have the opportunity to assist on not just physical but also digital infrastructure. Bridging the final divide will require strong government policies and public–private partnerships. Below are the details of a few ongoing and planned activities in this area.

Ongoing Activities
Technical Assistance on Expanding Digital Connectivity and Affordability to Address the Digital Divide (implementation ongoing)
Operational Support (OneADB)
- PAK (CWUW): dig-once prefeasibility for Karachi Red Line Rapid Bus Lane Project
- PHI (OPPP): New Clark City (NCC) ICT Corridor
Knowledge Services: knowledge product + DMC outreach
- Low earth orbit satellite constellations
- Last mile connectivity and affordability frontiers
- Codeployment/sharing of digital infrastructure (WIP)
Partnership Development
- Industry leaders from both public (such as ITU, GSMA) and private (such as telcos, StarLink, OneWeb)

Planned Activities
Technical Assistance on Digital Connectivity and Affordability to Address the Digital Divide
1. **Demonstration of innovative solutions and business models for the last mile:** PHI assessment of satellite connectivity, PARD, PSOD
2. **Enhancing strategy for connectivity investment:** promoting 'dig once' approach in ADB infrastructure investments, support for diagnostics and prefeasibility studies
3. **Capacity building:** creating expert pool and internal/external alliance, policy dialogs, and advisory support
**One ADB approach through mapping of ADB projects with connectivity needs and initiating collaboration dialog early
2. Digital Economy/Startup Ecosystems
This is a high priority requirement for the ADB across all DMCs. Part of this was the support provided to CAREC to develop its own startup ecosystem. There is huge demand and the landscape is

continually changing so member governments are always looking for up-to-date knowledge and networking opportunities.

Ongoing Support
Technical Assistance
- AZE: fostering local tech startups ecosystem development
- CAREC Region: supporting startup ecosystems
- VIE: expert advice for national digital strategy, study: legal and policy frameworks for the promotion of the digital economy (namely, electronic transactions)

Knowledge Management and ADB Community of Practice
- Facilitating knowledge exchange and partnerships with interested departments (ERCD, ITD (Sandbox), PSOD (Ventures) and RDs (SERD, CWRD/CAREC, and so on)

Partnerships Development
- Support of relevant national, regional, and international partners

Planned Support
Technical Assistance (OneADB)
- PAK: digital economy development
- MON: digital transformation

Support of ADB projects
- INO: promoting research and innovation through modern and efficient science and tech parks (*proposed*)

Knowledge Sharing (OneADB)
- Contributing to the ADOU 2022 theme chapter: Entrepreneurship in the Digital Age
- Creative economy and digital skills study, in partnership with Netflix
- Thematic workshop with DMC counterparts

3. Digital Technology Risk Assessment

In this area ADB has hired a consultant and implemented an internal working group to make sure that programs with undue digital risks are not implemented. More work will be done in this area next year in terms of events and launching a new TA.

Working Group Activity:
Needs Assessment
- Assess common use cases and needs of ADB's operational departments
- Research leading approaches and practices in other development partners

Design of Risk Assessment Approaches
- Design short-term (initial, light) and long-term (refined, comprehensive) approaches

Best Practice Study and Report
- Country-level risk assessment (pilot of approach and identification of information sources)
- Study of DT risk landscape and benchmarking of approaches and tools

Operational Support
Short-Term Approach
- Questionnaire for rapid assessment and triage (draft under review)
- Necessary tools and guidance material (to be developed)

Long-Term Approach (*tentative*)
- Rapid assessment to be linked to safeguards
- Building of expert roster for assessments
- Resource materials to be developed on key technologies and associated risks and ethical concerns

- Staff enablement and capacity development, standalone and integrated into the planned data x ADB initiative

4. Geospatial Information Systems

This is another very large area that the ADB needs to work on internally and in which DMCs need assistance. Most DMCs are interested in support for GIS as a core component of government infrastructure. The ADB is supporting many DMCs in this area with TA but also by incorporating into certain loan projects.

GIS Working Group Activity

Knowledge Sharing on GIS
- Knowledge sharing and capacity development on GIS and its use cases

Streamline ADB GIS Services
- Streamline the cartography service process
- Streamline the GIS archiving process throughout ADB project lifecycle

Implement ADB GIS Development Plan
- Optimize GIS compliance rules, regulations, and processes
- Improve GIS communication and outreach
- GIS use case development in operation
- Institutionalize ADB GIS support

Operational Support

Technical Support on National Spatial Data Infrastructure (NSDI) in DMCs
- Ongoing TA: supporting the establishment of NSDI in ARM
- Planned TA for the prefeasibility study on land information system: TAJ, CAM, and so on

Regional Workshop on NSDI
- Place: Seoul, South Korea
- Date: 1st week of November 2022
- Format: in-person workshop, around 20 DMC officials together with ADB staff in operations
- Topics: GIS technologies, NSDI, land information system (LIS)

5. Earth Observation Technology

This is another high priority area because satellite technologies are evolving very rapidly; over the next five to ten years there will be tremendous amounts of data available from satellites. It must be ensured that this data can be used in development in a way that supports all member governments. ADB has partnerships with many of the space agencies in the CAREC region and is using a lot of publicly available data, making this data available to member governments who may not have their own satellite technologies but can leverage the many different technologies being launched.

Ongoing Support

ARM: supporting the establishment of national spatial data infrastructure
CAM: sustainable coastal and marine fisheries project—monitoring of coastal eutrophication
INO: emergency assistance for rehabilitation and reconstruction—stability maps and analytics for critical infrastructure
INO: flood management and coastal protection in North Java project—flood management
NEP: Melamchi water supply project—early warning system; snow modeling
REG: FCAS—data science

Planned Support
MON: sustainable fodder management

PAK: livable cities investment project (proposed title: Developing Resilient Environments and Advancing Municipal Services [DREAMS] in Punjab)

6. e-Government

This is one of the largest areas and ADB has done a tremendous amount of work in this sector, from social protection systems to land management systems and improving government communications. This will always be a core foundation of ADB's digital work.

<u>Ongoing Support</u>

1. e-Government Infrastructure
- **TIM**: e-government development and infrastructure project (2023 approval)
- Transaction advisory services for PPP projects (New Clark City, National ID) in PHI
- ADB-Amazon web services study on data management in government

2. e-Government Application and Service
- **Decentralization reform**
  - ✓ **CAM:** prefeasibility study on standardized e-government for SNAs
- **Digital social protection system**
  - ✓ **ADB-GIZ joint technical assistance** on digital social protection projects (NAU, BAN, MON)
  - ✓ **PHI**: supporting IT reform of 4Ps
  - ✓ **CAM**: supporting development of integrated social registry

<u>Planned Support</u>

1. Scoping/Prefeasibility Study
- **NEP**: support digitalization of business registration, construction permit, asset management (urban development project)
- **ARM**: support scoping study on PPP for biometric passport and eID project in Armenia
- **MON**: support KSTA on e-government and digital transformation

2. Pilot Project
- **CAM:** pilot for standardized e-government for SNAs
- **MLD:** pilot for the national single window system using DLT technology

7. Artificial Intelligence and Data Analytics

This area has jumped onto the agenda recently. ADB has hired a specialist in AI and work is already being carried out on AI-driven components of projects. All member governments are very interested in this and, as a neutral third party, the ADB supports knowledge and policy development in this area.

<u>Ongoing Support</u>

1. Technical Support
- **BAN:** supporting the implementation of AI-powered educational applications for primary education
- **IND:** enhancing India Industrial Land Bank (IILB) platform through data analytics capabilities
- **REG:** leveling FCAS and SIDS landmark indicator via machine learning application

2. Knowledge Activities
- **Data x ADB initiatives:** empowering in-house competencies of AI and data analytics via series of training workshops
  - ✓ Singapore: Smart City; India: Agritech; Korea: Climate Data
- **ADB blog series:** offering insights into key subjects that are closely tied to the realm of AI
  - ✓ Global AI Policy; AI's impact on skill demands

<u>Planned Support</u>

1. Pilot Project
- **BAN:** pilot for education solutions powered by generative AI to enhance teachers' capabilities. Automated question generator; GPT-powered educational chatbot for teachers

2. Knowledge Activities
- **Data x ADB initiatives:** extend the training efforts to reinforce in-house capacity in AI and data analytics
- **Webinar series:** conduct webinars tackling pressing AI topics that demand staff attention
- **AI capacity building:** establish AI training program to enhance the AI capabilities of DMCs

SPEAKER II: MR TALANT SULTANOV, CHAIR AND FOUNDER, THE CENTER FOR STRATEGIC INITIATIVES, BISHKEK, KYRGYZ REPUBLIC

Introduction

Digitalization is enabling the creation of some incredible success stories: there is a YouTube channel from the Kyrgyz Republic within the CAREC region called D Billions that has almost 50 percent more views than BTS and Taylor Swift. Is this just a trend in the CAREC region, or is it a story that can be replicated?

CAREC Challenges and Opportunities

Central Asia and the CAREC region must be heeded; this year has been unprecedented in the CAREC region in terms of climate change.
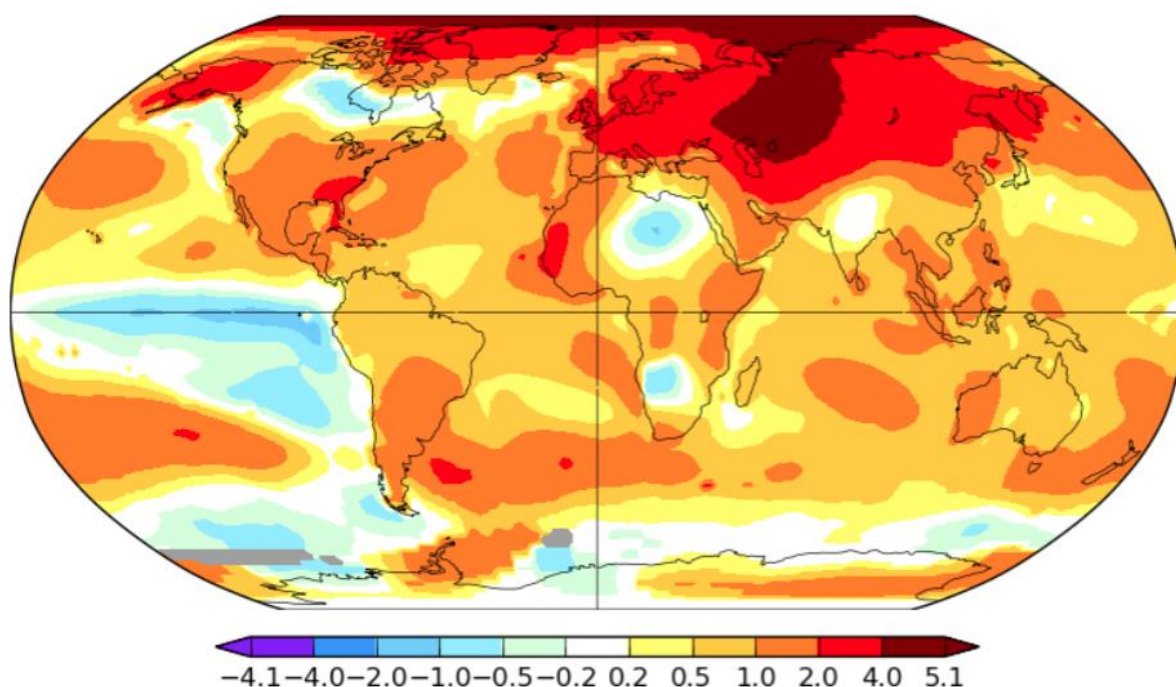
Figure 3: Global Impact of Climate Change Over 50 Years

Figure 3 tracks climate change globally; the darkest part of the map with the largest climactic impact in over 50 years has been the CAREC region.

Another trend in the CAREC region is the development of a third pole. Glaciers that are melting quickly; the result is the third pole, which is having a major impact on CAREC economies.

It is very difficult to build infrastructure for digital connectivity in Central Asia; the conditions are complex. The CAREC countries are mostly landlocked and their distance from the oceans is great, which is a problem because the high-speed Internet cables are in the ocean. This is a hindrance to the digital economy. Kazakhstan and Mongolia have vast territories and, as a result, connecting them through cable is difficult and expensive. The Kyrgyz Republic and Tajikistan have territories 90 percent of which are covered by mountains, which again makes laying Internet cable very costly.

Owing to the continental climate with very hot summers and very cold winters, there are only a few weeks in the summer during which infrastructure projects to build connectivity can be carried out.

Despite this, Central Asia has remained a global center for economic activity for many centuries. A thousand years ago, Central Asia and the CAREC region was the economic center of gravity with the Silk Road and so on. This center then moved westward, but there is now a shift with a return to Central Asia.

CAREC: State of Digital Adoption
Despite the challenges, the region is not performing too poorly, but there is room for improvement.
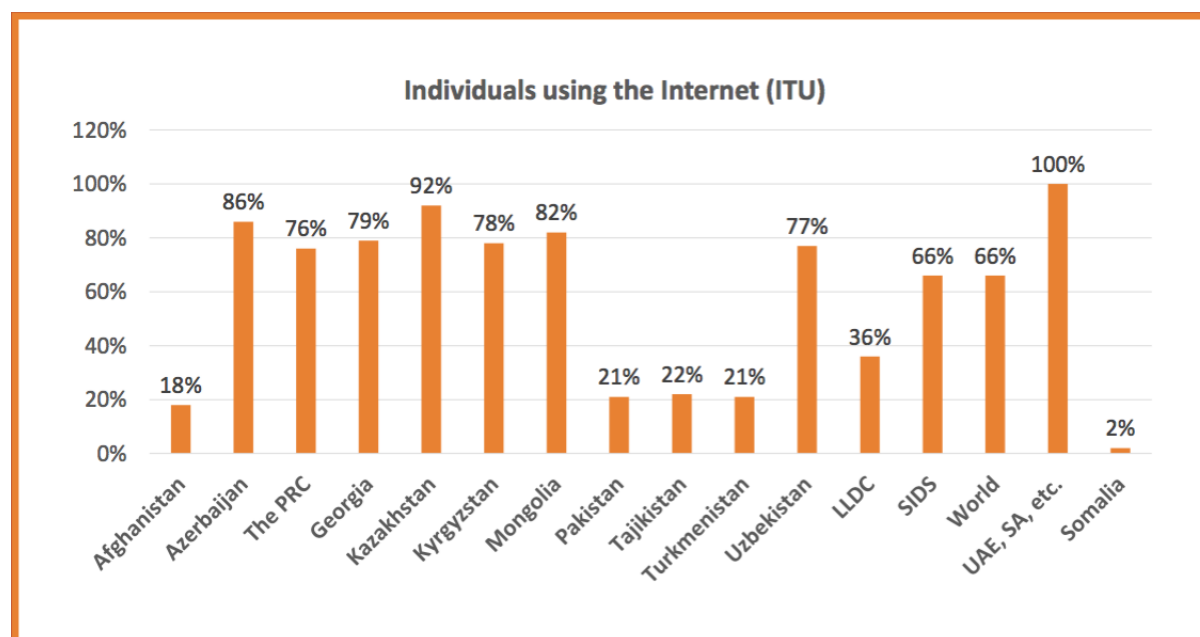
Figure 4: Percentage of Individuals Using the Internet

Figure 4 shows that certain countries like Kazakhstan, Uzbekistan, and the Kyrgyz Republic have a very high number of individuals using the Internet, but on the other hand in countries like Pakistan, Tajikistan, and Afghanistan this percentage is very low.

One good outcome of the COVID-19 pandemic was that during this time the region moved very quickly in terms of Internet development. Many countries in CAREC are landlocked developing countries (LLDCs) and attention should be paid to these, as they are very vulnerable. Data suggests that small island nations are faring a lot better than LLDCs. The affordability of broadband is a very big issue; if the cost of broadband is more than 10 percent of an individual's monthly income, this is extremely detrimental to economic development. In the CAREC region there are a few countries where the Internet is still very expensive, for example in Afghanistan and Pakistan; the world average for cost of broadband as a percentage of monthly income is 3 percent with the world leader being Liechtenstein where this figure is 0.4 percent. Fixed broadband subscriptions provide high-speed broadband Internet but the reasons mentioned earlier, such as geography and climate, make fixed broadband connectivity difficult for CAREC countries.

Time to download a 5GB movie (Cable.co.uk)

Country	Time
Jersey	00:02:35
World	00:46
Uzbekistan	00:31
Turkmenistan	02:32
Tajikistan	03:49
Pakistan	02:08
Mongolia	00:42
Kyrgyzstan	00:39
Kazakhstan	00:52
Georgia	00:37
The PRC	00:54
Azerbaijan	01:07
Afghanistan	06:38
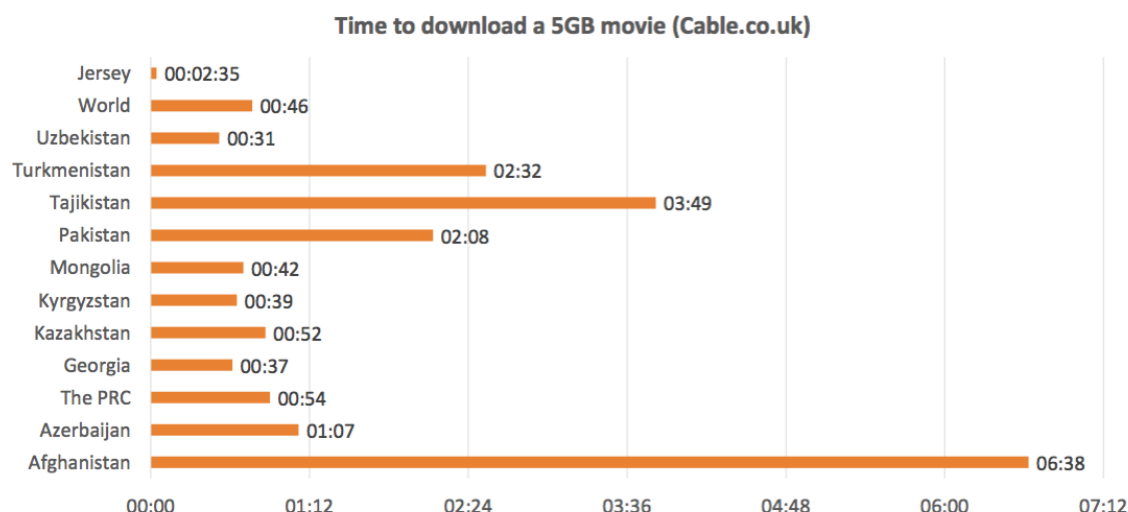
Figure 5: Time Taken to Download a 5GB Movie on Fixed Broadband

What can be done to improve the situation? One of the major efforts to push forward the development of the digital economy was the launch of the Belt and Road Initiative (BRI) by the PRC, specifically the Digital Silk Road that was announced in 2017 at the Belt and Road Forum. CAREC countries have been at the forefront when it comes to the drafting of policies designed to address the needs of the digital economy. In the Kyrgyz Republic, the UN Secretary General was invited to launch the National Digital Transformation Strategy.

One interesting initiative that deserves mention is the GIGA Initiative by UNICEF-ITU. This initiative has at its core the goal of connecting every school in the world to the Internet. Many CAREC countries were pilot countries for the GIGA Initiative. There needs to be a lot more cooperation within the CAREC region to promote digital connectivity and there are many opportunities. Today, 95 percent of the Internet in Central Asia is received through Kazakhstan, which in turn receives 95 percent through Russia; any problem in these two countries would adversely affect the whole region.

Building infrastructure is a bottom-up approach that can be taken and is imperative if connectivity is to improve, especially in rural areas; if attention is not paid here the gap is going to continue widening. Another way of improving digital access in rural areas is to provide low-cost devices, as these are often not available to individuals. There is also a responsibility to ensure that new platforms like Chat-GPT are available in all languages as often they are accessible only in major UN languages. Increasing digital literacy and skills is also important so people can use services. Cyber security is another very important area for individuals and countries.

Furthermore, digitalization should allow us to protect and not damage the climate; for example, data centers should be utilizing green energy. Projects that utilize smart devices in many remote areas in the CAREC region should be promoted as they can provide microdata in real time, which enables environmental change to be monitored.

Digitalization requires huge investment and developing countries also need vast financial contributions.

MEETING THE INVESTMENT TO CONNECT ALL BY 2030 WILL REQUIRE AN UNPRECEDENTED & CONCERTED EFFORT FROM THE PUBLIC AND PRIVATE SECTORS

$428 Billion

is required to connect the remaining 3 billion people aged
10 years and above to broadband Internet by 2030 (ITU)

FINANCING THE INVESTMENT NEEDS: INDICATIVE COST SHARING		Private	Public	Public source	
Infrastructure	Mobile Infrastructure CapEx	75% ($288bn)	25% ($94bn)		Government Funds
	Metro & Backbone Fibre				Development aid
	Network Operation & Maintenance				Multilateral Development Banks
	Remote Area Coverage				
Skills & Policy	ICT Skills & Content		100% ($46bn)		
	Policy				TOTAL
TOTAL INVESTMENT: 10 year		$288bn	$140bn		$428bn

Figure 6: Investment Required for Digitalization in Developing Countries

As so many resources need to be invested, money can be saved by sharing infrastructure. For example, a major project coming up is the China–Uzbekistan–Kyrgyz Republic railroad; while this project is being carried out, Internet cables could be installed along these rail lines.

Comment—Ayumi Konishi: One needs to look at digital applications everywhere and not just in one sector, as highlighted by Mr Abel. Mr Talant very aptly emphasized the importance of regional cooperation. We have to train ourselves; to make good use of digital technology we ourselves need to be better prepared.

Comment—Syed Shakeel Shah: Speed and availability of the Internet are major issues. CI has previously carried out a digital gap analysis. The key point for member countries is to fill policy gaps, which would enable more investment in the sector so that digital services are available. Development partners need project support and technical assistance. The ADB's role here is very important; it has been a key partner for CAREC member countries in this area. Training for the young is very important.

Question—Norbert Funke: For Mr Talant. On regional cooperation, which areas would you see as being of the highest priority?

Question: Is there any overall strategic target for the ADB in terms of increasing digital development in the Central Asian region?

Answer—Tomas Abel: The goals for ADB do not include lending targets in the digital sector but our development impact in digital is basically driven by the ADB's Strategy 2030. The ADB would like to incorporate digital to support those goals, which means being able to deliver the services and capabilities that are part of the ADB's development environment. These are based on core infrastructure like bridging the digital divide and reaching 100 percent Internet connectivity. Similarly, allowing every citizen access to e-Government services, offering cyber security and privacy in the digital realms are also important goals. Another very important area for digital regional cooperation is digital trade—namely, the digitization of trade documents and activities so that trade can be improved and streamlined. All these activities must be done with development partners and the private sector.

Answer—Talant Sultanov: Regional Internet connectivity must be improved as a priority. For example, there are many opportunities to get the Internet from the east in Central Asia. If there was a Caspian Internet pipeline, Central Asian countries could access the Internet from the Caucasus and Europe. China and Central Asia exchange very little Internet. Despite being landlocked, there is an opportunity to access an ocean of people living in the region.

The second aspect is digital regulations, especially data exchange between countries. In the Kyrgyz Republic, there was a case recently where an international taxi platform was asked by its home country to provide all their data to the authorities of the home country and people in other countries began to worry. It is very unclear what the agreements are between countries when it comes to exchanging data.

Regarding the comment on speed and availability of the Internet, this is a very good comment. The reason why countries want access to undersea cables to Europe and North America is because most content is stored in data centers over there. Can content not be brought to the region? There is a huge deficit of local content. Can infrastructure be brought to the region? For example, building data centers in Central Asia.

Question—Zeeshan Salahuddin: My question is for Thomas. We saw the sectoral breakdown of all the priority areas that you gave for the ADB, and it seems to be fairly evenly distributed, but one of

the areas I did not see in there is climate change. I am from Pakistan and Mr Ahsan Iqbal is also from Pakistan; we can both confirm that Pakistan does not have even a fraction of the financing it needs just to transition to green energy. The World Bank estimates that Pakistan needs USD200 billion just to be climate resilient and transition to green energy. This region as a whole faces major threats from climate change. My question is: what plans does the ADB have for climate resilience especially at the intersection with digital resilience? I specifically ask this question because, as we saw from the devastating floods last year that killed 1,753 Pakistanis, one of the biggest sectors was digital connectivity, which then had severe knock-on effects turning one crisis into multiple crises.

Question—Enkhzul Gonchigzeveg: Digital disruption has a big impact on the real estate and property sector because work culture is changing. Hybrid work arrangements had a significant impact on office space providers. Many buildings are now empty. Recently, real estate investment was seen as being a guaranteed investment choice. However, this is no longer necessarily the case. How is the change of investment profiles going to impact ICT investment choices?

Answer—Thomas Abel: The ADB's climate work cuts across all sectors—for example, transport, water, and agriculture. All these are impacted by digital technology. To be specific about where digital technology supports climate change, this cuts across many areas. All countries need GIS to map their land use and inform risk assessment. The ADB has programs with components for early warning systems, ocean health, to relocate agricultural activities, and design robust infrastructure using digital tools. The ADB has also invested in connectivity solutions that can help respond in disasters—for example, the Pacific satellite service is used in these environments. Climate is one of the highest priorities for the ADB's digital work and it really does cut across all sectors and themes. More information can be provided if required.

Answer—Talant: There are two aspects to highlight here. The first is how to be inventive and creative in how to close this gap of hundreds of billions of dollars. In the Kyrgyz Republic the Digital KASA project funded by the World Bank is bringing the Internet to every village in the country and provides an access point through which any private sector player can come and distribute Internet in the village. This project enables last mile connectivity and helps the private sector get involved; it is an interesting example of private–public partnership. Another area where help is needed is in the realm of digital skills. In this regard, there is an ongoing project funded by the EU called Digital Citizen. The most important aspect is to build up digital skills, as an increase in people with basic digital skills means they can accrue more benefits from digital transformation. With basic digital skills people can pursue a variety of options and even choose to become doctors, lawyers, or programmers. My colleague is the head of the high-tech park in the Kyrgyz Republic and their motto is 'live in Kyrgyzstan, work with the world.' Therefore, I would like to say, 'live in CAREC, work with the world.' However, to get there we have to work with CAREC, learn from each other, and share our experiences.

Moderator: Mr Roman Mogilevskii, Senior Economist, CWRC, ADB, Manila, Philippines

KAZAKHSTAN CASE STUDY

SPEAKER: MS ALBINA MURATBEKOVA, SENIOR RESEARCH FELLOW, EURASIAN RESEARCH INSTITUTE

This session presented four case studies—one from Kazakhstan, the Kyrgyz Republic, Pakistan, and Uzbekistan—on topics about how digital technology can leverage sustainable development/growth in these countries. These regional reports are produced under the CTTN RGP umbrella, aimed at fostering regional knowledge sharing cooperation among member think tanks.

Digital Strategies in Central Asia

The focus here is on three countries of Central Asia: Kazakhstan, the Kyrgyz Republic, and Uzbekistan.

Kazakhstan launched its digital strategy (Digital Kazakhstan) in 2017 and this strategy achieved its goals from 2018 to 2022. Out of five priority areas, the two main goals of the strategy were digitalization of the existing economy and the creation of a digital industry of the future. 23 projects were implemented under the Digital Kazakhstan program. Four special economic zones with a focus on IT were to be created as part of the strategy, out of which two have been completed. The first one is Astana Hub and Special Economic Zone Park of Innovative Technologies (SEZ PIT) in Almaty. The idea behind Astana Hub and SEZ PIT was the creation of platforms to impact the overall GDP of Kazakhstan, and accelerate the development of e-commerce and the digitalization of industry spheres.

Kyrgyz Republic—the concept of the Digital Kyrgyz Republic began in 2019 and was streamlined to address the digital transformation of certain priority sectors of the economy. The main objectives are to ensure economic growth, provide high quality digital services, strengthen international partnerships, and assist in the creation of new economic clusters. Within this Digital Kyrgyz Republic

program, special economic zones were mentioned, one of which is the High-Tech Park in Bishkek that aims to develop digital businesses and export digital services.

Uzbekistan's program, Digital Uzbekistan, was introduced in 2020 and is focused on the digital transformation of priority sectors of the economy and geographic regions, along with the widespread introduction of digital technologies in the private and public sectors. Within the program there are 220 priority projects and, in the context of special economic zones, the IT Park in Tashkent is mentioned in the strategy.

Digitalization

In the **Kyrgyz Republic**, digitalization has come a long way with the completion of the Digital Kyrgyz Republic program in 2022 and the introduction of the Digital Life strategy in 2023. Part of the Digital Kyrgyz Republic program saw the creation of a digital system for interdepartmental interaction called 'Tunduk,' which involved 127 commercial organizations, 77 state bodies, and 1,033 services. The Digital Nomad program was also implemented in the Kyrgyz Republic, and this saw the granting of special status to foreign citizens. Furthermore, in the Kyrgyz Republic there is no need to carry physical documents such as passports and certificates because digital versions are accepted as having the same weight. Another initiative called 'Meken-Kart' was implemented to regulate the legal status of compatriots with foreign citizenship. The Kyrgyz Republic is also the first country in the world that is going to adopt the digital code.

Uzbekistan has made great strides in terms of digitalization since 2017, especially with regard to improving the digital and IT infrastructure of the country. Table 1 shows improvements in a number of indicators.

DIGITALIZATION INDICATORS OF UZBEKISTAN

Indicator	2017	2020	2022
Bandwidth of the international data network (Gbps)	64.2	1200	1800
Total number of Internet users (million)	14.7	22.5	27.2
The cost of tariffs for Internet services (external channel) for providers ($)	91.5	5.5	3
Total length of fiber-optic communication lines (thousand km)	20.3	46.6	118
Number of mobile subscribers (million)	21.4	25.4	30.2
Number of mobile base stations (units)	19990	31740	49640
Digital television coverage (%)	95	100	100

It is worth noting that the costs of tariffs for Internet services (external channel) for providers was equal to $423 in 2013.

Source: The Author's compilation based on data from the Ministry of Digital Technologies of Uzbekistan

Table 1: Digitalization Indicators in Uzbekistan (2017-2022)

It is worth noting that the cost of tariffs for Internet services (external channels) for providers stood at USD423 in 2013.

Developments in these three countries can be seen in international rankings. The two major rankings are the e-government development index and the global innovation index. Currently, Kazakhstan has the highest level of e-government development and ranks at 28th in the world but the Kyrgyz Republic and Uzbekistan have also made progress in this regard. Uzbekistan ranks 69th

on the e-government development index followed by the Kyrgyz Republic at 87th. The global innovation index also shows significant success of digitalization in the countries being discussed. Notably, despite Uzbekistan not being ranked in 2018, by 2022 it had achieved a leading position on the global innovation index ranking 82nd in the world. This is followed by Kazakhstan, which ranked 83rd, and the Kyrgyz Republic at 94th. After looking at these rankings the case of Uzbekistan can be seen as a success story in terms of complex digital implementation, focused on research and development of the country.

Purpose of SEZs and SEZs in Central Asia

There are over 7,000 special economic zones (SEZs) in 145 economies, employing over 100 million people. Special economic zones serve a variety of purposes, which include the following:

- Increase exports
- Attract investment
- Generate employment
- Improve competitiveness
- Develop infrastructure
- Attract multinational corporations

There are currently 24 SEZs in Uzbekistan, 13 in Kazakhstan, and five in the Kyrgyz Republic, all with different sectoral focuses and different specializations.

In terms of policy in Central Asia, SEZs in Kazakhstan are part of the industrial policy and in terms of infrastructure completion of SEZs this is at over 70 percent in the country. By 2022, in Kazakhstan 315 projects worth 1.2 trillion tenge had already been implemented and there were over 700 companies working in these SEZs. 21,000 jobs have been created through SEZs in Kazakhstan.

In the Kyrgyz Republic, the first SEZ appeared in 1991. The initial idea was to have 70 percent of goods manufactured for export within these SEZs; however, currently only one SEZ in five is operational, which is in Bishkek, and it attracts 3.3 percent of investment in the country.

In Uzbekistan, between 2008 and 2022, 604 projects worth USD3.2 billion have been implemented. The country's SEZs attracted around USD896.9 million in investment and about 55,000 new jobs were created. The SEZs in Uzbekistan are specialized in the development of industry, pharmaceuticals, tourism, agriculture, and other manufacturing and industrial sectors.

Focus on IT in SEZs

Tech Garden and Astana Hub in Kazakhstan

Tech Garden functions as the operator of implementation of research and development (R&D) for subsoil users and enterprises; it is also a major platform for attracting international companies to create technology development centers. Tech Garden also supports industrial ecosystems and industrial enterprises in their digital transformation journeys. As part of Tech Garden, an international acceleration program called Startup Kazakhstan was launched and a fund created that unites about 300 participants in industrial innovation and research activities.

Astana Hub is a center for developing innovative projects and, in common with other IT parks, it has advantages like relaxed tax conditions and a favorable working environment. The mission of Astana Hub is to become a center for the development of innovative projects. Participation status at Astana Hub allows companies to attract foreign workers and issue a work visa for them for up to five years instead of the standard three years. Furthermore, there is no quota for the number of foreign employees involved.

IT Park in Tashkent

The IT Park in Tashkent opened in 2019 and has been named the Technological Park of Software Products and Information Technologies. The park offers legal, organizational, and marketing

assistance. It also provides tax incentives and a modern office space with laboratories and coworking areas. The park uses the principle of 'extraterritoriality,' which means that residents can avail themselves of all benefits regardless of where they are located in the country. Residents more than tripled their exports to USD57 million in the first quarter of 2023 and the forecast for this year is USD300 million.

The IT Park opened eight other branches in large cities in Uzbekistan and the overall plan is to open 14 parks within the country.

High-Technology Park (HTP) of the Kyrgyz Republic

The HTP began operations in 2012. In 2013 there were three resident companies with a volume of exports of USD0.244 million. In 2022, this figure had increased to 258 companies with USD46 million in exports. In 2022, the HTP experienced the highest rate of growth in resident numbers, which equaled 67 companies in six months. In terms of revenue at the end of 2022, revenue volume amounted to more than 4.2 billion soms (99 percent more than in the same period last year). The new target for 2023 is to bring this figure to 8 billion soms. The main activity at the HTP was the development and implementation of software (70.2 percent). Most exports went to the USA (32.21 percent), followed by Russia in second place (17.88 percent). In 2019, there was a sharp jump in exports to Turkey of 5,291.7 percent.

Overview

There has been a steady increase in the size of exports (USD) of Central Asian SEZs, along with a substantial increase in the number of resident companies in these SEZs. However, the past year has seen a decrease in the value of exports per resident (USD) in Bishkek and Astana Hub.

EXPORTS OF CA SEZS, MILLION USD
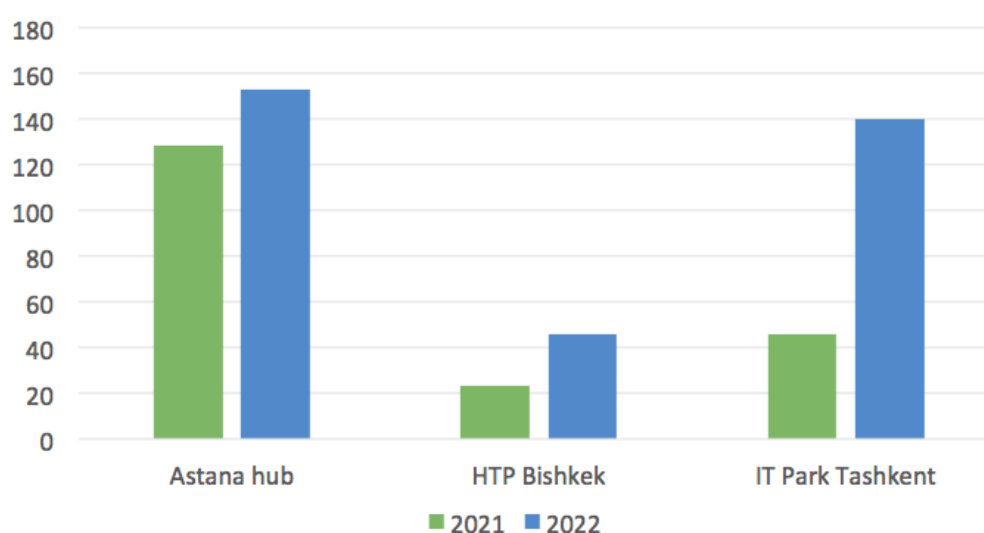
Figure 7: Exports of Central Asian SEZS (USD) in Astana, Bishkek, and Tashkent (2021 and 2022)

The share of Astana Hub in the country's total services exports was two percent, HTP Bishkek had a share of four percent and IT Park in Tashkent contributed two percent.

Among the preliminary results of this research, the digital agendas in all three countries have been emphasized and have received a good deal of importance and attention; all three countries are showing readiness in terms of IT infrastructure. There is also evidence of sufficient policy regulation provided that the digital agenda is being prioritized within the respective country's government.

Another factor, which impacted the development of IT parks in Central Asian countries, is the political context of Russia and Belarus. For example, in HTP Minsk had a very large volume of exports at over USD3 billion in 2021 and a share of 31 percent in the country's total service exports. Both these figures are significantly higher when compared with the figures in the three Central Asian states. However, in 2022 HTP Minsk's exports went down by USD7 million partly owing to the relocation of companies from Belarus and Russia to the Central Asian states. This means significant growth in the number of residents in Central Asia and the output from these companies.

Conclusion

The conclusion from this research is that Central Asian countries pursue digital strategies to transform their economies, digitalize public and private services, and find new sources of economic and technological growth. Digital policies actively contributed to the digital transformation of the region and SEZs are important parts of Central Asia's industrial and digital policies. All zones have tax and trade preferences, and support measures are wide. IT-focused SEZs in Central Asia are showing positive changes in terms of exports and the number of companies.

SPEAKER VII: DR BURULCHA SULAIMANOVA, RESEARCHER, OSCE ACADEMY

Introduction

Central Asia, with its rich natural resources and rapid urbanization, stands to benefit significantly from integrating digitalization and clean energy solutions into its infrastructure planning. There is a mix of approaches to how digitalization is taking place. Kazakhstan is at the forefront, leading the charge in adopting digital technologies, while other Central Asian countries are working on their digital plans.

Motivational Background

Digitalization has been identified as a potential strategy for the support of decarbonization efforts in various sectors, including energy. The International Energy Agency estimates that the implementation of digital technologies in power plants and network infrastructure has the potential to generate savings of approximately USD80 billion annually between 2016 and 2040, which translates to around 5 percent of the total power generation costs worldwide (IEA 2017).

Central Asia has made progress in developing digital ecosystems. The region has made noteworthy strides in the establishment of digital infrastructures, including robust telecommunications networks and reliable Internet connectivity. The progress among the countries of the region is uneven; however, the region overall has witnessed the expansion of e-government services enabling citizens to access information, submit applications, and conduct various administrative tasks online.

The economies of Central Asia countries are highly carbon intensive and thus inefficient. This is because of the existing infrastructure, which is heavily dependent on fossil fuels, particularly coal and natural gas, for energy production and industrial activities (Sabyrbekov & Ukueva 2019). 60 percent to 80 percent of greenhouse gas emissions in the region are from the energy sector, which was built predominantly in the mid twentieth century. The topic of decarbonization of infrastructure in Central Asia remains rather under-researched.

Efforts to reduce carbon emissions are shared across all Central Asian countries, even though the purposes may vary. While their strategies might differ, their commitment to challenge is evident.

Research Objective

This research aims to explore the main opportunities and challenges of digitalizing infrastructure and promoting decarbonization in Central Asia, focusing on areas such as:
- the current state of affairs and plans for digital infrastructure
- enabling environments and building local capacity
- the impact of digitalization on decarbonization efforts

Methodology

The research methodology for this topic relied on three main methods.

First, a desk review was conducted on the existing literature on the topics of digitalization and decarbonization in Central Asia, along with an analysis of the related national strategies and programs. Second, an online survey was administered to experts in the field, both within and outside the region. The survey was distributed to well-known experts through social media platforms, as well as through direct requests made by the researchers and the CTTN Secretariat. Last, econometric modeling was employed, utilizing state-of-the-art methods from the literature and the latest available data on digitalization and decarbonization in the region. The survey findings alone will be discussed here.

Survey

The survey was designed to gather insights and opinions from a diverse range of stakeholders involved in digitalization and decarbonization initiatives in Central Asia.

The survey was conducted online using a widely accessible platform, specifically Google Forms. The data collection period spanned from 22 to 31 May 2023. A total of 98 respondents participated in the survey, 72 in English and 26 in Russian. The questionnaire included several main parts that focused on gathering information about the past situation, challenges, opportunities, and policy recommendations regarding digitalization and decarbonization in Central Asia. The questionnaire aimed to provide a comprehensive understanding of the past landscape, inform policy recommendations, and identify areas for further investigation.

Survey respondents were from all five Central Asian countries. Most of the respondents identified themselves as experienced and represented civil society, academia, international organizations, government, and the private sector.

Survey Findings

The survey findings give us an insight into the current state of digitalization and decarbonization efforts in Central Asia. Most respondents perceive the level of progress in these areas as average or below average, indicating the need for focused interventions and to accelerate development.

Analysis of major challenges in implementing decarbonization and digitalization projects revealed that a lack of technical expertise and insufficient public awareness emerged as primary barriers in the implementation of these projects. Other factors that had an impact included technological barriers, regulatory hurdles, political instability, and limited funding.

Among the skills and capacity of actors to implement digital infrastructure and decarbonization projects effectively, international organizations and private sector firms were identified as being the best suited. These were followed by local civil society organizations and government agencies. There is an indication here that the collaboration of Central Asian countries with international organizations can facilitate the knowledge exchange and access to best practices necessary for project implementation.

Analysis also revealed the most preferred policy measures for promoting digitalization and decarbonization in the region. The best policy was identified as being the creation of incentives for private sector investment. However, along with these, other measures such as strengthening regulatory frameworks, enhancing public–private partnerships, and establishing supportive funding mechanisms were also identified as being high priority. In an assessment of existing legal frameworks and regulatory policies related to digitalization and decarbonization in Central Asia, the following responses were recorded:

- 7 percent of respondents said they were very supportive
- 11 percent of respondents said they were very restrictive
- 19 percent of respondents said they were somewhat restrictive
- 31 percent of respondents said they were somewhat supportive
- 32 percent of respondents said they were neutral

Conclusion and Policy Recommendations

The countries of Central Asia recognize the importance of digitalization and decarbonization in their infrastructure development. These efforts hold numerous advantages, primarily enhancing the efficiency of their economies in terms of resource utilization and productivity. By adopting digital technologies, these countries can streamline processes, optimize resource allocation, and minimize waste, leading to a more sustainable and resource-efficient economy. Moreover, digitalization aligns

with their international commitments to address climate change, showcasing their dedication to global environmental goals.

Policy recommendations for promoting the digitalization and decarbonization of infrastructure in Central Asia are as follows:

- *Establish a policy framework for digitalization and decarbonization*—Develop a policy framework that includes specific targets, incentives, and regulations to encourage investments in digital infrastructure, renewable energy, energy efficiency, and the adoption of smart technologies across sectors.
- *Promote renewable energy deployment*—Policymakers should establish favorable regulatory frameworks, feed-in tariffs, and tax incentives to attract private investments in renewable energy projects.
- *Foster digital infrastructure development*—Efforts should be directed towards expanding digital infrastructure, including broadband connectivity and data centers, across Central Asia.
- *Strengthen digital skills and entrepreneurship*—Central Asian governments should prioritize the development of digital skills and entrepreneurship to enable the region's workforce to fully participate in the digital economy.

SPEAKER VIII: MR ASIF JAVED, SENIOR RESEARCH ASSOCIATE, SUSTAINABLE DEVELOPMENT POLICY INSTITUTE (SDPI)

Scope of Digital Trade Integration for Pakistan and Central Asian States: An Action Plan

Introduction

There has been significant growth in economic integration around the world as the network of regional trade agreements (RTAs) and free trade areas (FTAs) expanded considerably (22 RTAs in 1990 to 356 RTAs in 2022). Currently, RTAs cover most international trade and operate alongside global multilateral agreements under the World Trade Organization (WTO).

The United Nations Conference on Trade and Development's (UNCTAD) 'Trade and Development Report 2022' emphasized that digital trade is becoming important and includes digitally ordered trade in goods and services (cross-border electronic commerce) and digitally delivered trade (services delivered internationally through the Internet or other networks). Developing countries require improvements in their capacity to engage and benefit from digital trade.

Study Objectives

*   How can regional trade agreements be helpful to overcome the gaps owing to the lack of multilateral digital trade integration framework?
*   What are the challenges faced by public institutions in implementing the digital trade policy of Pakistan?
*   How can SMEs dealing in digital trade-related products benefit from RTAs?
*   To develop an action plan to assist Pakistan for achieving successful and sustainable regional digital trade integration while improving the South–South cooperation.

Research Methodology

A mixed-methods approach was taken to evaluate the measures through which regional trade agreements can promote trade integration among member countries and to identify the gaps in existing trade agreements. A desk review of national legal and policy framework documents—such as consumer protection, paperless trade, improvement in digital connectivity, ease in regulation, data protection, and skilled workers—was carried out.

Furthermore, the minutes of high-level government-to-government meetings between Afghanistan, Kazakhstan, Tajikistan, Uzbekistan, and Pakistan were examined in detail.

Finally, a survey of 50 SME firms from Pakistan and 50 from selected Central Asian countries (Afghanistan, Kazakhstan, Tajikistan, Uzbekistan) in e-commerce and digital trade-related sectors, was carried out. The analysis included foreign direct investment (FDI) in digital spaces, government spending on ICT, domestic challenges for firms in the digital sector, digital trade regulations, cross-border trade facilitation, and e-commerce legislation.

Trade analysis

Intraregional trade statistics 2021 ($ Million)

Country	Exports of goods	Imports of goods
Afghanistan	305 (2019)	2,120 (2019)
Kazakhstan	5,585	1,831
Pakistan	1,242	1,038
Tajikistan	782	1,374
Uzbekistan	2,293	3,507

Source: International Trade Centre

Figure 8: Intraregional Trade Analysis for 2021 (USD)

Review of Trade Agreements

The Afghanistan Pakistan Transit Trade Agreement (APTTA) covers conventional trade rules and procedures. It includes regulations on the right of transit, transit transport corridors, custom controls, general conditions for transport in transit, duty taxes, payment procedures dispute settlement, creation of an Afghanistan–Pakistan Transit Trade Coordination Authority, and requirements for the admittance of road vehicles.

Pakistan and Afghanistan are part of the South Asia Free Trade Agreement (SAFTA); the agreement intends to eliminate tariffs and non-tariff barriers to trade and facilitate the cross-border movement of goods.

Pakistan and Afghanistan are also members of the SAARC Agreement on Trade in Services (SATIS). The key objective of the agreement is to increase trade in services among member countries while ensuring that it is mutually beneficial.

The preferential trade agreement (PTA) between Pakistan and Uzbekistan aims to eliminate tariffs and non-tariff barriers on specific products. The Pakistan–Uzbekistan Transit Trade Agreement focuses on provisions of infrastructure and services to promote transit trade between two countries.

Pakistan and selected Central Asian countries are members of the Economic Cooperation Organization (ECO), which is an intergovernmental body, and institutional agreements are in place through which member countries interact with emerging global challenges.

Pakistan and Central Asian countries, including Kazakhstan, Tajikistan, and Uzbekistan, are part of the Shanghai Cooperation Organisation, which aims for cooperation with international and regional organizations.

Kazakhstan and Pakistan aim to sign a transit trade agreement to provide a legal framework for businesses and develop cooperation in the banking sector through agreement among banks of both countries.

Tajikistan and Pakistan negotiated and finalized an agreement including trade and transit of goods through road and rail. The agreement will give Tajikistan and Kirghizstan access to Pakistan seaports. The Transit Trade Coordination Committee will also be established under the agreement.

Domestic policies and measures for digital trade

Country	Policies/Measures
Afghanistan	National Cybercrime Strategy 2014 Afghanistan National Trade Policy 2019 The Law on Electronic Transactions and Electronic Signature 2020 ICT Policy for Afghanistan (2018-22)
Kazakhstan	Electronic Document and Electronic Digital Signature 2003 Privacy legislation 2013 (amended in 2020) Consumer Protection Law 2010 (amended in 2020) Digital Kazakhstan program 2018-22
Pakistan	E-commerce policy 2019 Electronic Transactions Ordinance 2002 Prevention of Electronic Crimes Act of 2016 Digital Pakistan Policy 2019
Tajikistan	Single window system Electronic Documents Act 2002 (amended in 2014) Personal Data Protection Act 2018 Digital TIR movement
Uzbekistan	Electronic Commerce Law Personal Data Law 2019 Criminal Code E-commerce strategy

Figure 9: Domestic Policies and Measures for Digital Trade

Findings from the Firm-Level Survey

Afghanistan—ICT affordability and accessibility is the key challenge for businesses in their regional digital trade integration. Government spending to promote ICT adoption in the country is insufficient and the implementation of taxes on ICT adversely affected the growth of the ICT industry in the country. Firms rely on cash payments and in-house delivery as there is a lack of secure payment methods. The findings show that online payment options provided by the Afghanistan International Bank are quite expensive. Some progress has been made in the e-commerce sector where online shopping and delivery of food and clothing recently increased in major cities.

Kazakhstan—Many graduates from technical universities are entering the IT and tech sector of Kazakhstan, which demonstrates the availability of a skilled workforce. However, firms are hampered by insecure Internet payment systems and a weak goods delivery infrastructure, both of which are hampering the growth of the e-commerce sector. Insecure payments resulted in data breaches and potential loss of trust among customers, which is detrimental to expanding the e-commerce sector (KPMG 2018).

Pakistan—The major mode of payment is still cash on delivery owing to mistrust of online payments. Firms identified that legal issues such as online transactions, dispute resolution, consumer protection, and intellectual property rights are affecting the growth of the e-commerce industry in Pakistan. Owing to complicated laws, foreign investment in the digital space is unattractive to the country.

Firms also pointed out that cybercrimes such as hacking, data theft, and fraud are serious threats to the tech, telecom, and IT sector firms. Recently, Bykea—a popular ride-hailing and delivery app in Pakistan—fell victim to a hacking incident that raised user concerns regarding data breaches. The lack of an internationally recognized payment gateway is affecting cross-border payments as well as entrepreneurs and freelancers. Fiscal restrictions including higher taxes and tariffs are hampering the growth of digital trade and the e-commerce sector. UNESCAP (2019) has indicated that taxation

at both federal and provincial levels in Pakistan increases the cost of production and hinders the growth of e-commerce firms.

Tajikistan—Respondents from Tajikistan referred to insufficient and costly digital connectivity as the major hurdles to digital development in the country. Currently, there is a lack of public investment in the digital economy, which includes spending on hardware and software. Owing to a lack of public investment, there is a shortage of skilled workers, particularly in the IT and tech sectors.

The respondents said that Internet penetration in the country is quite low, which restricts the potential of IT and tech businesses. Access to finance is another major challenge for SMEs operating in the IT and tech sector, as there are insufficient opportunities to acquire loans and venture capital.

The legal framework related to e-commerce is weak and must be improved to create a feasible environment for developing the country's digital economy.

Uzbekistan—A lack of public investment in telecommunications infrastructure means that broadband Internet coverage is limited and there are low levels of mobile Internet penetration.

Government funding for digital projects is also limited, owing to which the expansion of digital businesses remains a challenge for firms. Slow and inefficient progress from the government on policy measures is a major barrier to creating a feasible business environment. Respondents also pointed out legislative issues such as no digital database of international treaties.

Domestic businesses are facing stiff competition from foreign firms from China and Russia, which makes survival difficult for smaller firms.

Digital Trade Integration: Priority Policies for Pakistan

*Intellectual property rights—*Counterfeiting, smuggling, and violation of intellectual property rights including copyrights, trademarks, and patents. Foreign companies in Pakistan lose an estimated 757 billion rupees every year because of IPR breaches.

*Non-technical, non-tariff measures—*Ban on imports of digital enhanced cordless telecommunication 6.0 phones and discs, and restriction on imports of 3D printers. Non-tariff measures include custom duties, quarantine restrictions, technical regulations and import licenses.

*Digital foreign investment restrictions—*The Foreign Exchange Regulation Act restricts foreign investment in the digital space. The conservative foreign exchange regime causes issues for foreign firms transferring working capital, profits, and fixed investments in and out of Pakistan.

*Public procurement—*A complex and time-consuming procurement process is a major hurdle for small and medium-sized IT firms. There is also the issue of manipulation of bidding criteria and awarding contracts to firms with political affiliations.

*Public investment in the digital space—*No single anthology exists that contains country-level, consolidated details of public expenditure on digital sector uplift.

*Data and information cost—*Data-sharing systems are limited among the Central Bank, non-financial regulators, and federal and provincial governments. Some types of data have overlapping ownership across organizations and access, which requires approval from multiple authorities.

Tax policy and administration—Different sales tax regimes are imposed by provincial governments on the digital space for which filing with multiple tax authorities is required. There is a lack of clarity on the tax treatment of certain IT-related activities such as software development and cloud computing.

Reliability of payment mechanisms—Lack of consumer trust in online payments owing to factors such as concerns about security and fraud. Issues also include ineffective payment infrastructures, high fees charged by payment processors, the volatility of the Pakistani rupee, and complex government regulations.

Lack of skilled workers—Lack of skilled workers related to IT, e-commerce, and digital marketing which make it difficult for businesses to compete in the global digital economy. Workers have low productivity owing to lack of investment in technology and insufficient training for workers.

Action plan for Pakistan

Action required	Department responsible	Time period
Common and harmonized rules to support cross-border digital trade between Pakistan and selected Central Asian countries	Ministry of trade	Medium term
Working group for digital trade integration between Pakistan and selected Central Asian countries	Ministry of trade	Short term
Engagement between digital sector business associations	Chamber of commerce	Short term
Regional online payment system	Central bank	Long term
Provisions for digital trade integration in trade agreements	Ministry of trade	Long term
Integration in global value chains of IT, telecom, and tech sectors	Ministry of IT, telecom	Long term

Figure 10: Digital Trade Integration—Action Plan for Pakistan

Policy Recommendations

Afghanistan—Basic ICT equipment should be exempt from taxes to decrease prices and improve accessibility and affordability. Subsidies for new ICT startups can pave the way for digital integration with regional partners and promote the ICT industry domestically.

Kazakhstan—The government should develop secure systems of Internet payment and goods delivery to boost the e-commerce sector. Besides, the government should also invest in digital infrastructure such as increasing mobile broadband coverage. Cyber security must also improve to protect consumers and businesses and the regulatory burden should be reduced to develop fixed broadband markets.

Pakistan—The government of Pakistan should digitalize supply chains to address challenges owing to traditional and outdated methods.

The Central Bank should relax the requirements that are to be met by firms, which will help in the expansion of online trading. Furthermore, the national trade facilitation strategy of Pakistan should be revised to accelerate accession to the Framework Agreement on Facilitation of Cross-Border Paperless Trade in Asia and the Pacific.

The government of Pakistan should invest in digital trade infrastructure such as Internet access, telecommunications, and logistics. The government should also promote the use of digital payments among businesses and consumers by providing tax breaks to businesses that accept digital payments.

Tajikistan—International connectivity transit routes in Tajikistan need to be diversified to attain greater digital resiliency and capacity. Local and foreign investment should be attracted to the country, for which a conducive institutional and policy environment is required.

The government should focus on enhancing cyber security and data protection capacities to avoid cyber attacks. There is a lack of digital trust in online transactions for which effective strategies to strengthen the data protection environment are required.

Uzbekistan—The government should focus on increasing investment in digital infrastructure and provide sufficient funding to firms in the digital space to ensure the expansion of trading activities.

Effective legislation is required to address the modern challenges related to the digital economy and digital trade. Engaging with other regional countries through international treaties can help boost regional cooperation.

REGIONAL CONNECTIVITY IN CENTRAL ASIA: DIGITALIZATION OF TRADE AND BENEFITS FOR REGIONAL COOPERATION

Digitalization Indicators in Central Asian Countries

Internet Penetration

As the main infrastructure for digitalization, the Internet plays a crucial role in this process; Internet penetration and the use of the Internet in Central Asian states is important. A quick look at the digital readiness of Central Asian states, as reported in the UN e-Government Survey 2022, shows that Internet penetration rates in Central Asia vary greatly between countries. There is a digital divide among Central Asian states. The region lags slightly compared to the global average for Internet penetration rates, but two countries—Kazakhstan and Uzbekistan—have improved their position and Internet penetration among the population in these countries is higher. However, countries like Turkmenistan and Tajikistan are well below the global average.
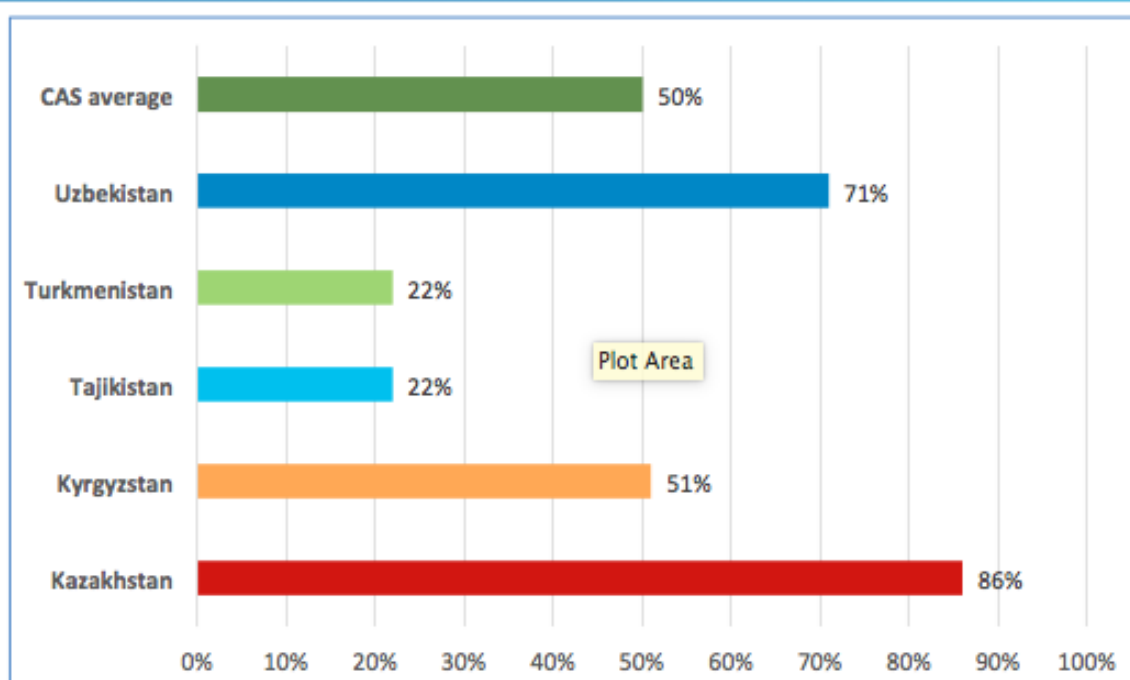
Source: "The UN E-Government Survey 2022"

Figure 11: Internet Penetration State in Central Asian Countries

Affordability and Quality

Another useful index is the Internet Accessibility Index for 2022, which shows the price and affordability of the Internet across the world. Central Asian countries are lagging in this regard, as the price and affordability is a challenging issue in the region. Internet speed is another major problem, with very low speeds in certain Central Asian countries. On this index Kazakhstan is the

only Central Asian country with has good indicators; it ranks 55th in the world with a score of 83.5. Uzbekistan, the Kyrgyz Republic, Tajikistan, and Turkmenistan all lag far behind Kazakhstan.

Ranking of Central Asian countries by price and affordability of Internet
According to the Internet Accessibility Index for 2022

Rating	Country	Internet download speed (Mbps)	Cost per month ($)	Affordability (%)	Cost for 1 GB Mobile Data ($)	Score	Change
55	Kazakhstan	2.4	**10.8**	**1.5**	0.8	**83.5**	-12
113	Uzbekistan	1.8	18.3	7.7	1.3	75.3	-1
116	Kyrgyzstan	**2.5**	19.9	9.5	**0.6**	74.1	-6
134	Tajikistan	0.5	25.1	28.5	3.5	67.7	-3
156	Turkmenistan	0.4	189.2	31.4	17.5	54.4	5

Figure 12: Ranking of Central Asian Countries by Price and Affordability

Rankings in International Indexes

When looking at the ranking of Central Asian states across various international indexes on digitalization, it is clear that Kazakhstan is a regional leader. The Kyrgyz Republic is identified as a regional leader in the 2022 SDG index and Uzbekistan was identified as a regional leader in the Global Innovation Index of 2022 and the GovTech Maturity Index of 2022.

International Indexes (Rankings)	Kazakhstan	Kyrgyzstan	Tajikistan	Turkmenistan	Uzbekistan	CAS Average
E-Government Development Index/193	28	81	129	137	69	89
E-Participation Index/193	15	79	135	180	55	93
2022 - SDG/193	65	48	78	99	77	73
2021- Digital Readiness Index/146	54	81	111	0	76	81
2022- Global Innovation Index/132	83	94	104	0	82	91
2022- Internet Accessibility Index/164	55	116	134	156	113	115
2022-Networked Readiness Index/131	58	95	111	0	0	88
2020- Global Cybersecurity Index/182	31	92	138	144	70	95
2022-GovTech Maturity Index/198	A	B	C	D	A	B

a regional leader is marked with orange background.

Figure 13: Ranking of Central Asian Countries Across International Indexes on Digitalization

e-Government in CAREC Countries

According to the United Nations e-Government Survey of 2022, once again Kazakhstan has a leading position and ranks 28th in the world, followed by China (43rd) and Georgia (60th). Uzbekistan, the Kyrgyz Republic, and Tajikistan have medium positions with high e-Government Development Index (EGDI) levels. Turkmenistan, Pakistan, and Afghanistan rank lowest with mid EGDI levels. Regarding regional averages, CAREC is making progress, as the CAREC average for EGDI by 2022 was 0.63 out of 1, whereas the world average was 0.61.

Ranking of CAREC countries according to the EGDI-2022

United Nations | Department of Economic and Social Affairs

United Nations E-Government Survey 2022

bit.ly/EGovernmentSurvey
#EGovernmentSurvey

Rank	Country	EGDI Level	EGDI -2022	E-Participation Index	Online Service Index	Telecommunication Infrastructure Index	Human Capital Index
28	Kazakhstan	Very High	0.86	0.80	0.93	0.75	0.90
43	China	Very High	0.81	0.86	0.88	0.80	0.74
60	Georgia	Very High	0.75	0.53	0.61	0.74	0.89
69	Uzbekistan	High	0.72	0.61	0.74	0.65	0.77
74	Mongolia	High	0.72	0.60	0.62	0.69	0.83
81	Kyrgyzstan	High	0.69	0.50	0.61	0.66	0.81
83	Azerbaijan	High	0.69	0.38	0.61	0.67	0.79
129	Tajikistan	High	0.50	0.25	0.39	0.37	0.73
137	Turkmenistan	Middle	0.48	0.10	0.29	0.35	0.78
150	Pakistan	Middle	0.42	0.36	0.56	0.31	0.39
184	Afghanistan	Middle	0.27	0.19	0.27	0.18	0.34
	CAS Average		0.65	0.45	0.59	0.56	0.80
	CAREC Average		0.63	0.51	0.65	0.61	0.79
	World Average		0.61	0.44	0.55	0.57	0.70

Figure 14: Ranking of CAREC Countries According to EGDI Levels in 2022

e-Government Initiatives in Central Asian States

Since 2014, Central Asian countries have demonstrated positive changes in implementing e-government initiatives by liberalization, reforming public administration, and improving digital public services for their citizens.

Source: Compiled by author based on data from "The UN E-Government Survey" for 2014-2022 · Created with Datawrapper
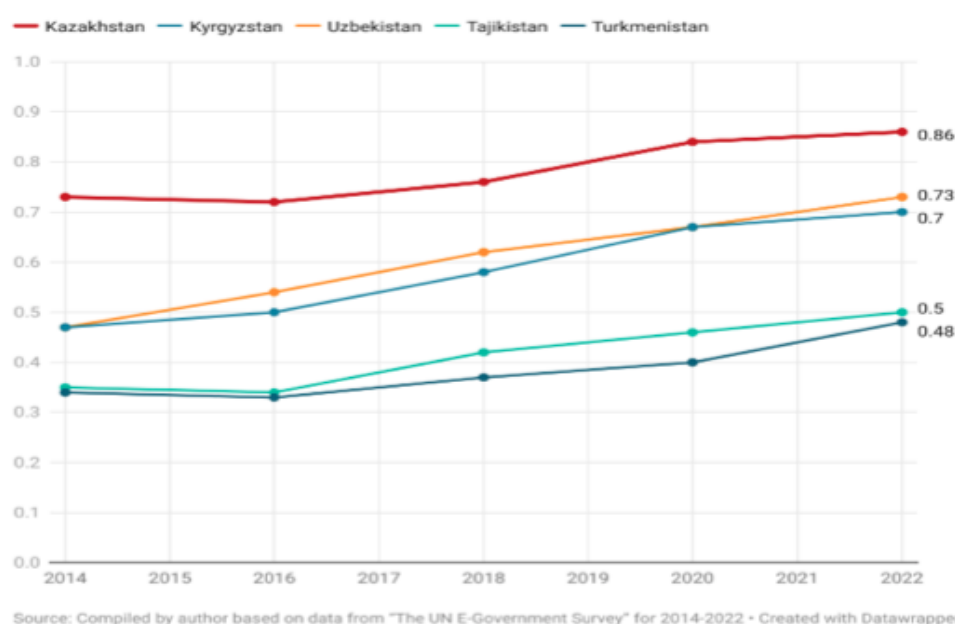
Figure 15: Trend of e-Government Initiatives to Improve Digital Public Services in Central Asian Countries (2014-2022)

The World Bank's GovTech Maturity Index (GTMI) of 2022 is also useful when looking at e-government initiatives in Central Asian states. The GTMI assigns rankings to countries as follows:
A—GovTech leader countries that use advanced digital solutions and demonstrate good practices in all four GovTech focus areas
B—Countries with a significant focus on GovTech
C—Countries with some focus on GovTech
D—Countries with minimal focus on GovTech

According to the GTMI 2022, Kazakhstan and Uzbekistan were both assigned A rankings, followed by the Kyrgyz Republic (B), Tajikistan (C), and Turkmenistan (D).

All countries in Central Asia have strategies focused on digitalization and e-government; therefore, progress is being made.

Digital Readiness of Central Asian States for Cross-Border Paperless Trade

Regarding the digitalization of trade relations in Central Asia, the efforts of Central Asian states should be recognized. The United Nations Global Survey 2023 on Digital and Sustainable Trade Facilitation has been published recently. This survey looks at five factors, which include transparency, institutional arrangement and cooperation, cross-border paperless trade, formalities and paperless trade. Uzbekistan's progress has been impressive in this regard, albeit all Central Asian countries have made significant progress. According to this survey, Central Asia is lagging behind Europe but is ahead of the Asia-Pacific region and ahead of Eastern Europe.

Looking at Uzbekistan and the dynamics of cross-border paperless trade dynamics in Uzbekistan during 2015 to 2023, remarkable progress has been made since 2015.

Figure 16: Cross-Border Paperless Trade Dynamics in Uzbekistan 2015-2023

Furthermore, it is encouraging to see that the Central Asia states are giving importance to the development of inter-regional trade cooperation, evidenced by trade statistics for these countries. For example, in 2016 the total trade turnover of Uzbekistan was a little bit over USD3.5 billion but by the end of 2022 the Central Asian trade of Uzbekistan had reached USD7.5 billion. The share of Uzbekistan's neighbors in the total trade turnover of Uzbekistan also increased from 10 percent to 15 percent. Kazakhstan paints a similarly positive picture, where between 2018 and 2022 Kazakhstan's inter-regional trade turnover increased from around USD6 billion to USD10 billion.

To further improve cross-border paperless trade and inter-regional trade in general, there is a need for the digitalization of trade relations, especially by the opening of single windows and the digitalization of customs services. These measures will improve and encourage regional trade as well as improve regional connectivity in the region.

Conclusion and Recommendations
The Central Asian states have been applying ambitious national programs and strategies on digitalization and digital economy and have significantly enhanced their digital capacity in various areas. Kazakhstan, in particular, holds leading positions on various indicators of digitalization compared to other Central Asian and CAREC member states.

The Central Asian states are applying different trading regimes and have different trade relations; there is a disparity—for example, Kazakhstan and the Kyrgyz Republic are members of the Eurasian Economic Union and three out of five Central Asian states are members of the World Trade Organization. ICT and digital solutions in trade relations are not used systematically and must be supplemented with parallel manual processes. In this regard, digitalization can help reduce trade barriers and facilitate cross-border trade, which can promote regional economic integration and cooperation in the region. Improved trade relations and connectivity in Central Asia are important to the entire CAREC region.

The following recommendations can be made for Central Asia and the CAREC region to increase digitalization and trade between countries:
- Narrowing the digital divide at national and regional levels should be a priority for policymakers and other stakeholders in Central Asian states.
- Bilateral and multilateral cooperation between Central Asian states and with international partners is necessary to decrease the digital divide on a regional level.
- Attracting more international partners and donors to the ICT sectors in the region.
- Privacy and data protection in the national legislative frameworks of the Central Asian states should be reflected and guaranteed.
- Enhancing the affordability of and access to ICT, and improving the quality and lowering the cost of the Internet.
- Providing and promoting digitalized (paperless) import and export procedures in trade-related services and intraregional trade in Central Asia. A digital agenda for Central Asia should be developed to serve as a regional digital integration platform.

Q&A/DISCUSSION

Question—Nadeem-ul-Haque: Thank you for your presentations. Coming from Pakistan it is concerning for me to see that Central Asian states are making more progress than Pakistan; all Pakistanis must begin to look at ourselves and see how we are doing and how we can make progress. In this region, we treat digital and digital technology as outside our sphere and have not integrated it. For example, there is Internet connectivity, but we are not using it as part of our daily lives. Are we using enough digital technology in education? In Pakistan we are not. Furthermore, payment systems in this region are very fragmented and are not integrated, which often means that integration has to be carried out through Europe or North America. We are building special economic zones without payment systems and digitalization in education—will these be successful?

Question—Talant Sultanov: Thank you for your presentations. In the first and concluding presentations we saw the impressive achievements of Uzbekistan; Mr Farrukh, what was the factor that helped Uzbekistan leapfrog into its strong position?

Answer—Farrukh Khakimov: All policy reforms are complex issues, which requires that measures should not focus on one area alone; digitalization is not only about introducing solutions and new technologies but also about how to use it and how to get better and effective results. That is why I think the reform in Uzbekistan focused not only on digitalization processes, but since 2017 the government initiated wide-ranging reforms in all spheres of our lives. Of course, there is still much to do. Currently, there is a lot of political will to make conditions more favorable for citizens. Uzbekistan is also giving more attention to its neighbors to improve bilateral relations to enhance sustainable and inclusive regional development. In this respect, Uzbekistan's neighbors have also been helpful in terms of support and to increase regional trade and bilateral relations in all spheres. Regarding digitalization, before adopting the Digital Uzbekistan 2030 Strategy, national programs were carried out. For example, there were public administration reforms, several government initiatives were introduced, and new technology was introduced in many sectors of the economy. There is a special Digital Development Ministry and, as already mentioned, the creation of IT parks and the one million coders initiative. New school children in Uzbekistan are being taught IT skills and in remote areas there are centers for improving digital skills for any citizen that wishes to do so. However, there is a lack of infrastructure and certain parts of the country are not currently benefiting from the government's initiative. Furthermore, fiber-optic cables are not present everywhere, but this will take time; despite this, the signs in Uzbekistan are very encouraging.

Answer—Asif Javed: There are challenges regarding online payment systems in Pakistan. There are many restrictions and barriers, which severely hamper international businesses in carrying out their work and processing payments. Often, informal channels and indirect modes of payment are relied upon, which is often risky. The government should realize these challenges and develop a comprehensive online payment system to address these challenges and create a favorable environment for the e-commerce sector in Pakistan.

Moderator: Mr Artem Levenkov,
Head of Socioeconomic Analysis and IFIs, Eurasian Fund for Stabilization and Development (EFSD), Moscow, Russia

TECHNOLOGICAL ADOPTION, INEQUALITIES, AND IMPLICATIONS FOR THE LABOR MARKET

SPEAKER: DR XIAOJUN FENG, ASSOCIATE PROFESSOR OF SOCIOLOGY, CHINA AGRICULTURAL UNIVERSITY, BEIJING, CHINA

The rapid pace of technological advancement has brought new opportunities and challenges for the labor market. While technological adoption has increased productivity and efficiency, it has also widened the already wide digital divide among countries, regions, gender, income, and age groups, putting additional pressure on governments to design programs to bridge the digital gap, reskilling and upskilling the workforce—particularly female workers. The implications for the labor market are significant, as many jobs are at risk of becoming automated; workers will need to acquire new skills to remain relevant in the job market.

Technological Upgrading and Its Labor Implications

Introduction

There are two kinds of technological upgrading: process upgrading and product upgrading. Process upgrading is the development of processes in which goods are produced in a more efficient way. Product upgrading is the process during which technologically more sophisticated products and equipment are developed.

The first industrial revolution in the late 18th century (**Industry 1.0**) saw machinery driven by steam and waterpower. The second industrial revolution in the late 19th century (**Industry 2.0**) saw the electrification of machines and mass production. The third industrial revolution in the 1970s **(Industry 3.0)** witnessed the introduction of industrial robots, computer numerical control (CNC) machine tools, and information technology (IT)-based production management. The fourth industrial revolution **(Industry 4.0)** is being driven by technological progress in IoT, cloud computing, AI, and robotics.

In China, most enterprises are at the stage of Industry 2.0. While enterprises in advanced economies are pursuing transformation to Industry 4.0, Chinese enterprises are pursuing transformation to Industry 3.0 and 4.0 at the same time.

Trajectory of Product Upgrading

Product upgrading involves upgrading the function of individual economies in global value chains from the supply of raw materials and assembly to original equipment manufacturing (OEM), which is a business model that focuses on manufacturing activities, particularly those of parts and components. The next stage after OEM is original design manufacturing (ODM), which adds design capabilities to production; this is followed by a move towards original brand manufacturing (OBM), which involves branding and the sale of own-brand products.

In this light, China has maintained its dominance as an assembly station in global commodity chains and is emerging as an OEM supplier of parts and components. In major mass consumption industries, Chinese companies are increasingly engaged in OBM.

Labor Implications

Technological upgrading has multiple labor implications. First, the quantity of jobs available is affected; on the one hand, many jobs are rendered obsolete—for example, routine, repetitive, and manual jobs are replaced by automation and new products and services displace old ones and related jobs. On the other hand, new jobs are created—for example, jobs for developing, maintaining, and coworking with machines. Tech upgrading also lowers production costs and increases quality, leading to higher demand for products and, as a result, more jobs. Furthermore, tech upgrading increases profit, which enables more investment and results in the creation of new jobs. The development of new products and services also leads to the creation of more jobs.

Then there are also the effects of offshoring and reshoring from technological upgrading. Digitalization can reshuffle the global distribution of jobs by affecting variables that determine the localization of manufacturing, including the following:

- The substitution of work through automation
- The deepening of the customer–producer relationship
- The rationalization of distribution through digitalized logistics networks
- The increased modularization of supply chains through standardization and 'platformization'

Technological upgrading also alters the organization of production and platformization can lead to precarious conditions for labor in terms of job security. Although increased labor productivity should lead to an increase in wages and shorter working hours, this is possible only if workers are allowed to share in the technological dividend. Labor control over processes is intensified and refined through upgrading processes and workplace safety is also enhanced.

Inequalities in Technological Adoption

There are significant inequalities in technological adoption between regions, firms, and individuals. Different countries operate in their own way when it comes to R&D activities. In certain cases, a lack of resources means that certain countries are fundamentally constrained in their ability to embrace digitalization. According to data from the World Bank, almost all Central Asian countries spent less than 0.5 percent of their GDP on R&D in 2020—in stark contrast to China, which invested 2.4 percent, and the United States, which invested 3.45 percent.

Countries also invest very differently in the purchase of digital machinery. According to data from the International Federation of Robotics, the robotic density level, which refers to the number of robots per 10,000 employees, varies greatly among different countries.

Technological readiness also varies among countries and a shortage of homemade tools often means that certain countries must rely on very expensive imports. This is sometimes the case in China, where many companies cannot afford expensive imports. There is often a shortage of skilled workers to tailor automatic equipment to company needs and a lack of skilled labor to operate automatic equipment, and so on.

There is also the basic problem of the provision of digital infrastructure. In China's case, from 2007 to 2020 the Internet penetration rate rose from 5.1 percent to 55.9 percent in rural areas and from 21.6 percent to 79.8 percent in urban areas. Furthermore, even with the digital infrastructure, certain individuals—such as, those that are uneducated or elderly—may not be digitally literate.

Inequalities in Technological Impact

Owing to technology, skilled and unskilled workers are affected differently; skilled workers often benefit while those who are unskilled are most often negatively impacted. Similarly, female and male workers, junior and senior workers, and formal and informal workers are all impacted in different ways owing to technology. These are all important factors to consider.

Automation in China has adversely impacted low-skilled, female, senior, and informal workers. These individuals are more likely to be displaced by robots and less likely to be reskilled.

Technology can also lead to the aggravation of power imbalances between workers and capital. In the predigital age this imbalance would have been between workers and local capital, but in the digital age it is usually between workers and quasi-monopolies. A good example of these power imbalances is with Chinese farmers. They usually have dozens of brokers with which to negotiate terms when selling their produce offline, but only four major shopping platforms to choose from when selling online. In 2021, Alibaba, JD, Pinduoduo, and TikTok contributed 51 percent, 20 percent, 15 percent, and 5 percent respectively to China's online retail revenue.

Efforts to Synchronize Tech and Social Upgrading

Social upgrading can be defined as the improvement in the rights and entitlements of workers as social actors and in the quality of their employment. In the realm of education and training, China can be studied as an example.

The government has maintained its focus on academic education but has diverted more attention to vocational education and training. Many universities have set up new programs and expanded related programs in the ten key fields listed in the 'Made In China' 2025 policy. The government planned to expand vocational education at both secondary and tertiary level, and encouraged enterprises to play a bigger role in the provision of training. The government also introduced policies to promote training for groups with low employability and for the working population in general.

Better governance is needed to harness the benefits arising from technological upgrades and to minimize the negative effects that result from technological upgrading. The following measures can be taken to achieve this:

- Inclusive digital strategies to narrow the digital divide across regions with different development levels, firms of different sizes, and individuals with different levels of digital literacy, and to fight against discrimination enhanced by digitalization
- Active employment policies to buffer unemployment pressure
- Active industrial relations policy to redress power imbalance aggravated by digitalization
- Skilled workers policy (for example, increase compensation) to reduce skill shortage
- Inclusive social security policy to counter precarious job security for labor in the platform economy
- Antimonopoly policy to foster a competitive market.

RESKILLING AND UPSKILLING WOMEN FOR BRIDGING THE DIGITAL DIVIDE IN THE CAREC REGION

SPEAKER: MS ANA PASHALISHVILI, PROGRAMME SPECIALIST, WOMEN'S ENTREPRENEURSHIP ACCELERATION, EUROPE AND CENTRAL ASIA REGIONAL OFFICE, UN WOMEN, ISTANBUL, TÜRKIYE

Introduction

UN Women, established in July 2010, is the United Nations entity dedicated to gender equality and the empowerment of women. Headquartered at the United Nations in New York, UN Women promotes women's empowerment, rights, and gender equality globally through a network of (five) regional offices, country offices, and liaison offices.

The UN Women office of Europe and Central Asia has a presence in 13 countries, all the way through the Western Balkans and Turkey, Eastern Europe, South Caucasus, and Central Asia. The most recent addition to these offices has now been opened in Uzbekistan.

Participation of Women in the ICT Sector

Over 90 percent of jobs worldwide already have some digital component and many will soon require sophisticated digital skills. Around the world, science and technology are the fastest growing industries and have significantly higher wages; digital technology professionals in Europe are also relatively unaffected by unemployment. According to research by the European Institute for Gender Equality, narrowing the gender gap in science, technology, engineering, and mathematics (STEM) education could create up to 1.2 million more jobs and increase long-term GDP by up to 820 billion euros by 2050.

In 2021, UN Women and ITU carried out a study on women and girls in ICT from eight countries in the Western Balkans and Eastern Partnership countries. The study reconfirmed a lot of findings from other studies—for example, that technology is a game changer for women and girls. However, if this important resource is not inclusive and equal, young generations become more insecure and excluded, especially girls and representatives of marginalized groups.

The study also showed that, despite the relatively high number of STEM graduates within the Balkans and Eastern Partnership countries, women were less likely than men to consider a technical career and were under-represented. The low number of women in ICT fields overall is more pronounced at senior level.

Another study recently published by UN Women is 'Women in Information and Communication Technology (ICT) in Georgia—Participation and Challenges.' The three key areas in this study included access to ICT infrastructure, access to ICT education, and employment. Access to infrastructure is one of the key components because lack of access creates a large gap between men and women. Access to education is another issue and intervention here is very important.

Barriers Faced by Women to the ICT Sector and to Attaining Leadership Roles in ICT Companies

There are several barriers faced by women when they are accessing the ICT sector; these include the following:

- Gender bias and stereotypes—Women may be overlooked for leadership positions owing to unconscious bias or stereotypes about their abilities and leadership potential
- Lack of access to networking opportunities—Women may have fewer opportunities to network and build relationships with influential people in industry or government, which can limit their career progression
- Limited educational opportunities
- Absence of role models

- Absence of work-life balance—Women may face additional challenges in balancing their work and personal lives, especially if they have caregiving responsibilities, which can make it more difficult to pursue leadership roles
- Unequal pay and benefits—Women in leadership positions may face pay and benefit disparities compared to their male counterparts, which can create a disincentive to seek leadership roles

The leaking pipeline phenomenon refers to the number of women who exit career paths that lead to top management positions. The phenomenon is common and companies need to overcome this challenge to advance women into higher levels of management.

UN Women Projects

These projects are mostly educational, to upskill and reskill women.

500 Women in Tech—A very large-scale project, launched in Georgia, was '500 Women in Tech' (now 900 Women in Tech). One of the biggest public–private partnership initiatives, it was aimed at building the skills of 500 women initially, but ended up training 900 women because of the uptake of the initiative by the private sector, which saw many companies joining in. The project was implemented with the help of 30 ICT companies and included 58 Ukrainian female refugees. The total number of applicants to the project was 3,908 and the total number of beneficiaries was 994. The project began with a tech English course because in several instances English is still the main language in which tech is designed, discussed, and so on. The language course contained key terms about tech in English and it was offered for a period of three months. The project also offered tech courses to successful applicants, which included the following:

- Back-End Development
- Front-End Development
- JavaScript/React
- JavaScript/Angular
- Digital Product Testing
- Digital Marketing
- UI/UX Design
- Graphic Design

In addition to the language and tech courses offered, the project had a component that consisted of a career bootcamp and individual mentorship. This part of the project focused on critical thinning, leadership, freelancing, teamwork, introduction to entrepreneurship, ideation, business model canvas, pitch deck and investor relations, and career planning. 90 percent of beneficiaries attended the final component.

The final phase of the project involved the organization of employment forums where all the partner companies were invited along with beneficiaries to ensure that employment opportunities are discussed. Up to 30 percent of course graduates received employment opportunities from these companies.

IT GIRLS BIH—This initiative was similar to the one held in Georgia, but on a smaller scale. The project was a joint program between two UN agencies: UNDP and UNICEF. It focused on providing girls (aged 13 to 15) with coding skills and empowering them to think about computer programming as a future career option. The objective was to promote the IT/STEM sector among women and in mainstream society. The IT Girls project impacted 112 girls and women in the ICT sector across 20 municipalities with 30 mentorship pairs formed.

STEM Program in Moldova—The STEM Program in Moldova began with capacity building for a women's hub based in Chisinau. Around ten women initially received support and access to women's hub services and this community grew to around 500 representatives and about 30 community driven initiatives were organized.

The program was then expanded and women's hubs were set up in Comrat and Balti in partnership with the Tekwill Project. These women's hubs were set up to support girls and women in their STEM careers, to support a minimum of six projects to empower women in tech, and to organize a minimum of three idea hackathons with regional support.

As a result of the project the Tech Women Network was fortified through capacity building activities. Furthermore, another program called Women in Online Work was organized and had over 100 participants. The One Mentor Program was created to support women in the regions and a Tech Women Gala was held which included the regions. There were also about 30 career orientation events held in three women's hubs.

UN-Wide Initiatives

67th Session of the Commission on the Status of Women (CSW67)

CSW67 was dedicated to the topic, 'Innovation and technological change, and education in the digital age for achieving gender equality and the empowerment of all women and girls.' It outlined six key priority areas, which will be at the top of the agenda for UN Women as well as its partners.

The priority areas identified were as follows:

- Prioritizing digital equity to close the gender digital divide
- Leveraging financing for inclusive digital transformation and innovation towards achieving gender equality and the empowerment of all women and girls
- Fostering gender-responsive digital and science and technology education in the digital age
- Promoting the full, equal, and meaningful participation and leadership, as well as full employment, of women in technology and innovation
- Adopting gender-responsive technology design, development, and deployment
- Preventing and eliminating all forms of violence, including gender-based violence that occurs through or is amplified by the use of technologies

Generation Equality Forum (GEF) and Action Coalition on Innovation and Technology

This is the first ever multistakeholder and intergenerational platform to create compelling commitments and drive long-term change to end discrimination against women and girls.

The Generation Equality Forum kicked off in Mexico City and culminated in Paris in June 2021, hosted by President Emmanuel Macron, with the launch of a series of concrete and transformative actions. USD40 billion in investment was mobilized at the forum's close—a major step change in resourcing for the rights of women and girls.

The Action Coalitions established under the Forum provide a great opportunity for all stakeholders (that is, governments, private sector companies, civil society, and other platforms) to join forces, accelerate progress, and make concrete changes on six themes that are critical for achieving gender equality. The vehicle for catalytic change in the tech field is the Action Coalition on Technology and Innovation for Gender Equality. These platforms provide an opportunity for public and private entities to join the Action Coalitions as commitment makers.

Women's Entrepreneurship Expo 2023

Launched in 2021, the Women's Entrepreneurship EXPO is a unique partnership platform to promote women's entrepreneurship ecosystem building in Europe and the Central Asia region. The EXPO provides an interactive space for women entrepreneurs, investors, and private sector representatives for networking and collaboration, peer learning, ideas generation, capacity building, and business development.

There are five phases of the EXPO, which are as follows:

1. Selection—Female entrepreneurs are selected through the call for applications.

2. Bootcamp—Orientation session where entrepreneurs are informed about the Expo program and their duties and roles. Workshops are held on key aspects of business plans and effective pricing, branding/packaging and digital marketing.
3. Satellite/Live event—Selected female entrepreneurs are invited to showcase their products to a wider audience.
4. Mentorship—Five women from each country are selected for mentorship; selected women are assigned to mentors who will support their preparation for pitching through facilitating the workshops.
5. Expo Capital Quest—Two women from each country will be selected for the final stage of Expo Capital Quest where they will have a chance to pitch their businesses to investors.

SPEAKER: MR SYED HASSAN ALSAGOFF, MANAGER, SCIENCE, TECHNOLOGY AND INNOVATION COOPERATION AND CAPACITY DEVELOPMENT DEPARTMENT, ISLAMIC DEVELOPMENT BANK (ISDB), JEDDAH, SAUDI ARABIA

Introduction

During COVID-19, millions of schools closed and countries around the world scrambled to find ways to ensure the continuation of learning for students without going to school. However, now that the pandemic is over, what is the role of digital technology? Will it be relied upon only in the event of another crisis? Or can it be used to enhance the quality of education?

IsDB Synthesis Report on ICT and Remote Learning 2023

This report by the Islamic Development Bank (IsDB) was published a few months ago and looks at how African countries responded and coped by conducting remote learning; some of these lessons are very much applicable to the CAREC region. The report looks at challenges and provides solutions in terms of promoting flipped classroom learning—blended education—as a theory of change. The report also has details about the program that the Islamic Development Bank is working on with the CAREC region.

The Synthesis Report looked at 34 countries in terms of preparedness in ICT use: understanding existing barriers; determining gaps in policies, practices, and infrastructure; and the level of investment needed to improve resilience in the event of another crisis.

Different countries have different levels of computer access in schools. Certain developed countries like Tunisia and Namibia have computers in schools but, in less-developed African countries, many schools do not have computers. The situation is better in the CAREC region.
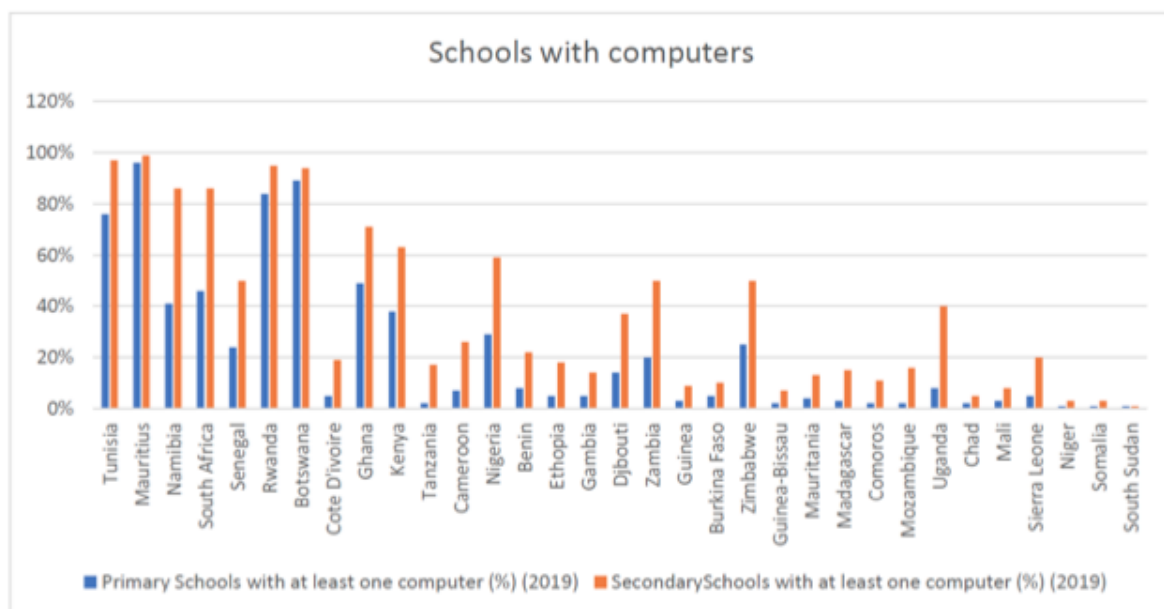
Figure 17: Levels of Computer Access in Primary and Secondary Schools in Different Countries in 2019

Schools with computers are better adapted to make use of remote learning; however, besides infrastructure, countries also need to have the correct policies and strategies in place. Many countries do not have the policies required to address the use of ICT in education, but in some countries this component is covered to a certain extent either in their education policy or ICT policy

or in both. Despite the existence of policies in some countries, in general, countries were not able to engage in a smooth transition to inclusive digital learning for all stakeholders during the COVID-19 pandemic. This ability to adapt to emergencies to ensure continuity of learning is a litmus test for a resilient education system. For instance, in Mauritius, students at primary and secondary level had to repeat a year of school after the pandemic. The implementation of policies in emergency situations is an issue.

However, there are some interesting examples and cases of how governments managed to overcome such challenges. One example is the story of Burkina Faso's success in this regard. In Burkina Faso, an alternative approach was taken in that ICT, which does not require an Internet connection, was used. Nano Servers were used to access digital content offline. The EDbox in Burkina Faso allows computers, smartphones, and tablets to be connected to digital content on local storage without Internet access. ICT and inclusive education programs must be developed coherently to ensure that everything required to access educational content is provided by the program (or is already available in schools).

Another example is Mali, where the country's first e-learning platform—So Kalan—was created. In partnership with a school in Bamako, Ada Ouologuem and her team created 20-minute didactic modules on exam subjects. Through these short videos, So Kalan gradually gives access to an increasing range of learning opportunities: courses in mathematics, French, physics and chemistry, biology, history, and geography.

The emergence of COVID-19 and its consequences on student learning needs prompted the young enterprise to refine and strengthen its education program. So Kalan took advantage of this opportunity to make young people aware of protective measures against COVID-19. The video capsules are broadcasted on its own online platform and on the Africable TV channel. So Kalan also uses video conferencing software, facilitating interactive communication between students and teachers. In other words, students can ask questions and teachers get a chance to question their students.

In just a few months, more than 500 students have logged in and are taking courses online. Beyond Mali, the broadcasting of these video clips on the television channel Africable allows students from Senegal, Cote d'Ivoire, and Niger to tune in.

The key findings of the report were that there are some critical factors that affect the role of ICT in education and the success of remote learning initiatives. These factors are the availability and utilization of ICT infrastructure in learning facilities; the existence and depth of ICT policies and strategies; and the levels of workforce with digital competence and evidence provided by the learning assessment for learners.

Challenges in Bridging Quality of Education in Rural Areas
Is the purpose of ICT in education to ensure continuity of education or can it be used to improve access to quality education? Why are some schools better than others at educating children?

Often, teachers in rural areas are not as effective as their counterparts in the cities and this is the reason why some schools perform better than others. The challenge here is to make sure that the standard of education improves.

The OECD's report titled 'Teachers Matter: Attracting, Developing and Retaining Effective Teachers' used a survey to look at the factors that led to quality education and there was no surprise that the fundamental factor was teachers. The report found that student learning is influenced by many

factors: student skills, expectations, motivations, family resources, peer group, curriculum structure and content; teacher skills, knowledge, attitude, and practices; schools, classrooms, dynamic environments, digital literacy, ICT infrastructure, and so on. From all these factors, the following three main factors were highlighted:

1. Student's background and what they bring to school (resources, family environment, and so on). Difficult for policymakers to influence, especially in the short run.
2. Broad consensus is that 'teacher quality' is the most important variable influencing student learning and achievement.
3. Teacher quality does not necessarily equate to teacher qualifications. It is a difficult thing to measure (for example, ability to convey ideas in clear and convincing ways; create effective learning environment for different types of student; foster productive teacher-student relationships, enthusiastic and creative, working effectively with colleagues, parents and so on.)

Flipped Classroom Learning Theory of Change
Flipped classroom is an approach to a type of blended learning where students are introduced to content (videos) taught by master lecturers. This is the reverse of the more common practice of teachers introducing new content in school and then assigning homework.

	Traditional Classroom	Flipped Classroom
Teachers Role	Teachers prepare on how to teach new content	Teachers focus on coaching and providing guidance to students
Separation between Lecture and tutorial	No separation. Teachers are the lecturers and tutors.	Teachers focus on being good tutors. They improve their knowledge by learning from good video lecturers.
Standard method of teaching content	The content delivery differs depending on quality of teaching	Content delivery is standardized and of high quality delivered by master lecturers
Material can be rewatched	Students that miss the content lecture often miss out.	Students can rewatch the content (if they have access to the online material)

Table 2: Flipped Classroom Learning Theory of Change

In a fully fledged flipped classroom application, students have access to online material. They independently watch and learn the video at home before class. They apply what they have learned at home by doing exercises that would otherwise be their 'homework' under the traditional classroom model. Since most students do not have the Internet or IT devices in rural areas, a few modifications need to be made. This is often referred to as the flex flipped classroom model.
Application considerations include:
1) Lecture videos may be played in class so that the teacher and the student will learn together
2) Each classroom should be equipped to enable content delivery (computer, projector, and electrical supply)
3) Capacity of teacher operating the IT equipment

4) Maintenance of the IT equipment
5) Need Internet? Need printer to print exercises?
6) Can we include IT usage lessons?

Designing a Data-Driven Flipped Classroom Program in the CAREC region
Islamic Development Bank and CAREC Institute Data Driven Flipped Classroom Program Study Objectives

The overall objective of this study is to develop a blended/flipped classroom model for widening access to quality education and learning in the CAREC region by integrating affordable digital technologies.

Scope of the Study
- To conduct a comprehensive desk review of the evidence on blended learning practices and their impact on the learning levels of students in the developed world
- To collect evidence on the blended learning practices and their impact on the learning levels of students in the developing world
- To determine the feasibility and potential (performance) of different blended learning/flipped classroom modalities
- To determine the factors required for the deployment of different blended learning/flipped classroom modalities
- To determine the adaptability and constraints in the adoption of different blended learning/flipped classroom modalities
- To recommend a sound set of policies for integrating education technology for learning in the CAREC region
- To propose a feasible blended/flipped classroom program for the CAREC region to enhance learning levels and quality of education based on study recommendations

Methodology
- Desktop research
- Questionnaires for students, teachers, and school administrators
- Focus group discussions with key stakeholders including policymakers and school principals
- Policy dialogs with at least four CAREC countries to discuss the proposed flipped classroom program

Output
The final output is to create a flipped classroom regional program that is practical and implementable in at least four CAREC countries. This program will also be integrated into the Islamic Development Banks's lending program. There is already a pipeline of education projects that involves building schools in the CAREC region, but this program will enhance previous projects by enhancing the quality of education in the future.

The Islamic Development Bank is proposing that the flipped classroom approach should be taken up as a fundamental approach that underpins education projects. Table 3 outlines and compares traditional approaches with the flipped classroom approach of supporting the education sector.

	Traditional	**Flipped Classroom**
Investment focus	Building of schools	Ensuring all schools are IT enabled
Teacher training	One-off teacher training (certify) if any	Constant learning through master lecturers
Monitoring of results	Lack of monitoring progress of teaching	Ability to track usage of material and results
Standardization of quality of teaching	Teaching material dependent on teacher's skills	Teaching material dependent on master lecturer skills—can be updated when required
Provide continuous support to teachers	Teachers left on their own and are guided by books and curriculum	Teachers have access to videos, exercises, and tests. They can also seek online support

Table 3: Traditional Approach Versus Flipped Classroom Approach

Q&A/DISCUSSION

Question—Moderator: What are the four countries that have been selected for the Flipped Classroom Program in the CAREC region?

Answer—Syed Hassan Alsagoff: Discussions are still taking place on which countries to select, but for now the countries being considered for this program are Uzbekistan, Tajikistan, and the Kyrgyz Republic because these are the countries that have requested financing from the Islamic Development Bank.

Comment—Moderator: Just to provide a few figures about ICT and education: at the Eurasian Fund for Stabilization and Development, we estimate that over 15 years more than USD2 billion in sovereign financing investment from IFIs has been channeled to ICT in education sectors.

Question—Nadeem-ul-Haque: I am not sure that the flipped classroom approach is in vogue anymore. It was a great innovation by Salman Khan and the Khan Academy implemented it very well. In Pakistan, we have been training teachers for 75 years and have not achieved any results. Several loans have been taken from the World Bank and ADB and the results have been negligible. Teacher training needs to be reviewed again. The direction we are heading in now, with platforms like Coursera and Udemy, online teaching without a teacher is becoming a big issue. In Pakistan we have built 300 universities but there is a shortage of professors. Digital content and digital platforms—at least the form in which they are developing—are performing very well, in a sense creating the need for teachers. In Pakistan, schoolteachers tend to be low-level professionals who cannot find good jobs. The United States and United Kingdom hire professors from Pakistan, but Pakistan itself cannot hire these individuals. Please give your comments on this.

Question—Talant Sultanov: The Kyrgyz Republic is implementing a project called Internet in a Box, which provides an online educational portal. It has been observed that mobile devices must be a priority because, as has been mentioned, there are very few computers in rural areas. Another problem is that the videos produced by the government are very heavy—for example, some files are as large as 5GB, which is very expensive. Furthermore, electronic books (PDFs) are very difficult to read on smartphone screens. In terms of agriculture, do you have any comments on how digital technology has helped the agricultural sector progress?

Answer—Syed Hassan Alsagoff: Coming from Singapore, I can tell you that teachers are constantly being retrained. The flipped classroom approach is not necessarily suitable for use in all countries. It is used in Singapore, but that is a small country where it is easier to make sure that teachers have the required skills and deliver good quality education. Good networks must be created to support teachers that may not have the required skills. There are good teachers around, but they are not located in rural areas. The goal is to provide children with the opportunity to learn from the best teachers available by recording lectures and materials. The technology is there and there are examples, but these must be integrated into the government curriculum and policy strategies. Projects must be evidence based with a proper strategy when they are carried out. There are issues of Internet connectivity but there are solutions where the Internet is used only to link up to the server for updates and most content and exercises are stored on a local server. It is only in terms of assessments that the Internet should be relied upon, as there must be a link with education ministries and so on.

Answer—Xiaojun Feng: Regarding how to use ICT to help farmers, technology is very helpful in terms of production for farmers. It can be used to streamline processing for farmers—for example, by monitoring microclimates. Furthermore, unmanned aerial vehicles can be used for spraying pesticides and the application of chemical fertilizers; the use of these vehicles also limits the

pollution caused by pesticides and fertilizers. In the field of marketing, digital technologies can enable farmers to sell their products online, but more farmers should be integrated in this area. It is very important to encourage small-scale farmers to use more technology and not less, so they are not excluded from digital transformation. It can often be the case that only large-scale farmers are integrated.

Question—Yixin Shao: My question is to Mr Syed Hassan Alsagoff. Nowadays, ChatGPT has become a very hot topic. With regards to the flipped classroom approach, what are your views on how AI will impact the classroom? Perhaps it will replace teachers and teachers will become obsolete?

Answer—Syed Hassan Alsagoff: Technology will support teachers, but I do not think it will ever completely replace them. Physical schools play an important role and the relationship between teachers and students and group class dynamics are very difficult to replicate. The use of technology will improve delivery and structure and allow teachers to focus on important aspects by lessening their burdens. Teachers are often overworked and through technology we can help them to focus and deliver quality education.

Question—Sherry Tao Kong: My question is to Dr Xiaojun Feng. I am wondering about the implications of the digital divide and digitalization in the sense of a reflection of some underlying heterogeneity? Is there a difference in outcome inequality and inequality of opportunity? Is the latter the underlying force for what we observe in terms of the outcome of inequality?

Answer—Xiaojun Feng: Thank you for your question. You mentioned the two layers in terms of inequality owing to digitalization. In my opinion, these two factors are actually quite different. Yes, different people have differing access to data technologies but even when all people are included— for example, small farmers and big farmers in e-commerce—they have very different opportunities to take advantage of the technology. In that respect, yes, there is some truth to the fact that inequality of opportunity is the underlying force for what is observed in terms of outcome inequality.

SESSION V
RKSI SOUTH–SOUTH LEARNING SEMINAR: DIGITAL GOVERNANCE AND COMMERCE

Moderator: Hsiao Chink (Benzhe) Tang
Head, ADB-PRC Regional Knowledge Sharing Initiative (RKSI), Asian Development Bank

CHINA'S E-COMMERCE SUCCESS STORY: ROLE OF GOVERNMENT AND POLICY IMPLICATIONS FOR THE CAREC COUNTRIES

SPEAKER: DR SHERRY TAO KONG, ASSOCIATE PROFESSOR, PEKING UNIVERSITY, BEIJING, CHINA

As businesses adopt digital marketing platforms for selling their products and services, the need for bricks-and-mortar spaces diminishes. As more and more companies move their operations online, it is crucial to establish a robust governance structure to ensure that online transactions are secure, fair, and transparent and that essential regulatory frameworks and policies are in place to protect consumers, build trust in digital commerce, prevent fraud, and promote healthy competition in the online marketplace. China's success story, led by Alibaba, covers numerous policy lessons for the CAREC countries to emulate for promoting e-commerce. Moreover, two success stories from Mongolia and Pakistan on digital trade facilitation and optimizing digital governance reinforce the significance of south–south learning.

Introduction

Certain factors have assisted and contributed to the success of China in e-commerce. These may not necessarily be things that the CAREC countries have to learn, but there may be some inspiration and experiences that can be shared.

e-Commerce in China

China's digital economy is the backdrop against which e-commerce has taken place in China. China's digital economy has grown in a rapid and impressive way and looking at data from the past ten years we can see the mindboggling growth rate with the value of the digital economy having more than tripled.

China's Digital Economy Scale and GDP Share
(unit: trillion yuan, %)

- Gross value of the digital economy (2022): RMB50.2 trillion, 41.5% of national GDP, accounting for approximately 77 percent of overall GDP growth.
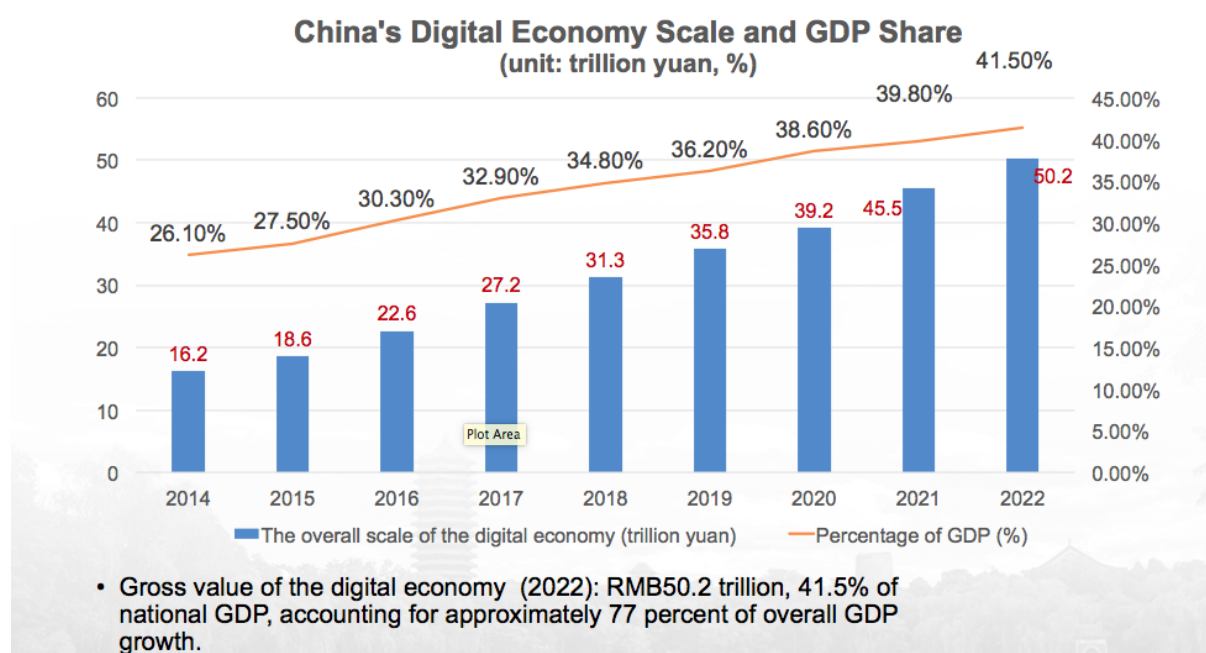
Figure 18: China's Digital Economy Scale and GDP Share (2014-2022)

The digital economy now accounts for more than 40 percent of GDP in China. In addition to the size of the digital economy, what is important is how crucial a role it plays in GDP growth. The digital economy contributes to three quarters of the GDP growth of China.

Closely associated with this is the degree of Internet penetration and how large the number of Internet users is. Given China's very large population, 75 percent of which is online, it is therefore not surprising that this is the largest digital market.

The Scale of Internet Users and Internet Penetration in China
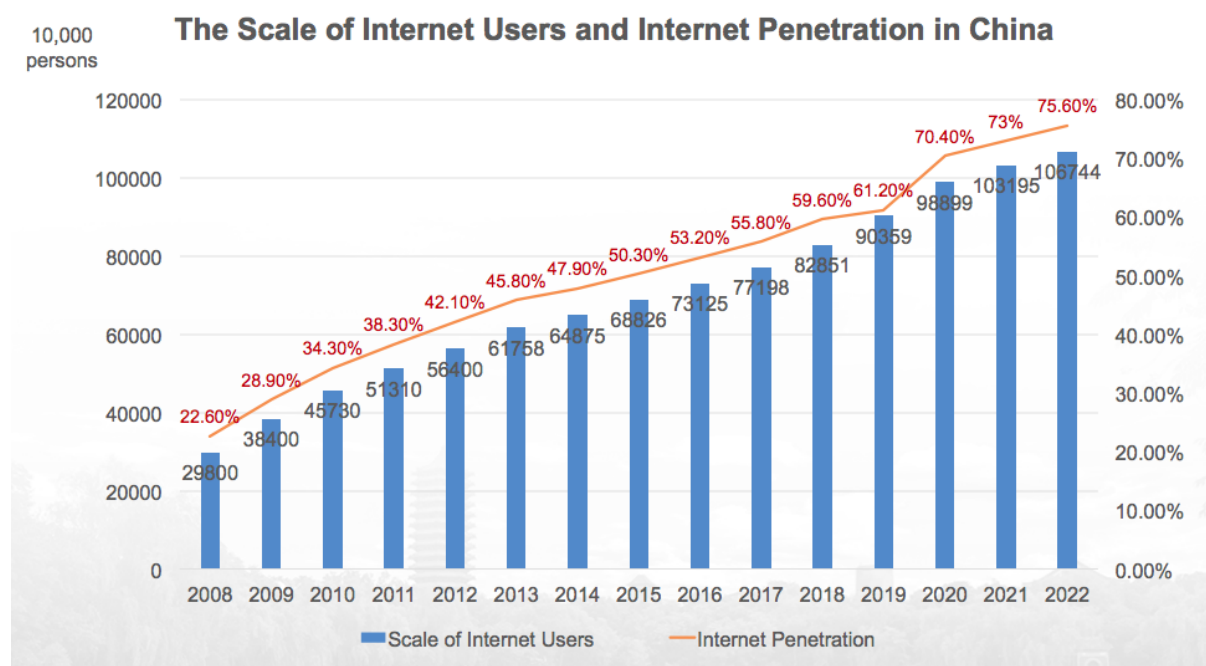
Figure 19: Scale of Internet Users and Internet Penetration in China

The growth of e-commerce transactions in China has also been very impressive. The total value of transactions increased from 6.09 trillion Yuan in 2011 to 43.83 trillion Yuan in 2022. The growth rate has been oscillating but has remained positive. Growth has slowed down somewhat, but given the large base it is still very impressive.

China now boasts the largest e-commerce market globally with a total transaction value greater than the sum of transactions in the United States, Japan, Germany, the United Kingdom, and Korea combined. Online business owners grew from 7.9 million in 2008 to 87.5 million in 2022. Many sectors and resources are devoted to the e-commerce industry both in terms of production but also with respect to sales, logistics, and finance.

The Role of Government

The government has put a conscious effort into developing and promoting e-commerce rather than just sanctioning its use. The most important national policies introduced by the government over the years are listed below:

- **2014**: E-commerce to the countryside to promote rural economic development, alleviate rural poverty, and reduce rural–urban disparity
  2014: Actively promoting the Internet + action
- **2015**: Poverty alleviation through e-commerce
- **2016**: Several opinions on deepening the reform of the commercial and trade circulation system and accelerating the development of e-commerce
- **2017**: 'No.1 Central Document' dedicated an entire section to accelerating the development of rural e-commerce
- **2017**: e-commerce law
- **2018:** Central government plan for the implementation of rural e-commerce development
- **2019**: To support the innovative development of e-commerce platforms, encourage the development of rural e-commerce
- **2020**: To promote the integration of online education and e-commerce
- **2021**: To support online and offline integrated development and promote the development of digital consumption

The policies listed touch upon several different areas—such as, providing a legal basis, improving education, and improving infrastructure.

In addition to policies implemented by national government there is a long list of policies at subnational level, which are also very important. At county level, which is the key administrative unit in China, local policies are devised to promote e-commerce development. There are many industry-related and public service-related policies devised at this level. There is no one particular formula for different counties and policies very much depend on the local industrial structure, development strategy, labor composition, and demographics. The policies vary from one locality to another. What does overlap between the different policies is e-commerce promotion at local level. What really matters is the compatibility between policies and the prevailing conditions and whether these are compatible within the CAREC region.

One specific example is Wuyi County in Zhejiang, where e-commerce flourished. Wuyi County is a mountainous, poverty-stricken, rural county that has been transformed by e-commerce. This is one of the so-called Taobao villages where a lot of people participate in e-commerce. In terms of local policies, the county formed a designated organization for e-commerce development, with full-time staff. This organization provides support and services to startups, popularizes the idea of e-commerce, promotes champions, and identifies projects. In the beginning, people were very

suspicious about the idea of selling things online to strangers, but eventually the ideas were accepted and popularized by certain brave and open-minded individuals who became champions.

Implications for CAREC Countries

There are some preconditions for e-commerce to occur. In terms of infrastructure, stable and affordable Internet access, and convenient parcel delivery and logistics services are essential. With regard to finance, digital payment methods, digital lending, insurance, credit ratings, and so on are very important. There also must be a focus on balancing goals for policy officials like growth and risks, innovation and stability, and expansion and competition. Finally, it is important to work in synergy with a combination of grassroots organic growth and supportive government policies.

ROLE OF THE PRIVATE SECTOR IN E-COMMERCE: LEARNING FROM ALIBABA'S SUCCESS STORY

SPEAKER: MR REMON MOES, SENIOR MANAGER PUBLIC AFFAIRS, ALIBABA

Introduction

When talking about China's success story, which is touted as a model that other countries can replicate, a lot of focus is usually placed on technological development and infrastructure. However, Taobao villages are also very important. Many people do not realize that 40 percent of China is rural; usually when China is thought about it is the large cities like Beijing and Shanghai. About 500 million Chinese people live in rural areas and if this were a country it would be the third-largest on the planet. When talking about the success story of China in terms of the digital economy, it is not just technological development that is important but also inclusion. These lessons need to be taken on board and adopted by countries outside China to achieve success in the digital economy.

Electronic World Trade Platform (eWTP)

The eWTP was launched by Alibaba in 2016 and endorsed by world leaders at the 2016 G20 summit. The purpose behind this platform is to make it easy to do business anywhere in the world and to make this an inclusive process. With the advent of the digital economy, global trade, which has usually been accessible only to large multinational companies, is now accessible to smaller companies as well—namely, SMEs. The eWTP platform has ten pilot projects in seven countries, which include Malaysia, Thailand, Belgium, Rwanda, Ethiopia, Mexico, and China (Hangzhou, Hainan, Hong Kong, and Yiwu).

The mission here is to look at the pillars of the digital economy and how these pillars can be applied to make global trade more inclusive. These pillars include the following:

- Digital Commerce—This is the backbone of the digital economy and covers 200 plus countries and regions with companies like Alibaba, AliExpress, and Daraz.

- Digital Logistics—It is very important to have warehouses and smart warehouses in this case that are placed strategically and can bring products into the country but also send products out efficiently. Global smart warehouses take up space exceeding 800,000 square meters. These warehouses need to have systems in place that can carry out customs clearance before products arrive.

- Digital Finance—There are several global e-wallets, which provide payment options in 40 currencies, with services for 80 million merchants offered to 1.3 billion users.

- Digital Trade Standards—The synchronization of trade standards is very important. Many policies are now outdated as they are designed for larger multinational companies. SMEs participating in trade are being left behind; they lack the resources to make sense of all the different standards that are in place.

- Digital Talent—The development of digital talent is also very important and it is one of the key pillars of developing a successful digital economy. Individuals need to be trained from high school and university level upwards so that they have the tools, skill set, and mindset to thrive in the digital economy. Alibaba is implementing digital economy training programs in 60 plus countries with 140 plus policymakers, over 2,000 entrepreneurs and business leaders and 1,400 plus university teachers and students.

- Digital Tech—Infrastructure needs to be in place—for example, cloud computing and digital payment technology need to be readily available. Currently, there are 28 Alibaba cloud regions in 85 available zones.

Case Studies

Rwanda

Rwanda is a country where coffee production is a key pillar of its economy; roughly half a million people are coffee farmers, which equates to about one in every 27 people in the country. This industry is very important for the country. However, traditionally these farmers have been able to sell only to larger intermediaries who would then mark up the price, put their own logo on it, and export it to other countries. Under the eWTP initiative, these local coffee farmers were assisted in exporting their own products abroad, cutting out the intermediaries and directly reaching consumers through e-commerce. Subsequently, farmers were able to make an additional profit of USD4 for every kilo of coffee sold. As part of this initiative, the Ambassador of Rwanda participated in a live stream to China, during which launch all the products were sold out within two seconds.

Capacity Building

This is another very important aspect of the work being carried out under the eWTP program. Students are being connected with governments and universities; local professors are trained how to give classes to their students on the digital economy. The students are linked with companies in an ongoing project. These companies are then taught how to undergo a digital transformation and participate in e-commerce platforms. This program is also being carried out in countries where Alibaba may not have a large presence.
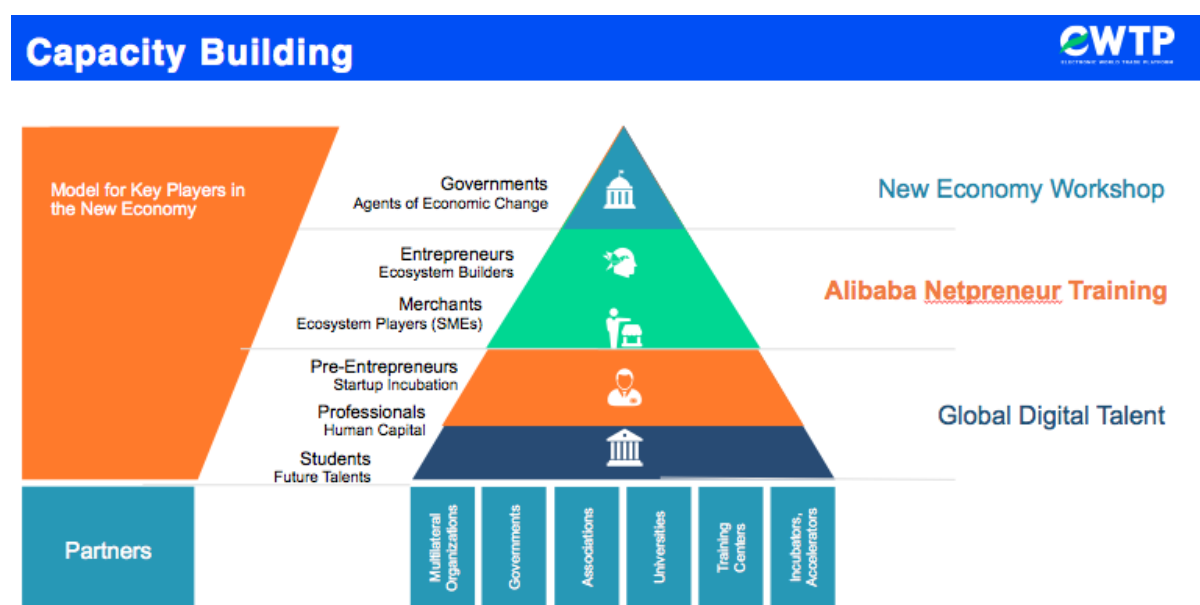
Figure 20: Capacity Building of the Students under the eWTP Program

In Mexico, one of the programs launched was a capacity building training program working with six Mexican states. The program was able to help hundreds of lecturers receive training. These lecturers then taught over 8,000 students that have been linked with roughly 1,500 companies. Furthermore, capacity building can also be done on a very low level. One such example is of Jose Natividad who lives in a mountain village in Guanajuato. His family used to sell a product called 'molcajete' (pestle and mortar) for USD9.5 each by the roadside. In 2020, a group of young students participating in the GDT project helped his family open an online store to sell molcajetes. Jose's molcajetes are now sold worldwide to Indonesia, South Africa, and Europe for prices ranging from USD70 to USD200 each.

Facilitating Exports

Alibaba is also assisting certain countries with policy reform—for example, assisting Malaysia in exporting frozen whole durian fruit into China. Following this policy reform, Malaysian exports of durian have grown by over 75 percent.

Digital Logistics

During the pandemic, through the eWTP program Alibaba shipped more than 100 million medical supplies through eWTP hubs. In partnership with the World Health Organisation (WHO) and the World Food Program (WFP) an eHub was set up in Belgium, just one of eight hubs that form a larger humanitarian emergency network. By using expedited customs clearance, goods could be distributed all over the world in record time.

Conclusion

Alibaba is continuously trying to engage with governments, the private sector, and entrepreneurs to stimulate initiatives. It is not just about how people can participate in digital trade but how lessons from China can be applied locally to enable local businesses to thrive. As this process continues, some of these local businesses will also start participating more and more in the global digital economy.

Introduction

The single window is a concept derived from the Trade Facilitation Agreement (TFA) of the World Trade Organization (WTO); for Pakistan, this was a category C commitment under the TFA. The reason for the buyout for this component was the high trade transaction cost in Pakistan. As work on the Pakistan Single Window (PSW) began, it was found that there are 77 trade regulators in different departments, working for regulation and trade. This resulted in the use of 2.1 million documents—licenses, permits, and other documents—in a single year in 2018. The potential savings for Pakistan, with full implementation of the PSW, were estimated at USD430 million annually and the project was implemented as a joint activity with the private sector. Sponsors of the project included the Government of Pakistan, Pakistan Customs, and international donors. The lead agency for the project was Pakistan Customs and the operating entity was the Pakistan Single Window Company (PSWC).

Implementation Journey

The first aspect of the implementation journey for PSW was to have political ownership of the whole process. The process began in 2017 when the prime minister issued a directive for the establishment of PSW. This was followed by foundational studies, which enabled the study of existing processes and how they need to be changed.

In 2021, governance and operating structures were established and in 2022 phase one of the PSW was rolled out.

Services

PSW offers a host of services including, but not limited to, the following:

- Online Evidence of Identity—This includes FBR, PMD, NADRA, Banks, SECP, and has had 57,000 users.
- Integration of Commercial Banks—29 banks have been integrated into PSW and traders can pay duties, fees, and taxes online without visiting banks.
- E-trade—The trade regulations from trade regulators—such as DPP, AQD, FSCRD, PSOCA, EDF, Customs, and MFD—have been integrated into the platform.
- Single Declaration—Single declaration means that, for any export or import, traders must file only a single document containing information required by each trade regulator, which is then aggregated and sent to the respective portals.
- Trade Information Portal—TFA Article 1.2. The portal gives information on general trade laws and regulations; this is a transparency requirement.
- Digital Payments—Business-to-government and business-to-business digital payments are facilitated.
- International Integration—PSW has been integrated with systems in China, Tajikistan, Uzbekistan, Egypt, and the IPPC.
- Trader Support Centre—This provides a single point of contact for customs and trade.
- Laboratories—Tests are being conducted through online requests and preshipment inspections are also being carried out by PSW.
- PSI Companies.

Pipeline Projects and Phase Two

Moving forward, PSW has entered phase two, which is a challenging phase. Several projects are being carried out as follows as part of this phase:

- The Port Community System—Integration of the functions of all regulators and facilitators of trade at the port, which includes port authorities, banks, customs, and logistics service providers. All these entities will be on one platform. This segment is at the stage of software development.
- Airport Community System—A lot of cargo moves through airports and this project is currently in the inception stage.
- Integrated Risk Management System and Joint Inspections—This project is being carried out to ensure that goods at trading nodes are not being subjected to physical inspections by different agencies separately because it entails time and cost for traders. Phase 1 of this initiative was rolled out in June 2023.
- Integration of Other Government Agencies—MMD, DRAP, and NCD are being integrated into the PSW.
- Digitization of bank guarantees and insurance guarantees—Stakeholder approval is in progress.
- Fumigation services—The process design for these services has been completed.
- Unified Transit Scheme and e-TIR—Review has been completed and has been shared with customs. Pakistan is a signatory to e-TIR, which is an initiative led by UN ECE and further reduces the cost for traders for movement of goods on transit routes.
- Export Processing Zones—Situational analysis has been completed.
- Compliance Navigator—Guidance for banks to meet FATF requirements.

International Integration

There are two key takeaways from PSW. Firstly, it reduces time and cost for regulatory compliance for the private sector and traders, which is achieved through the automation of regulator processes. However, now that all this trade data is available under one node there are many opportunities for regional integration. Integrating PSW databases with single windows of other countries will not only enhance the regulatory power of government but will also increase facilitation for importers because information will already be available in destination countries.

In this regard, PSW is being integrated with other international platforms. Interconnection with the China Single Window has already been established and test messages are currently being sent. It is hoped that this can be operationalized soon. The technical details are being worked on the single windows of Tajikistan, Uzbekistan, and Egypt. Furthermore, Pakistan's single window is being integrated with the global e-Phyto Hub, an initiative of the Food and Agriculture Organization (FAO). The global e-Phyto Hub enables plant-based products to be traded online using certificates that are visible online; this improves their authenticity and helps facilitate the validation process.

Legal Framework

A different approach was used for the PSW in terms of legal frameworks and this example is useful as a South–South learning outcome. This was the first case in which a single window was established through an Act of Parliament; it is now recognized as an innovation and different agencies are approaching PSW to learn about this experience.

The Single Window Law has an overriding effect on other laws, and it mandates trade regulators to integrate their functions and procedures within the PSW. Customs and 77 other regulatory agencies are required to integrate with the PSW platform. There is also a legal basis for the PSW system as well as its governance and operating model.

The process of creating this legal framework involved many stages. Firstly, the business process analysis of different entities was carried out to ascertain the state of their business and procedures and identify problems. The second stage was business process re-engineering in which problems

were worked around and new process flows created. The third step was the system requirement specification, which identified the best IT solutions for the new processes. The last and most difficult step, in the context of government, was change management. All the steps involved in the regulatory reforms for automation were carried out under the umbrella of PSW.

Business process reforms and data standardization have led to the following outcomes:
- Re-engineering of 100 trade-related regulatory processes
- Replacement of 76 documents with electronic verification
- 143 documents replaced with electronic submission
- 45 documents eliminated altogether
- Development of a national trade dictionary based on the WCO data model and UNTDED

Key Challenges
It is very difficult to change a completely manual and paper-based system, riddled with redundancies, into an automated system. Of course, there are also issues of resistance because people are used to working in a particular way. Physical, document-based work gives a lot of control to regulators because it is opaque, and they often do not want to do away with it. There is also the fear of losing space to a new entity. The ICT infrastructure in many government entities was lacking and many did not have the required infrastructure to implement the PSW initiatives. Interagency collaboration is always a big challenge when working in the public sector and in certain cases individuals may not understand IT systems and automation. The approval of new documents to give legal effect to this new system and passing these documents through various stages was also another major challenge.

Outcome
The lessons learnt through this process that can help other CAREC members are focused around the three Cs for reform: consultation, collaboration, and coordination. Whenever there is engagement with a regulator for reform, this process must be implemented. A collaborative approach must be adopted so that the other entity does not feel that their power is being taken away but rather that their function is being enhanced and facilitated. In such processes, this is a key mindset.

The experience from the development of PSW has clarified that it is very beneficial to have a legal framework and if any country wants to develop a single window, having a standalone law for the process will be a great help.

It is important to take an incremental approach. In the case of PSW, 77 regulators were identified initially and in the first phase only 11 of these were integrated. These 11 regulators accounted for most of the licenses.

In addition, the whole process needs to have political ownership. The champions of change within government departments must be identified and these individuals should be included in the implementing team. Finally, effective communication is both an underlying and overarching objective to achieve the goals of any such initiative.

BUILDING A DIGITAL NATION THROUGH OPTIMIZATION OF PUBLIC SERVICES IN MONGOLIA

SPEAKER: MS ENKHTULGA GANBAT, SPECIALIST OF CROSS-SECTOR COORDINATION, MDDC, MONGOLIA

Introduction

Mongolia is a landlocked country in East Asia bordered by Russia to the north and China to the south. The country covers an area of 1.5 million square kilometers with a population of just 3.4 million. There are nine districts in Mongolia and 21 provinces. 60 percent of inhabitants in Mongolia live in urban areas and about 40 percent live in rural areas.

Legislation on ICT

A number of laws have been adopted in Mongolia over the past few decades. These include the following:

- Law of Mongolia on Radio Waves 1991, 2005
- Law of Mongolia on Post 2004, 2007
- Law of Mongolia on Electronic Signature 2011, 2021
- Law of Mongolia on Broadcasting 2019
- Law of Mongolia on Protection of Personal Data 2021
- Law of Mongolia on Cyber Security 2021
- Law of Mongolia on Information Transparency and Right to Information 2021

The long-term development policy of Mongolia is Vision 2050. Two key objectives of this policy are Vision Smart Governance, which is objective 5.1, and Vision Smart Management, which is objective 5.2. Vision Smart Governance aims to make the allocation, control, and equality of power more favorable for citizens and to provide stability in governance. Vision Smart Management aims to clarify the allocation and function of power by determining an accurate organizational chart of government institutions.

The Government of Mongolia declared communication and information technology as one of the leading sectors of the economy; in light of this, the Ministry of Digital Development and Communication was established last year. The Digital Nation Strategy, developed by the new ministry, was launched in 2022 and will run until 2027. The Digital Nation Strategy has the following six pillars:

- Digital Infrastructure—Ensuring the availability of basic infrastructure to meet growing demand
- e-Governance—Developing non-bureaucratic, faster, and more transparent governance
- Cyber Security—Ensuring the integrity, confidentiality, and accessibility of information
- Digital Literacy—Creative citizens with the potential to innovate
- Innovation and Production—Develop the digital economy and increase competitiveness
- National Development Accelerator—Improve competitiveness, productivity, and efficiency

Current State of ICT in Mongolia

According to the United Nations e-Government Development Index of 2022, Mongolia ranks 74th out of 193 countries in the world and has improved significantly from 2020 when it was ranked 92nd. Mongolia has also improved its score in three important indexes: the Public Digital Service Index (0.62), the Telecommunications Infrastructure Index (0.69), and the Human Resource Capacity Index (0.83). In all three indexes, Mongolia has made significant improvements since 2018 and is above global averages. Furthermore, more than 120 legislative amendments related to ICT have been submitted to the Parliament of Mongolia.

In Mongolia there are 4.83 million mobile subscriptions and almost 3.1 million 4G subscriptions. This is important because it shows that there is a high level of mobile usage and mobile broadband usage.

The government recently launched e-Mongolia and this platform already has 1.64 million users. The platform has integrated 83 organizations and 994 public services under one umbrella and, so far, 31.7 million service requests have been carried out for users. The total cost savings from this project are estimated to be worth around 269 billion MNT. The e-Mongolia platform has broadened its service delivery in six main directions:

- E-Mongolia.mn (citizens)
- E-Business.mn (legal entities)
- Lavlagaa.e-mongolia.mn (service providers)
- Operator.e-mongolia.mn (khurdan public service center)
- Kiosk.e-mongolia.mn (khurdan public service machine)
- Mobile applications

Work has been carried out to replace physical IDs with electronic ID cards. The introduction of electronic ID cards was initially piloted in two stages. The first stage involved data collection and protected registration across the country. The second stage involved data collection and the printing of receipts, which were distributed and enabled every citizen to have a unique code to receive services through the new e-Mongolia platform.

The e-Mongolia platform has many types of document—such as, identity cards, passports, travel cards, and identity cards of teachers, students, and those with disabilities. In addition, every citizen can control their personal data and citizens can see which government organization has their data stored.

In 2013 the Government of Mongolia began operating the '11-11' hotline, designed to receive and resolve citizens' queries and offer speedy responses to citizens' requests. Up to 2021, this hotline received over 629,000 requests and until recently it was the only way for citizens to communicate with the government. A decade later in 2023, the Government of Mongolia worked with the 11-11 hotline and launched a notification system, which gives citizens the option to receive messages through a national email, push notification, or their private email account. Citizens' applications are responded to in this way, usually through email. Furthermore, push notifications are used to issue alerts in times of emergency and threat.

Whenever a digital transformation occurs on a national level, equal accessibility must be ensured. As of 2022, there were 115,115 people with disabilities in Mongolia. The Government of Mongolia's e-government initiatives are designed to fully cater to the needs of individuals with disabilities and are designed in accordance with international standards.

In addition to e-government initiatives, the Government of Mongolia has opened 115 multi-option 'Khurdan' service centers. There are 44 centers in the capital, 62 in remote areas, eight are located outside Mongolia, and one is on the border. These centers have been opened to cater to those without smartphones, the elderly, and people with disabilities.

When it comes to the provision of private sector services, 6,170 services provided by the government to the private sector have been transferred online—a move that has been greatly appreciated by investors and companies. As of this year, enterprises and companies have received these services online over 25,000 times.

The following 11 services are the ones most frequently requested by citizens online:

- Services for legal entities
- Social insurance and health insurance verification services
- Newborn registration reference
- Child money allowance service
- Service to grant a certificate of studying in universities and colleges
- Patient transferring service between hospitals
- Appointment booking service at the hospital
- Student military primary registration service
- Toll payment service
- Credit information service
- Driving license service

Mongolian citizens from all over the world are accessing e-Mongolia services. Countries with high access include 1.7 million from the United States, 1 million from Singapore, 870,000 from Australia, 8.8 million from South Korea, and 2.1 million from the Russian Federation.

The Government of Mongolia has declared this year as one of fighting corruption. In accordance with this, the Minister of Digital Development and Communication has implemented a program of open and transparent government organizations across the country. Following this program 738,372 documents have been provided by government organizations to citizens, companies, and so on and the platform to initiate requests has been accessed 2.6 million times. Through this portal, citizens can monitor their public services. As a result of this work, the transparency of the activities of government organizations has been ranked and is provided to citizens with information through the 'Glass Index.'

The process of digital transformation in Mongolia has been based on partnerships and inclusiveness; several actors were included in this process:
- Citizens
- Software companies
- NGOs
- Entrepreneurs
- Telecommunications operators
- Entrepreneurs
- e-Mongolia academy
- National Data Center
- Governmental organization
- Ministry of Digital Development and Communications (MDDC)

126 public organizations and 320 private sector organizations use the government information exchange system and share their information. As of July 2023, 54 million pieces of data have been successfully exchanged.

Future Plans

The Government of Mongolia is currently working on the re-engineering of public services. The purpose is to improve the quality of public services, organizational capabilities, and productivity; to increase the satisfaction of citizens and civil servants; and to strengthen process-based, rational, and effective governance. This process is being carried out mainly in the central, Khangai, and eastern regions. The Government of Mongolia and all labor agencies are working hard to provide more accessible, efficient, and high-standard public services without bureaucracy.

Q&A/DISCUSSION

Question—Nadeem-ul-Haque: My first question is for Mr Remon. Has Alibaba explored possibilities in Pakistan? Mr Shakeel, I have been hearing a lot about the single digital window, what is its utilization? How successful is it? Could you give us a cost benefit for the PSW and tell us how much money has been invested into it? Exports are not necessarily going up in Pakistan, so is it really helping? Also, I would like to ask Dr Sherry, what happened in 2014? To Ms Enkhtulga Ganbat, you have told us a lot about public service and digitization; however, is there any use for digital services in education in Mongolia?

Answer—Remon Moes: Pakistan is not one of the countries that is an eWTP hub for Alibaba; however, projects that are part of eWTP have been launched independently in countries as well. An educational program is already up and running in Pakistan and Alibaba has been working with universities. Alibaba also has an e-commerce platform in Pakistan, called Daraaz; eWTP and Daraaz have been in conversation about launching something in Pakistan. Although an entire program has not been launched, some individual components are already active in Pakistan.

Answer—Syed Shakeel Shah: It is a bit early to call out the jury on the utility of PSW. The first version of the PSW system was rolled out in July 2022. Trader feedback is immense and overwhelming. It is not only the core trade regulatory function that has been automated, but now because of PSW there is also a drive for automation in other departments. Cost savings for traders are also significant because they no longer need to employ an entire team of people to run around different offices; they can use the PSW to access whatever documents they want. The first result for the PSW system was received recently and this was in international rankings from UNESCAP, which saw a 14 percent improvement for trade automation in Pakistan. The first study, launched in 2017 by Crimson Logic of Singapore, projected the cost for the establishment of PSW at USD163 million; however, this plan was not pursued. Instead, a core team was formed and the task was broken down into smaller parts. Development partners were then approached for areas in which help was required. In the end, the PSW was established at a cost of USD11 million, of which USD10 million was from donors.

Answer—Sherry Tao Kong: Digital finance development caused a big spike in e-commerce in 2014.

Question—Syed Ashraf: My question is for Dr Sherry. We have seen great progress in e-commerce over the last ten to 12 years. Which government organizations or key players provided the key impetus or vision for this kind of progress? What factors made it possible and what practice translated that vision into reality?

Question—Ekaterine Kubusidze: We have been discussing e-commerce payment systems and areas like logistics, but there has been no mention of intellectual property liabilities. We should protect our e-commerce platforms from illegal content. For example, does Alibaba itself monitor content or is there legislation that must be followed? How is this regulated?

Question—Zeeshan Salahuddin: My question is for Remon Moes. There was a triangle that you shared regarding capacity building that went from students all the way up to the government. The one part that I felt was missing, which perhaps you can shed some light on, was what kind of collaboration and cross pollination does Alibaba conduct with think tanks? The reason being because first this is a think tank development forum and more importantly, in my view, knowledge generation and thought leadership should be at the core of all public policymaking as well as empirical decision making. What kind of collaborative opportunities do you have with think tanks and where in the pyramid does that fit in?

Answer—Ramon Moes: The first question was regarding content monitoring and how Alibaba ensures that content is legally compliant. Alibaba is a very large company with a lot of different platforms. I do know that in Europe legislation has been passed regarding content and customs reforms have also been proposed, which puts more liability on e-commerce platforms. Alibaba has AI programs to monitor content itself, but with new legislation that is being passed the onus is increasingly on platforms to ensure that content is compliant. There are steps being taken in this regard, but how these mechanisms are working specifically is beyond my area of expertise, as I am not working on this area.

Regarding the second question on collaboration and cross pollination, think tanks come in only on the educational side of our projects. We do try to engage in public–private dialog as much as possible and it is my priority for us to engage more in such forums. We are involved in other dialogs as well and I agree that this is a very important type of platform for Alibaba to be engaged in.

Answer—Dr Sherry Kao Tong: I would like to ask everyone to pause and think about this government-led development idea for a moment. If e-commerce is thought about as an organically developed market phenomenon, what the government really needs to do is to give space to enable innovation to take place. This kind of healthy space that allows for innovation is probably the best thing a government or regulators can provide; however, providing the space alone is not sufficient because the government must consider many aspects of social development for the betterment of society. The government cannot cater solely to the needs of business people, consumers, and service providers; they have to take all these actors into account along with a range of social development goals that need to be looked after.

From the very beginning, governments should allow innovation to take place, allow people to enable entrepreneurship to flourish. The provision of a healthy space is of paramount importance. If one looks at Chinese development history, it was not the case that the government knew what was going to happen and had all the right policies and plans in place; in fact, there were major obstacles and challenges. Regulators are playing catch up and must often rush in to devise policies and address issues when things go wrong. This puts pressure on policymakers as they have clear practical demands on them and they must come up with ideas, while also upgrading their technology and educating themselves to remain up to date. In this sense, on a policy forefront, many ministries are

involved in monitoring. These ministries can identify what is innovation and what is taking place in a disorderly fashion; once they have done this, they can then try to assist the process at every practical level in areas like technology, business administration, finance, management, logistics, labor laws, taxation and so on. The whole process is a dynamic process rather than a clearly defined policy.

e-Commerce is a new species or ecological system where much is happening. Not all actors in the e-commerce space are generic or uniform—for example, there are even very small e-commerce merchants that are not registered with any formal kind of organization or government regulator. Then there are more formally registered companies that carry out business on platforms; these companies are subject to all the rules and regulations imposed on registered enterprises. These companies must follow the same rules in their offline operations; many businesses take their work onto different platforms, enabling them to have an offline and online presence. Furthermore, there is an online review system where consumers can see business ratings and rankings; this feature is a self-regulatory system. In light of this, the industry does not rely solely on formal rules and regulations; there is also an approach towards self-regulation, better practice, and incentives to bring out the best of businesses. Sellers of low-quality products will not be sustainable in the long term because their reputation will suffer. There are inevitably strategies to manipulate buyers and boost performance in terms of rankings and reviews, but the platform will impose new rules to curb such behavior. The power of e-commerce comes with being able to reduce information asymmetry and that reputation and credibility comes with a fair and balanced review system. Therefore, it can be said that there is a self-regulatory side and formal rules and regulations to make people do the right thing, for which they are rewarded.

Moderator: Dr Yixin Yao

Senior Research Fellow, Asian Development Bank Institute (ADBI), Tokyo, Japan

FINANCIAL INCLUSION AND FINTECH IN THE CAREC REGION

SPEAKER: MR KHALID UMAR, CHIEF, STRATEGIC PLANNING DIVISION (SPD), CAREC INSTITUTE

Financial inclusion is the provision of affordable and accessible financial services for people traditionally excluded from the formal financial system. Digital finance, on the other hand, uses technology to provide financial services. Digital finance has the potential to significantly increase financial inclusion by reducing the cost and increasing the accessibility of financial services. Mobile money, for example, allows people to conduct financial transactions using their mobile phones without needing a bank account. This has been particularly beneficial in developing countries, where many people lack access to traditional banking services. Overall, digital finance has the potential to transform the financial landscape and improve the lives of millions of people. The CAREC member states (excluding the PRC) lag when it comes to providing services and infrastructure crucial to increasing financial inclusion—for example, Internet access, transport linkages, and government facilitation. On the other hand, China has taken giant leaps in harnessing technology to deepen financial inclusion, presenting numerous policy lessons to CAREC countries.

Introduction

Definition of Financial Inclusion

Of the various definitions of financial inclusion (FI), the most popular comes from the World Bank Group and states that FI is when individuals and businesses have access to useful and affordable financial products and services that meet their needs (transactions, payments, savings, credit, and insurance) and are delivered in a responsible and sustainable way.

FI is broadly recognized as the ability of the adult population—as well as micro, small, and medium-size enterprises (MSME)—to easily own a bank account and access affordable, reliable, and sustainable financial services offered by the formal financial sector—such as, banks, development finance institutions, and insurance companies.

Overall, FI aims to provide affordable financial services and products to all segments of society, particularly those traditionally underserved or excluded from the formal financial system**.** The goal is to empower people economically, reduce poverty, and foster inclusive economic growth.

FI and Economic Growth

FI is an important component of financial development, as it provides low-cost financial services and fosters economic growth. Policymakers view FI as central to economic development, poverty alleviation, supporting social inclusivity and the efficient allocation of capital.

However, evidence is lacking on the effect of FI on inclusive economic growth. Demirguc *et al*. (2017) identify two essential reasons for this as follows:

- First, FI is a relatively recent phenomenon in economic discourse; it caught the limelight in the aftermath of the 2007 to 2009 financial crisis. The data for a comprehensive economic analysis of financial inclusiveness is limited.

- Second, FI as a policy instrument is recently embedded in larger economic policy design; hence the correlation between FI and economic development remains unclear.

Sahay *et al*. (2015) find that FI promotes economic growth to a certain level by broadening access to finance for households and businesses across different regions within the country and to different age groups and genders, but the marginal benefits diminish after its coverage and depth increases.

Why Is Financial Inclusion So Important?

FI has gained significant attention in recent years among policymakers, governments, development partners, and the private sector as an essential contributor to inclusive economic development.

The UN has identified FI as an enabler for seven of the 17 **Sustainable Development Goals.** The **G20 committed to advance financial inclusion worldwide** and the **G20 High-Level Principles for Digital Financial Inclusion** recognizes the significant role of financial inclusion in promoting inclusive economic growth.

The World Bank considers FI a key enabler to reduce extreme poverty and boost shared prosperity. Access to a transaction account is a primary step towards broader financial inclusion. It allows people to do the following:

- Save money with formal financial institutions, make and receive payments, borrow money to finance day-to-day living needs such as health and education

- Hedge against unexpected emergencies and benefit from other services such as insurance

FI and Global Trends
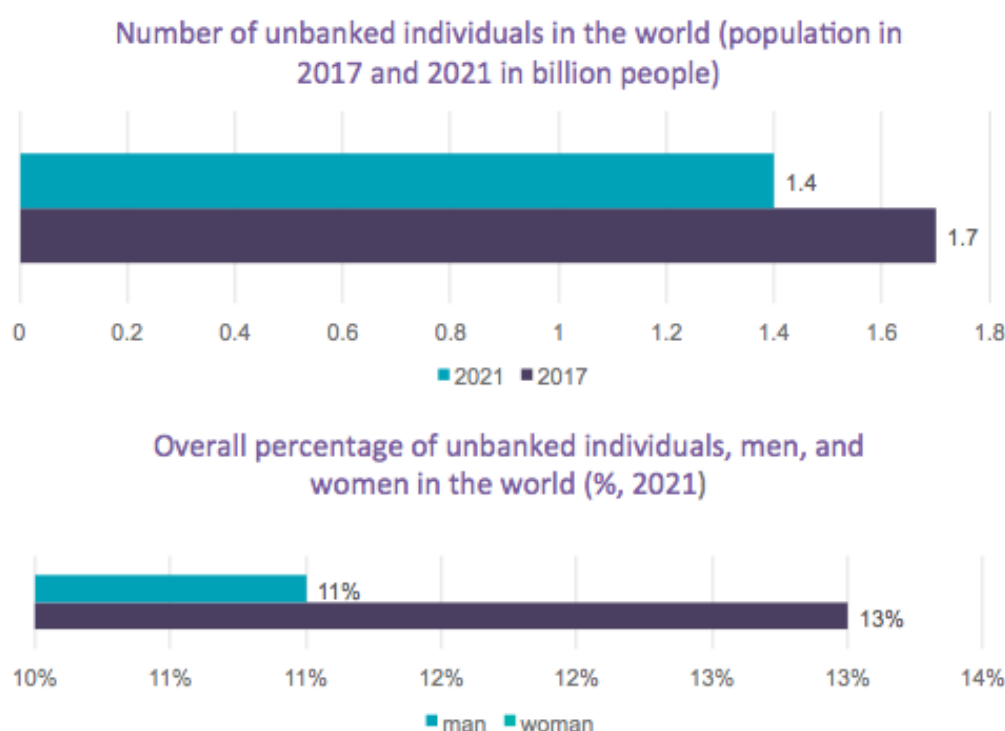
Figure 21: Number of Unbanked Individuals in the World (Population in 2017 and 2021 in Billions)

Figure 21 shows that there are still many unbanked individuals (1.4 billion) in the world and of these, women (13 percent) outnumber men (11 percent). However, some progress has been made from 2017 to 2021, as about 300 million people have been included in the mainstream financial system.

Geographic concentration of unbanked individuals (%, 2021)
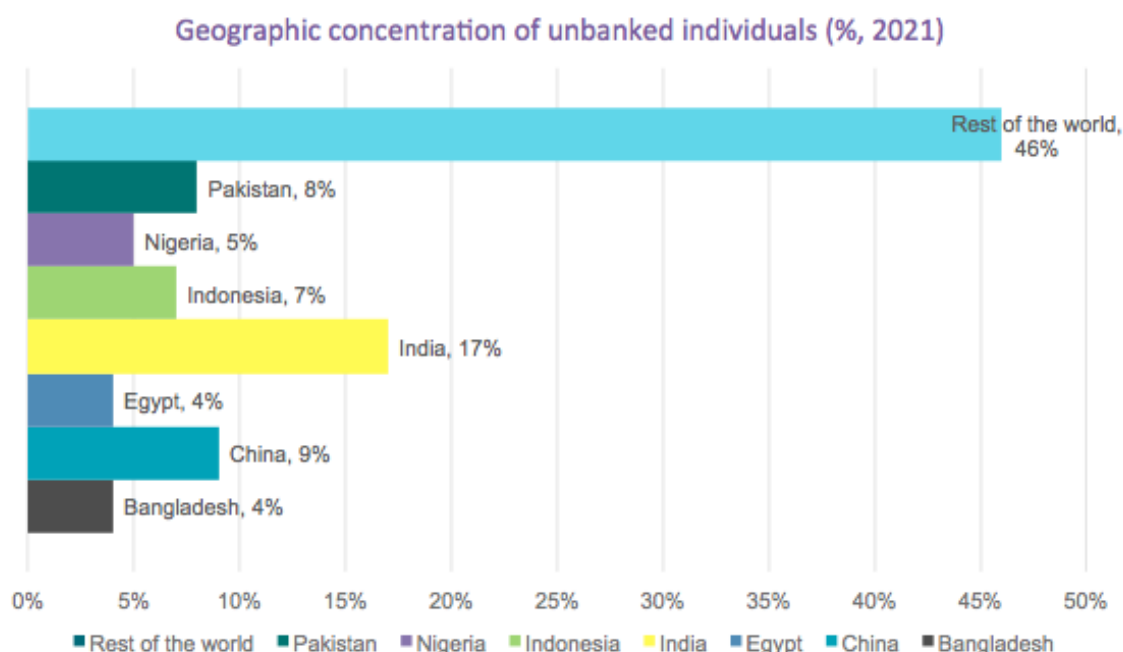
Figure 22: Geographic Concentration of Unbanked Individuals (Percent, 2021)

Figure 22 shows that 54 percent of the unbanked population is concentrated in just seven countries: Pakistan, Nigeria, Indonesia, India, Egypt, China, and Bangladesh. The most populous countries in the world are also home to the largest number of unbanked people. The bulk of growth in FI has been registered in India and China. In India, a single national ID known as the ADHAR system has been adopted, involving the digitalization of all services in India under one umbrella with a simple card. This system has helped India reach out to millions of people who were not traditionally a part of the mainstream financial system.

FI in the CAREC Region

The CAREC program is an intergovernmental initiative of the ADB consisting of a committed partnership of 11 countries—namely, Afghanistan, Azerbaijan, the PRC, Georgia, Kazakhstan, the Kyrgyz Republic, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. The CAREC program combines efforts to promote regional economic cooperation.

The CAREC region (excluding the PRC) is home to approximately 370 million people, producing nearly USD875 billion of annual value added (GDP).

The CAREC countries are at different stages of development. They widely vary in population, from Pakistan with over 235 million people to Mongolia with just over three million people. Based on per capita income, the CAREC region comprises low-income countries (Afghanistan, Tajikistan), lower-middle-income countries (the Kyrgyz Republic, Pakistan, Uzbekistan), and upper-middle-income countries (Azerbaijan, Georgia, Kazakhstan, Mongolia, and Turkmenistan).

INDICATORS	AFG	PAK	AZE	GEO	KAZ	KRZ	MON	TAJ	TKM	UZK
GDP growth rate (annual %)	-20.7 (2021)	6.2 (2022)	4.6 (2022)	10.1 (2022)	3.2 (2022)	7.0 (2022)	4.8 (2022)	8.0 (2022)	-3.4 (2020)	5.7 (2022)
GDP, total (current USD) (billions)	14.58 (2021)	376.53 (2022)	78.72 (2022)	24.61 (2022)	220.62 (2022)	10.93 (2022)	16.81 (2022)	10.49 (2022)	45.61 (2020)	80.39 (2022)
Population, total (millions)	41.1 (2022)	235.8 (2022)	10.1 (2022)	3.7 (2022)	19.6 (2022)	6.8 (2022)	3.3 (2022)	10 (2022)	6.4 (2022)	35.6 (2022)
Population ages 0-14 (% of total population)	43.1 (2022)	36.5 (2022)	23.4 (2022)	21.2 (2022)	29.6 (2022)	34.4 (2022)	32.4 (2022)	36 (2022)	31.1 (2022)	30.2 (2022)
Population ages 15-64 (% of total population)	54.4 (2022)	59.1 (2022)	69.4 (2022)	64.1 (2022)	62.2 (2022)	61 (2022)	62.9 (2022)	60.2 (2022)	63.7 (2022)	64.6 (2022)

Table 4: GDP and Population Status of CAREC Countries (2022)

Looking at the last two rows of Table 4, it can be calculated that 125 million people in the CAREC region are between the ages of 0 and 14. This signifies that 125 million people in this age bracket will, after a period of perhaps five to seven years, enter universities, colleges, and the job market. The financial needs of these 125 million will only increase with time. Many interventions by member countries are needed in this regard.
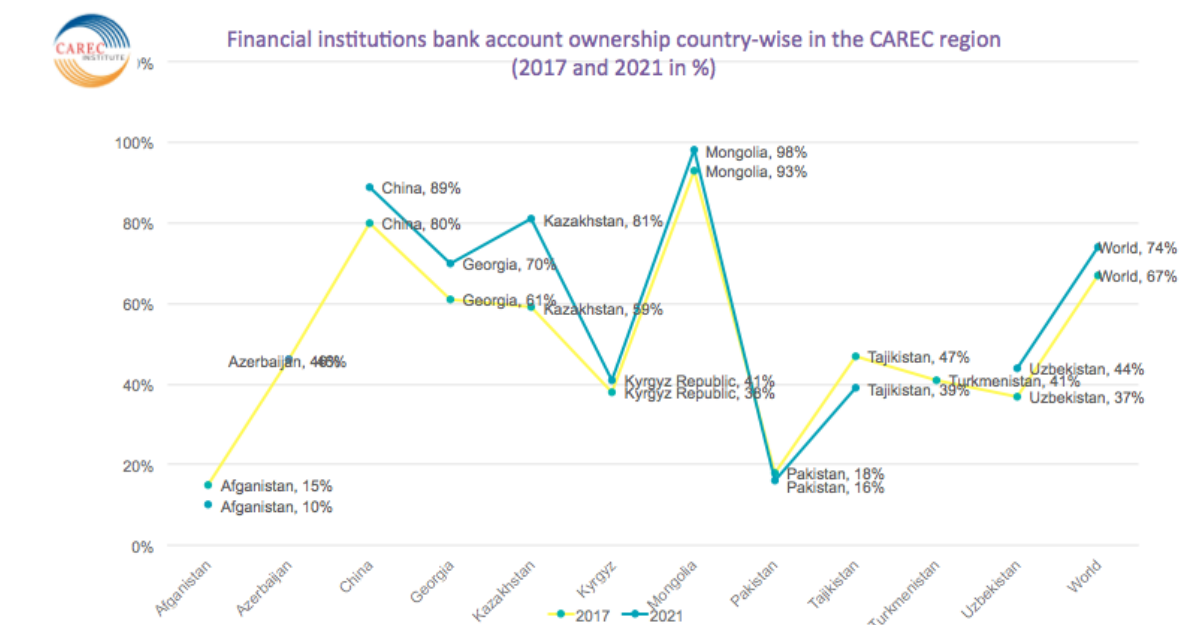
Figure 23: Country-Wise Financial Institutions Bank Account Ownership in CAREC Region (Percent, 2017-2021)

Figure 23 shows financial institution bank account ownership country-wise in the CAREC region. There are outliers here—for example, Mongolia leads the region with 98 percent of its population having an account in the formal sector. Next is China with 89 percent of the population having a bank account in the formal sector. This is followed by Kazakhstan with 81 percent account

ownership among the population. Afghanistan, Pakistan, and Uzbekistan are the three countries really lagging behind in terms of account ownership; when combined, they are also the most populous in the region (excluding China). These three countries are the worst performers; however, there have been positive trends in all countries in a comparison of 2017 and 2021.

Account, female and male in the CAREC region (% age 15+)

Country	Account, female	Account, male
World	39%	52%
Uzbekistan	39%	50%
Turkmenistan	36%	46%
Tajikistan	39%	40%
Pakistan	13%	28%
Mongolia	99%	98%
Kyrgyz Republic	44%	47%
Kazakhstan	84%	78%
Georgia	71%	70%
China	87%	90%
Azerbaijan	39%	55%
Afghanistan	5%	15%
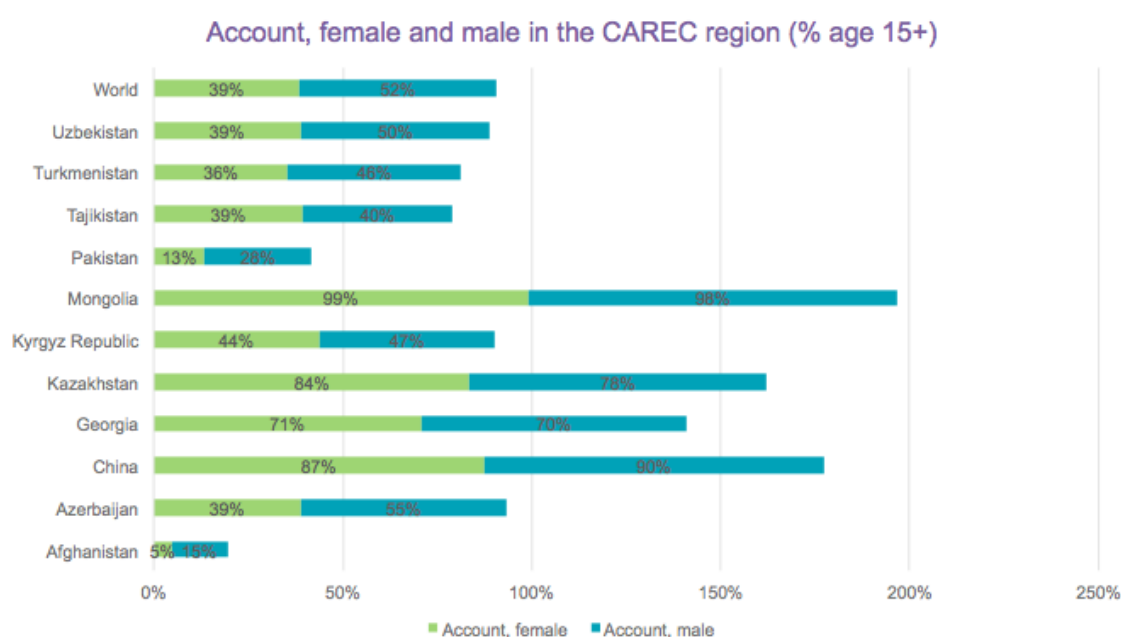
Figure 24: Gender-Wise Bank Account Ownership in the CAREC Countries (Percent Age 15+)

Figure 24 looks at account ownership in terms of females and males in different CAREC countries. The global distribution in this regard is 39 percent of women and 54 percent of men have a bank account. There is a significant disparity between female and male account ownership; however, when looking at the CAREC region, this disparity is not as significant as it is on a global level. Of course, there are some exceptions—such as, Pakistan, Afghanistan, and Azerbaijan—where significant disparities exist.

The reason for such high account ownership in Mongolia is that, to access public services, citizens must have an account in the formal sector.
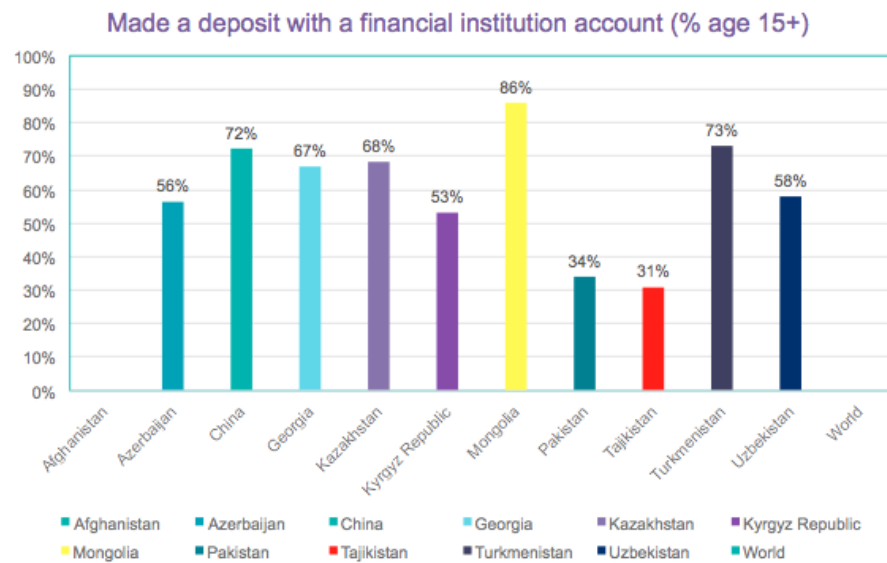
Made a deposit with a financial institution account (% age 15+)

Figure 25: Percentage of Population Depositing in a Financial Institution Account (Percent 15+)

Figure 25 shows the percentage of the population that makes deposits in a financial institution account. Mongolia is once again on top in this metric, followed by Turkmenistan and then China. However, the rest of the countries are not really catching up.

Figure 26 shows the percentage of people that borrowed money from a formal financial institution or using a mobile money account in the CAREC region. Mobile money accounts are very popular in some countries but, looking at the CAREC region, this is not a popular practice. Furthermore, overall levels of borrowing are low, which means that people may not have access to the formal financial system.
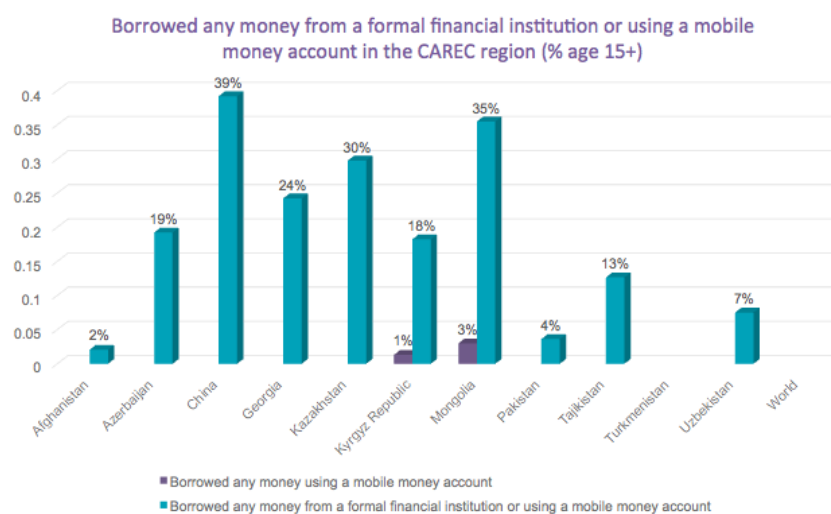
Borrowed any money from a formal financial institution or using a mobile money account in the CAREC region (% age 15+)

Figure 26: Percentage of Population Who Borrowed Money from a Financial Institution in the CAREC Countries (Percent, 15+)

Furthermore, there is a divide between rich and poor when it comes to account ownership, with richer people being part of the formal financial system in larger numbers across the board.
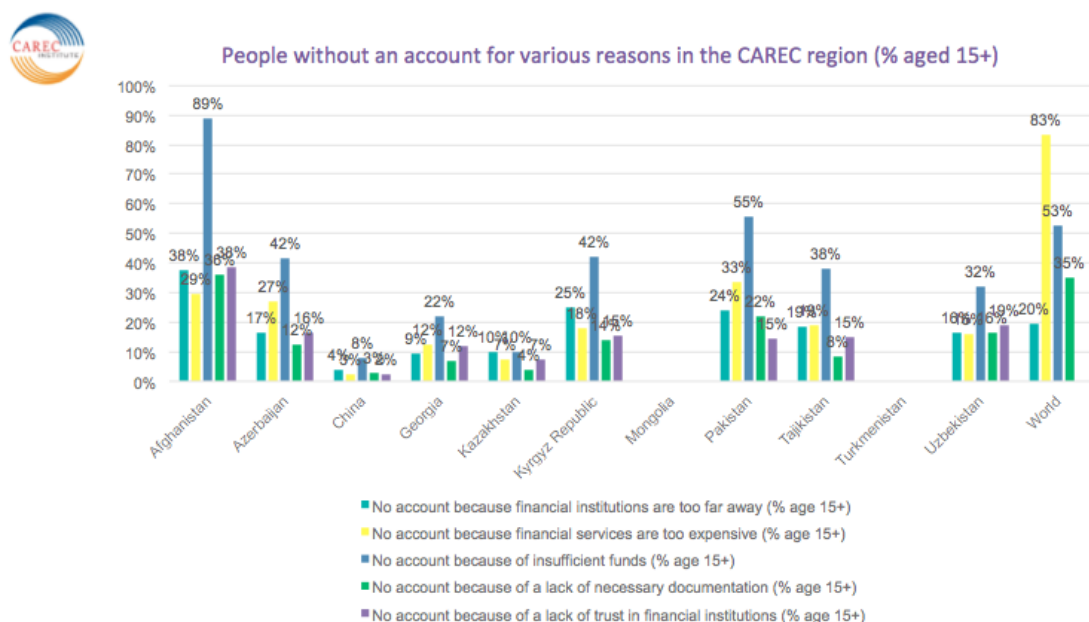
People without an account for various reasons in the CAREC region (% aged 15+)

■ No account because financial institutions are too far away (% age 15+)
■ No account because financial services are too expensive (% age 15+)
■ No account because of insufficient funds (% age 15+)
■ No account because of a lack of necessary documentation (% age 15+)
■ No account because of a lack of trust in financial institutions (% age 15+)

Figure 27: Percentage of Population Without Internet in the CAREC Region (Percent, 15+)

Figure 27 is drawn from a survey conducted by the World Bank on why people do not have a financial account in the formal banking sector. Several reasons have been identified by respondents in different countries. The top reason for not having an account in Afghanistan is insufficient funds. The top reason globally for not having an account is expensive bank charges. The second most common reason for low financial inclusion is infrastructure—for example, availability of ATMs and proximity of banks, all essential for formal banking to thrive.

Fintech or Financial Technology for FI

Definitions

The World Economic Forum (WEF) defines fintech as the innovative use of technology in the design and delivery of financial services and products. It covers a wide spectrum of companies, products, and technologies that aim to provide alternatives to traditional financial services.

According to the European Commission (EC), digital finance is the term used to describe the impact of new technologies on the financial services industry. It includes a variety of products, applications, processes, and business models that have transformed the provision of traditional banking and financial services.

The Bali Fintech Agenda broadly defines fintech as 'advances in technology that have the potential to transform the provision of financial services, spurring the development of new business models, applications, and processes, and products.'

Potential of Fintech

Financial technologies present a tremendous opportunity for reaching out to the financially excluded and underserved segments of the population, particularly in remote regions and communities. Fintech has the potential to transform the financial inclusion landscape by offering cost-effective and easily accessible financial services. Mobile phone penetration and high-speed Internet availability in many developing economies are igniting a financial inclusion revolution.

The outbreak of the COVID-19 pandemic, with its restricted physical contact, further magnified the importance of technological innovation, particularly in social safety payments from government-to-person (G2P) and internal and cross-border remittances. Likewise, domestic and cross-border remittances also benefit from technology through a reduction in transaction costs.

According to calculations carried out by McKinsey Global Institute (MGI),[6] digital finance has the potential to bring 1.6 billion people into the financial mainstream in emerging economies, more than half of these being women. MGI estimates that new loans extended to households and businesses could reach a staggering figure of USD2.1 trillion, which could lift hundreds of millions of people out of poverty and boost government savings by up to USD110 billion by reducing leakages and increasing tax collection. The increased access to finance via Fintech is expected to increase savings for service providers to the tune of USD400 billion and prop up their balance sheets by USD4.2 trillion in new deposits.

Fintech in the CAREC Region

Fintech is defined by the ability to use a mobile phone and the Internet to make transactions online. According to World Bank data, 40 percent of the world's population has a mobile phone, whereas in most of the CAREC region this figure is well above the global average. The potential exists because people have access to mobile phones and the Internet.

The percentage of people using a mobile phone or the Internet to check their account balance and to make payments, buy things, or to send or receive money using a financial institution account in the CAREC region is quite high in certain countries. For example, in Mongolia and China these figures are positive. However, in certain countries like Afghanistan, Pakistan, Turkmenistan, and Tajikistan these percentages are very low, in just single digits.

The same trend can be seen for the percentage of people (aged 15+) that make or receive digital payments in the CAREC region, with countries like China and Mongolia leading the way and other CAREC members lagging behind. However, it is encouraging to see that the CAREC region, in most cases, is leading the world average in this metric.

The percentage of people (aged 15+) that received their wages into a financial institution account in the CAREC region is below the global average, which is at 55 percent. Mongolia (49 percent), China (35 percent), and Kazakhstan (31 percent) are leading the CAREC region, whereas other CAREC members are lagging far behind. Work needs to be carried out in this regard to improve these figures.

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[6] *Source: Digital Finance for All: Powering Inclusive Growth in Emerging Economies by McKinsey Global Institute, September 2016*
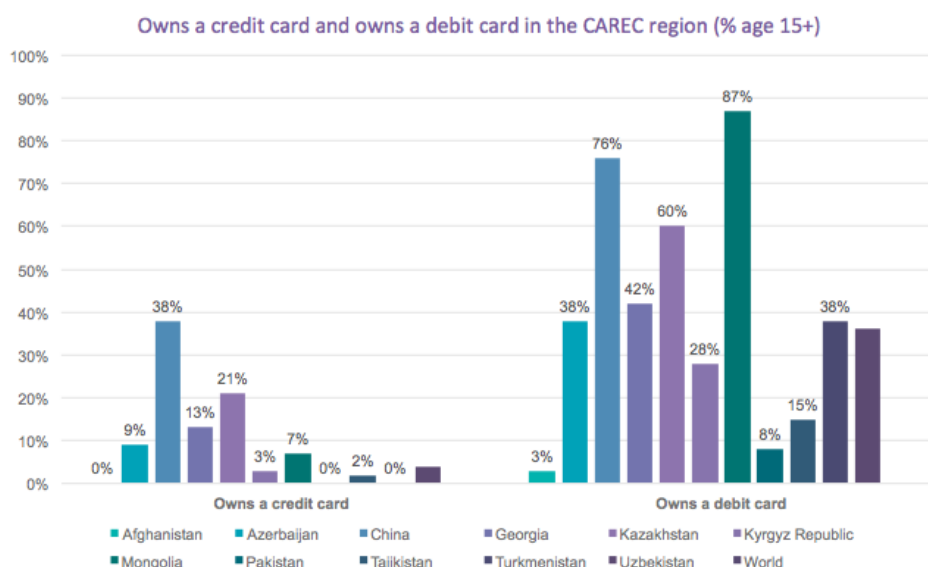
Owns a credit card and owns a debit card in the CAREC region (% age 15+)

Figure 28: Percentage of Population Who Own a Debit/Credit Card in the CAREC Region (Percent, 15+)

Figure 28 shows a large disparity between credit card ownership and debit card ownership in the CAREC region.

Factors for Low FI

The weak physical infrastructure in rural and remote areas and the absence of banking infrastructure, such as branches and ATMs, make it challenging for people to access formal financial services. The CAREC region has low levels of financial literacy and many individuals lack basic financial knowledge, making them either hesitant to use formal financial services or unaware of the benefits that these services offer.[7]

High service costs mean that formal financial services can be too costly for low-income individuals, leading them to rely on informal and often more expensive financial channels. Insufficient documentation and stringent identity and documentation requirements can discourage people from opening bank accounts or accessing financial services.

Owing to low incomes and unstable employment, individuals with low incomes often struggle to meet minimum balance requirements or face irregular income patterns, which can deter them from maintaining formal accounts. There are often issues of discrimination and exclusion; certain marginalized groups—such as women, ethnic minorities, and people with disabilities—may face these issues from financial services.

Regulatory barriers in the form of complex and restrictive regulations can limit the ability of financial institutions to reach underserved populations, creating a barrier to financial inclusion.

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[7] Umar, K. 2020. Financial Inclusion and Fintech in CAREC: Constraints and Prospects. Working Paper, CAREC Institute. https://www.carecinstitute.org/publications/working-paper-financial-inclusion- and-fintech-in-carec-constraints-and-prospects/

There is also sometimes a lack of trust; some people may be distrustful of formal financial institutions owing to past negative experiences or for cultural reasons. In the CAREC region, geographic barriers must also be considered and in countries with vast and challenging landscapes, it can be difficult to establish a widespread financial network.

The existence of the digital divide means there is inadequate access to technology and the Internet, which can prevent people benefiting from digital financial services and innovations. As a result, informal financial alternatives can be more attractive and, in many communities, informal financial mechanisms—such as, rotating savings and credit associations (ROSCAs) or moneylenders—are prevalent, offering immediate and easily accessible financial support, albeit with higher costs.

Solution to Increasing FI in the CAREC Region

Addressing these factors requires a multipronged approach, involving governments, financial institutions, and other stakeholders. Policymakers need to create an enabling environment with appropriate regulations and incentives to encourage financial inclusion. Financial education programs can enhance financial literacy, while technological advancements pave the way for innovative digital financial solutions to reach underserved populations. Moreover, collaboration between the public and private sectors can help bridge the gap and extend the benefits of formal financial services to the unbanked and underbanked populations.

China, Pakistan, Tajikistan, and Uzbekistan are CAREC member states that have adopted standalone national financial inclusion strategies (NFIS). Mongolia and the Kyrgyz Republic are in the process of formulating their NFIS.

Landscape of Mobile Payment Market in China

Mobile payments have become the norm in China. Mobile payments have become incredibly important and increasingly relevant in the lives of everyday Chinese citizens. During the past decade the mobile payment market in China has grown rapidly, marked by an expanding market size, high adoption rates, and a diverse range of participants in this ecosystem.
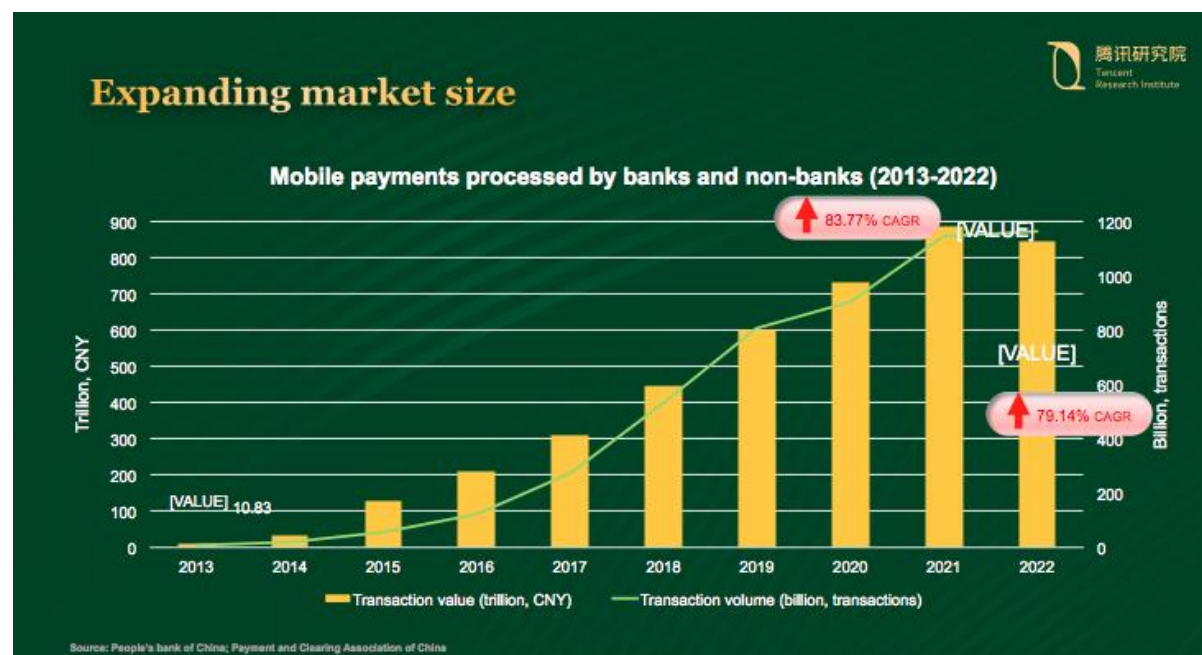
Figure 29: Expansion of Mobile Payments by Banks/Non-Banks in China (2013-2022)

Figure 29 illustrates the strong expansion of market size from 2013 to 2022. We can see that the total number of mobile payment transactions processed by banks and non-banks surged from over five billion to over one trillion and the transaction value increased from over 10 trillion to over 800 trillion. This growth is quite impressive and is further evidenced by a compound annual growth rate (CAGR) at around 80 percent for both volume and value of transactions.

Regarding adoption rates, currently mobile payments (including QR code payments) have become one of the most prevalent methods used in the Chinese mainland. Based on a survey conducted in 2021, almost 80 percent of respondents made mobile payments daily. In terms of payment patterns, over 95 percent of users had adopted QR code payments during the same period.

When considering market participants, the mobile payment sector presents a diverse ecosystem that includes different types of stakeholder—such as, commercial banks, non-bank payment service providers, clearing houses, and outsourcing agents. PayPal, MasterCard, and American Express have entered the payment and clearing market in the Chinese mainland; each has their own specialty and work together to provide payment services to both consumers and merchants.

Beyond Payment: Unlocking Inclusive Benefits

As the trend of mobile payments sweeps across China, the impact of mobile payments goes far beyond simply changing the way that payments are made.

Retail payments are basic financial services used in daily transactions between individuals, businesses, and public administration. Consequently, it is crucial to have convenient, efficient, and secure retail payment services in place to ensure the proper functioning of financial and economic systems.

Research from the Bank for International Settlements and the World Bank (2016) identifies three main areas that are important for promoting financial inclusion:

1. Payment systems—The relevance of sound and efficient retail payment systems and services for financial inclusion. Enhanced financial inclusion brings efficiency gains to the retail payment system and to the National Payment System as a whole.
2. Preconditions—Access to transaction accounts and payment services is the first step for utilizing other financial services such as loans, insurance, and wealth management.
3. Mobile payments—Properly regulated transaction account and basic payment services provided through mobile phones are well suited for the unbanked and underbanked—for example, in rural and isolated areas.

WeBank is China's first digital bank. By the end of 2022, WeBank had served over 360 million individual customers and 3.4 million MSMEs. WeiLiDai (consumer loans) provided by WeBank averaged an amount of 7,600 Yuan with 70 percent of customers' borrowing costs below 100 Yuan per loan and 46 percent of customers from third-tier cities and below. WeiYeDai (MSME loans) provided an average amount of 200,000 Yuan with 50 percent of customers' interest costs below 1,000 Yuan per loan and 70 percent of customers' annual business income below 10 million Yuan.

WeRemit is a cross-border remittance platform. Tencent Financial Technology launched this platform in partnership with over 20 leading global remittance institutions, linking remittance users in more than 50 countries and regions. This platform enables overseas workers to conveniently send wages and support to their families and has made cross-border remittance as easy as sending a message, while ensuring security and compliance.

Mobile payments are beneficial in that they speed up the payment and clearing process, which leads to a more efficient utilization of funds in the economy. Moreover, compared to other non-cash payment methods, mobile payments can be seamlessly integrated into both online and offline environments. This facilitates digital transformation in many industries and cultivates new business models in the digital economy. In recent years, major players in China's mobile payment market have cooperated with different industries and catered to numerous customer and merchant demands. Mobile payments have contributed to the remarkable expansion of e-commerce and opened new opportunities for sectors such as online charity, online healthcare, online education, and so on. At the same time, mobile payments have also gained increasing popularity in offline services such as food delivery, ride hailing, travelling, and event ticketing. Mobile payments serve as a bridge between the physical and digital worlds as well as accelerating the transition towards a more dynamic digital economy.

During the COVID-19 pandemic, mobile payments played an important role in supporting people's basic livelihoods. The pandemic also accelerated the development of a mobile payment infrastructure and a strong foundation was laid during this time. For example, to comply with social distancing measures, people used their mobile phones to buy groceries, pay bills, buy food, and for other online purchases. Furthermore, many restaurants introduced QR codes and customers could scan these codes to place orders and make payments with their smartphones.

Summary and Future Outlook

The success of China's mobile payments market can be attributed to three main factors:

Well-developed infrastructure—Introduction and adoption of high-speed, stable, and affordable telecom networks, as well as the second generation of China's National Advanced Payment System (CNAPS2).

Accommodative and prudential regulations—Certain payment innovations have been subject to supervision at very early stages to balance efficiency and security (such as, non-bank PSPs and QR code payments). Financial regulators established licensing requirements for non-bank payment institutions as early as 2011 and introduced specific rules for those QR code payment services in 2017. A balanced regulatory approach is crucial for emerging payment industries because it allows market players to embrace new technologies while keeping the whole payment system secure and stable. This is necessary to maintain a trajectory of sustainable development for the entire industry.

Exploring innovations suited for local conditions—Combining QR code technology with payment services based on mobile Internet and smartphones is one of the easiest touch-free payment methods. Before the rise of mobile Internet, non-cash payment methods such as cheques and cards were not as commonly accepted in China as they were in developed countries. As a result, many small-value, high-frequency transactions relied heavily on cash; however, with the arrival of mobile Internet and smartphones, Chinese participants have been able to realize the potential of combining QR code technology with payment services. QR code technology is very fancy, but it has many advantages: it is cost effective; it is easy to set up; it has minimal hardware requirements; and it has extensive coverage. All these factors make QR code technology an excellent solution for the Chinese market.

The past few years have seen the introduction of QR code payments in several Asian markets. This solution is meaningful and user friendly, especially for small and micro merchants, enabling them to accept digital payments at a lower cost, but also serving as a starting point for their digital journey.

Policy recommendations for the CAREC region can be drawn from China's experience of mobile payment systems. It is important to have efficient collaboration between the public and private sectors. Government authorities must focus on developing infrastructure, enhancing regulatory frameworks, and encouraging private entities to innovate and improve the quality and security of their products and services. These collective efforts will possibly give rise to greater inclusion in the financial sector. It is hoped that China's experience will help advance the 2030 Digital Strategy in the CAREC Region, enabling more individuals, households, and enterprises to benefit from the digital dividends that arise as a result of payment innovations.
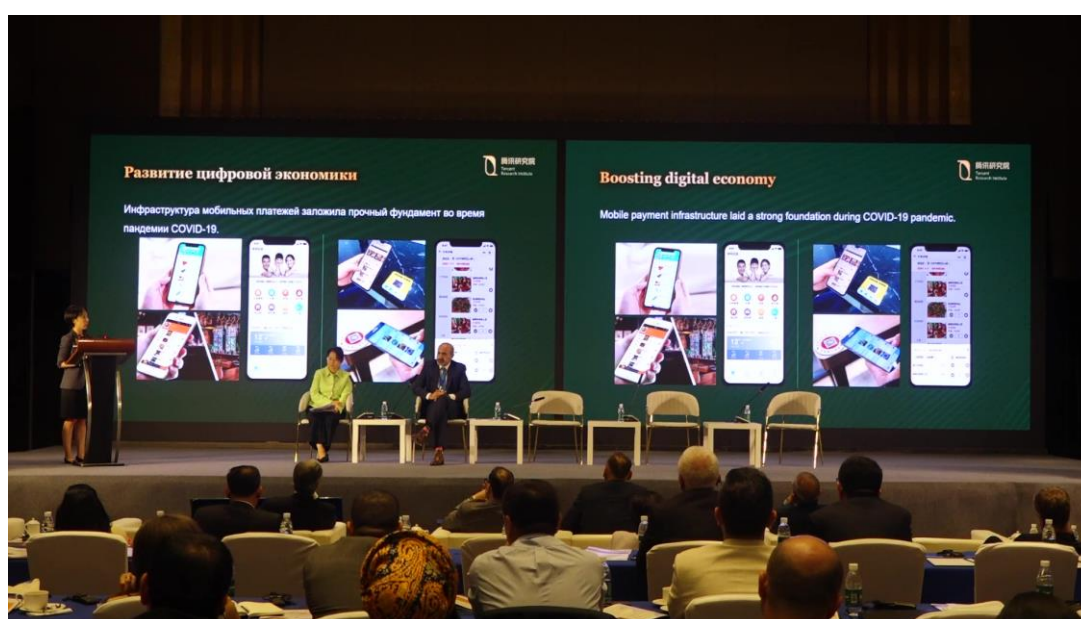
SPEAKER: DR GHULAM SAMAD, SENIOR RESEARCH SPECIALIST, CAREC INSTITUTE

Session 1—Opening Remarks and Keynote Address

1. Most deliberations were about how underlying digital technologies impact sustainable economic development in the CAREC region.

2. Three key recommendations were presented to recalibrate growth dynamics for inclusive and sustainable digital CAREC economies:
   o Digital capacity enhancement initiatives
   o Stronger engagement with key stakeholders
   o Regional cooperation and integration with customized solutions

Session 2—Context Setting

1. To catch up with developed economies, CAREC economies require a connectivity push from digital adoption by formulating and implementing inclusive digital strategies and investing in digital infrastructure.

2. A well thought-out and tailored regulatory framework and effective policy implementation are required for sustainable and inclusive digital growth in the CAREC region.

3. To strengthen digitalization, the digital belt, road and bridge initiative was emphasized.

Session 3—CTTN Research Grants Program (RGP) Presentations: Country Case Studies

1. The Kazakhstan case study highlighted that digital policy implementation contributed positively to digital transformation—for example, towards the enhancement of e-governance and innovation indices in the region. Importantly, IT-focused special economic zones have significantly contributed to the growth in export services.

2. The Kyrgyz Republic case study considered digitalization strategies as potential decarbonization strategies, particularly in the energy sector. The key decarbonization and digitalization initiatives highlighted were:
   o Establishing a regulatory framework for digitalization and decarbonization
   o Promoting renewable energy deployment
   o Fostering digital infrastructure
   o Strengthening digital skills

3. The Uzbekistan case study presented Central Asia's digital readiness of regional connectivity, particularly focusing on cross-border paperless trade. The crux of the study was that digitalization can reduce trade barriers and trade cost.

4. The Pakistan case study posited the key priority policies and measures for digital trade integration, digital priority policies, and digital action plan for Pakistan. The main policy recommendations to enhance digital trade integration are common and harmonized rules, and digital payment mechanisms.

Session 4—Bridging the Digital Divide Boosting Digital Skills

1. Technology upgrading displaces routine, repetitive, and manual jobs; however, it also upgrades the production cycle to create new jobs.
2. Technological advancement will do the following:
   o Initially deskill workers but at the same time also reskill the workers
   o Global job distribution will change to offshoring and reshoring

- o Create opportunities to increase labor productivity
- o Inequality of outcome in technological adoption is the key challenge
- o Eventually, inequality in technological adoption means inequality in technological impact
3. The main barriers faced by women in the IT sector are gender bias and stereotypes; limited educational opportunities; unequal pay, benefits, and work–life balance were some of the issues highlighted.
4. To cover the digital gap among genders, prioritizing digital equity and leveraging more innovative financing for inclusive digital transformation is crucial.
5. Scaling-up and tailoring digital technologies for remote learning and the provision of high-quality education is recommended.

Session 5—RKSI South–South Learning Seminar: Digital Governance and E-Commerce

1. Formulating national, subnational, and local policies and a clear focus on rural e-commerce development were the reasons for China's e-commerce success story.
2. A private sector-led, multistakeholder initiative is needed to promote public–private collaboration and dialog to support inclusive global trade.
3. A comprehensive approach that includes digital commerce, digital logistics, digital finance, and digital trade standards is required to promote trade and the digital economy.
4. Some of the key challenges faced in the implementation of Pakistan Single Window were insufficient IT infrastructure, legal regime gaps and inadequacies, outdated and parallel regulations. Consultation, coordination, and collaboration with stakeholders are the way forward for paperless trade. Complying with the WTO Trade Facilitation Agreement (WTO-TFA) is also important.
5. To boost digital governance, the quality, accessibility, and productivity of public services need to be improved.

Session 6—Financial Inclusion and Digital Finance

1. This session demonstrated how to adopt an inclusive financial approach, and how digital technology can be used to provide financial services.
2. The landscape of the mobile payment market is increasing in China. Expanding market size, high adoption rates, and diversity of participants is boosting the digital economy.
3. Three factors that really helped to boost financial inclusion were: well developed infrastructure, accommodative and prudential regulations, and allowing innovation suitable for local conditions.
4. The CAREC economies need to develop sound infrastructure, provide reasonable finances, and have a clear goal.

Summary and Key Recommendations

1. Digital transformation faces many challenges and there is still a long way to go to mitigate the 'digital divide' in the CAREC Region.
2. For the proliferation of digital technologies, CAREC members need to focus on the following:
   - o Building CAREC fintech foundation
   - o Bolstering ICT and digital infrastructure
   - o Ensuring regulatory quality
   - o Enhancing required digital capabilities
   - o Strengthening digital security

Q&A/DISCUSSION

Question—Nadeem ul Haque: Thank you very much to Ms Jieru Ba and to Tencent for introducing a platform for international visitors to access digital payments in China. Informal payment markets work very well and they have been doing so for the last 40 years without technology. Could technology be introduced in these markets? I am afraid that, in Pakistan, technology may not necessarily improve financial inclusion. Pakistan has serious problems with regulations; even opening a bank account is very difficult. How, then, can a Pakistani citizen register on a network? With 70 percent of people not owning a bank account in Pakistan, mobile payments are going to be problematic. How can WeChat help Pakistan get on the mobile payments network?

Answer—Khalid Umar: Thank you very much, Dr Nadeem. This is a big policy challenge for Pakistan; not only for Pakistan, but also for other countries. Some thought must be put into a policy to include those left out of the financial mainstream, because otherwise they will continue to be a burden on the economy. For any economy to thrive, affordable and easy finance is a primary requirement; unfortunately in Pakistan and in other countries, regulatory systems are so stringent that finance is simply not accessible. As a native from Pakistan, I can say that opening a bank account in Pakistan is more than a nightmare; the kind of documentation and requirements from banks make opening an account and reaching out to the formal banking sector an intimidating experience. Regarding the havala and hundi systems, this phenomenon has more to do with cross-border remittances than opening bank accounts. When talking about financial inclusion, what is meant precisely is that people have a bank account in the formal banking sector; however, it is understood, according to World Bank estimates, that the informal market for cross-border remittances is around USD700 billion. If these payments are carried out through the formal sector, governments will benefit greatly; however, in many CAREC countries, the political will and dedication needed to address this issue are simply not present.

Answer—Jieru Ba: Regulation is critical for payment service providers because one must balance efficiency and risk emerging in payment systems owing to innovations in payment integration. Currently, Tencent has expanded its outreach to over 60 countries and regions, but I am not sure if we have partnerships in Pakistan. There are currently over 1,000 partners in overseas markets and, through these partners, 4 million merchants have been reached in these local markets. If we are to bring more benefits to local users and merchants, actors must abide by local rules and regulations set up for the payment service providers in those markets, one of which is Pakistan. Every jurisdiction has its own specific regulations; perhaps providers need to set up physical entities and apply for licenses to enable them to operate.

Question—Talant Sultanov: Firstly, I would like to add to the reasons provided by Mr Khalid about why people remain unbanked in Central Asia and the Kyrgyz Republic, particularly because there is indeed a distrust of banking systems. As recently as last year, individuals had trouble withdrawing their own savings from the bank because of political reasons. The second reason is that individuals often feel like, the more they go to the bank, the more taxes they have to pay on their income. My question is, could one of the speakers please talk about the future of cryptocurrency? How long will this sector be unregulated, and do you think that at some point it will become a part of the formal sector?

Answer—Khalid Umar: Thank you very much, Mr Talant. Trust in banking systems is indeed one of the main reasons for people remaining unbanked. As for cryptocurrency, I think the jury is still out on what the landscape will be, as it is legal in some countries and illegal in others. When central banks are looked at, they are moving ahead with their own digital currencies. For example, in China there is now the digital Yuan in practice in certain regions. Similarly, some other countries are also working in this area and having their own currencies is one of the ways to counterbalance the rise of unregulated cryptocurrency globally. Legislators, regulators, and institutions, such as the Bank for

International Settlement, are working on policy to define some regulations and legalize the crypto landscape in a sort of controlled manner. However, what must be remembered is that innovation cannot be stifled. Rather, what policymakers need to look at is how innovation is used for the collective benefit of society.

Moderator: Mr Roman Mogilevskii, Senior Economist, CWRC, ADB, Manila, Philippines

CAREC DIGITAL STRATEGY PILLARS: STRENGTHENING DIGITAL FOUNDATIONS

SPEAKER: NAVEED ZAFAR DURRANI, SENIOR CONSULTANT, ASIAN DEVELOPMENT BANK (ADB), SINGAPORE

The CAREC 2030 Digital Strategy reveals a blueprint of how digital tools and applications empower the economy and the quality of life in the CAREC region. Among the five pillars, digital innovation, entrepreneurship, and ICT competitiveness combine to lay the foundations for a startup ecosystem community capable of applying digital technologies and tools to make a change. An outlook of the CAREC 2030 Digital Strategy provides a background of the methodology and framework of the digital transformation expected by 2030 in the CAREC region—specifically, the type of startup ecosystem needed to upgrade the digital economy effectively. A series of initiatives have been carried out to build an interactive and collaborative startup ecosystem.

Introduction

The CAREC Secretariat developed the CAREC Digital Strategy 2030 in partnership with the ADB and UNESCAP. The draft strategy was also shared with other development partners and feedback was received from the World Bank and Islamic Development Bank.

CARCE Digital Strategy 2030

The goal of the CAREC Digital Strategy 2030 is to create a data-driven digital regional economy with fast and reliable online access to relevant information and trusted, real-time, user-friendly digital services for all citizens, businesses, and administrations across the CAREC region. Furthermore, the strategy aims for:

- Inclusive economic growth and social wellbeing
- New jobs (including for disadvantaged and minority populations)
- Better services
- Higher regional competitiveness

Strategic Objectives

Six strategic objectives were drafted after consultations with stakeholders of the CAREC region and these are:

1. Encourage **investment in digital infrastructure** across the region to close connectivity gaps
2. Harmonize **digital and data legislation** to promote an enabling environment
3. Reduce regional trade barriers to **increase cross-border trade** and expand business opportunities for companies across the region, particularly in e-commerce
4. Develop new **digital skills,** including for women, disadvantaged, and minority populations, to create jobs
5. Attract **talent** into the region to strengthen **CAREC's innovation ecosystem**
6. Improve **digital foundations** and create interoperable digital platforms to enable the **development of CAREC's operational clusters**

Digital Foundations

To achieve the strategic objectives, which have been mentioned, the CAREC Digital Strategy 2030 will strengthen the five pillars of digital foundation through improved coordination between CAREC member countries.
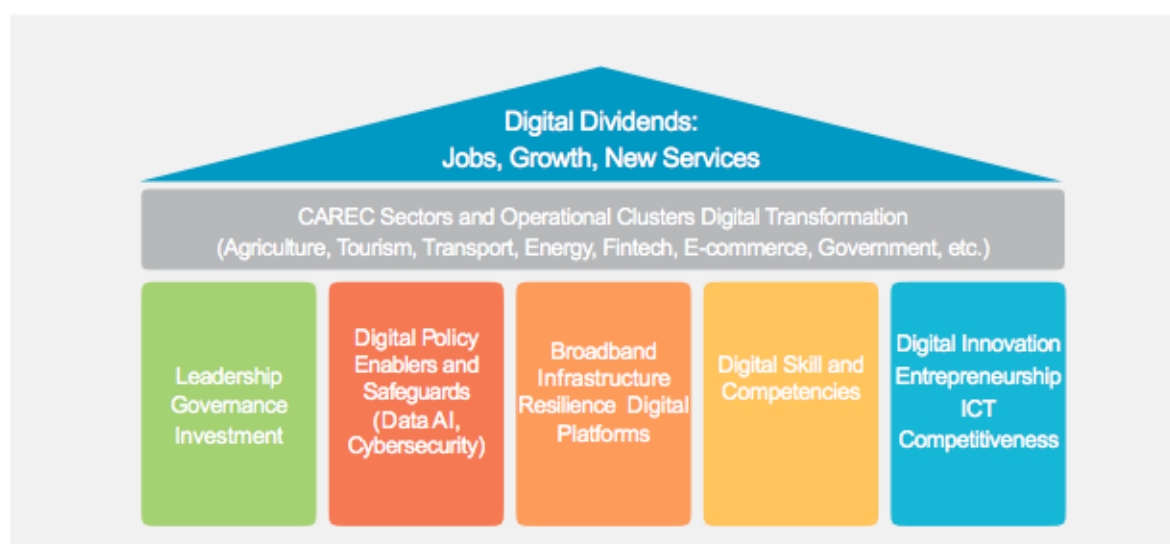
Figure 30: Five Pillars of Digital Foundation

The five pillars of digital foundation that are to be strengthened can be seen in Figure 30 and these pillars support CAREC's operational clusters. Within each of these pillars, a number of objectives have been set.

1. **Leadership, governance, and investment**
   - Strengthening regional institutions for digital leadership
   - Creating incentives for regional cooperation in the CAREC digital space
   - Attracting investment in the digital economy
   - Promoting an inclusive regional digital economy
   - Leveraging digital technologies to pursue cross-cutting sustainable development goals
   - Inclusion, innovation, sustainability, resilience, partnerships, and participation

2. **Digital policy, enablers, and safeguards (data AI, cyber security)**
   - Harmonizing legislation and regulations across CAREC member countries and adopting regional legislation to promote digital partnerships
   - Enhancing the cyber security of the CAREC Region
   - Aligning data policies across CAREC member countries
   - Supporting the development of AI in the region

3. **Digital skill and competencies**
   - Improving education, training, life-long learning
   - Developing digital skills: basic and professional
   - Boosting digital competencies

4. **Broadband infrastructure, resilience digital platforms**
   - Connecting digital infrastructure to bridge the digital divide
   - Building digital resilience capacity
   - Building a CAREC regional PLATFORM economy

5. **Digital innovation entrepreneurship and ICT competitiveness**
   - Nurturing the digital innovation ecosystem

- Promoting the adoption and effective use of digital technologies by small and medium-sized enterprises
- Promoting regional content
- Boosting ICT exports

The CAREC Digital Strategy 2030 emphasizes that integrating ICT across the spectrum of CAREC operations will be a cross-cutting priority.

CAREC Digital Strategy Implementation

Principles

There are certain principles, which have been defined for the implementation of CAREC's Digital Strategy. Adopting a holistic digital transformation vision is important for an inclusive digital ecosystem that can strengthen the region's non-digital and digital foundations. This will in turn support larger regional digital initiatives, as well as specific operational cluster and sectoral projects. There is also a need to adopt an active CAREC policy framework for interoperability at legal, organizational, semantic, and technical levels.

Discussions need to be held to develop regional governance structures and partnerships for collaboration, along with building digital managerial and leadership skills to ensure sustainability.

Furthermore, the initial focus should be on a prioritized project portfolio highlighting quick wins and low-hanging fruit in the shorter term and later progressing to more strategic, harder to execute projects—the must-haves.

Key Priorities

1. Developing the CAREC digital transformation **project portfolio** and **implementation roadmap**
2. Strengthening the **enabling environment** and **capacity building**
3. Gathering and sharing **best practice** for digital development
4. Establishing a **monitoring system** for digital transformation progress and impact
5. Building **public–private sector partnerships** for project portfolio development and implementation.
6. Working with **development partners** to secure project funding
7. **Strategic planning**, **future thinking,** and **strategic foresight** for CAREC digital cooperation
8. Developing a **strategic communication plan**

CAREC Digital Strategy Steering Committee

A CAREC digital strategy steering committee (DSSC) has been established to drive the implementation of the CAREC Digital Strategy 2030 and the first session of this committee was held in November 2022. The DSSC is led and constituted by the governments of CAREC member countries and facilitated by the CAREC Secretariat. The DSSC is chaired by CAREC countries on a rotational basis and follows CAREC's chairmanship rules. It is based on mutual good will and an inclusive multistakeholder consultation model.

Role of the Digital Strategy Steering Committee

The committee is scheduled to have regular meetings to coordinate all aspects of the implementation process and agree upon annual deliverables to deliver them to the annual ministerial conference. Furthermore, the committee is tasked with engaging all members of the CAREC digital transformation ecosystem.

Progress of Initiatives

Pillar 1 (Leadership, governance, and investment)

Completed initiatives under this pillar include:

- Establishment of the Digital Strategy Steering Committee (DSSC)
- Establishment of the CAREC Digital Strategy Website (to evolve into a collaboration platform)
- Inauguration of the DSSC (25 October 2022)
- Agreement on the terms of reference (25 October 2022)

Ongoing initiatives under this pillar include:

- Agreement on the initial project portfolio: existing projects to scale + projects proposed by the CAREC member countries during the strategy development process.
- Agreement on the CAREC Secretariat facilitation of the initial strategy implementation activities that may include:
  - Launch strategic communication plan
  - Support the development of the DT project portfolio
  - Support the evolution of the CAREC digital collaboration platform
  - Help align funding with implementation priorities
  - Support the creation of a regional tax-free digital innovation zone

- Trainings and best practice sharing proposed by CAREC member countries

  - Smart cities and villages best practices (Azerbaijan)
  - Leveraging broadband access for development best practices (Georgia)
  - Broadband rollout in remote and mountainous regions, and digital transformation awareness-building best practices (Georgia)
  - Launching awareness-raising programs on the benefits of broadband for populations in rural, remote, and mountainous areas to help people understand how to make the Internet work for them (Georgia)
  - e-Government, mobile e-government services, intelligent transport (e-freight) best practices; regional cooperation on digital identity (Kazakhstan)
  - Leveraging digital technologies to address epidemics like COVID-19 best practices (Kazakhstan)
  - Digital agriculture best practices (Pakistan)
  - e-Education and training best practices (China)
  - Training and capacity building in the use of digital technologies for senior citizens best practices (China)

- The DSSC may authorize the above content to be prepared and the CAREC Secretariat will facilitate access to it and presentation to interested CAREC audiences

Pillar 2 (Digital policy enablers and safeguards)

There is one initiative under implementation, related to Pillar 2, which is the CITA-2030 e-Commerce laws and policies to move forward the CAREC Integrated Trade Agenda. Moving forward, there will be proposals on specific initiatives on the harmonization of regulation, to enable priority regional digital initiatives, which may include cyber security, data sharing and privacy, and so on.

Pillar 3 (Broadband infrastructure, resilience, digital platforms)

Under this pillar there is implementation of the CAREC Digital Strategy Portal. Going forward, there are plans to establish the CAREC Digital Collaboration Platform to enable coordination, training, and best-practice sharing as part of the CAREC Digital Strategy Implementation process (see Pillar 1). Work will also be carried out to identify key regional connectivity and infrastructure needs and work with regional telecom operators on implementation. There will also be work carried out to identify existing weaknesses and vulnerabilities to propose key resilience initiatives.

Pillar 4 (Digital skills and competencies)

Work has been completed on the enhancement of the use of digital tools in the CAREC Program under the 'Virtual CAREC' initiative—ICT training and equipment for CAREC member governments were provided under this initiative.

In future, CAREC member countries have volunteered to offer the following training:

- Digital leaders and change managers training (Azerbaijan)
- Startup training (Kyrgyz Republic)
- Digital competencies training (PRC)
- Startup training (IT Park, Uzbekistan)

Furthermore, the DSSC will request these countries to prepare these trainings and the CAREC Secretariat will work with CAREC members to facilitate organization and attendance.

Pillar 5 (Digital innovation and SME enablement)

Initiatives that are being implemented under this pillar include:

- CAREC Startup Map—connecting entrepreneurs with funding and talent
- CAREC Community Activation Hub—connecting stakeholders
- CAREC Innovation Network—enable collaboration across the region
- CAREC University Startup Generator—a competition to help university students develop entrepreneurial skills

Initiatives to be implemented moving forward include:

- A regional acceleration program for startups to be launched by Georgia's Innovation and Technology Agency (GITA)
- Specific SME solutions for e-commerce, e-business, and e-government that can be scaled across the region to be proposed by GITA (in cooperation with Georgian private sector companies)
- Hosting startups from across the region in Georgia for training and networking
- A regional startup hub in Kazakhstan
- Startup acceleration to be launched by the Kyrgyz Republic
- Joint incubation and acceleration for startups to be offered by the information technology (IT) Park Uzbekistan
- The DSSC may request these countries to prepare the above initiatives

Digital Transformation in CAREC Sectors and Operational Clusters

In the transport cluster, work is being carried out on e-freight in aviation and e-visas. In the health cluster, a lot of work was carried out on regional reporting during COVID-19. Moving forward, in the tourism cluster, there are plans to enable the use of national identity cards to travel across the region. In the agriculture cluster, there are plans to scale up Pakistan's digital data initiative and prioritize CAREC sector-specific platforms.

AN OVERVIEW OF INITIATIVES UNDER THE CAREC PROGRAM: STARTUP MAP, CIN, UNIVERSITY STARTUP CHALLENGE, AND CAREC INNOVATION DECODED

SPEAKER: SHUQI SU, ADB CONSULTANT, CHINA

Introduction

Startup ecosystem refers to an interconnected network with various stakeholders that work collectively to foster economic development and entrepreneurship within a geographic region. These ecosystems mostly constitute various stakeholders such as think tanks, research institutions, and governments.
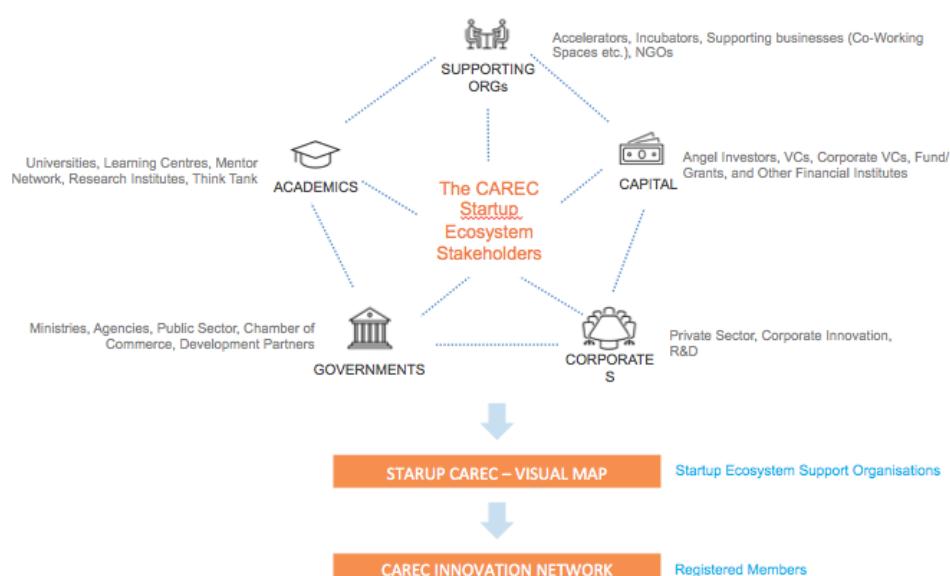
Figure 31: CAREC Startup Ecosystem Stakeholders

Startups are at the heart of the ecosystem. Supporting organizations include incubators, accelerators, coworking spaces, mentorship programs, and business development supporting organizations working together to support the development of startups. There are numerous other actors as well, which can be identified in the mindmap in Figure 31.

CAREC Initiatives for Startup Ecosystems

CAREC Startup Map—This provides a visual representation of the startup ecosystem support organizations in the CAREC region

CAREC Innovation Network (CIN)—CIN is a network of connected ecosystem support organizations

University Innovation Affiliate Program—Universities organize open innovation challenges under CAREC affiliation for university students to develop practical entrepreneurial skills

CAREC Innovation Decoded—This initiative involves analyzing success stories in the region and finding actionable roadmaps for others

University Innovation Exchange Program—This is a regional initiative and an exchange program between CAREC members for students to foster exchange between universities and innovation among students

CAREC Startup Bootcamp—A regional startup bootcamp program led by CAREC

CAREC Business Angel Network—This is a network of business angels interested in startups with a regional focus and allows entrepreneurs and companies to seek out capital

Digital Literacy for Women—An initiative that involves the provision of hands-on digital skills for women in partnership with local businesses

CAREC Startup Ecosystem Portal

The CAREC Startup Ecosystem Portal is a customized, interactive, startup portal for CAREC's ecosystem. The portal includes a CAREC startup map, database, networks, ecosystem ranking, and overview of startup ecosystems for all CAREC countries and cities.

The CAREC Startup Map allows users to browse stakeholders (startups, coworking spaces, accelerators, leaders, and organizations), filter startups by industry, and access general data in the ecosystem free of charge.

Building a regional startup ecosystem map and database can service the following goals related to CAREC Digital Strategy 2030:

1. Improving data flow and allowing valuable connections between entrepreneurs and other stakeholders working or funding similar projects.

2. Creating a connection between CAREC ecosystems and helping build a regional project.

3. Allowing for constant updates to the map by crowdsourcing of entities by users.

4. Allowing the formation of meaningful local partnerships with ecosystem developers from both the public and private sector by featuring them on the map and giving them admin accounts to edit, add, and remove data in their ecosystem. Specifically, the public sector and governments take special interest in the comparative analysis of their ecosystem to other regional ecosystems.

5. Creating a tool for analysis based on data gathered by the platform.
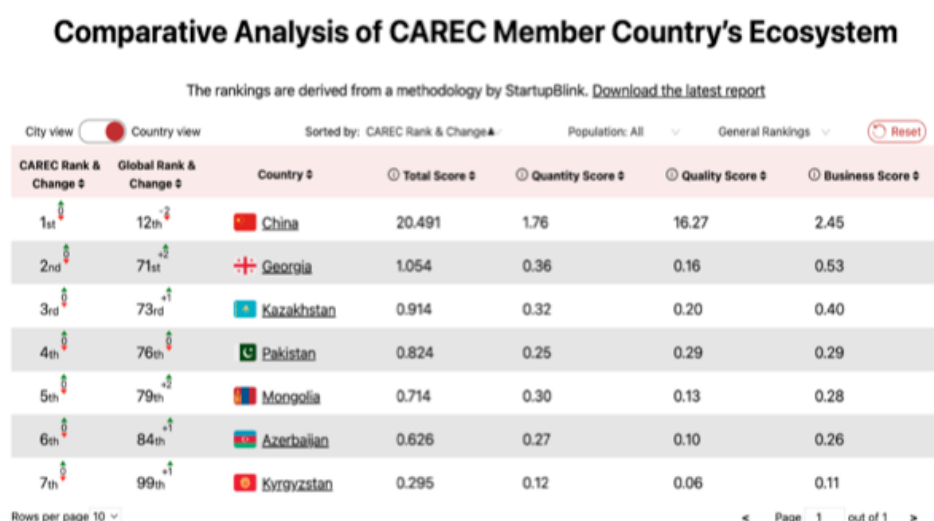
Figure 32: Comparative Analysis of CAREC Member Countries' Ecosystem

CAREC Innovation Network (CIN)

CIN is a community for all entrepreneurship support organizations (ESOs) working in the CAREC region. The objectives of CIN are to promote the startup ecosystem in the CAREC region by connecting key entrepreneurial ecosystem builders across the region. On 15 June 2022, The CIN onboarding meeting brought together more than 30 ecosystem partners from eight CAREC member countries. The network currently has 60 plus members from ten CAREC countries and 250 plus participants have attended capacity-building sessions.

There have been five CIN members' workshops (virtual events) with topics that focused on:

- Understanding the startup ecosystem
- Investment in frontier and emerging markets
- Fundraising and accessing the Singapore startup ecosystem
- Key players of the startup ecosystem
- How startups raise money in emerging markets

CAREC Innovation Decoded

This initiative aims to provide South–South **learning** and **networking** opportunities for startup ecosystem players in the CAREC region. The first episode focused on the PRC's startup ecosystem and featured a series of online sessions that provide in-depth insights into the development of the startup ecosystem and digital economy of China.

CAREC University Innovation Affiliate Program

The CAREC University Startup Generator is a competitive innovation challenge for university students in the CAREC region to develop practical, entrepreneurial, and soft skills by tackling real-world social and corporate problems.

The 2023 event was comprised of 168 teams and 580 students across ten CAREC countries. Eight weeks of training for students was delivered along with an ideathon. Furthermore, students were involved in marketing research, brainstorming sessions, validating ideas, developing business models, identifying value propositions, demo days, and so on. Out of 168 teams, there were ten finalist teams and out of those ten, four were picked as winners and received up to USD5,000 as a cash prize.

CAREC University Innovation Exchange Program (UIEP)

The UIEP is a dynamic two-week innovation study tour across four countries in the CAREC region. 22 young entrepreneurs, comprising 12 startup teams and four university coordinators, are selected for these tours. The objectives of these tours are to:

1) Foster regional collaboration among universities in the CAREC region

2) Increase awareness among students about the opportunities available within the region

3) Facilitate the development and expansion of startup ideas

The last tour that was organized involved 18 training sessions for students and two roundtable discussions for coordinators with key stakeholders. More than 40 experts and mentors were connected, 14 site visits to startup ecosystem stakeholders were organized, and four demo days were held with judges that involved pitches and feedback from mentors.

CAREC Startup Bootcamp

The first three bootcamps were held in Uzbekistan, Kazakhstan, and Azerbaijan for two and a half days each, with each camp having 20 participants comprising 16 founders and four representatives. There are plans to hold more camps in the future in China, Korea, and Singapore.

CAREC Business Angel Network

The CAREC Business Angel Network involves analysis of existing angel networks that cover the CAREC region and promote a regional focus. Furthermore, it also carries out startup deals mapping and shares the information on the CAREC Startup Map. Regional Angel and Venture Financing Trainings (for high-net worth individuals) are also organized. In addition, there is a Cross-Border Angel Investment Summit planned to be held in partnership with Axel's Venture Capital Builder—an interactive event held on 29 September 2023.

CAREC Digital Literacy for Women

This initiative involves the provision of three weeks of hands-on training for women in partnership with local banks, electronic payment processors, local online marketplaces, local online education platforms, and telecom companies. Educational training is provided in many areas, which include:

- Online government services
- Data privacy
- Cyber security
- Cyber bullying
- Digital marketing
- Social media marketing
- Online branding

THE DEVELOPMENT OF THE CAREC STARTUP ECOSYSTEM AND ITS IMPACT ON THE BROADER DIGITAL ECONOMY

SPEAKER: ELI DAVID, CEO, STARTUPBLINK/ADB CONSULTANT, ISRAEL

CAREC Startup Portal

The startup portal has many thousands of entities and the reason this portal was created was so that people could view CAREC startup ecosystems from outside CAREC as well. Many people outside the region are unaware of how good and interesting the ecosystem is. It is also important to connect CAREC entrepreneurs together for them to understand who is innovating, where, and in which industry so that they can connect and cooperate. Another reason is to be able to measure how well these ecosystems are performing.

The CAREC Startup Map has also enabled the ranking of startup ecosystems and it is part of a bigger project linked with the global rankings of startups that is being carried out with 100 governments and in cooperation with other organizations such as UNDP. The idea behind this is to understand how well countries and cities are doing; it is important to celebrate the success of startup ecosystems. Seven CAREC countries ranked in the top 100 in 2023, with China leading the way, coming in 12th place globally; the other six countries were Georgia, Kazakhstan, Pakistan, Mongolia, Azerbaijan, and the Kyrgyz Republic. There is good momentum in the CAREC region and every year another country joins. The map can be viewed online at www.startupcarec.org.

Key Insights from the CAREC Region

All of CAREC's top ten ranked cities are Chinese, showing the massive strength of China, with 43 ranked cities in total. All non-Chinese cities within CAREC demonstrated positive momentum this year. Pakistani cities like Karachi and Lahore surged more than 50 places. Dushanbe in Tajikistan made a remarkable leap of 342 spots, debuting in the top 1,000 globally. Bishkek improved by 208 spots to reach 524th globally and Almaty in Kazakhstan climbed 203 places. 55 cities from the CAREC region are ranked, which is 5.5 percent of the global startup ecosystem; this is a major achievement for the region. The region is already producing innovation hubs.

Impact on the Broader Digital Economy

Having great startup ecosystems is not just about following trends and joining global ecosystems, but if CAREC members can get this right, there is real potential for economic transformation. Startup ecosystems that are vibrant, active, and high quality create a lot of benefits, some of which are:

- Highly paid jobs and increased quality of life
- Upgrade of the economy and its sectors
- Massive tax windfall from taxing on salaries, capital gains, local taxes
- Increased exports
- Technology adds to the military and defensive capabilities of countries
- Technology boosts a country's geopolitical status
- Technology is easily scalable to expand globally
- Prevention of brain drain and attraction of foreign talent

Once completed, startup ecosystems are incredibly resilient and can be worked on remotely. Countries can work on their startup ecosystems even when there may not be a good situation globally.

Best Practices

General Guidelines

The role of governments is not to build the ecosystem, but to allow entrepreneurs to fulfill their potential (fixing anomalies and roadblocks). If a government can choose only one activity to support its local ecosystem, it should make sure it does not cause any damage (bureaucracy, red tape, not providing basic infrastructure). It is also important to identify the right time to pass leadership to the private sector.

Define the most relevant indicators for you:

Ecosystem stage

	Early	Late
Inputs	- # of Incubators - # of Accelerators - # of Coworking spaces	- Amount of Funding - # of Accelerators
Outputs	- # of Startups	- # of Unicorns - # of Exits - # of Tech workers

Figure 33: Timeline for Ecosystem Stages

Focus on Key Strengths

Another best practice is to focus on the key strengths of startup ecosystems, as each one has its own unique strengths.

There are very few generalist ecosystems globally (usually the top ten); an ecosystem is better off focusing on one key vertical and achieving a critical mass and reputation in this vertical. Examples of overperforming ecosystems include Odense (Hardware and IoT) and Stockholm (Energy).

Creatively thinking about the unfair advantages a city has in a specific vertical (geopolitical, historic, resources, and so on) is important when establishing or developing an ecosystem. A great initiative for one ecosystem can be disastrous for another ecosystem (or even for the same ecosystem based on timing).

Empower Entrepreneurs

The easiest win is to ask entrepreneurs about the specific challenges in their respective ecosystems. The places to which successful entrepreneurs went should be examined and what exactly was missing for them in the ecosystem that is already running should be identified. Foreign entrepreneurs should be asked about what made them travel to an ecosystem. It is essential to specifically target problems mentioned by entrepreneurs (such as, red tape or lack of available talent to hire).

However, there is also a fine line, as sometimes too much help does more damage than good (creates entitlement mindset, prevents entrepreneurs fighting for their own success, and creates zombie startups). Focus should be paid on macro aspects (promotion, infrastructure, data, strategy) and not the micro (picking favorites); the less developed the ecosystem is, the more the public sector has to intervene.

Empowering Stakeholders from the Private Sector

In the initial stages of ecosystem development, stakeholders should be supported financially and morally. Avoiding competition with the private sector in later stages (for example, public sector coworking spaces) and outsourcing ecosystem developers to the private sector instead of keeping activities in-house is an important step. Encouraging ecosystems and celebrating them is also a good way to empower stakeholders and finally keeping an open dialog ensures that there is effective communication so that any issues can therefore be resolved quickly.

Q&A/OPEN DISCUSSION

Question—Ghulam Samad: If the overall innovation culture is examined, it is usually underpinned by a multilayer approach. For example, it is highly connected with innovation policies in the respective countries, their trade policies, and their policies related to science and technology. If one looks at CAREC members overall, there seems to be a shortage of policies focused on science and technology. Also, if trade policies in CAREC countries are looked at, are there really any aspects that focus on innovation? My concern here for the CAREC countries is that there is still a long way to go in terms of developing these connections between trade policy, innovation policy, and policy focused on science and technology that will result in a vibrant startup ecosystem. If one looks at US research culture, there is a large output of patents. In the US, in the 1980s, they passed the Bayh-Dole Act, which incentivized innovation in the country. At the end of the day, patents must be commercialized and university research culture is extremely important. Nationally, there is a need for strong science and technology policies that are linked to innovation. What kind of patents have CAREC universities been producing? Is there any kind of work in train to collect basic information about where CAREC universities stand in terms of producing patents?

Comment—Talant Sultanov: The CAREC Digital Strategy 2030 is a very comprehensive strategy; however, I do have some suggestions and comments. Cyber security should become a cross-cutting theme as it is becoming very challenging in all sectors and perhaps even deserves to become a separate pillar. In Central Asia there is a big problem with the absence of cloud storage data centers and content delivery networks. There is also the issue of climate change, which should be considered in the strategy. Finding organic startups is very important as often there can be startups created that do not have much substance. One piece of the puzzle is finding funding for startups and startups in Central Asia are mainly looking abroad to the West, Europe, and North America; however, China is a great example and the CAREC region should learn from the PRC's success.

Question—Nadeem Ul Haque: I have three very short questions. How important is English in the digital age? My second question is, what is by saying there are 171 unicorns in the CAREC region? How important is the education ecosystem, especially the research ecosystem to startups? In Pakistan, there is a huge push to build universities, but there are no quality universities and yet there is the belief that startup ecosystems can be set up. There is a lot of romance around startup ecosystems but informal markets like the Silk Road in the CAREC region have been providing a startup ecosystem for 5,000 years. Why are we outlawing the informal economy and these informal markets and then building new startup architectures along Western lines? Should we perhaps take the existing startup ecosystem and improve on it, or entirely discard it and move on to a new system?

Answer—Naveed Zafar Durrani: In terms of research being carried out by universities, there is not enough research and development being carried out by universities. In many cases, professors cannot invest the time needed, as they are busy delivering lectures and so on. Furthermore, professors are academic and not so good at the monitoring side. There must be some people who have some experience in innovation and startup culture. Another problem is that there is not enough monetization of research and patents. In the US, patents are registered under the professor, who can look forward to a return on their patent, but this culture does not exist in the CAREC region. However, there are discussions with the university in Almaty on building a research-oriented center.

Another question was how important is English in the digital age? In response to this, I would like to point out that Japan built technology and this country did not need to rely on any foreign language to become an economic and tech powerhouse. At this point in time, new technology is coming out of China, so one would have to learn Chinese; one must look at where new technology is coming from. Finally, I would like to talk a little about the current romance that exists with startup

ecosystems. The people involved in these startup ecosystems are identifying gaps in the market and if they can solve these problems they will be rewarded and can then reap the rewards. The startup ecosystem is a response to demand and supply. There are currently many gaps in the startup environment in Central Asia, which is why work is being carried out to develop the capacity of local firms and individuals. In CAREC, there is also the issue of a lack of connectivity owing to geography and in this regard startups can find a solution and ways of providing connectivity that are very different from the processes used in cities. This is why there is so much belief in startup ecosystems because it is the quickest way to solve many issues by inspiring people to think about what problems they see and providing solutions, which may not originate from elsewhere.

Answer—Shuqi Su: Many universities are now establishing technology commercialization centers, which is a big step towards supporting innovation within universities but also for them to develop patents. Research carried out at universities should also be market oriented. Rather than developing patents and then commercializing them, a better approach might be to look at market demands and then carry out research and innovation in the areas identified. Mr Talant's comments on cyber security and learning from the Chinese experience are very helpful. Indeed, cyber security should be a cross-cutting topic. Now, under the CAREC innovation decoded program, work is being carried out to share Chinese case studies and best practices. CAREC also wants to provide support and facilities to support Central Asia countries to collaborate with China in areas like trading, e-commerce, and startup ecosystems. In November, an event is being organized to facilitate learning and exchange. I have learned that when people talk about going global, they are usually thinking about the Western market; it is not that they do not want to come to China, but rather they do not understand China. It is very important because of this to have such events where experiences can be shared and exchanges can take place.

Answer—Eli David: The question about unicorns is also connected to the question about English. There were more than 1,200 unicorns around the world, but probably 70 percent of these are no longer unicorns. There was a large increase in investment in 2020, 2021, and 2022 but there has been a steady decline since then. The 171 unicorns in CAREC are all from China and this fact connects to the remark about English. The ability to create companies that have a huge impact on the economy is only if they have great market reach. To have great market reach, you need a very big population of at least 200 million people and a very advanced economy. This is part of the reason China has been able to create these unicorns. It does not necessarily mean that these companies are better or have been created by smarter people; rather they have had a very large market to cater to. Furthermore, solutions in CAREC countries must be for the global market rather than for local markets, which may not be large enough and this means that English becomes an important factor as billions of people communicate using English. In some advanced countries, like the UK, Israel, Estonia, and so on, if an investor is told that a solution is being developed for the local market, they would immediately stop the meeting and would not invest. Building and being ambitious for global markets makes a lot of sense. One can also innovate for China, but for this one must know Chinese. It must be understood that in most CAREC countries, if one is being ambitious then the global market must be targeted. Entrepreneurs need to know their place and which market they are operating in, but at the same time everything is scalable and can be applied globally.

Moderator: Mr Norbert Funke, Director, CCAMTAC, IMF, Almaty, Kazakhstan

PANEL DISCUSSION ON THE ROLE OF THINK TANKS AMID GEOECONOMIC UNCERTAINTIES

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MR TUVSHINTUGS BATDELGER, DIRECTOR, ECONOMIC RESEARCH INSTITUTE (ERI), MONGOLIA
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Geoeconomic uncertainties present unpredictable economic risks and challenges that arise from geopolitical factors such as political instability, trade disputes, and sanctions. The interplay of these factors can lead to changes in currency exchange rates, commodity prices, and investment flows, among other things. Countries and businesses must navigate these uncertainties to maintain stability and competitiveness in the global economy. Think tanks are important institutions that can help countries navigate the uncertainties of the global economy and geopolitical landscape. Through research, analysis, and dialog, think tanks can provide policymakers and stakeholders with the information and recommendations they need to develop effective policies that promote economic growth, stability, and prosperity.

Moderator—The global economy has faced multiple shocks in the past couple of years, which has made changes in economic policy necessary and created the need to review growth models and economic development in general. There is also a change in the economic paradigm and we are seeing the country's needs to adjust to economic fragmentation, which is increasing. In light of this, we can discuss how research institutes can contribute to these developments. They have a very special task in terms of identifying the right topics, but also making sure that the analysis is then being translated into economic policy making. Let me begin with Dr Zhang Jin, in the face of these geoeconomic uncertainties, what unique role does your center play and how have you adjusted concretely to the changes in geopolitical developments?

Zhang Jin—I had the great pleasure of visiting the CAREC Institute and meeting Dr Jurazoda and Dr Samad in May. I think the key word for the first question is geoeconomic uncertainty and adjustment. Let me take a step back. Beginning from the first to the subsequent industrial revolutions, each era experienced fundamental technological changes, which brought about paradigm shifts in production, consumption, and social relations. These revolutionary changes created great uncertainty; however, change is constant. We are now in a similar era of great technological advancement and change, which is fundamentally changing our way of life. The changes taking place today have naturally created anxiety and disorientation, but equally they are creating many opportunities. In his book, *The Age of Uncertainty*, Professor John Kenneth Galbraith researched the subject of economics from antiquity to modern times and found that eras of great change bring uncertainty, but also great ideas, practices, and solutions. The way we deal with fundamental change is a test of human wisdom. What, then, can be done about this uncertainty? I take the philosophical view that we need to work together because the alternative is unthinkable. As the speakers yesterday and today vividly demonstrated, the emphasis is very much on collaboration—bilateral, multilateral, and regional collaboration. The CAREC region is indeed a vibrant developing region and one of collaboration, which is wonderful. What, then, is the unique role of think tanks? In my opinion, think tanks have three roles to play. The first is that they naturally have power through their connections with

international organizations, their peers, governments, social organizations, and businesses. This forum vividly illustrates the connecting power of think tanks. The advantage of the links that think tanks have to various sectors of society and political and economic systems puts them at the forefront of public policy making and public policy in terms of research and dissemination. The second role of think tanks is their convening power through their connections. As this forum has shown, this convening power and connections with society enables think tanks to unite people from all walks of life and all sectors of society to share their views. At the Center for International Knowledge on Development (CIKD), work is being carried out on a project called the Global Knowledge Network for Development. The regional pillar of this network covers regional concerns: for example, the China Knowledge Development Network has been launched; last month the China Central Asia Knowledge Development Symposium was held; and at the end of this month the China Africa Knowledge Development Symposium will be held. CIKD will also continue working on other regions like Latin America and Europe. However, regional pillars are not enough, which is why the Global Knowledge Development Network also has thematic pillars. For example, digital technology cuts through every region because it is a fundamental change in technology for human society. Similarly, climate change is another example of a thematic pillar that is particularly important for developing countries and increasingly for developed countries. Poverty reduction is another major concern for policymakers. Health and pandemic control are also important research areas for CIKD. Many think tanks are being created by universities in China these days and they also have these abilities. Finally, the most important role of think tanks is that of thinking power—not just in abstract or to explain to people the power of some variables—but grounded in reality and centered on people and results. At CIKD our style of research is to be relevant to people's lives and policymakers.

Moderator—Thank you for mentioning some very important points—in particular, the difficulty of cooperating in uncertainty and the importance of acting together, as there is no role for the individual. What is your experience, Zeeshan? I know that you at Tabadlab are actively connecting with other countries in the region. How has your institute adjusted and what challenges are you facing?

Zeeshan Salahuddin—Thank you very much to the CAREC Institute and to Mr Khalid and Ms Dilraba and their stellar team for putting this event together and to the Xinjiang Autonomous Region government along with the ADB for giving us this tremendous opportunity. This is precisely the kind of forum that is necessary for an interconnected world plagued by geopolitics and geoeconomics. I ran a think tank that focused on national security and governance for seven years in Islamabad. I am currently with Tabadlab, a private institution that is primarily an advisory service and consulting firm with a second arm that is a think tank. It uses some of the money earned through advisory services to fund independent research.

It is no secret that Pakistan, in common with many countries in the CAREC region, has gone through a polycrisis in the last 18 months. There have been six specific crises that could have been dealt with if they occurred in isolation, but simultaneously they posed a serious challenge for Pakistan. These crises are the political crisis, the institutional crisis, the constitutional crisis, the climate crisis, the security crisis, and the economic crisis. A third of Pakistan was under water in September last year. Out of the six crises mentioned, it is the threats posed by the economic crisis and climate change that are existential in nature. The remaining crises are not necessarily existential, although they pose significant challenges. For each of these crises, for us to really understand the dynamics and do the research, one must delve deeper to examine how geopolitics and geoeconomics enforce and reinforce many of these crises. How has Tabadlab adapted to all these changes? It has centers for particular areas—for example, for education there is a center called the Education Skills and Youth Team; for health, the Center for Public Health; and for digital, the Center for Digital Transformation. However, it is increasingly accepted that geoeconomics and geopolitics are areas that need to be understood to solve the national and regional problems that Tabadlab is working on.

One of the new centers we have built, and that I am leading, is the Center for Regional and Global Connectivity. The entire function of this center is to look at international governance structures and see how Pakistan and the CAREC countries are faring, and how performance and interconnectivity can be dramatically improved in terms of digital and physical trade and so on; this cross-cutting theme informs all other sectors at Tabadlab.

Many in this room are from think tanks. The job of think tanks is to aid governments, private institutions and other organizations to make better decisions by providing them with unbiased, well-researched, informed information. It is also very important to be self-critical in these times. There is a tendency among think tanks to write something and automatically assume that whatever has been written is the word of God—that it is so powerful and well-researched that everyone in the world will simultaneously read it and understand it. However, this is not how things function. For us to be self-critical and self-aware, we must be mindful of several things. The first is the need for independent analysis: the information put together must be impartial and independent because often—in the contexts in which think tanks operate—governments are not able to conduct the necessary research and analysis. The second is to build a long-term perspective rather than focusing on a singular problem and solving it in a finite time period, which think tanks tend to do in Pakistan. Having a long-term perspective and going beyond the immediate by looking at the trends and patterns shaping the future is very important. The third thing to be mindful of is to be interdisciplinary, as no sector in this increasingly digitally connected world can operate in isolation. The fourth point is about policy recommendations—more importantly, actionable policy recommendations that keep in mind the political economy and local context, whether the political economy supports it, and what needs to happen to make the policy recommendation actionable; if it is not actionable, it is not useful. The fifth and final point—which in terms of significance is equal in weight to the other four points—is public engagement. This is one of the most important facets of the think tank world: ability to engage with your audience, make them understand your viewpoint, and help them process the research that has been put together. It is all very well having a long eight-page document but, bluntly speaking, if you are having a conversation with somebody, a one-page, well-designed visual infographic is much better. In my personal view, having good public engagement as a functioning and responsible think tank is literally half the battle.

Moderator—Thank you, Zeeshan, for your recommendations and emphasizing the need to take a long-term view and make actionable recommendations. Turning to Mongolia, I think the economic challenges differ slightly to those of other countries in the region. How has your center adjusted to the current economic situation? What are the core topics you are looking at?

Tuvshintugs Batdelger—I agree fully with my two colleagues. Mongolia is going through unique times; the Russia–Ukraine war has deeply affected its economy. Mongolia is situated between Russia and China and the main trading partner, in terms of both exports and imports, is China. Furthermore, Mongolia imports 100 percent of its petroleum products from Russia and is therefore dependent on Russia in this regard. So far, the government has handled the situation well and successfully addressed the difficulties and uncertainty. About this and the unique role think tanks should play in Mongolia and globally, there are three main roles:

Firstly, the delivery of information to the public is very important and this should be reliable, unbiased information. As Mongolia is a democracy, there is freedom to provide information to the public. The delivery and openness of information is very important for a democracy like Mongolia. Secondly, think tanks must gather intelligence. Mongolia is a commodity market and there are few players in commodity markets, which is why it is important to know what is going on in those markets. Mongolia is deeply dependent on its commodity exports. Think tanks can do this type of intelligence gathering and play a big role because it is often the case that government ministries simply do not have the time. There are no opportunities for ministry specialists to go out and gather information on commodity markets, projections, and future trends. Here there is a big opportunity for think tanks to step in. Third is impact assessment because think tanks have research capacity and

a unique role in doing impact assessments. Regarding the war, think tanks in Mongolia have carried out research on the impact of the war, especially the economic analysis of the impact of the war. As COVID was quite a huge shock to the economy in Mongolia, think tanks had to go in and assess the economic impact. These kinds of assessment are important; governments and ministries do not have the capacity to do these things on demand and this is where think tanks can plug the gap in Mongolia.

Moderator—Dr Mahir, how do you see the positioning of your center in the current climate?

Mahir Humbatov—The Economic Scientific Research Institute (ESRI) being a think tank of the Ministry of Economy of Azerbaijan, which is the biggest government ministry, is tasked with covering all economic policy matters. Initially, when setting up ESRI, the difficulty was finding the right people and human resources; it is difficult to find the right people from different backgrounds and disciplines and to attract them to a think tank. Not everyone wants to work in a think tank; it is not an easy task. Finding the right policy advice, the right time to advise, whom to advise, and to know and understand shocks—those crises that may happen in the future—is no small task. If government officials do not heed advice, think tanks must evaluate themselves to see what shortages, gaps, and disadvantages exist. Monitoring and evaluation begin with looking at oneself first, but also constantly monitoring whether policy advice to government officials is being applied and in the way that has been suggested/recommended.

If a think tank's policy advice is good, it will result in a good outcome. Similarly, if a think tank considers that the government is taking action detrimental to their cause, think tanks must be responsible and must warn government officials that they are taking actions that are detrimental. A think tank's role is not to intervene in the tasks of government and work officials, but to always provide a well-researched knowledge product. Under ESRI, every aspect of the economy in Azerbaijan is studied and this includes tax matters, custom issues, antimonopoly, money-laundering, and macroeconomic issues. During the COVID-19 crisis (COVID), ESRI tried to give specific, feasible, and practical advice to the government—for example, information on food security owing to the Ukraine–Russia war. Azerbaijan was involved in a 44-day war and, following the liberation of vast territories, the government must invest a huge amount of money in different schemes, subsidies, and different types of zone and privilege to attract investors. Fortunately, Azerbaijan has oil and gas resources; this is an advantage, but also a disadvantage. The main concern for ESRI is not about revenue generation, but how this revenue is spent. If it is spent in the correct manner and directed to the right sectors, people will invest in the society.

Moderator—Thank you very much, Dr Mahir, for pointing out the challenge in attracting the right staff but also the need for a multidisciplinary approach that looks at all angles of the economy. Having heard from all of you, we all know that the issues are complex and need to be looked at through a multidisciplinary lens. So, how can this be done best? Would it be under one roof? Would it involve cooperating with many different institutes? And then, how do we get from here to actionable results that are really understood by policymakers and can be implemented?

Zhang Jin—A multidisciplinary approach is indeed very important. The reason is straightforward; the challenges owing to uncertainties in our age are very serious and, secondly, they are all encompassing. Climate change is an existential threat to humanity and digital technology is also changing our way of life; for many people, this is very disorienting. The uncertainties we face today, owing to their all-encompassing nature, influence all sectors and walks of life. The degree and extent of the challenges we face today make being multidisciplinary a necessity, not just desirable. Furthermore, the connecting and communing power of think tanks enable them to engage in multidisciplinary approaches. All of us in this room are associated with different think tanks and universities and we are from different fields. At CIKD, since last year, we have undertaken a project to produce a global development report and, considering that CIKD was formed in 2017, this is a big undertaking for a young institution.

Our approach at CIKD is to engage with specialists in technology, science, engineering, medical science, and political science. As Zeeshan mentioned, given the current situation, maybe international relations experts can be engaged to delve into understanding the global development deficit in our era. We are working on identifying the deficits and covering topics such as poverty reduction, food security, marine development, the digital economy, pandemic control and health, climate change, industrialization, and connectivity. Nobody is an expert on all these topics, which is why our approach is to work with experts across different areas, to work with other institutions to try to understand their expert views, to look at the global development deficit, propose our position, and find the way forward. A multidisciplinary approach is essential for think tanks to deal with the challenges in our uncertain age. More disciplines should be recruited into think tanks, as traditionally most think tanks recruited economists and management scientists, but certainly more disciplines are now welcome.

To answer the second part of the question, about approaches to impactful dissemination, one responsibility for think tanks is not just producing knowledge but also disseminating knowledge. The CAREC Blog is a great example of this. The thinking power of think tanks is essential, but dissemination of policy recommendations and explanations also impacts the knowledge produced. It is helpful to divide the audience of research reports and presentations from think tanks into three parts. The first are our peers—other think tanks, universities, and so on—and can be called professionals. In this first group there is also a problem with publications, as universities all go for the top journals when publishing work from academics and professors. The requirements to publish work in these journals are very specific and are becoming increasingly difficult to meet. In this light, it is very important for the think tank community to have its own journals or magazines that focus on policy research and can have a global impact; it would also be helpful to have a dialog with our university colleagues. The dissemination of policy recommendations is also important. The second group is policymakers and, in this regard, there are two aspects. As the CIKD is part of the development research center of the state council of the PRC, it is policy-oriented, and we need to be aware of the current pressing concerns. Timing is very important and we need to produce research results that are not only relevant for policy-makers but also balanced. Think tanks have a duty to think long term, as other panelists have pointed out, there is a duty to see the unseen and know the unknown, although this takes time. Finally, think tanks need to relate their research to the general public, which makes up the third group. People across the world have many questions and concerns. Think tanks need to go beyond simply explaining what is going on and instead need to outline policy measures; communication with the public needs to be professional, calm, and constructive. To summarize, think tank researchers and staff also need capacity building. We need to be researchers but, in the meantime, we also need to be communicators with professionals, policymakers, and the general public.

Moderator—Think tanks need to be multidisciplinary; they need to produce research and communicate. Mr Zeeshan, how do we go about this?

Zeeshan Salahuddin—I specialize in geopolitical strategy and, as someone who leads the portfolio for regional and global connectivity at my firm, I have to keep track of many different areas like the Indo-Pacific, CAREC, the QUAD, AUKUS, SEO, SCO, what is happening in Ukraine and how that affects Pakistan, what is happening in Iran, not to mention the fact that we are neighbors with two of the three largest economies in the world. That is a lot for one person to handle. Even within the same discipline it is important to have deep specializations in certain areas, as one person cannot keep track of everything. I would say that I have more than a working knowledge and above average information about most of these topics, but being an expert in every single area is just not feasible.

A multidisciplinary approach is very important. You can take any topic in Pakistan to demonstrate this—for example, children's education. Pakistan is a country of 241 million people; 28 million children between the ages of five and 16 are out of school; and 3.6 million children are in religious seminaries. This is a huge topic, but if one wants to understand why learning outcomes are not good,

why children cannot write full sentences by the age of ten, one could just look at it from the perspective of: are the schools providing quality education?; are the teachers properly trained? However, this alone is not sufficient; one must look at many other factors like: what access to nutrition do these children have?; what kinds of area do the children come from?; what socioeconomic conditions exist there?; what kind of cognitive development takes place as these children mature? There are also other areas to consider—for example, social protection, and maternal and infant mortality rates. The deeper one dives into a problem, the more one realizes that nothing operates in isolation and trying to fix a problem within the narrow confines of that discipline is not the best way to problem solve.

As for the gap between public and private institutions: it always exists. We must labor to bridge this gap. Information must be accessible, relevant, and informational and I would like to add that it should also be entertaining. Most of the work produced by think tanks is very technical and boring, which is why the output does not work in many places. For example, if you write a paper on Pakistan's digital transformation and you use technical language and send it to policymakers, conventional wisdom would suggest that because they are policymakers in the IT industry they should be able to understand the technical jargon. However, in Pakistan this does not hold true. Our IT secretary in Pakistan is actually a doctor by profession with an educational background in finance. This individual is not going to understand the technical jargon in our publication and form policy around it. It is important to have briefs and executive summaries; distilling important information into easily accessible chunks is a core function of think tanks that is often forgotten. Think tanks often romanticize technical jargon to the extent that the power of the message is lost. Exchange of information needs to be collaborative. In forums like this, the whole point is to seek out opinions that are not your own, that are different from your own, and from a wide variety of backgrounds and cultures. The use of digital platforms to forge all manner of partnerships and alliances is also important. The first of the last two points I would like to make is that content must be tailored; you cannot put the same content in front of all audiences universally. If one is going to speak to policymakers, an 80-page document is not going to make sense but a page with eight bullet points will. If you are speaking to Gen Z, video content will make much more sense and at Tabadlab we have had tremendous success with tailoring content and using platforms like TikTok. One video made at Tabadlab for an education campaign received over a million views in one week—that is the power of tailoring content to one's audience. The second point is the power of storytelling. Again, think tanks can get involved in the technical jargon and often forget that storytelling is a very important and powerful medium. To get the point across, one has to build robust and solid case studies to enable policymakers to understand the impact of the proposed research on the ground.

Tuvshintugs Batdelger—Mongolia is a commodity-driven economy, which is why think tanks in this country cannot focus on economic or social issues alone; instead, they need to be multidisciplinary. You can see from the Mongolian experience that think tanks may even have to carry out studies in areas like mining, which is very important to the country, or social studies to study the impact of policies in a resource-rich country where there are always issues like income inequality that need to be addressed. Also, expertise is needed in international relations and climate change—now more relevant than before—so there are many fields where expertise is needed and many issues that must studied. However, capacity in Mongolia is very limited. It is a transition economy that has changed from a state-planned to a market-oriented economy, but with only 30 years of experience, which is not much. We must still create a library of knowledge, as many issues are not being studied and therefore there is no reference point. Policymakers are often confused because there is no reference point or data to draw on, which is why the major role of think tanks in Mongolia is to create this library of knowledge and provide data for effective policy drafting. The gap between the public and private sector exists because academia has a narrow focus, whereas think tanks need to be very flexible. For instance, with COVID-19, think tanks had to study the potential impacts. Think tanks must be able to access cross-disciplinary areas to address current issues and medium to long-term issues. Without a library of knowledge, there will be no demand for think tanks from

policymakers and so it is essential to address this, as a reference point is needed from which we can progress.

Mahir Humbatov—Think tanks need to find a niche while maintaining a dialog with their audience, with society, and with their peers. With regards to multidisciplinary issues, when a task is assigned and hiring is in train, it is important to check whether candidates have analytical skills, language abilities, and whether they can solve tasks directly related to the project. A comparison of think tank salaries with those of government officials can often be a challenging exercise. Government officials can at times be slightly lazy, but in a think tank every person must be a micromanager, a thinker, and a policy adviser; their voice must be heard by government officials. Recently, ESRI was restructured; after restructuring, a training center was established within the institute as a separate entity. The reason was that government officials have to pass different types of examination in which they do not focus on specific agencies, ministries, or departments within a ministry. ESRI's training center hires officials and targets departments according to the exact topic they must deal with—for example, the department of macroeconomic policy, department for agricultural policy, or the department for fiscal matters. Through the training center, ESRI can attract foreign as well as local experts. Furthermore, the training institute tries to build capacity for government officials. It is not usual for a think tank to run a journal, but this is exactly what ESRI does; it houses the Chief Editorial Office for the Economic Journal of the Economic Cooperation Organization (ECO). Furthermore, by presidential decree we will soon launch the ECO's research center in Baku. Finally, I would like to say that digitalization is equal to development and development is equal to economy. If government officials focus on economic growth, think tanks need to focus on economic development and their advice must be based on developmental matters.

Q&A/OPEN DISCUSSION

Question—Altaaf Hasham: The need for quick information, ideas, and suggestions for policymakers has been highlighted by all the panelists and the emphasis on digital technology is at the core. My impression is that life will become increasingly difficult for think tanks as time goes on. When discussing technology, we have heard about firms increasingly responding to consumer needs; orders are placed in the day time and by the evening products have arrived at their destination. This is what the general population expects, which means that decision makers increasingly face similar challenges. People want immediate results, but decision makers do not have the luxury of time to reflect. Zeeshan is right in saying that think tanks often write documents for top-level decision makers, but they often ask for more pictures and less text. As a result, decision makers are inundated. My question today is will it become increasingly difficult for think tanks to function? Things must be made simple for decision makers because they do not have time to read in depth. Policymakers also face the issue of digital technology, where they are often in echo chambers and do not hear other important opinions. Is the challenge about more than just geopolitics and geoeconomics? Is it more about the challenges posed by digital technology? We live in consumption societies where consumers want things immediately, which impacts the policymakers. In the Kyrgyz Republic, we now have the third education minister in the last 12 months. Is the role of think tanks going to be increasingly challenged by digital technology?

Question—Nadeem-Ul-Haque: I have a slightly contrary viewpoint. I have been speaking to one of the former finance ministers of Pakistan; his view was that think tanks are no longer necessary and should be closed down because policymakers get all their research from international agencies and foreign consultants. Policymakers say we do not need local thinking as we are inundated with foreign thinking. I would like the panel to react to that. Also, I would like to ask, should policy briefs treat their readers as children or should they be more serious?

Question—I would like to ask about trust—trust between analytical centers and other stakeholders. Without trust it is impossible to say anything about the role of think tanks in society. How does one communicate with the government if government structures do not hear you?

Question—Dr Ghulam Samad: In terms of function, we know about the role of think tanks. How can one define a think tank? How are think tanks to be financed? How rigorous should research be within a think tank? When it comes to multidisciplinary approaches, it often seems that think tanks do not have the human resources or expertise to develop specialization in a particular subject.

Answer—Mahir Humbatov: Trust is very important; however, it has to be noted that there is never one hundred percent trust between governments, society, and the private sector. At ESRI, when working with the private sector, we sign nondisclosure agreements as reassurance that we will not provide that data to other companies. There are two sides to this problem: one is the matter of trust and the other is a lack of real data. If one does not have real data and accurate figures, then one cannot advise government officials correctly. Advising stakeholders can be done in two ways. The first is through closed research, which is not disclosed to any other stakeholders—for example, foreign actors, society, and so on. The second is through open research, which is publicly and commonly known and is often published.

Answer—Tuvshintugs Batdelger: When establishing my think tank 13 years ago, I thought we would have a big impact on policy making. However, experience has taught me that you cannot be too optimistic about this. The best approach is not to be obsessive in terms of impact on policy making, but rather to focus on being a reliable partner when the need is there. If think tanks are too obsessive with policy making, they can at times lose government trust because it can give the impression of having some hidden agenda. Building knowledge and the capacity to be ready to be deployed is the best approach rather than being obsessed with policy making.

Answer—Zeeshan Salahuddin: When it comes to defining think tanks, it is probably best not to box them in and limit them to a specific set of functions. Think tanks, like everything, must evolve and adapt in order to survive in the digital age. One of the most important ways to do this is to be self-critical. Think tanks outsource their problems and blame a lack of funding or depth of understanding of policymakers, but seldom look at themselves. It is true that think tanks can become echo chambers. In terms of financing, Tabadlab is a private institution that is primarily a consulting firm and the money made from consulting is the money used to fund most of Tabadlab's activities as a think tank. How rigorous should research be? I understand that we live in a post-fact world, but facts are still facts. There is a rule at Tabadlab that if you sit in a room and have a policy discussion or you are trying to put together a working paper, any conversation can be backed by empirical facts, figures, and information. When it comes to providing information to policymakers and how they should be treated, my answer is it depends who you are talking to. Finally, the last question was about trust. At Tabadlab, we formed the impact team; its sole function is to examine all the information and public-facing knowledge generation being put out and its actual policy level impact on the ground, then sharing the outcome with the general public. Information goes out, affects policymakers, and then is seen by people as bringing about change. This creates a cycle of trust, as people see the real world impact of a think tank.

Answer—Zhang: I would like to respond to two questions. The first is about the life of think tanks. There are specialized think tanks and then there are general think tanks. There should be an ecosystem of think tanks not simply to share ideas but also to support each other professionally and debate ideas to avoid the echo chamber phenomenon. The second question was about closing down all think tanks. In my opinion, there should be a mechanism put into think tanks where 200-page reports cannot be published; this is not allowed at CIKD. Another important mechanism is a vigorous

review process. At CIKD, there are cross-department debates and deliberations for research internally and externally; meetings are convened to ask the relevant experts about their views on CIKD's research results. These mechanisms must be implemented and utilized in a very short period of time because policymakers often require urgent answers. This is certainly a challenge, but there are mechanisms in place.

Moderator: Thank you very much for a lively discussion. It is clear that life for think tanks is going to become increasingly challenging, but also potentially much more rewarding. Think tanks need to take a long-term view and continue to build trust. Additionally, communication with different audiences must be carried out in a careful and tailored manner.

Moderator: Khalid Umar, Coordinator, CTTN

CTTN PROGRESS REPORT

SPEAKER: BATSAIKHAN ZAGDRAGCHAA, SENIOR STRATEGIC PLANNING SPECIALIST, CAREC INSTITUTE

About the CAREC Think Tank Network (CTTN)

Leading think tanks from the CAREC member countries agreed to establish the CAREC Think Tanks Network (CTTN) during the second CAREC Think Tank Development Forum (CTTDF) in Urumqi, People's Republic of China (PRC), in 2017. The 'Urumqi Declaration' is the main founding document. CTTN promotes regional economic cooperation by enhancing systemic regional knowledge sharing and integration; fostering policy research and knowledge solutions to support governments; enabling better policy advice; reducing gaps between research and policy; and enhancing collective intelligence to consolidate development resources for effective cooperation, better services, and improved performance. Over 60 think tanks, research institutions, universities, and policy centers from CAREC countries are part of CTTN. Key activities of the CTTN include the CAREC Think Tank Development Forum (CTTDF), Research Grants Program (RGP), Think Tank Talk Series/Dialog and CTTN Blog.

Network Activities

The CAREC Annual Think Tank Development Forum was launched in 2016. The forum is a platform for think tanks, research institutions, and researchers from the CAREC region and beyond to exchange views and knowledge on evolving regional and global policy challenges.

The CTTN Research Grants Program was launched in 2019. It supports scholars and researchers from CTTN to produce targeted knowledge products, which will add to the body of knowledge on regional cooperation in CAREC.

The Think Tank Talk Series/Dialog was launched in 2021. The CTTN dialogs aim to stimulate knowledge sharing, debate, and exchange between policymakers and think tanks on emerging themes in the region, and provide country-specific perspectives on important regional issues.

The CTTN Blog was launched in 2023. The blog is an open-source knowledge platform that encourages researchers and thinkers to share ideas and information for the collective benefit of CTTN members.

CAREC Think Tank Development Forum Activities

The CAREC Think Tank Development Forum (CTTDF) is the flagship event of the CAREC Institute organized annually under the auspices of the CTTN.

- The First Forum: 'Promoting Economic Cooperation for an Integrated Central Asia,' Almaty, Kazakhstan, June 2016

- The Second Forum: 'Exploring Knowledge Solutions for Regional Cooperation and Integration,' Urumqi, PRC, September 2017

- The Third Forum: 'Building Knowledge Corridors along the Silk Road,' Bishkek, Kyrgyz Republic, June 2018

- The Fourth Forum: 'Trading for Shared Prosperity,' Xi'an, PRC, August 2019

- The Fifth Forum: 'Economic Corridors: Pathways to Regional Growth,' virtual, 23-24 November 2021

- The Sixth Forum: 'Recalibrating Growth Dynamics for Inclusive and Sustainable Economies,' Baku, Azerbaijan, 15-16 September 2022

CTTN Research Grants Program

2019		2020		2021		2022	2023	
(i)	Assessing participation of CAREC countries in global and regional value chains;	(v)	Exploring exports-driven growth: Learning from Pakistan-China Free Trade Agreement, and	(vii)	Community Entrepreneurship in Central Asia: Learning from the "One Tambon, One Product" Program in the Greater Mekong Subregion	Access to Health, Education, Digital Technologies, and Women's Participation in the Workforce: Case Studies from Azerbaijan, Kazakhstan, Pakistan, and Uzbekistan.	Leveraging Digital Technology for Green, Sustainable and Inclusive Growth:	
(ii)	Study of cross-border tourism value chains between Uzbekistan and the Kyrgyz Republic;	(vi)	Prospects of tourism sector development in Kazakhstan and the Kyrgyz Republic including Almaty-Bishkek Economic Corridor.	(viii)	The CAREC and its Neighboring Regions: A diagnostic of the intra-bloc and extra-bloc trade	a) CESD, Azerbaijan	a)	Digitalization of Infrastructure and Decarbonization in Central Asia: Opportunities and Challenges
(iii)	Impact of sanitary, phytosanitary, and quality-related standards on the trade flow between CAREC countries and Georgia;			(ix)	Trade Efficiency and Influencing Factors in CAREC Region: Based on Stochastic Frontier Gravity Model	b) Institute of Economics, Kazakhstan	b)	Regional Connectivity in Central Asia: Digitalization of Trade and Benefits for Regional Cooperation
(iv)	Opportunities and challenges for agri-food trade between the Kyrgyz Republic and Pakistan;			(x)	Technology gap and productivity spillovers from Chinese outward Foreign Direct Investment	c) SDPI, Pakistan	c)	The Role of Special Economic Zones in Digital Transformation of Central Asia
						d) CPRO, Westminster International University, Uzbekistan	d)	Scope of Digital Trade Integration for Pakistan and Central Asian States: An Action Plan

Figure 35: CTTN Research Grant Programs (2019-2023)

Think Tank Talk Series/Dialog

- CTTN Dialog: Thinking through the Crisis—the Role of Think Tanks in March 2021
- CTTN Dialog/CAREC Chai Event: Impact of the Russia–Ukraine Conflict on the CAREC Region in April 2023

Partnerships and Dialogs

The CAREC Institute, on behalf of the CTTN, contributed to global and Asian think tank forums and dialogs:

- ADB-Asian Think Tanks Development Forum on the Global Chain and Economic Development in Yangon, Myanmar, in 2019
- Global Think Tanks Summit 2019 in Brazil (virtually) on 'Managing Global Turbulence and Transitions: The Role of Think Tanks'
- Virtual dialogs for UNSCC

CTTN Contributions to the Global Coalition of Think Tanks Networks and South–South Cooperation

The CTTN became a member of the Global Coalition of Think Tanks Networks coordinated by the UN Office of South–South Cooperation in 2022—hosted by the UNSSC and the UNDP.

CI attended the fifth Steering Committee Meeting of the South–South Global Thinkers: the Global Coalition of Think Tanks Networks for South–South Cooperation.

Members of CTTN contributed to the global discussion on priority areas for South–South and Triangular Cooperation in support of evidence-based policymaking in the global south in April 2022.

In July 2023, CTTN members (ISET, SDPI, CESD, and CAB) participated in global consultations on the Human Development Report (HDR) 2023.

CTTN BLOG LAUNCH

SPEAKER: DZHOVID KHUSEINOV, NETOWRKING AND PARTENERSHIPS SPECIALIST, CAREC INSTITUTE

Rationale for the CTTN Blog

The CAREC Strategy 2030 underlines the CI's role as central to providing knowledge solutions. The Strategy emphasizes that the CI will play a key role in developing knowledge and analytical underpinnings for policy dialog for CAREC program platforms. Furthermore, the CI will also make the best use of local knowledge by building formal links with academia and think tanks in the region.

Accordingly, there have been a number of recommendations by the CI's Governing Council and the CTTN Advisory Panel for the CTTN to pool and retain knowledge, research, and data generated by think tanks, research institutions, and academia in the CAREC region.

The CTTN Blog will accelerate this knowledge sharing, exchange, and utilization by think tanks in the CAREC region by providing an accessible, affordable, reliable, and adaptable digital platform. The platform will encourage researchers and thinkers to generate and share ideas and knowledge for the collective benefit of CTTN members. As CAREC member countries focus on acquiring and promoting the use of digital technologies, having an open-source knowledge sharing platform becomes even more relevant and essential.

To enhance systematic sharing and integration of regional knowledge and collective intelligence and to consolidate development resources for effective collaboration, CTTN is launching the CTTN Blog.

The blog is intended for use by communities of professionals, government officials, think tanks, researchers, and students interested in economic and social development in the CAREC region.

Blog Structure

The CTTN Blog comprises the following information:

- Blog entries by CTTN members
- List of CTTN members
- CTTN member publications
- CTTN member events

Blog contents follow a journalistic, rather than an academic, approach in sharing key lessons and know-how from development experiences based on research or publication outcomes. The content may offer users situational analysis, professional insights, policy recommendations, expert opinions, case studies, and summaries of research work that contributed to the body of knowledge of the CAREC Program.

The blog will also host the list and calendar of events of CTTN members and publications to promote information and knowledge sharing among CTTN members for information purposes. The top of the blog page will feature trending and recent blog entries.

All publications, studies, policy briefs, and case studies produced by researchers will be sorted into five CAREC clusters: (1) economic and financial stability; (2) trade, tourism, and economic corridors; (3) infrastructure and connectivity; (4) agriculture and water resources; (5) human development.

On the right side of the blog, there will be information about the editorial policy, how to submit a blog entry, and the blog disclaimer. This will provide a specific guideline on the requirements of blog entries and necessary editorial and copyright policies. The attached articles, topics, and so on with the required information will be submitted online and sent directly to an email address under the CAREC Institute to be reviewed and subsequently posted on the blog.

When an article is opened on the blog page, after the article title, information about the author and his/her professional background is included as well as the date of publication. The right side of the

blog page will include search features, which will enable users to browse by year and country. All publications, studies, policy briefs, and case studies produced by researchers will be organized by country and sorted into five CAREC clusters.

Blog Management

The CTTN blog will be hosted on the CI website (carecinstitute.org) and will be managed by the CI through the CTTN Secretariat. The Blog Management Guidelines outline the procedure for approval, revision, editing, content management, posting, and removal of blog content.

SUGGESTIONS AND FEEDBACK ON CTTN

Zeeshan Salahuddin—Most of us present today are from think tanks and a range of research already exists on the websites of our respective think tanks. Tabadlab has about 13 to 14 papers on its website. One of the easiest things to do would be to assign researchers in these institutions to take these robust documents and convert them into shorter blog posts. This would build a repository of information to in a very short time span. My second suggestion is that the people who regularly contribute and participate in advancing the agenda of the CTTN should be prime candidates to attend the forum. This would enable them to interact with other individuals and stakeholders, as they have demonstrated their willingness and need to be a part of the larger community.

Khalid Umar—Thank you, Zeeshan, for your suggestions. Indeed, much research has already been conducted by our think tank partners. When we shared the guidelines for the CTTN Blog, your point was already embedded in those guidelines. We expect our partners to summarize existing knowledge and research into blog format.

Talant Sultanov—I would like to share some thoughts about the blog. I think the CTTN Blog is a great initiative. One thing to consider is that our attention spans have become very short; perhaps it would be helpful to have Twitter posts about the blog. Some social media links could perhaps be added to provide short descriptions of blog posts and link to the larger piece available on the website. The CAREC Secretariat should follow up and ask for posts to galvanize potential contributors.

Khalid Umar—Thank you, Talant. We are flexible in this regard and, as this initiative is in its infancy, we are happy to receive just one or two blogs every month as a starting point. We also accept posts in other languages like Chinese and Russian because they can be translated and reviewed by our editorial board before they are posted on the blog. There is a lot of flexibility to make it easy for our members to contribute. Our aim is to make the blog posts short and easy to consume, instead of having heavy write-ups that people do not get time to read.

Yixin Yao—I have a suggestion for the CTTN. Before coming to this conference, I had never heard of this network; perhaps it would be a good idea to advertise the CTTN inside organizations like the ADBI. In addition, the CTTN could be extended beyond the CAREC region by forging connections with institutes like the ADBI. The CTTN has been engaged in much knowledge sharing through training programs and the RGP. In future, a website could be created for the alumni of the training programs and participants of the RGP; these people can bring more resources to expand the network. The staff at CI, similar to ADBI, come from various countries around the world and it is valuable to keep these individuals as part of the network, as it expands the CTTN's reach.

Khalid Umar—Thank you. We are already engaged in long-term cooperation with ADBI through the CI but not as a network through CTTN. We do understand that ADBI is also involved with think tank activities in the region and certainly it would be a good idea for CTTN to become a part of these activities to expand its outreach and network. We have staff from different countries and they often work for only a short period of time. Certainly, we should keep connected with former staff members and by doing so we can leverage their expertise and experience to serve as resource persons whenever their expertise is needed.

Giorgi Khishtovani—I would like to suggest that there should be dialog meetings between representatives of different CAREC member countries in the region, where we can share the current economic landscape and situation in our countries. This might make for an interesting exchange between think tanks, especially because of the regional economic situation owing to the Ukraine war. At PMC, we are very interested in how economists in the Kyrgyz Republic or Uzbekistan are

handling the turbulent situation. It might be useful to offer partner think tanks the opportunity to prepare short presentations or notes about the current economic situation and have exchange meetings where this information can be shared. This would be a very good exercise for collaboration as well as insightful for the participants.

Khalid Umar—Although this is not part of the forum, the CI regularly produces a quarterly economic monitor that captures economic developments in all member countries. The quarterly economic monitor discusses the state of the economy across the region, and it has an elaborate menu of indicators. This is a good resource for our partners. We will try to provide think tanks with the opportunity for individual discussion in breakout sessions during the CTTDF.

Roman Mogilevskii—ADB is in the process of launching a study on the impact of the Ukraine war on CAREC member countries, which involves publishing policy and country briefs. Both the current situation and future developments will be monitored and briefs will be sent out every quarter or twice a year. CTTN members will be included in the distribution list.

Khalid Umar—Thank you, Mr Roman. To conclude this forum and for a note of thanks I would like to invite the CAREC Deputy Director, Dr Jingjing Huang.

CLOSING REMARKS

SPEAKER: DR JINGJING HUANG, DEPUTY DIRECTOR, CAREC INSTITUTE

Dear forum speakers and moderators,
Dear participants, ladies and gentlemen,

Thank you for your excellent presentations and discussions at the Seventh CAREC Think Tank Development Forum!

The annual think tank development forum has fast evolved into a significant platform for regional think tanks to exchange ideas and perspectives and engage in regional research cooperation. Today, think tanks are widely recognized as leading players and contributors to public policy discourse by bridging research, knowledge, and policy. We also witness the increasing role and voice of think tanks in the CAREC region. Today, over 90 think tanks from the CAREC region have been listed in the Global Think Tanks Index Report ranking, bearing witness to the noticeable growth and activities of think tanks. While most think tanks focus on national issues, many problems—such as, cross-border trade, climate change, water, and energy—require a multidisciplinary, cross-sector and cross-national approach to research and knowledge sharing.

During the last two days of Forum, we have had an opportunity to listen to many outstanding views and ideas—such as, how digital technology brings opportunities in economic growth; improving living standards; developing innovative services and products in trade, transport, agriculture, and other sectors. The Forum also allows us to learn from the perspective of different countries on agenda topics and this year we are pleased to have country representation from Kazakhstan, the Kyrgyz Republic, Pakistan, Uzbekistan, and Mongolia, as well as leading enterprises from China, such as Tencent and Alibaba.

We have heard excellent presentations about the growing significance of digital technology, social media, and e-services; the importance of mitigating inequality and bridging the digital divide; ensuring good digital governance; how digital finance contributes to poverty reduction; and the work being carried out on CAREC Digital Strategies and Startup Ecosystem.

We are always pleased to listen to our think tank network members. During this forum, the panelists recognized the importance of partnership and joint efforts among think tanks—for example, in joint research, publications, events, outreach, and advocacy. We believe think tank partnerships are important to fill knowledge, data, and capacity gaps; synergize work; and most importantly to learn from each other.

As Secretariat for CTTN, the CI is committed to continue supporting network activities. The CTTDF has grown into a significant annual knowledge event in the region. Including this forum, six forums were organized recently in Kazakhstan, the Kyrgyz Republic, Azerbaijan, and Urumqi and Xi'an in China, bringing over 120 participants to each with representation from governments, think tanks, and development partners from over 20 countries.

Through CTTN, CI has provided generous research grants to CTTN members for the fifth consecutive year. These grants support the delivery of research projects and knowledge products that contribute to the body of knowledge in CAREC by harnessing firsthand primary data and local expertise. At the same time, it enhances capacity and partnerships among think tanks in the region.

Also, I am glad to announce that the Network will launch a 'CTTN Blog' soon, as the first move towards pooling, retaining, and exchanging knowledge, data, and ideas generated by think tanks and

research institutions in the CAREC region. The blog will be open to all CTTN members and will encourage researchers and thinkers in the region to generate and share ideas and knowledge for the collective benefit of CTTN members.

Finally, I would like to take this opportunity to acknowledge our partners for today's forum. We are grateful for the generous support provided by the Xinjiang Government, the Ministry of Finance of China, the Department of Finance of Xinjiang, and the Eurasia Expo Secretariat. The Asian Development Bank, which acts as the CAREC Program Secretariat, is a long-time supporter of the CI and CTTN. We would also like to express our sincere gratitude to the ADB-PRC RKSI for its steadfast support. The RKSI is ADB and China's joint development knowledge sharing platform for ADB's developing member countries and has been a trusted partner since the second forum in 2019.

Before I close, let me congratulate all panelists, speakers, and our colleagues who have contributed to this forum! Thank you and have a nice day! My special thanks go out to the dedicated team of our Strategic Planning Division (SPD) for their professional organization of the forum.

The Seventh CAREC Think Tank Development Forum (CTTDF)

'Embracing Digital Technology for Sustainable Economic Development'

16-17 August 2023| Hilton Hotel| Urumqi, the PRC

15 August **Tuesday**	**Arrival of Participants** **Welcome Dinner @ Hongguang Shan Function Room—First Floor|** **19:00-20:30|** **Hosted by the CAREC Institute**
Day One: Wednesday 16 August |Jiangshan Grand Ballroom A—Second Floor|	
08:30-09:00	**Registration**
Session I: Opening Ceremony	
09:00-09:30	Welcome Remarks by **Mr Kabir Jurazoda**, **Director**, CAREC Institute (5 minutes)
	Opening Remarks by **Mr Shixin Chen**, **Vice President**, Asian Development Bank (ADB), Manila, Philippines (5 minutes) (Virtually)
	Opening Address by **Mr Wen Cai Zhang, Vice President**, Export–Import Bank of China, PRC (5 minutes)
	Keynote Address by **Mr Cheng Zhijun, Director General**, International Economic and Financial Cooperation Department, Ministry of Finance, the PRC (5 minutes)
	Keynote Address by **Mr Yusupjan Mamat, Executive Vice Governor,** Xinjiang Uyghur Autonomous Region (XUAR) (7 minutes), the PRC
	Group Photo (13 minutes)
Session II: Context Setting	
Technology has significantly improved living standards and prosperity. More recently, with its innumerable modern day manifestations, digital technology has played a crucial role in fostering sustainable economic development by enabling businesses to increase their productivity and efficiency while reducing their environmental footprints. Digital technology has enabled the development of new products and services that address environmental challenges, such as renewable energy, intelligent transportation systems, and sustainable agriculture. Further, the session will take stock of the CAREC region's readiness for digital adoption by reviewing the progress in formulating dedicated digital strategies, developing crucial infrastructure, and creating an investment-friendly business environment. In this moderated session, the speakers will make presentations **(20 minutes each)** on their respective topics, and the moderator will lead and facilitate the discussion **(20 minutes)** by inviting questions, comments, and participant feedback.	
09:30-10:30 **Moderator** Mr Ayumi Konishi, Senior Advisor to CEO, Multilateral Cooperation Center for Development Finance (MCDF), Beijing, the PRC	**Analyzing the Role of Digital Technology in Spurring Sustainable Economic Growth** (20 minutes) Speaker: Mr Thomas Abell, **Director,** Digital Technology for Development Division, ADB (Virtually) **Digital Strategies, Infrastructure, and Investment—CAREC Region's Readiness for Digital Adoption** (20 minutes) Speaker: Mr Talant Sultanov, **Chair and Founder**, Center for Strategic

	Initiatives, Bishkek, Kyrgyz Republic
	Open Discussion (20 minutes)
10:30-10:45	**Coffee @** Foyer of Jiangshan Grand Ballroom A (15 minutes)

Session III: CTTN Research Grants Program (RGP) Presentations: Country Case Studies
This session will present four case studies: from Kazakhstan, the Kyrgyz Republic, Pakistan, and Uzbekistan on how digital technology can leverage sustainable development/growth in these countries. This Regional Report is produced under the CAREC Think Tank Network (CTTN) Research Grants Program (RGP) umbrella, aimed at fostering regional knowledge sharing cooperation among member think tanks. Each researcher/institution will present the case for **10 minutes**, followed by participant feedback and open discussion for **25 minutes**.

10:45-11:50 **Moderator** Mr Roman Mogilevskii, Senior Economist, CWRC, ADB, Manila, Philippines	**Leveraging Digital Technology for Green, Sustainable, and Inclusive Growth** (10 minutes each) **Kazakhstan Case Study** Speaker: Ms Albina Muratbekova, **Senior Research Fellow**, Eurasian Research Institute (ERI) **Kyrgyz Republic Case Study** Speaker: Dr Burulcha Sulaimanova, **Researcher**, OSCE Academy **Pakistan Case Study** Speaker: Mr Asif Javed, **Senior Research Associate**, Sustainable Development Policy Institute (SDPI) **Uzbekistan Case Study** Speaker: Mr Farrukh Khakimov, **Research Coordinator**, Development Strategy Center (DSC) Open Discussion (25 minutes)

Session IV: Bridging Digital Divide and Boosting Digital Skills
The rapid pace of technological advancements has brought about new opportunities and challenges for the labor market. While technological adoption has increased productivity and efficiency, it has also widened the already wide-ranging digital divide among countries, regions, gender, income, and age groups, putting additional pressure on governments to design programs to bridge the digital gap; and reskill and upskill the workforce, particularly female workers. The implications for the labor market are significant, as many jobs are at risk of automation, and workers need to acquire new skills to remain relevant in the job market. The speakers will deliver presentations **(15 minutes each)** on session topics, followed by a moderated discussion **(25 minutes),** capturing comments and feedback, and inviting questions from participants.

11:50-13:00 **Moderator** Mr Artem Levenkov, Head of Socioeconomic Analysis and IFIs, Eurasian Fund for Stabilization and Development (EFSD), Moscow,	**Technological Adoption, Inequalities, and Implications for Labor Market** (15 minutes) Speaker: Dr Xiaojun Feng, **Associate Professor** of Sociology, Agricultural University, Beijing, China **Reskilling and Upskilling Women for Bridging Digital Divide in the CAREC Region** (15 minutes)

Russia	Speaker: Ms Ana Pashalishvili, **Programme Specialist**, Women's Entrepreneurship Acceleration, Europe and Central Asia Regional Office, UN Women, Istanbul, Türkiye
	Bridging the Quality of Education through Digital Technologies using the Flipped Classroom Approach (15 minutes) Speaker: Mr Syed Hassan Alsagoff, **Manager**, Science, Technology and Innovation Cooperation and Capacity Development Dept, Islamic Development Bank (IsDB), Jeddah, Saudi Arabia
	Open Discussion (25 minutes)
13:00-14:00	**Lunch @ U Café—First Floor** (1 hour)

Session V: RKSI South–South Learning Seminar: Digital Governance and Commerce
As businesses adopt digital marketing platforms for selling their products and services, the need for bricks-and-mortar space diminishes. As more and more companies shift their operations online, it is crucial to establish a robust governance structure to ensure that online transactions are secure, fair, and transparent and that essential regulatory frameworks and policies are in place to protect consumers, build trust in digital commerce, prevent fraud, and promote healthy competition in the online marketplace. China's success story, led by Alibaba, offers numerous policy lessons for CAREC countries to emulate for promoting e-commerce. Moreover, two success stories from Mongolia and Pakistan on digital trade facilitation and optimizing digital governance reinforce the significance of south–south learning. In this session, two speakers will deliver presentations **(15 minutes each)** focusing on the role of government and the private sector in promoting e-commerce in China, followed by a presentation **(15 minutes each)** on Pakistan and Mongolia sharing their success stories. The moderator will lead and facilitate the discussion **(20 minutes)** by inviting participant comments, feedback, and questions.

14:00-15:20 Moderator Hsiao Chink (Benzhe) Tang Head, ADB-PRC Regional Knowledge Sharing Initiative (RKSI), Asian Development Bank	**China's e-Commerce Success Story: Role of Government and Policy Implications for the CAREC Countries (15 minutes)** Speaker: Dr Sherry Tao Kong, **Associate Professor**, Peking University, Beijing, China **Role of Private Sector in e-Commerce: Learning from Alibaba's Success Story (15 minutes)** Speaker: Mr Remon Moes, **Senior Manager Public Affairs**, Alibaba **TradeTech for Trade Facilitation and Regional Integration: Pakistan Single Window (PSW) Initiative** (15 minutes) Speaker: Mr Syed Shakeel Shah, **Director-General**, Reforms and Automation, Federal Board of Revenue (FBR), Pakistan **Building a Digital Nation through Optimization of Public Services in Mongolia (15 minutes)** **Speaker:** Ms Enkhtulga Ganbat, **Specialist of Cross-Sector Coordination**, MDDC, Mongolia Open Discussion (20 minutes)

15:20-15:40	Coffee @ Foyer of Jiangshan Grand Ballroom A (20 minutes)

Session VI: Financial Inclusion and Digital Finance

Financial inclusion refers to the provision of affordable and accessible financial services to people who are traditionally excluded from the formal financial system. Digital finance, on the other hand, refers to using technology to provide financial services. Digital finance has the potential to significantly increase financial inclusion by reducing the cost and increasing the accessibility of financial services. Mobile money, for example, allows people to conduct financial transactions using their mobile phones without needing a bank account. This has been particularly beneficial in developing countries, where many people lack access to traditional banking services. Overall, digital finance has the potential to transform the financial landscape and improve the lives of millions of people. CAREC member states (excluding the PRC) lag behind when it comes to providing services and infrastructure critical to increasing financial inclusion—for example, Internet access, transport links, and government facilitation. On the other hand, China has taken giant leaps in harnessing technology to deepen financial inclusion, presenting numerous policy lessons to CAREC countries.

The session will deliberate on the state of financial inclusion and fintech in the CAREC Region **(20 minutes)** and China's mobile payment market experience **(20 minutes),** followed by an open discussion **(25 minutes).**

15:40-16:45 Moderator Dr Yixin Yao, Senior Research Fellow, Asian Development Bank Institute (ADBI), Tokyo, Japan	**Financial Inclusion and Fintech in the CAREC Region** (20 minutes) Speaker: Mr Khalid Umar, **Chief, Strategic Planning Division** (SPD), CAREC Institute **Innovation and Inclusion—Experience from China's Mobile Payment Market** (20 minutes) Speaker: Ms Jieru Ba, **Senior Researcher**, Tencent Research Institute, Beijing, China Open Discussion (25 minutes)
16:45-17:00	**First Day Recap** by Dr Ghulam Samad, **Senior Research Specialist**, CAREC Institute
19:30-21:30	**Reception @ Jiangshan Grand Ballroom B—Second Floor, hosted by Xinjiang Government**
08:30-09:00	**Registration**

Session VII: A Booming CAREC Startup Ecosystem under CAREC Digital Strategy 2030

The CAREC 2030 Digital Strategy reveals a blueprint of how digital tools and applications empower the economy and the quality of life in the CAREC region. Among the five pillars, digital innovation, entrepreneurship, and ICT competitiveness lay the foundation for a startup ecosystem community capable of applying digital technologies and tools to make a change. An outlook of the CAREC 2030 Digital Strategy will provide a background of the methodology and framework of the digital transformation expected by 2030 in the CAREC region—specifically, the type of startup ecosystem needed to upgrade the digital economy effectively. A series of initiatives have been carried out to build an interactive and collaborative startup ecosystem with all the innovation stakeholders.

The session will provide an overview of CAREC Digital Strategy 2030 **(30 minutes),** discuss various initiatives undertaken under the strategy **(20 minutes),** and provide an update on CAREC Startup Ecosystem progress **(20 minutes)**, followed by open discussion and questions/answers **(30 minutes).**

09:00-10:40	**CAREC Digital Strategy Pillars: Strengthening Digital Foundations** (30 minutes)

| Moderator
Mr Roman Mogilevskii, Senior Economist, CWRC, ADB, Manila, Philippines | Speaker: Naveed Zafar Durrani, Senior Consultant, Asian Development Bank (ADB), Singapore

An Overview of Initiatives under the CAREC Program: Startup Map, CIN, University Startup Challenge, and CAREC Innovation Decoded (20 minutes)

Speaker: Shuqi Su, ADB Consultant, China

The Development of the CAREC Startup Ecosystem and its Impact on the Broader Digital Economy (20 minutes)

Speaker: Eli David, CEO, StartupBlink, Israel/ADB Consultant (Online)

Open Discussion (30 minutes) |
| **10:40-11:00** | **Coffee @** Foyer of Jiangshan Grand Ballroom A (20 minutes) |

Session VIII: CAREC Think Tank Voices
Unabating geoeconomic uncertainties present unpredictable economic risks and challenges that arise from geopolitical factors such as political instability, trade disputes, and sanctions. The interplay of these factors can lead to changes in currency exchange rates, commodity prices, and investment flows, among other things. Countries and businesses must navigate these uncertainties to maintain stability and competitiveness in the global economy. Think tanks are important institutions that can help countries navigate the uncertainties of the global economy and geopolitical landscape. Through research, analysis, and dialog, think tanks can provide policymakers and stakeholders with the information and recommendations they need to develop effective policies that promote economic growth, stability, and prosperity. The panel comprising CAREC think tanks will discuss the role of think tanks amid economic and political uncertainties **(40 minutes).** The CTTN secretariat will present the progress report **(10 minutes)**, display CTTN Blog design, features, and expectations **(15 minutes),** and receive CTTN member feedback to improve the network **(30 minutes).**

| **11:00-12:00**

Moderator
Mr Norbert Funke
Director, CCAMTAC
IMF, Almaty, Kazakhstan | **Panel Discussion on the Role of Think Tanks amid Geoeconomic Uncertainties** (40 minutes)

Panelist I: Dr Zhang Jin, **Vice President**, Center for International Knowledge on Development (CKID), Beijing, China

Panelist II: Mr Zeeshan Salahuddin, **Director**, Center for Regional and Global Connectivity, Tabadlab, Islamabad, Pakistan

Panelist III: Mr Tuvshintugs Batdelger, **Director,** Economic Research Institute (ERI), Mongolia

Panelist IV: Mr Mahir Humbatov, **Chairman of the Board,** Economic Scientific Research Institute (ESRI), Baku, Azerbaijan

Open Discussion (20 minutes) |
| **CTTN Progress and Initiatives by the Secretariat** | |

12:00-12:50 **Moderator** Khalid Umar, Coordinator CTTN	**CTTN Progress Report** (10 minutes) Speaker: Batsaikhan Zagdragchaa, **Senior Strategic Planning Specialist**, CAREC Institute **CTTN Blog Launch** (15 minutes) Speaker: Dzhovid Khuseinov, **Networking and Partnerships Specialist**, CAREC Institute **Suggestions and Feedback on CTTN** (25 minutes)
12:50-13:00	**Closing Reflections and Acknowledgements** by Dr Jingjing Huang, Deputy Director, CAREC Institute
13:00-14:30	**Lunch @ U Café—First Floor** (1 hour 30 minutes)
14:30-17:00	**Networking and Visit to Euro-Asia Commodity and Trade Expo**

BIOGRAPHIES OF RESOURCE PERSONS

Shixin Chen, Vice President, ADB

Mr Shixin Chen is the Vice President (Operations 1) of the Asian Development Bank (ADB). He is responsible for operations in the South Asia Department and the Central and West Asia Department. Prior to joining ADB, Mr Chen headed the Department of International Economic and Financial Cooperation at the Ministry of Finance of the People's Republic of China (PRC).

Mr Chen held senior positions in the Ministry of Finance of PRC, overseeing areas of public finance and partnerships with multilateral development banks. He was a Board Director in the ADB's Trust Fund Credit Guarantee and Investment Facility from 2012 to 2014. He was the World Bank's Executive Director for the PRC from 2013 to 2016 and a Board Director for the PRC in the New Development Bank and the Asian Infrastructure Investment Bank from 2016 to 2018.

Zhijun Cheng, Director-General, International Economic and Financial Cooperation Department, Ministry of Finance, Beijing, PRC

Mr Zhijun Cheng is the Director-General of the Department of International Economic and Financial Cooperation, Ministry of Finance (MOF) of the People's Republic of China (PRC). In 2021, he was appointed Alternate Governor for China in the International Fund for Agricultural Development and Director for China at both AIIB and the New Development Bank.

Prior to his current position, he served as Executive Director for PRC at the Asian Development Bank and Deputy Director General of the Department of International Economic and Financial Cooperation at the MOF from 2014 to 2017. In 2016, he also served as Temporary Alternate Director for China at AIIB and Alternate Director for China at the New Development Bank. He has held positions in the MOF since 1995, and earned his master's degree in accounting and a PhD in finance from the Dongbei University of Finance and Economics in China.

Kabir Jurazoda, Director, CAREC Institute, Urumqi, PRC

Mr Kabir Jurazoda has over 25 years of experience in public service and public finance management, regional economic cooperation and integration, public social policy, strategic planning, monitoring, and evaluation. He has experience in developing policy papers, policy briefs, and reports.

Prior to joining the Central Asia Regional Economic Cooperation (CAREC) Institute, Mr Jurazoda was an Advisor in the Office of the Assistant to the President of the Republic of Tajikistan for Economic Affairs; First Deputy Chairman of the Committee of Youth, Sport, and Tourism under the Government of Tajikistan; National Coordinator of the World Bank Project 'Creating Socio-Economic Opportunities for Youth in the Republic of Tajikistan;' Deputy Chairman of the Committee of Youth Affairs under the Government of Tajikistan; Chief Specialist of the International Relations Department; and Lead Specialist of CIS Countries Relationship Department in the Executive Office of President of Tajikistan.

Wencai Zhang, Vice President, Export–Import Bank of China, Beijing, PRC

Dr. Wencai Zhang is Vice-President of Export–Import Bank of China since May 2022. Before this, he was Vice President of the Agricultural Development Bank of China (2020-2022); Director-General of the Department of External Economic Cooperation of the Ministry of Finance of China; Vice President of the Asian Development Bank; Director General of the Department of International Economic and Financial Cooperation of the Ministry of Finance of China (2012-2020); Deputy Director-General of the International Department of the Ministry of Finance of China; Executive Director for China at the Asian Development Bank (2004-2012); Advisor to the Executive Director for China at the World Bank; Deputy Division Chief of the World Bank Department of the Ministry of Finance of China; and Deputy Division Chief and Division Chief of the International Department of the Ministry of Finance of China (1993-2004).

Dr Zhang has a PhD in finance. He joined the World Bank Department of the Ministry of Finance of China after obtaining his master's degree from Nankai University in July 1989.

Ayumi Konishi, Senior Advisor to the Chief Executive Officer, Multilateral Cooperation Center for Development Finance, Beijing, PRC

Mr Ayumi Konishi has been Senior Advisor to the Chief Executive Officer at the Secretariat of the Multilateral Cooperation Center for Development Finance (MCDF) since 30 August 2022. MCDF is an international initiative to promote partnership among Multilateral Development Banks (MDBs) and between MDBs and various bilateral and commercial financial institutions for high-quality and sustainable connectivity infrastructure investment in developing countries.

Mr Konishi is a career international civil servant with nearly 40 years of experience with the United Nations Secretariat (1982-1988) and the Asian Development Bank (1988-2020). In ADB, he worked mostly in operations, including in education, governance, finance, and trade sectors; as Country Director for Vietnam (2006-2011), Deputy Director General for Pacific Department (2012-2013), Director General for East Asia Department (2013-2017), and as Special Senior Advisor to the President (2017-2020). As Director General of East Asia Department, Mr Konishi contributed to the establishment of the CAREC Institute.

Mr Konishi is a Japanese national. He graduated from Waseda University (Japan) and Oregon State University (US) and has a master's degree in economics from New York University.

Thomas Abell, Director, Digital Technology for Development, Division Asian Development Bank, Manila, the Philippines

Thomas Abell is the Director of ADB's Digital Technology for Development Division, which promotes the effective use of digital technology across ADB programs to improve development impact. His team works with ADB member countries in supporting the transition to the digital economy and provides assistance across many areas, including e-government, connectivity, tech startup ecosystems, earth observation, technology policy, and industry partnerships.

Thomas has over 30 years of professional experience in digital technology, including technology policy and strategy, software development, and systems architecture. During his ten+ years of experience in international development, he has worked extensively across Asia, Africa, and Latin America, working with governments, development organizations, NGOs, and corporations. He has authored many publications on technology innovation in development, focused mainly on education, financial inclusion, and agriculture. Thomas has master's degrees in engineering and management and a bachelor's in engineering from MIT.

Talant Sultanov, Chair and Founder, The Center for Strategic Initiatives, Bishkek, the Kyrgyz Republic

Talant Sultanov is the Chair and Founder of the Center for Strategic Initiatives 'Taza Koom' and Co-Founder of the Internet Society—Kyrgyz Chapter. He is a member of the UN Secretary General's Multistakeholder Advisory Group for Internet Governance (UN IGF MAG). Talant's experience includes work at the World Bank as the Digital Development Specialist. He has served in the Kyrgyz Government as the Adviser to the Prime Minister in charge of the Taza Koom Digital Transformation Strategy and as the Director of Government Think Tank NISI. Previously he has worked in academia as the CFO of the American University in Bishkek and as the Scholarship Coordinator at the World Affairs Council in San Francisco and in the private sector at Kazkommertsbank in Almaty. Additionally, he served on boards of the Kyrgyz National TV and Radio Corporation, the Business Council of the Kyrgyz Parliament, the Bank of Asia, and Humo Microcredit Foundation in Tajikistan. Talant promotes Internet connectivity and digital development. Some of his projects include Sanarip Insan digital skills training project for women and youth in rural areas.

Talant holds a Master of International Affairs degree from Columbia University's School of International and Public Affairs (2006) and a Bachelor's degree (Summa Cum Laude) in International Relations from San Francisco State University (1999). He has also received executive education at the Harvard Kennedy School and NESA (2016).

Roman Mogilevskii, Senior Economist, Central and West Asia Regional Department, ADB, Manila, Philippines

Roman Mogilevskii has recently joined Asian Development Bank (ADB) in the position of Senior Economist in the Regional Cooperation and Integration Unit, Central and West Asia Department. Before joining ADB, he worked for different think tanks and universities in the Kyrgyz Republic and other countries of Central Asia. He has extensive experience researching trade policy, public finance, labor market, social policy, and macroeconomics in Central Asia and Eastern Europe. He advised the governments of the Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan, and Uzbekistan and worked as a consultant for many international organizations including different UN agencies and development banks.

He has a degree of candidate of physical-mathematical sciences from the Institute of Physics of Earth (Academy of Sciences of the USSR) and the Institute of Mechanics and Seismic Resistance of Structures (Academy of Sciences of Uzbekistan).

Albina Muratbekova, Senior Research Fellow, Eurasian Research Institute, Almaty, Kazakhstan

Dr Albina Muratbekova works as a Senior Research Fellow at the Eurasian Research Institute of the Khoja Akhmet Yassawi International Kazakh-Turkish University, Almaty, Kazakhstan. In this role, she writes policy briefs, e-bulletins, and research articles on topics related to the wider Eurasian region for both internal institute publications and external peer-reviewed journals. She also teaches undergraduate courses in Asian affairs and history. Prior to joining ERI, Albina worked in the international departments of several Kazakhstani universities, where she was responsible for the internationalization of the university.

Albina received her PhD from Al-Farabi Kazakh National University. In her dissertation, she examined China–India border interactions at global, regional, and bilateral levels. Her primary research interests cover Central, East, and South Asian affairs, intraregional and interregional cooperation of Central Asian states, and China-India relations.

Burulcha Sulaimanova, Researcher, OSCE Academy, Bishkek, the Kyrgyz Republic

Dr Burulcha Sulaimanova earned her PhD in Economics from Kyrgyz-Turkish Manas University in 2016. Since 2022 she has been serving as a Postdoctoral Research Fellow at the OSCE Academy in Bishkek, the Kyrgyz Republic. Her prior academia experience includes serving as an Assistant Professor at the Economics Department of Kyrgyz-Turkish Manas University, where she was lecturing courses in macroeconomics, econometrics, time series analysis, and economic forecasting.

Her research encompasses diverse topics, such as energy transition and gender, employment vulnerability, education–job mismatch, infrastructure impact on trade. Dr Sulaimanova has publications in peer-reviewed scientific journals such as *The Journal of Development Studies*, *Asia Europe Journal* and *International Journal of Manpower*.

Dr. Sulaimanova's contributions have been acknowledged through various awards and honors, including the Certificate of Honor from the Ministry of Education and Science of the Kyrgyz Republic in 2021.

Asif Javed, Senior Research Associate, Sustainable Development Policy Institute, Islamabad, Pakistan

Asif Javed did his MSc in Economics from Quaid-i-Azam University (QAU), Islamabad. At present, he is doing his MPhil in Economics from Pakistan Institute of Development Economics (PIDE), Islamabad.

Before joining SDPI as Project Associate, he used to work with the World Bank, British Council, South Asian Network for Development and Environmental Economics (SANDEE), and International Alert. His main research work includes: South Asian regional investment and value chains, role of public sector in developing social enterprises, Pakistan economic cooperation with Afghanistan, environmental regulations in textile processing sector, and poverty and social impact analysis of Workers Welfare Fund.

He has produced a number of publications in different areas, including trade, global value chain, tax reforms, agriculture, internal migration and labor mobility, youth employment and human resource development. He has attended national and international trainings such as CGE Modeling in Nepal, and SAARC training on HRD in Islamabad.

Farrukh Khakimov, Head of Department of Foreign Policy and Security, The Development Strategy Center, Tashkent, Uzbekistan

Mr Farrukh Khakimov is Head of Department on Foreign Policy and Security at the Development Strategy Center, Uzbekistan. He holds an International Master's degree in International Relations and Security Studies from the University of Glasgow.

Prior to joining the Development Strategy Center, Mr Khakimov lectured on world politics and geopolitics at the University of World Economy and Diplomacy and also worked as a research fellow at the Academy of Public Administration and at the Institute for Strategic and Regional Studies under the President of Uzbekistan during 2010 to 2016. Mr Khakimov's areas of research interest are world politics, geopolitics, the Central Asian region, and digitalization processes in Central Asia.

Artem Levenkov, Head of Socioeconomic Analysis and IFIs, Eurasian Fund for Stabilization and Development, Moscow, Russia

Artem Levenkov is the Head of Socioeconomic Analysis and IFIs at the Eurasian Fund for Stabilization and Development (EFSD). He is responsible for maintenance of the large-scale EFSD Sovereign Financing Database (SFD) project and interactions with various IFIs on different research issues.

Prior to joining EFSD, Mr Levenkov worked in the Central Bank of Belarus. He is an experienced economist with a demonstrated history of working in the banking industry and is skilled in macroeconomics, development economy, and international affairs. Mr Levenkov holds a master's degree in finance. He is a contributor to an expert group under the G20 on finance track. He has authored and co-authored more than 20 publications on economic development, macroeconomics, economic integration, and global financial architecture.

Xiaojun Feng, Associate Professor of Sociology, China Agriculture University, Beijing, the PRC

Xiaojun Feng is Associate Professor of Sociology at China Agricultural University. She received her PhD from the University of Oxford. Her research examines labor and agrarian issues through the lenses of financialization, technological transformations, and globalization.

She published her first book *The Labour Implications of Technological Upgrading* in China with the International Labour Organization in 2020. She is working on her second book tentatively titled *The Making of Labour Precarity in China, 1949-2019*.

Ana Pashalishvili, Programme Specialist, Women's Entrepreneurship Acceleration, Europe and Central Asia Regional Office, UN Women, Istanbul, Turkiye

Ana joined UN Women Georgia country office ten years ago, in 2013. In the beginning, her area of work included women, peace, and security issues. Since 2016 Ana moved to the Women's Economic Empowerment thematic area and has been managing projects with the focus on private sector support, entrepreneurship acceleration, increasing engagement of women and girls in ICT and gender mainstreaming of various state policies and programs.

Prior to joining UN Women, Ana has worked for the Government of Georgia, as well as had several assignments at OSCE/ODIHR, Council of Europe Development Bank, Caisse d'Epargne d'Alsace. Her professional background also includes working as a lawyer in private sector companies.

Ana Pashalishvili holds an MA in banking and financial law from the University of Strasbourg, France as well as an MA in private law from Robert Schuman University, France. She has undergone several executive programs in economics and management. Georgian is her native language, but Ana is also fluent in English, French, and Russian.

Syed Hassan Alsagoff, Manager, Science, Technology and Innovation Cooperation and Capacity Development Department, Islamic Development Bank, Jeddah, Saudi Arabia

Hassan is currently the Manager of the Science Technology and Innovation (STI) Division of the Cooperation and Capacity Development Department. He leads a team that is focused on promoting STI, through a wide array of interventions including institutional as well as human capacity building and infrastructure development. Under the Technology Deployment Cooperation program, grant resources are mobilized from technology providers to buy down the cost of OCR financing, hence providing concessional financing to member countries for the technology deployment.

Before joining IsDB, Mr Hassan was a manager for new business support at SPRING Singapore (currently known as Enterprise Singapore), a government agency that supports the growth of small and medium-size enterprises. He also worked closely with entrepreneurs under the Action Community for Entrepreneurship (ACE), a public and private sector movement that looks at ways to improve the business climate in Singapore.

Syed Hassan holds a masters in Islamic finance practice from the International Centre for Education in Islamic Finance (INCEIF). He graduated with an honors degree in business management from Singapore Management University.

Hsiao Chink (Benzhe)Tang, Head, ADB-PRC Regional Knowledge Sharing Initiative (RKSI), Beijing, PRC

Benzhe has over 25 years of professional experience in policy, research, training, and project and knowledge management in a central bank, academe, and multilateral institution, as well as diverse humanitarian and social service voluntary experiences from disability/aged carer to dental assistant to disaster relief personnel.

He currently heads ADB Beijing's Regional Knowledge Sharing Initiative (RKSI), a south–south development knowledge sharing platform. RKSI focuses primarily on the sharing of lessons and experiences of the People's Republic of China's remarkable economic transformations in the last four decades with other developing countries.

Benzhe has a strong academic background in management, finance, and economics. He obtained his bachelor of business in business administration and bachelor of business (first class honors) in finance, from the University of Technology, Sydney; MPhil in finance from the University of Cambridge; and PhD in economics from the Australian National University.

Sherry Tao Kong, Associate Professor, Peking University, Beijing, the People's Republic of China

Dr Sherry Tao Kong (Associate Professor) is a development economist at the Institute of Social Science Survey, Peking University (Beijing, China). She also holds a senior researcher position at the Institute of Digital Finance at Peking University. She received her PhD from the Australian National University (ANU) in 2006. Her research interests include digital economy, income distribution, labor market dynamics, inequality, and poverty, with a focus on China and Southeast Asia.

Prior to joining Peking University in 2012, she worked at the Australian National University as a research fellow (2006-2012) specialized in large-scale micro-level data collection and analysis in China and Indonesia. Between 2005 and 2007, she served as an economist consultant to the World Bank for research projects related to poverty reduction in China and Laos.

Remon Moes, Senior Manager Public Affairs, Alibaba, PRC

Remon Moes is currently working for Alibaba Group Globalization Office, in particular supporting the eWTP initiative.

In his current role, Remon has helped launch projects to support micro, small, and medium-size enterprises in developing countries. These include helping local small businesses get access to the intermarket via cross-border trade facilitation, inclusive finance projects including an e-payment and cross-border remittance system, and supporting education initiatives.

Prior to joining Alibaba, Remon held positions at the European Commission in Brussels, Belgium, and for technology and consulting firms in Shenzhen and Beijing, China. Education Background September 2011-September 2012: University of Hong Kong, HK, master's degree in international and public affairs.

Syed Shakeel Shah, Additional Secretary to the Prime Minister, Government of Pakistan, Islamabad, Pakistan

Mr Shah is a career civil servant of Pakistan's Customs Service with extensive experience in public policy, international trade, and regional cooperation, spanning over two decades. He is currently serving as Additional Secretary to the Prime Minister of Pakistan where he looks after overall economic management of line ministries. Until recently, he served as Director General Reforms and Automation in Federal Board of Revenue where he led key initiatives in Pakistan customs to transform it into a leading government agency for trade facilitation and compliance. This includes, among others, leveraging AI in key risk management functions and integrating customs with other trade regulatory entities through Pakistan Single Window Initiative (PSW) to facilitate paperless and seamless trade.

As Director of the CAREC Institute (2019-2022), he led strategies, optimized operations, augmented human resources, harnessed technologies (e-learning platform), and strategized coordination with member countries, resulting in the substantial increase in the quantity and quality of CI's knowledge services. While serving as the head of the Economic Affairs Wing in the Prime Minister's Office, Mr Shah coordinated complex assignments across the government, the private sector, and development partners. He played an influential role in negotiating free and preferential trade agreements with Turkey, Thailand, and the PRC, and steering projects under the China–Pakistan Economic Corridor (CPEC). He also served as a community welfare attaché at the Consulate General of Pakistan in Barcelona (Spain). Mr Shah holds an MA in international trade law and economics from the World Trade Institute, Bern (Switzerland), and an MSc in international relations from Quaid-e-Azam University, Islamabad (Pakistan).

Enkhtulga Ganbat, Cross-Sector Coordination Specialist, Ministry of Digital Development and Communications, Ulaanbaatar, Mongolia

Ms Enkhtulga Ganbat is the specialist in cross-sector coordination at the Ministry of Digital Development and Communication of Mongolia. In this capacity, she aims to support the activities of governmental organizations at all levels with ICT technology, to provide interoperability, to implement e-transition laws, policies, and programs, to conduct relevant research and analysis, to develop policy options, and to create new ICT products, services, and applications. Further to this, she aims to improve services for the public, to make all governmental services accessible, transparent, and prompt. She has been conducting research in the field of e-health. She successfully participated in the development and implementation of the information system during the COVID-19 epidemic, in Mongolia. Also, the policy and planning were defined in the framework of the responsible functions such as 'Using the information system, data exchange and creating and regulating the database of the education sector.'

Most recently, she has been working as the secretary of the operational headquarters of the 'Glass Operation' under the Ministry of Digital Development and Communication, aimed at fighting corruption, creating an open and transparent government, and ensuring citizen's right to know. She holds an MBA degree from Global Leadership University, Mongolia.

Yixin Yao, Senior Research Fellow, Asian Development Bank Institute, Tokyo, Japan

Dr Yixin Yao is a Senior Research Fellow at the Research Department of Asian Development Bank Institute (ADBI).

She was the director in charge of sustainable development and sustainable infrastructure projects at the Department of International Economic and Financial Cooperation, Ministry of Finance in the People's Republic of China (PRC) before she joined the ADBI and was responsible for managing the PRC Country Partnership Strategy with the World Bank, ADB, KfW, the OPEC Fund for International Development (OFID), and the governments of Austria and Israel. She also led all the strategic cooperation and loan negotiations related to PRC-ADB, PRC-KfW, PRC-Austria, PRC-Israel, PRC-OFID, and PRC-Green Climate Fund (GCF), annual country programming, annual country investment project plan and portfolio reviews. She holds a PhD in economics from Northwest University and Lanzhou University, and master's and bachelor's degrees in law from Peking University.

Khalid Umar, Chief of Strategic Planning Division, CAREC Institute, Urumqi, PRC

Mr Khalid Umar is the Chief of the Strategic Planning Division (SPD) and Coordinator of the CAREC Think Tank Network (CTTN) at the CAREC Institute (CI). He joined the CI in late 2016 and has been instrumental in the conception, design, and implementation of the CI's long-term strategies and operational plans; building strategic alliances; and establishing and nurturing networks and partnerships. At the CI, he also held the portfolio of the head of finance, HR, and administration for a year and worked with a group of ADB-supported consultants to draft rules, regulations, and procedures for streamlining financial and human resource management. His professional interests include strategic management, economic policy, regional cooperation and integration (RCI), financial inclusion, fintech, and partnerships and alliances.

Earlier in his career, as a civil servant, he has worked in various departments in the government of Pakistan, including the Prime Minister's office, the office of the Auditor General of Pakistan, and PIFRA—a World Bank-funded project—on multiple assignments in economic policy and public financial management. Before joining the civil service, Khalid worked in the NGO sector in Pakistan.

Jieru Ba, Senior Researcher, Tencent Research Institute, Beijing, China

Ms Jieru Ba is a senior researcher at the Macro Economy and Finance Research Center of Tencent Research Institute. With over ten years of research experience in the field of payment systems, she primarily focuses on industry and policy research related to the development trends of payment and clearing, financial technology, and financial inclusion.

Ms Ba graduated from China University of Political Science and Law and obtained a master of law degree in international and comparative law from Chicago-Kent College of Law.

Ghulam Samad, Senior Research Specialist, CAREC Institute, Urumqi, the PRC

Dr Ghulam Samad is a Senior Research Specialist at the Central Asia Regional Economic Cooperation (CAREC) Institute, ADB. Before joining the CAREC Institute, Dr Samad was a Senior Research Economist at the Pakistan Institute of Development Economics (PIDE), Ministry of Planning, Development and Special Initiatives. Dr Samad also served as an Economist at the Planning Commission of Pakistan.

Dr Samad holds a PhD in economics from Colorado State University, USA. His experience spans more than 15 years of high-level research and teaching and providing valuable contributions to peer-reviewed national and international journals and several international books on key economic themes. As a consultant, Dr Samad worked for International Development Research Centre (IDRC) Canada, World Bank, Asian Development Bank, United Nations Development Program (UNDP), United Nations Environmental Program (UNEP), and UN World Intellectual Property Organization (WTO).

Naveed Zafar Durrani, Senior Consultant, Asian Development Bank, Singapore

Naveed is an experienced IT professional who initially managed the IT department of JTB Asia Pacific Headquarters, overseeing 30 branches across the region and contributing significantly to the company's digital transformation. He later transitioned to a senior role in the corporate planning department of JTB, where he spent over ten years providing valuable insights on leveraging information technology for business development and the importance of adopting new technologies to stay competitive in the travel industry's highly competitive landscape. Naveed introduced the Corporate Innovation Initiative at JTB to drive creativity, R&D, and market analysis, fostering innovation and technological advancement in business to stay competitive and drive growth. In the process, the team delivered several award-winning projects from this initiative. Naveed collaborates closely with the national tourism organizations of Singapore, Thailand, and Bali, providing advisory services on developing in-destination products that cater to evolving customer behaviors.

Naveed is currently working as a senior consultant at the Asian Development Bank. His primary role involves supporting the digital transformation efforts in the CAREC region through the implementation of the CAREC Digital Strategy 2030. Additionally, he leads a team of skilled consultants actively implementing diverse initiatives to bolster the region's startup ecosystem.

Shuqi Su, Consultant, Asian Development Bank, Beijing, the People's Republic of China

Shuqi is a versatile and result-oriented person with eight years of proven success in partnership development and project management across Asia, Africa, and Europe. She is skilled in program management, business development, partnership management, and event organization in the field of digital transformation, ICT, education, and tourism.

She has a proven track record of developing, scaling, and optimizing brand new initiatives and teams. In addition, she has expertise assisting companies in developing and sustaining partnerships with various stakeholders, including ministries, international organizations, businesses, academia, and NGOs.

She is a lifelong learner who continues to pursue personal growth. After six years of employment, Shuqi pursued a master's degree at University College London as a Chevening Scholar in 2021. She excels at simplifying and presenting complex concepts to the public. She previously led impactful digitalization and innovation education programs at Huawei and UNIDO. Currently, Shuqi focuses her efforts on collaborating with universities, public authorities, and private sectors in the CAREC region to support regional startup ecosystem development.

Eli David, Chief Executive Officer, StartupBlink, Consultant to Asian Development Bank, Israel

Eli David cofounded StartupBlink.com, a global map of the startup ecosystem and research center partnered with more than 100 governments. Startup Blink aspires to become the one-stop shop for startups.

In 2010, Eli cofounded Lingolearn with its current CEO and team. Lingolearn.com provides private lessons online for private students and groups in 16 languages. Courses are taught in a virtual classroom by native speakers, with teaching materials and pedagogical guidance.

As a CPA, economist, and MBA graduate with work experience in Big 4 companies, like BDO and KPMG, Eli produced business plans and provided business consulting until he decided to take the startup path. Eli is a digital nomad. Over the last five years, I have lived in more than 30 countries, constantly changing locations from India to Paraguay and Bosnia. He is the first nomadic mobilizer for Elance, spreading the news about traveling while freelancing at the same time. Eli thinks nomads and startup owners have everything in common with regard to initiating significant changes and taking smart risks to achieve happiness.

Norbert Funke, Director, Caucasus, Central Asia, and Mongolia Regional Capacity Development Center, International Monetary Fund Almaty, Kazakhstan

Norbert Funke is the Director of the IMF Caucasus, Central Asia, and Mongolia Regional Capacity Development Center (CCAMTAC), which was launched in February 2021. He brings significant experience in IMF capacity development, surveillance and program work. He was Assistant Director/Division Chief of the IMF Institute for Capacity Development (ICD), where he headed the African Division and later the Asian Division. In 2012-2016 he was Director of the Joint Vienna Institute (JVI).

Prior to this, he served as mission chief and country economist for several middle- and low-income countries in the African Department, where he also led regional surveillance and worked as a country economist. Before joining the IMF in 2000, Norbert worked at McKinsey & Company, the Organization for Economic Cooperation and Development (OECD), and at the Kiel Institute for the World Economy. A German national, he holds a doctorate in economics from the University of Cologne.

Jingjing Huang, Deputy Director One, CAREC Institute, Urumqi, PRC

Dr Huang is Deputy Director One at the CAREC Institute. She graduated with a BA (1991) and MA in economics (1994), holds a PhD in management (2000) from Xiamen University, and worked as a Deputy Director of the Teaching and Research Center, Director of Academic Affairs, the Assistant President and the Vice President of Xiamen National Accounting Institute.

With ten years at an accounting firm, and over 20 years of academic experience in accounting and audit in higher education, Ms Huang holds the title of the national leading accountant (academic) and an outstanding teacher in Xiamen.

She is a member of the Internal Control Standards Committee of the Ministry of Finance of the People's Republic of China; a council member of the Accounting Society of China; and the Chinese Institute of Certified Public Accountants. And she is a distinguished professor with strong expertise on audit, financial fraud prevention, and internal control.

Zhang Jin, Vice President, The Center for International Knowledge on Development Beijing, PRC

Dr Zhang Jin is Senior Research Fellow of the Development Research Centre of the State Council of China and Vice President of the Centre for International Knowledge on Development (CIKD).

She attained her PhD degree from the University of Cambridge, where she taught and researched for many years. Her research includes topics on development in China and the world; the mutual understanding of the Chinese and Western civilizations; globalization, big business and China; and she is political executive editor of *Economy of State-Owned Enterprises*. She is executive editor of the Routledge series 'China in the World.'

Zeeshan Salahuddin, Director, Center for Regional and Global Connectivity, Tabadlab Pakistan

Zeeshan Salahuddin is the Head of Growth and Strategy and the Director for the Centre for Regional and Global Connectivity (CRGC) at Tabadlab. Zeeshan has delivered high-quality projects in the development space for a wide range of international firms, partners, supranationals, and multilaterals. He specializes in diagnostics, institutional strengthening, and communications advisory.

His areas of focus include transnational policy, security, foreign policy, and climate change. He frequently writes for *The News*, The Friday *Times*, *Dawn*, *The Diplomat*, *Foreign Policy*, among others, and occasionally provides analysis on the BBC and on CNN.

He has a master's degree in corporate communications and strategic management from Ithaca College, New York.

Tuvshintugs Batdelger, Director, Economic Research Institute, Ulaanbaatar, Mongolia

Dr Tuvshintugs is Director of the Economic Research Institute (ERI) and an Associate Professor of Economics at the National University of Mongolia. He has a bachelor's degree in economics from the National University of Mongolia, a master's degree in economics from the University of Manchester, UK, as well a PhD in economics from Boston University, USA.

He has experience working at the Bank of Mongolia and was Head of the Economics Department of the University of Mongolia from 2014 to 2017. He has been a member of the Economic Policy Council under the Prime Minister of Mongolia since 2012 and was a member of the Monetary Policy Committee from 2011 to 2016. He is actively involved in policy discussions in the country through the establishment and operation of ERI since 2010, one of the longest-running think tanks in the country.

Through ERI, he successfully contributed to policy discussions on wide-ranging economic and social issues by coordinating and implementing many projects by international organizations such as World Bank, Asian Development Bank, and Japan International Cooperation Agency. In particular, he successfully led research teams conducting an economic assessment of big mining and industrial projects on the country's economy and society in general. He has published policy research studies in international peer-reviewed journals and publications and authored chapters on the Mongolian economy in numerous books.

Mahir Humbatov, Chairman of the Board, Economic Scientific Research Institute, Baku, Azerbaijan

Mahir Humbatov is the Chairman of the Board of Directors of the Economic Scientific Research Institute (ESRI).

He holds BA and MA degrees with distinction from Baku State University (together with Dokuz Eylul University in Turkey and Cairo University in Egypt); a second BA degree from Azerbaijan State Economic University; a BSc degree from the Psychology and Sociology Institute of Baku; an MSc degree received jointly from the School of Government and International Affairs and Durham University Business School in the United Kingdom; and is currently a PhD candidate in economics, where his area of focus is privatization, infrastructure financing, and PPPs.

He has edited and authored seven books and numerous articles on international organizations, international economic relations, public–private partnerships, investments, economics and law, ethics, sustainability, green economy, and other areas. He has given interviews to *Forbes*, *Bloomberg*, *Reuters*, *Al-Jazeera*, and other international journals. He has extensive experience working in several government institutions and the private sector. He has given lectures on various topics at BSU, ASEU, Azerbaijan University, the LSE, Durham University, Oxford University, and is regularly invited to speak at the UNECE, UNDP, UNESCAP, WB, IMF, IDB, ADB, EBRD, and other institutions.

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Mr. Batsaikhan is Senior Strategic Planning Specialist at the CAREC Institute. Prior to joining the CAREC Institute, Batsaikhan was Acting Deputy Director-General, First Secretary and Anticorruption Focal Point in the Ministry of Foreign Affairs of Mongolia.

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Before joining the CAREC Institute, Mr Dzhovid was a career civil servant of the Ministry of Economic Development and Trade of the Republic of Tajikistan with public policy experience in trade development for regional and international cooperation spanning over eight years. He also has experience in international organizations, working as an assistant to the Poverty Reduction Project (UNDP-Tajikistan).

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