BDAIM-2025

PROCEEDINGS

of the International Scientific and Practical Conference

Big Data and Artificial Intelligence in Modeling International Socio-Economic Processes

Tashkent, Uzbekistan

May 27, 2025

University of World Economy and Diplomacy
Moscow State Institute of International Relations
National University of Uzbekistan

International Scientific and Practical Conference

Big Data and Artificial Intelligence in Modeling International Socio-Economic Processes

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(Conference Proceedings)

May 27, 2025
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International Scientific and Practical Conference – BDAIM-2025

Big Data and Artificial Intelligence in Modeling International Socio-Economic Processes

The **University of World Economy and Diplomacy (UWED)**, in collaboration with **MGIMO University** and the **National University of Uzbekistan (NUUz)**, hosted the international scientific and practical conference **BDAIM-2025** on **May 27, 2025** in **Tashkent, Uzbekistan**.

The main **goal** of the conference was to unite researchers, policy makers, experts, and educators to explore cutting-edge applications of **big data** and **artificial intelligence (AI)** in modeling **international socio-economic processes**. Particular emphasis was placed on interdisciplinary approaches and digital transformation in economics, governance, and education.

Key Themes of the Conference:

- **Theoretical Foundations:** big data processing, machine learning algorithms, interpretability.
- **Socio-Economic Modeling:** global trade, finance, migration, and digital economies.
- **Global Challenges:** AI for climate change, pandemics, geopolitical risk management.
- **International Relations:** digital diplomacy, media analytics, conflict forecasting.
- **Ethics and Regulation:** AI governance, data protection, algorithmic responsibility.
- **Mathematical Models:** econometrics, game theory, uncertainty and risk analysis.

The event was conducted in a **hybrid format** with participation in **English, Russian, and Uzbek**. The conference provided a high-level platform for **scientific exchange**, **networking**, and **policy dialogue**.

The authors are solely responsible for the content and accuracy of their articles

AI and ICT in Uzbekistan-China Trade Cooperation: Driving Innovation and Efficiency

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Abstract of the article: Artificial Intelligence (AI) and Information and Communication Technologies (ICT) play a crucial role in Uzbekistan-China trade cooperation by providing innovation and boosting efficiency. This partnership includes the implementation of 5G technologies, expansion of the digital economy, and application of AI solutions in different sectors. The collaboration of young experts from Uzbekistan and China's advanced expertise has achieved significant technological progress.

Keywords: Information and Communication Technologies (ICT), Artificial Intelligence (AI), 5G, Uzbekistan, China, trade, cooperation, partnership, digital economy, GDP.

Introduction:

In today's fast-changing world of technology, it is becoming vital to implement digitalization and artificial intelligence into every sector of our lives. Therefore, Uzbekistan and China are also strengthening their trade partnership by using more tools of ICT as well as AI. Uzbekistan is still in the early stages of investing in spreading the wide use of digitalization across the country. However, China has been actively supporting Uzbekistan with being the country's largest foreign investor, and 27,9% of the entire foreign investments come from it [1]. Moreover, China has become a key partner by using its expertise in advanced technologies to strengthen bilateral cooperation. According to statistics, in 2023, bilateral trade between the two countries reached 14 billion US dollars and is expected to rise to 20 billion US dollars [2]. This cooperation has positioned Uzbekistan as a place for new digital ideas in the area and developed fields such as logistics, agriculture, and urban development.

Furthermore, their partnership in the Belt and Road Initiative (BRI) has further fostered the sustainable growth of digitalization [3]. Using AI and ICT together in trade cooperation could help Uzbekistan attract more investment, grow its economy and infrastructure, as well as modernize its workforce. However, there are still some barriers, such as regulatory obstacles and low data security, preventing countries from achieving success in this field. This article explores how AI and ICT can foster Uzbekistan-China trade cooperation by creating innovation, and also gives suggestions on resolving the challenges of the digital landscape.

Analysis of literature:

Among all five Central Asian countries, Uzbekistan is considered to be the first one to form diplomatic relations with China. Since the establishment of diplomatic partnership, various fields in the cooperation between Uzbekistan and China have been advancing

continuously. Starting from 2016, China-Uzbekistan relations were officially changed to a strategic partnership [2].

ICT is becoming an integral part of our lives, since it brings automation and simplification of the processes with the use of digitalization. For instance, the book вЂњICT and Productivity: A Roadmap for Empirical ResearchвЂќ by Kretschmer, Cardona, and Strobel provides information for understanding ICT's impact on productivity, emphasizing methodological approaches such as growth accounting and econometric estimates. It highlights that ICT's productivity mostly depends on the following factors: organizational structures and human capital. Furthermore, it states that the extent to which technology is used varies, with finance and manufacturing benefiting greatly [8].

Artificial intelligence is becoming vital in the workplace to achieve efficiency. Therefore, Uzbekistan's government is also trying to implement AI in the workplace by creating necessary policies. For instance, the Resolution of the President of the Republic of Uzbekistan on the approval of the Strategy for the Development of Artificial Intelligence Technologies until 2030 is the perfect example of this [9].

Methodology:

Statistical, analytical, and comparative methods were used in the research process.

Discussion and Results

Current State of Uzbekistan-China Cooperation in AI and ICT

Looking back, the Republic of Uzbekistan and the People's Republic of China signed a diplomatic agreement for the first time in 1992 after the collapse of the Soviet Union. Starting from that period, their cooperation ties have been getting stronger, and several milestones have been reached with their partnership. For instance, since 2001, Uzbekistan has been a founding member of the Shanghai Cooperation Organization (SCO), a regional economic and security partnership. Today, it also involves other countries, including Kazakhstan, China, Tajikistan, Russia, Kyrgyzstan, India, Iran, and Pakistan.

It is very well-known that bilateral cooperation is a comprehensive strategy involving all types of relations. Governments should actively communicate in a political way since it plays an important role in developing partnerships. Therefore, Uzbekistan and China have also had a number of political visits to each country. If we look at the statistics, it can be concluded that in the last 30-year period, meetings of leaders of both countries have reached 23. From 2016 to 2023, alone 12 of these meetings took place. However, starting from 2000 until 2017,136 political visits from different levels were generally held [4].

Returning to political milestones, both countries signed the вЂњChina-Uzbek Treaty of Friendship and CooperationвЂќ in 2005. That bilateral agreement focuses on strengthening cooperation in several sectors, including the economy, trade, fighting terrorism, and drug transportation.

In 2013, the Belt and Road Initiative (BRI) was launched, and since then, Uzbekistan has become a geopolitical partner in the region. Despite the fact that Uzbekistan and China do not share a border, Uzbekistan's location helps China to get closer to the country with rich natural gas, Turkmenistan. The Central Asia-China Pipeline runs through Uzbekistan, linking Turkmenistan's gas fields to China's Xinjiang area.

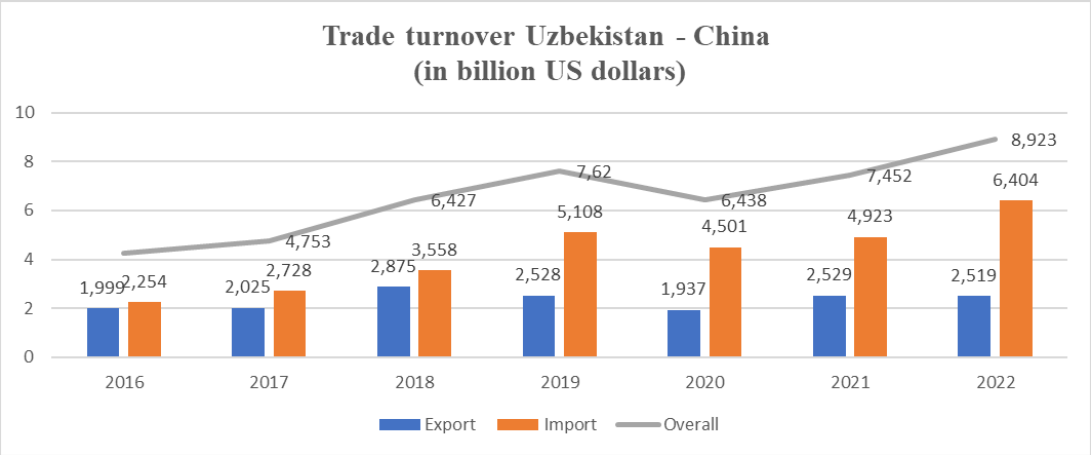

Figure-1. Source: Data of the State Statistics Committee of the Republic of Uzbekistan URL: `https://www.stat.uz/img/tawqi_savdo_2024.pdf`

If we look at the chart provided above, it can be observed that from the beginning of the period, the higher proportion was on the import side. In 2019, the trend experienced a dramatic growth to nearly $2,000 billion, from $3,558 billion to $5,108 billion. However, next two years, there was a slight fall in the numbers, and at the end of the period, the indicator saw an increase in imports accounting for $6,404 billion. In contrast, from the data, it can be concluded that Uzbekistan imports more goods than it exports.

Therefore, for over 10 years, China has held the position of Uzbekistan's leading trade partner. According to statistics, bilateral trade volume has grown from less than $52.5 million in 1992 to $7.44 billion in 2021. This means the indicator saw a nearly 140 times increase during the whole period [5]. Although the tough period during the COVID-19 pandemic, China successfully continued exporting goods to the country and has maintained its position as the largest export market in the region.

Role of AI and ICT in Bilateral Cooperation

ICT Infrastructure Development

ICT sector in Uzbekistan is developing at a high rate, mainly with government support. According to the data provided by Stat.uz, gross value added by ICT services has shown consistent growth over the six-year period. Between 2019 and 2024, the gross value added increased by more than triple, indicating the introduction of development programs focused on the ICT sector to enhance economic development. The most notable increase occurred between 2023 and 2024 when the value rose sharply from approximately 25,000 billion sums to over 35,000 billion sums. This suggests accelerated investments or advancements in ICT infrastructure and services during this period.

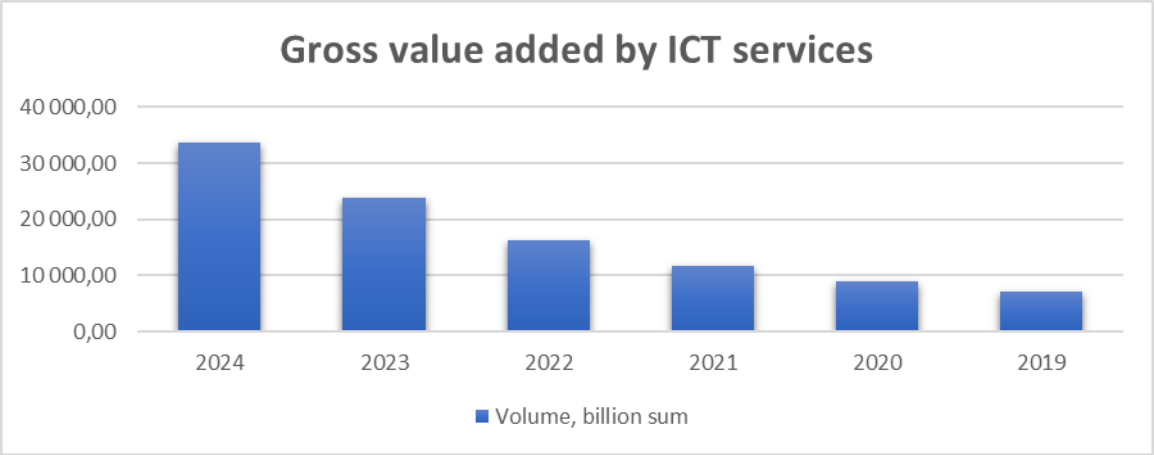

Figure-2. Source: Compiled by the author based on the UZSTAT 2024 and 2023 reports. URL: https://stat.uz/en/press-releases/50256-for-2024-year

Analysis of local news sites revealed that telecommunications infrastructure is mainly navigated by Chinese companies, including Huawei and ZTE. The fundamental tools of ICT are specifically designed on the basis of the technologies of the above-mentioned organizations. However, experts hold the opinion that these companies bring advantages only to the ICT infrastructure. On the other side, the software industry, which mostly uses local resources, does not generally get any benefit from them.

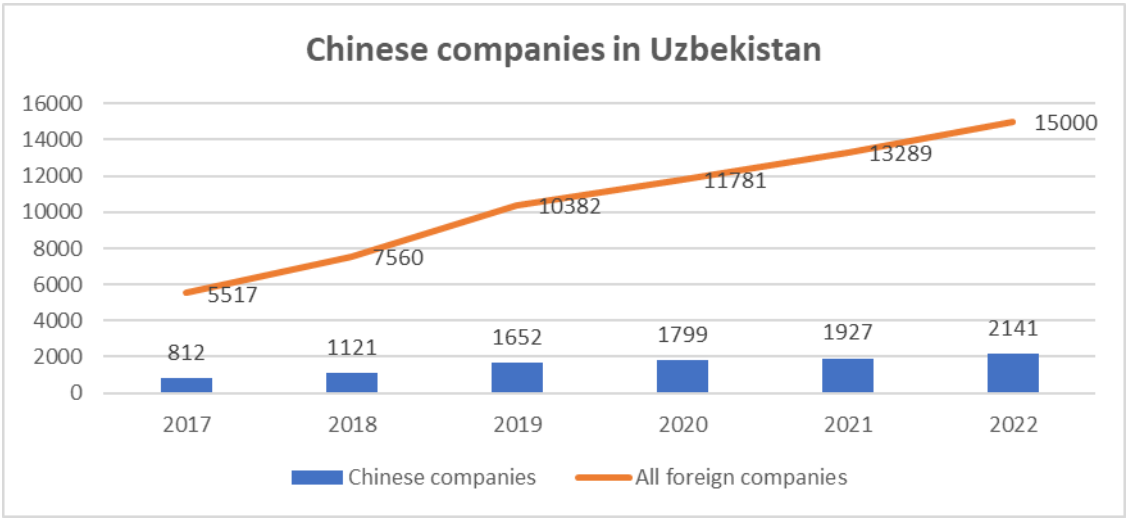

Figure-3. Source: Ministry of Investments, Industry and Trade of the Republic of Uzbekistan

Although both countries established their partnership a long time ago, Chinese companies started rapidly entering the market in the 2000s. Huawei, which is one of China's leading companies, has been successfully operating in Uzbekistan for 26 years, since 1999. The official office in Uzbekistan employs more than 300 people (70% of them being locals) and has managed to establish partnerships with local telecom operators by providing tools for the operator segment. Later on, it opened EBG departments, supplying

solutions for corporate clients, and CBG, which is designed for consumers. Additionally, Huawei launched several important projects, which were created for the purpose of improving ICT infrastructure for mobile and fixed communication networks. For instance, the creation of the following projects: Uzcloud Data Processing and Storage Center, GSM network of the national mobile operator Uzmobile, RuralStar solution for rural areas together with UMS, Data Processing and Storage Center for Beeline Uzbekistan, 5G Internet, and so on [6].

Even though Chinese companies have a large share in the market, that does not mean that there are no other competitors to them. Uzbekistan is committed to maintaining a balance between technology companies and is trying to follow this rule. Thus, in places that are strategically important to the state, Chinese companies are not permitted, and their services are replaced with European technologies.

Why is ICT important in international trade cooperation?

ICT is becoming an integral part of our lives, since it brings automation and simplification of the processes with the use of digitalization. It is also impacting international trade by promoting innovation, increasing productivity, providing efficiency, and reducing trade costs. To make my point of view clearer, the impact of the WTO's Information Technology Agreement (ITA) on international trade is further explained below:

Supports Economic Growth

A study by the Information Technology and Innovation Foundation (ITIF) shows that if ICT tools are expanded under the ITA, it could boost the economy and further revenues. For instance, developing countries that expanded the products covered by the ITA saw a significant increase in tax revenue since their economies started to grow. This increase was actually more than the tariff money they lost, which means both rich and poor countries could gain from trading. ITIF considers that Brazil's GDP could grow by almost $20 billion over 10 years if it joined the ITA. The country will be able to compensate 123% of its cancelled tariffs because of increased tax revenues from enhanced economic growth.[7] Using research from Cardona et al. [8], ITIF concludes that if a country's ICT capital stock goes up by 1%, its real GDP will likely go up by 0.06%. So, if you multiply a country's yearly increase in ICT capital stock by that 0.06 percent, you can get a rough idea of how much GDP growth they could get by including more ICT products in the ITA.

Reduces Trade Costs

Nowadays, technologies are continuously developing, and thus, global trade agreements, including modern ICT tools, are being established to adapt to their development. The World Trade Organization's (WTO) Information Technology Agreement (ITA) is a perfect example of an agreement involving an ICT-based policy framework, promoting trade liberalization. The ITA's вЂњzero-in/zero-outвЂќ tariff plan removes taxes on tech products such as semiconductors, telecommunications equipment, and high-tech manufacturing tools, helping create a huge global trade environment worth $2 trillion. A model by ITIF concludes that if the price of ICT goods goes down by 1%, due to the removal of tariffs, a 1.3% rise can be expected in the consumption of those products, demonstrating how access to ICT stimulates economic productivity.

Expansion of Cross-Border Services

Digitally delivered services, mainly in fields such as finance, education, and software development, now represent the fastest-growing segment of international trade. Data from the WTO shows that since 2005, these services have grown at an annual rate of 8.1%, outpacing traditional goods trade. Cloud computing and telecommunication advancements help companies from developing countries to provide services in the IT sector remotely without any physical presence requirements. For instance, Indian IT firms using high-speed internet and digital platforms offer software solutions to clients from North America as well as Europe, providing $227 billion in export revenue in 2023.

AI applications

Artificial intelligence is becoming vital in the workplace in order to achieve efficiency. Therefore, companies are now using them to accomplish their daily tasks as they help to maintain competitiveness and speed up their workflow. Consequently, AI stimulates the economy of the country, strengthens its geopolitical positions, and improves the living standards of the nation.

Uzbekistan's government is also trying to implement AI in the workplace by creating necessary policies. For instance, the Resolution of the President of the Republic of Uzbekistan on the approval of the Strategy for the Development of Artificial Intelligence Technologies until 2030 is the perfect example of this. Its primary aim is to create suitable conditions for the accelerated introduction of artificial intelligence technologies and their widespread use in the country, ensuring the availability and high quality of digital data, and training qualified personnel [9].

If we look at how China's leading companies, including JD.com and Taobao, achieved success, the roles of artificial intelligence (AI) and big data were vital. The main reason for that is this system analyzes seller behavior, reads customer feedback, and finds suspicious activities in the transaction process. In the case of Uzbekistan, adopting such technologies can intensify the efficiency of IPR enforcement and improve the consumer shopping experience. Integrating AI and data analytics means that platforms can build trust and navigate their operations while implementing global best practices.

Moreover, in order to implement 5G and 5.5G networks in Uzbekistan is possible by using AI as well as big data technologies. They are particularly useful for applying concepts of smart cities and smart homes, and by doing so, they strengthen the ICT infrastructure in the region.

Why does AI play an important role in international cooperation?

Artificial Intelligence (AI) has emerged as an essential foundation of modern international cooperation, changing diplomatic agreements and economic integration. AI tools are altering how nations collaborate in a world that's both connected and falling apart. They are clearly addressing shared challenges, simplifying regulatory policies, and providing international innovation. Here are the key reasons why AI should be implemented in international trade cooperation:

Enhancing Global Productivity and Trade

It is projected that by 2030, AI will make a $13 trillion contribution to the global GDP, highlighting its position as a driver of international business partnerships [10]. Governments understand that achieving dominance in AI development is impossible for any nation, due to the reliance on interconnected data networks, skilled workers, and

processing power. For example, how advanced language models such as GPT-4 depend on international datasets and cloud systems that extend across numerous countries. This mutual reliance encourages countries to form partnerships for resource exchange; the U.S.-EU Trade and Technology Council (TTC), launched in 2021, has dedicated $4 billion to collaborative AI research focused on medical diagnoses and renewable energy advancements. Likewise, the Global Partnership on Artificial Intelligence (GPAI), with 29 participating nations, manages AI-powered farming projects that have improved harvests by 18% in sub-Saharan Africa using shared satellite images and machine learning techniques.

Solving ecological problems

Rich countries are putting a lot of money into AI research and development. In 2020, globally, $60 billion was spent on AI investments, and it's expected to double by 2025. Meanwhile, poorer nations might not get the advantages that come with AI growth. In order to overcome this problem, a number of projects are being launched, including the UN's AI for Sustainable Development Goals program. It applies AI to different fields, such as irrigation in dry areas. For instance, Kenya's work with India's AI4Bharat group which has cut water waste by 40% in some dry regions using smart data analysis. These partnerships help balance the waste in each sector of life, delivering the benefits of AI to everyone.

Conclusion:

Using AI and ICT in Uzbekistan-China trade cooperation can bring technological innovation, which in turn enhances efficiency and fosters leadership of Uzbekistan. Because of partnerships with big tech companies like Huawei, Uzbekistan has not only expanded its digital infrastructure but also educated its workforce. 5.5G network trials during ICT Week 2024 and the Seeds for the Future program, which has trained over 300 specialists, could be perfect examples of the mentioned progress. Furthermore, Uzbekistan follows international rules, including the WTO's agreements. This has made them a reliable partner and helped them attract $3 billion in foreign investments for their IT sector in 2024. As Uzbekistan is working hard to reach its Vision 2030 goals, China's advanced technological skills continue to reach breakthroughs in the automation of trade, smart logistics, and AI-driven healthcare solutions. This collaboration not only helps Uzbekistan to become a Central Asian IT hub but also shows other countries that a strategic partnership could lead to achieving sustainable digital transformation.

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