



THE ROLE OF THE DIGITAL SILK ROAD IN TECHNOLOGICAL COOPERATION BETWEEN CHINA AND TURKEY

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Abstract. This paper investigates how China's Digital Silk Road initiative creates new opportunities for deepening technology investment and trade ties between China and Turkey. It analyzes the strategic geopolitical positions of both countries, their technological strengths and weaknesses, and the potential synergies that can be leveraged through joint projects. The study explores specific sectors with strong prospects for cooperation, including infrastructure development, digital finance, e-commerce, and artificial intelligence. In addition, the analysis considers the challenges inherent in such cooperation, such as regulatory barriers, cybersecurity issues, and potential geopolitical complexities. Ultimately, the paper evaluates the potential of the Digital Silk Road to stimulate significant economic growth and technological progress in both China and Turkey, and identifies key strategies to minimize risks and maximize the benefits of this partnership.

The key sectors of cooperation, opportunities and challenges, as well as the geopolitical context influencing the development of bilateral relations are examined. The advantages and risks for both countries associated with deepening digital partnership are analyzed.

The article also explores the concept of the Digital Silk Road as a major component of the Belt and Road Initiative and analyzes the significance of the BRI for digital interaction between China and Turkey. Particular attention is given to digital infrastructure, including next-generation communication networks, e-commerce, artificial intelligence, big data and also related technologies. This study examines China's strategic push to advance its digital agenda globally and Turkey's strategic role as a technological bridge between Europe and Asia. It identifies major opportunities for bilateral collaboration in digital infrastructure investment, technology transfer, and joint innovation projects, while also addressing key challenges such as cybersecurity risks, digital sovereignty concerns, and geopolitical competition. The paper concludes that the Digital Silk Road can become a powerful driver of China-Turkey digital cooperation if both sides maintain a balanced regulatory framework that protects national interests.

Keywords: Digital Silk Road, digital technologies, international cooperation, global innovation, digital infrastructure, digital collaboration, investment, trade, technology, 5G, artificial intelligence, e-commerce, geopolitics.

Introduction

In the context of the rapid digital transformation of the global economy, the Digital Silk Road has emerged as a concept of growing strategic importance. Widely regarded as the technological pillar of China's Belt and Road Initiative (BRI), the Digital Silk Road extends beyond traditional physical infrastructure. It focuses on the development of telecommunications, e-commerce, artificial intelligence, big data, cloud computing, and digital platforms – areas where a new framework of international economic cooperation is taking shape.

For China, the Digital Silk Road serves as a key strategic tool to consolidate its global technological leadership, expand the export of high-tech solutions, and promote Chinese digital standards worldwide. Turkey's involvement in the initiative offers significant opportunities for modernizing its domestic digital infrastructure, attracting foreign investment, and reinforcing its position as a regional technological hub connecting Europe and Asia.

Occupying strategically important geopolitical locations, both China and Turkey have shown increasing interest in deepening cooperation in digital technologies. This mutual interest stems from shared goals of economic modernization, diversification of technological partnerships, and enhancement of their international influence. For China, the partnership represents an opportunity to extend the reach of the Belt and Road Initiative into the digital domain. Turkey provides access to advanced technologies and substantial investments essential for economic diversification. Nevertheless, this cooperation unfolds within a complex geopolitical environment marked by great-power competition and the respective domestic political dynamics of both countries, which inevitably shape the pace and direction of bilateral digital engagement.

The Belt and Road Initiative, launched by China, has evolved into an ambitious project of global digital infrastructure known as the Digital Silk Road. The DSR goes beyond simply providing internet access; it aims to create an integrated, high-tech digital ecosystem connecting countries across Asia, Africa, and Europe [1]. For China and Turkey, as key actors in this project, the DSR presents both unprecedented opportunities and complex challenges that require careful analysis and strategic planning.

Research methods

The objective of this study is to conduct a comparative analysis of the approaches of China and Turkey to the development of the digital economy and the implementation of the Digital Silk Road initiative in the technology sector, in order to identify their strengths and weaknesses and to determine promising areas for cooperation. The materials used for this study include academic literature, reports of international organizations, government documents, news sources, and data obtained from the internet. The conclusions presented in this paper are based on the application of both inductive and deductive methods.

Results and discussions

The Digital Silk Road is firmly rooted in China's national development strategies. Its core components include the Made in China 2025 program, which seeks to elevate China to a global leader in technology and industry by promoting innovation and accelerating the shift to a digital economy. Another central element is the national innovation-driven development strategy extending to 2050, which positions innovation as the primary engine of growth and sets the ambitious goal of achieving global leadership in the digital sphere by mid-century, largely based on Chinese technological standards. In addition, the Belt and Road Initiative (BRI) functions as a dynamic and adaptable platform of projects. The BRI has demonstrated flexibility in responding to global challenges, as illustrated by the launch of the Health Silk Road in 2020 in response to the COVID-19 pandemic, which also incorporates a digital dimension [7]. The interaction of these strategies creates a synergistic effect, channeling resources and political

support toward the implementation of the DSR and the global promotion of Chinese technological solutions.

China and Turkey, two rapidly developing economies with ambitious digitalization agendas, possess considerable potential for mutually beneficial cooperation in the high-technology sector. Located at the crossroads of Europe and Asia, Turkey offers strong prospects for expanding its technology sector and plays a crucial role in the Belt and Road Initiative by acting as a gateway to European markets. Substantial Chinese investments in Turkish infrastructure, energy, and other sectors of the economy have contributed to Turkey's economic growth [1], while Turkey, in turn, offers China access to regional markets and a strategically advantageous geographic position.

Turkey's location, expanding domestic market, and commitment to technological modernization create favorable conditions for Chinese investment, whereas China provides advanced technologies, expertise, and financial resources. Bilateral interaction has already intensified, particularly in the fields of digital cooperation and telecommunications infrastructure development.

Both China and Turkey play important roles in the implementation of the DSR. Owing to its strategic geographic position, Turkey serves as a key transit hub linking Europe and Asia. Its growing technology sector and commitment to digital transformation make it an attractive partner for China [3]. China-Turkey relations represent a complex and evolving form of strategic partnership grounded in mutual benefit, yet shaped by geopolitical realities and differing national interests. Both countries seek to strengthen their positions and influence within the global technological and economic landscape.

Following its accession to the World Trade Organization in 2001, China, whose weight in the global economy has been steadily increasing, emerged as a stronger competitor for both developed and developing countries. China's share in global value added and exports has grown year by year, and the country now occupies leading positions across many key macroeconomic indicators. This breakthrough in competitiveness is also evident in the logistics sector. The implementation of the Belt and Road Initiative (BRI), a major strategic effort to connect China with the West, aims to attract investment, stimulate economic growth, achieve logistical superiority, and promote global integration. Launched in 2013, the BRI has been described as a «project of the century» with its primary goal being to expand trade turnover between China and Europe and to enhance China's logistics connections with European markets [17]. The BRI is expected to increase global competitiveness for many countries, particularly China, by generating advantages in the logistics sector.

From Turkey's perspective, its strategic position as a key «middle link» in the Belt and Road Initiative offers substantial opportunities. The BRI is expected to enhance the competitiveness of Turkish exports across various goods and industries, while simultaneously strengthening the country's logistics sector. In November 2015, the G20 Summit held in Antalya, Turkey, provided an important platform for bilateral engagement. During the summit, Chinese President Xi Jinping reaffirmed China's commitment to deeper integration with the global economy, the advancement of the Belt and Road Initiative, and the building of a community of shared interests. He stressed the importance of strengthening strategic communication between China and Turkey and aligning their development strategies. President Xi further encouraged both countries to make full use of platforms such as the Silk Road Fund and the Asian Infrastructure Investment Bank, while exploring innovative cooperation models to achieve mutual development and common prosperity. Turkish President Recep Tayyip Erdoğan similarly stressed that Turkey attaches great importance to its relations with China and is prepared to collaborate in deepening cooperation across multiple sectors, actively participating in BRI-related initiatives [4]. China seeks to position itself as a global power capable of helping developing countries overcome digital inequalities.

China's technology sector has demonstrated remarkable growth, underpinned by a vast domestic market, a well-developed manufacturing base, and substantial government investment. Strong demand for electronics, software, and digital services has created a favorable environment for technology companies. Large-scale government programs aimed at advancing artificial intelligence, 5G networks, the semiconductor industry, and cloud technologies have stimulated innovation and attracted both domestic and foreign investment.

China-Turkey cooperation in high technology is actively expanding across several key sectors. The Digital Silk Road is expected to lower the threshold for achieving critical mass among users and increase the number of successful companies with large user bases, thereby enhancing the potential valuation of Chinese internet startups. In theory, the DSR policy facilitates the creation of successful digital enterprises, providing entrepreneurs with a more favorable ecosystem for developing competitive online platforms [2].

For example, companies such as Huawei and ZTE, supported by multi-billion-dollar loans from the Chinese government, have constructed a significant portion of Africa's digital infrastructure. This has allowed China to expand its influence on the continent considerably, providing access to communications technologies and services for numerous African countries. Following the announcement of the DSR initiative in 2015 and 2017, Chinese infrastructure financing across Africa surpassed the combined investments of African governments, multilateral agencies, and G7 countries [4]. Fiber-optic networks built by China have also enhanced digital connectivity in Central Asia, contributing to regional economic development and strengthening ties with China.

Beyond providing basic infrastructure, Chinese companies have actively promoted projects in e-governance, smart education, and digital healthcare. For instance, in 2017, the African Union launched an intelligent health monitoring system based on ZTE technologies [5]. The scale of such financing highlights China's strong ambition to establish global leadership in digital technologies.

The Role of Huawei and ZTE:

- **Technological Superiority:** Both companies possess advanced expertise and leadership in telecommunications equipment, delivering competitive solutions in terms of cost, quality, and performance. This technological edge has been a major factor in their penetration of the Turkish market.
- **Integrated Solutions:** Huawei and ZTE offer not only individual equipment but also comprehensive end-to-end solutions, including network design, installation, configuration, and ongoing maintenance. These turnkey packages significantly simplify deployment for Turkish telecommunications operators.
- **Favorable Financial Conditions:** Chinese firms frequently provide attractive financing options, such as credit facilities and deferred payment terms, making their proposals particularly appealing to local partners.

However, cooperation with these companies also involves geopolitical risks, most notably the impact of U.S. sanctions imposed on Huawei. These sanctions have significantly restricted the company's access to American technologies and components, creating potential risks for the long-term stability of 5G networks built on Huawei equipment, as updates and technical support may be limited. Turkey faces a dilemma: while Huawei and ZTE offer cost-effective and technologically advanced solutions, there is a risk of dependency on a single supplier and potential disruptions due to geopolitical tensions [6]. Consequently, Turkey seeks to diversify its equipment suppliers to mitigate these risks.

Chinese companies such as Huawei and ZTE are key players in developing Turkey's 5G infrastructure. In the manufacturing and industrial sectors, Chinese investments in Turkey are concentrated in high-tech segments, particularly telecommunications. Huawei is actively developing Turkey's 5G network and has established a major research and development center in the country. ZTE, meanwhile, has acquired a controlling stake in the Turkish electrical engineering firm NETAS and provides a wide range of telecommunications and internet products and services [8]. Their collaboration encompasses equipment supply, installation, and ongoing maintenance.

The Sino-Turkish partnership in telecommunications infrastructure, especially in the domain of 5G deployment, constitutes a complex and multifaceted landscape, heavily influenced by geopolitical dynamics. Notwithstanding these challenges, Huawei and ZTE remain key players in the supply, installation, and maintenance of 5G networks in Turkey.

Geopolitical tensions not only generate risks but also directly affect the pace and scale of 5G infrastructure development in the country. The country must balance the economic benefits of collaborating with Chinese companies against the need to reduce dependency and mitigate potential national security risks [7]. This delicate balance will shape the future of cooperation in this sector. Potential compromises may include using equipment from multiple suppliers or implementing enhanced information security mechanisms. «We believe that 5G is a multi-year megatrend that will create a world in which digital computing is increasingly ubiquitous» stated C.C. Wei, CEO of a Chinese semiconductor company. Numerous companies produce components for 5G infrastructure, even if they are less publicly recognized than Huawei or ZTE [16]. These include manufacturers of chips, fiber-optic cables, antennas, and other essential equipment. Such cooperation enables Chinese firms to expand their market presence by offering integrated solutions based on 5G infrastructure, strengthening their technological positioning.

These companies often collaborate with equipment manufacturers to integrate their solutions into 5G networks, creating ecosystems that not only enable high-speed data transmission but also support processing, analysis, and application across various sectors, including industry, transportation, healthcare, and retail [15]. More-

over, Chinese firms provide services in 5G network management, cybersecurity, and data analytics, while actively developing artificial intelligence technologies.

Currently, the race for global leadership in AI has intensified. China, through substantial investment and strict state oversight, is rapidly expanding its influence and, in certain domains, already competes directly with the traditional leader—the United States.

Chinese developments in artificial intelligence encompass a wide range of areas, from humanoid robots and intelligent terminals to natural language processing systems, computer vision, and virtual and augmented reality technologies. AI is widely regarded in China as a driving force for the country's economic transformation. In mid-2017, China adopted the Next-Generation Artificial Intelligence Development Plan 2018–2020, which outlines the strategic vision, core objectives, tasks, resources, and measures aimed at achieving global leadership in AI. According to the plan, the key AI-related industries were expected to exceed 150 billion yuan by 2020, 400 billion yuan by 2025, and 1 trillion yuan by 2030 [20].

For most Chinese citizens, AI is closely associated with the concept of the «smart city». The smart city model, featuring intelligent infrastructure and digital management of the entire urban ecosystem through 5G connectivity, has been gaining widespread adoption. In such cities, all objects from buildings to waste containers are assigned unique digital identifiers, and the urban environment is designed using eco-friendly materials. This approach has been implemented in nearly 400 cities worldwide. The initiative is based on an integrated development model combining industrial, informational, urban planning, environmental, and agricultural components [19]. To advance AI, the Chinese government provides substantial support through significant investments in research and development, fostering innovation and accelerating the implementation of AI technologies across sectors.

In 2017, the State Council of China approved a three-stage plan for the development of artificial intelligence (AI) through 2030:

- First stage (by 2020): Focused on achieving a world-class level in AI applications, including fundamental research, standardization, and the creation of a supportive ecosystem for AI development.
- Second stage (by 2025): Aimed at breakthroughs in AI applications and attaining global leadership in specific fields, alongside establishing legal and regulatory frameworks for the sector.
- Third stage (by 2030): Envisions China's global leadership in AI and the large-scale application of AI technologies across all spheres of life. Specific plans and implementation measures are developed for each stage to realize the national AI development strategy [10]. Many Chinese companies have successfully applied AI across diverse economic sectors, such as financial technology, e-commerce, automotive manufacturing and healthcare. For instance, Chinese firms are developing and deploying facial recognition systems, recommendation engines, autonomous vehicles, and AI-based medical diagnostic systems.

In Turkey, Chinese companies have the potential to implement projects leveraging AI technologies, for example, to enhance translation services or advance e-commerce platforms. AI adoption could impact multiple sectors, from optimizing logistics chains to personalizing retail services, thereby accelerating the growth of Chinese online commerce.

Mobile payment platforms such as Alipay and WeChat Pay, actively promoted through the Belt and Road Initiative, have greatly simplified and accelerated cross-border transactions. This has facilitated the rapid growth of Chinese goods and services in the global online market. Furthermore, Chinese firms can provide big data analytics solutions in Turkey, supporting the optimization of marketing strategies, urban infrastructure management, financial analysis, and overall efficiency gains across various economic sectors. The expertise of Chinese firms in processing and analyzing massive datasets may be particularly valuable for Turkey within the framework of digital transformation. Overall, collaboration between Chinese and Turkish companies in AI and big data analytics holds the potential for mutual benefit, though it requires careful attention to regulatory frameworks and cybersecurity measures.

In the communications sector, China has also demonstrated significant growth over the past decade. Several Chinese companies, particularly e-commerce giants such as Baidu, Alibaba, and Tencent, have approached the market capitalization levels of global leaders like Alphabet and Facebook. By 2017, China's e-commerce sales volume was the largest in the world, twice that of the United States, the country where the Internet originated and which continues to dominate in trade and digital management. In mobile payments, China is also a global leader, with the total transaction value reaching USD 12.77 trillion in 2017, according to the Chinese government [6]. According to

Forbes, six of the ten wealthiest individuals in China are founders or top executives of Internet-related companies. Baidu, Huawei, Tencent, and Alibaba were included in MIT Technology Review's 2016 list of the 50 «smartest companies in the World», recognized for combining innovative technologies with effective business models to create new opportunities [9]. These and other similar companies are increasingly expanding their presence on the global stage.

Major Chinese e-commerce companies, such as Alibaba, are actively seeking to enter the Turkish market and establish partnerships with local businesses. This approach can provide Turkish enterprises with access to the vast Chinese market and expand the sales of their products. Alibaba leverages advanced internet technologies to enhance the competitiveness of small and medium-sized enterprises. Through its widely used e-commerce platforms, the company enables Chinese SMEs and consumers to access vast global markets. Alibaba also exemplifies the ambitious expansion strategy of Chinese tech giants into the Turkish market. By offering collaboration opportunities to local firms, Alibaba provides Turkish enterprises with access to China's massive consumer base while enabling them to utilize its advanced technologies to strengthen their competitive position. Although the company faced criticism in its early years regarding profitability challenges, Alibaba made history in 2014 by launching the largest initial public offering in the history of the New York Stock Exchange. By early November 2018, its market capitalization had reached approximately USD 380 billion [21]. These impressive figures underscore Alibaba's statement that the company operates as a kind of economy in itself, serving half a billion customers.

Alibaba is also advancing the development of online payment systems. Efforts to introduce these systems in the Turkish market have the potential to stimulate the growth of e-commerce. However, attempts by Alibaba and other Chinese companies to implement their online payment platforms in Turkey may produce both positive effects, such as boosting digital trade and challenges, including competition with local platforms and the risk of technological dependence [11]. The success of such initiatives will depend on the adaptation of the systems to Turkish market conditions, consumer trust, and the regulatory framework and policies of Turkish authorities.

The Digital Silk Road (DSR) initiative actively promotes the development of information and communication networks. The creation of such networks is an integral part of the DSR's infrastructure projects; however, the focus on trade and investment has often overshadowed discussions of the role of media and culture. Concepts such as communication, connectivity, and information circulation have received comparatively little attention. For example, in 2014, during the Central Foreign Affairs Work Conference, President Xi Jinping emphasized that China must «tell a good Chinese story and better convey China's message to the world». To disseminate this message globally, state-funded central media outlets—including Xinhua News Agency, China Central Television (CCTV, rebranded as China Global Television Network in 2016), China Radio International, People's Daily, and the English-language China Daily—received substantial funding to expand their international reach [12]. This investment forms part of broader government efforts to build internationally competitive Chinese media.

At the Third World Internet Conference in 2016, China proposed leveraging the Belt and Road Initiative to modernize the telecommunications infrastructure of participating countries through Chinese investment. According to China Daily, «network construction, services and applications, as well as the digital economy» are crucial for deepening exchanges and cooperation. Yang Xiaowei, CEO of China Telecommunications, stated that the mission of Chinese telecom operators is to bridge the digital divide and make people worldwide part of an «information civilization». Xinhua launched the Silkroad.news.cn web portal, which provides government policies of China and relevant Belt and Road countries, official documents, market information, investment and financial environments, project implementation updates, and expert opinions [18]. Despite these efforts, cultural and communication dimensions of the Belt and Road Initiative remain relatively underexplored.

The DSR serves to promote economic development and interregional connectivity. President Xi initially announced the strategy as the «Silk Road Economic Belt» during an official visit to Kazakhstan in September 2013. Another key component of China's digital strategy since 2020 is the digital yuan—a state-issued national digital currency built on advanced technology. The digital yuan is the world's first official digital currency issued by a central bank, intended, in the long term, to replace the U.S. dollar in international settlements, at least with Belt and Road countries. Economic development and interregional connectivity under the DSR are closely linked to financial systems and payment methods. As a large-scale initiative, the Digital Silk Road offers significant opportunities for integrating digital currencies into cross-border payments.

Cryptocurrencies have emerged as a transformative force in the global financial landscape of the twenty-first century. Growing interest and adoption by individuals and businesses have expanded their role in real-world transactions. Increasingly, companies, institutions, and even some countries accept cryptocurrencies as a legitimate means of payment. However, their application in international trade remains a subject of ongoing debate. Within the framework of the Belt and Road Initiative (BRI), cryptocurrencies have not yet been widely adopted; traditional payment methods such as the U.S. dollar, euro, gold, and the Chinese yuan continue to dominate [13]. Nevertheless, given the BRI's emphasis on economic connectivity and development, it is worthwhile to examine the potential role of cryptocurrencies in facilitating cross-border payments among participating countries, while carefully considering both opportunities and risks.

Opportunities:

- Traditional cross-border payments within the BRI are often hindered by high transaction fees and lengthy processing times. Due to their decentralized nature and significantly lower costs, cryptocurrencies could substantially reduce these expenses. This would make trade and investment more efficient and accessible, particularly for small and medium-sized enterprises and individual users
- Many regions covered by the BRI lack access to conventional banking services. Cryptocurrencies can provide financial inclusion for these unbanked populations, enabling broader participation in the global economy.
- Cryptocurrency transactions are completed far faster than traditional bank transfers, accelerating trade cycles and improving cash flow for enterprises.

Cryptocurrencies thus have the potential to transform payments within the BRI, offering substantial advantages in terms of cost, speed, and inclusivity. Their decentralized nature can bypass traditional financial barriers and open new opportunities for trade and investment in participating countries [16]. At the same time, the use of cryptocurrencies carries significant cybersecurity risks. Cryptocurrencies are vulnerable to hacking and theft, and an underdeveloped cybersecurity infrastructure in some BRI regions increases the exposure of users and businesses to these threats. Investment in cybersecurity, the development of secure platforms, and educational programs for citizens and companies are essential. Reliable security measures are particularly critical in regions with limited cybersecurity capabilities.

Furthermore, the lack of well-defined regulatory frameworks in certain BRI countries poses a significant barrier to the legal adoption of cryptocurrencies and generates uncertainty for businesses.

Establishing clear and harmonized regulations across participating nations is crucial for creating a safe and supportive environment for cryptocurrency-based transactions. For this analysis, the fifty leading cryptocurrencies by market capitalization on CoinMarketCap were considered as potential payment instruments. These include Bitcoin, Ethereum, Chainlink, Ethereum Classic, FTX Token and others. From the perspective of usability in trade, these cryptocurrencies could potentially be employed within the Belt and Road Initiative compared to traditional currencies. However, significant events in 2022, such as the de-pegging of Luna and the collapse of the FTX cryptocurrency platform, raised concerns about the reliability of cryptocurrencies. It can be concluded that all fifty cryptocurrencies present both opportunities and threats, as highlighted in the study's findings [14]. International cooperation, regulatory harmonization, and the development of robust security infrastructure are essential to unlock the full potential of cryptocurrencies within the BRI framework.

However, digital financial instruments represent only one dimension of the broader transformation taking place under the Digital Silk Road. In order to assess the structural foundations of China-Turkey digital cooperation more comprehensively, it is necessary to move beyond the financial aspect and examine the comparative technological capacities, strategic positioning, and institutional frameworks of both countries. A systematic comparison makes it possible to identify not only asymmetries in technological development but also areas of complementarity that may enhance bilateral cooperation within the Digital Silk Road architecture.

The table below summarizes the key dimensions of China's and Turkey's digital development and highlights the main areas of potential synergy.

Table 1. SWOT analysis of China and Turkey within the Digital Silk Road Framework

Indicator / Dimension	China	Turkey	Potential Synergy within the Digital Silk Road
Strategic Position	Global technological power; initiator of the Digital Silk Road under the Belt and Road Initiative	Regional hub connecting Europe and Asia; key transit corridor	Integration of the Chinese digital infrastructure with Turkey as a gateway to European and Middle Eastern markets
Digital Infrastructure	Advanced 5G deployments; global expansions of Huawei and ZTE,	Expanding 5G infrastructure; partial dependence on foreign suppliers	Joint development of 5G networks and telecommunications infrastructure
Artificial Intelligence (AI)	National AI Development Plan (2017–2030); strong state investment; smart city model in 400+ cities	Growing AI ecosystem; limited domestic R&D scale	Technology transfer and AI applications in logistics, e-commerce, and public administration
E-commerce	World's largest e-commerce market; global platforms such as Alibaba	Rapidly growing domestic e-commerce sector; strong SME participation	Integration of Turkish SMEs into Chinese digital platforms and cross-border trade expansion
Digital Finance	Leadership in mobile payments (Alipay, WeChat Pay); development of the digital yuan	Developing the fintech sector; regulated financial environment	Expansion of cross-border digital payments and fintech cooperation
Geopolitical Risks	US technological sanctions; external pressure on Chinese tech firms	Balancing relations between China, the US, and the EU	Diversification of suppliers and regulatory harmonization

Source: compiled by the author based on own research and analysis of ICDS Brief (2024) and FOI (2025) [19].

As demonstrated in Table 1, digital cooperation between China and Turkey is characterized by structural complementarity rather than direct rivalry. China possesses large-scale technological capabilities, globally competitive digital corporations, and strong state-backed investment mechanisms, while Turkey contributes strategic geographic positioning, regional connectivity, and access to European and Middle Eastern markets.

This multidimensional cooperation framework extends beyond purely economic instruments and increasingly intersects with issues of information influence, digital sovereignty, and geopolitical positioning. In this context, the Digital Silk Road functions not only as a technological and financial platform, but also as a mechanism of soft power projection and international norm-setting.

The expansion of Chinese state media under the Digital Silk Road initiative serves not only economic but also geopolitical objectives. Funding for the global expansion of news agencies and television channels is aimed at shaping a favorable understanding of Chinese policies and China's role in the world [20]. Collectively, these strategies form a comprehensive roadmap toward realizing the «Chinese dream», encompassing ambitious goals in digitalization and technological leadership.

The Digital Silk Road initiative provides China and Turkey with a unique opportunity to deepen technological cooperation and achieve mutual economic growth. The synergy of Chinese technological innovation with Turkey's strategic geographic location and expanding domestic market creates favorable conditions for joint projects in 5G infrastructure development, artificial intelligence implementation, digitalization of public administration and the financial sector, and the expansion of e-commerce.

Conclusion

The Digital Silk Road initiative represents a large-scale and multifaceted project with the potential to transform global digital infrastructure and economies. The Digital Silk Road offers substantial opportunities to enhance digital connectivity, stimulate economic growth, and expand access to advanced technologies across participating countries. China, as the primary driver of the initiative, provides the strategic vision and resources, while Turkey, positioned as a key node along the route, is expected to play a significant role in shaping its socio-economic outcomes. Turkey's strategic geographic location, combined with its well-developed network of bridges, maritime routes, and railways, reinforces its importance as a vital logistics and connectivity hub.

Despite these promising prospects, China encounters notable challenges in advancing the Digital Silk Road. A persistent dependence on imports for certain critical technologies, especially in the semiconductor sector, remains a key vulnerability. Geopolitical tensions with the United States and other Western powers introduce considerable uncertainty and risks for Chinese technology companies, particularly concerning data security and intellectual property protection. Although stringent regulatory measures aim to safeguard national interests, they may simultaneously limit market freedom and hinder innovation.

Through the promotion of the Belt and Road Initiative and its digital component the Digital Silk Road China demonstrates its ambition to shape a global community with a well-developed digital economy. The initiative actively supports the digital transformation of participating countries, offering broad, mutually beneficial partnerships based on shared access to infrastructure, free trade, and capital mobility.

Despite differences, China and Turkey stand to gain from technological cooperation. China could provide Turkey with access to advanced technologies and investments, while Turkey offers China entry to regional markets, creating opportunities for synergistic growth and long-term collaboration.

Contribution of the authors:

Berkinbay A.G. – identified the research objectives and tasks and conducted a practical analysis. Studied scientific and historical-cultural literature, collected and systematized materials. Analyzed the obtained data and summarized the results;

Birimkulova G.U. – formulated the general concept of the research and contributed to clarifying its scientific direction. Contributed to defining the methodological framework and systematizing the materials, and developed conclusions and recommendations;

Nazarova K.B. – analyzed the research materials and contributed to improving the content structure of the work. Clarified the scientific conclusions and summarized the results.

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Қытай мен Түркия арасындағы технологиялық ынтымақтастықты дамытудағы «Цифрлық Жібек жолының» маңызы

Аңдатпа. Мақала Қытай мен Түркия арасындағы технологиялық сектордағы инвестициялар мен сауданы арттыру үшін «Цифрлық Жібек жолы» бастамасы ұсынатын мүмкіндіктерді қарастырады. Екі елдің стратегиялық геосаяси орналасуы, технологиялық артықшылықтары мен әлсіз тұстары талданып, бірлескен жобалар арқылы жүзеге асырылуы мүмкін ықтимал синергиялар қарастырылады. Зерттеу инфрақұрылымды дамыту, цифрлық қаржы, электрондық коммерция және жасанды интеллект секілді ынтымақтастық әлеуеті жоғары нақты салаларды қамтиды. Сонымен қатар реттеушілік кедергілер, киберқауіпсіздік мәселелері және ықтимал геосаяси күрделіліктер сияқты ынтымақтастық барысында туындайтын сын-қатерлерге талдау жасалады.

Ынтымақтастықтың негізгі бағыттары, мүмкіндіктері мен сын-қатерлері, сондай-ақ екіжақты қатынастардың дамуына ықпал ететін геосаяси контекст қарастырылады. Цифрлық әріптестікті тереңдетуге байланысты екі ел үшін артықшылықтар мен тәуекелдер талданады.

Мақалада «Цифрлық Жібек жолы» тұжырымдамасы Бір белдеу, бір жол (BRI) бастамасының маңызды құрамдас бөлігі ретінде сипатталып, оның Қытай мен Түркия арасындағы цифрлық өзара іс-қимыл үшін

маңызы талданады. Келесі буын байланыс желілері, электрондық коммерция, жасанды интеллект, үлкен деректер және соған байланысты технологияларды қамтитын цифрлық инфрақұрылымға ерекше назар аударылады. Зерттеу Қытайдың шетелде цифрлық күн тәртібін ілгерілетудегі стратегиялық бағыттарын, сондай-ақ Еуропа мен Азияны байланыстыратын өңірлік технологиялық хаб ретіндегі Түркияның маңызды рөлін қарастырады. Цифрлық платформаларға инвестициялар, технология трансфері және бірлескен инновациялық жобалар секілді екіжақты өзара іс-қимылдың негізгі мүмкіндіктері зерделенеді. Сонымен қатар, ынтымақтастықтың тәуекелдері мен шектеулері талданып, киберқауіпсіздік, цифрлық егемендік және геосаяси бәсекелестік мәселелері айқындалады. Зерттеу қорытындысы бойынша, ұлттық мүдделерді қорғау мен тиімді реттеу тетіктерін сақтау жағдайында «Цифрлық Жібек жолы» Қытай–Түркия цифрлық ынтымақтастығының маңызды қозғаушы күшіне айналуға.

Түйін сөздер: Цифрлық Жібек Жолы, цифрлық технологиялар, халықаралық ынтымақтастық, жаһандық инновация, цифрлық инфрақұрылым, цифрлық әріптестік, инвестиция, сауда, технология, 5G, жасанды интеллект, электрондық коммерция, геосаясат.

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Роль «Цифрового Шелкового пути» в технологическом сотрудничестве между Китаем и Турцией

Аннотация: В данной статье рассматриваются возможности, предоставляемые инициативой «Цифровой Шелковый Путь», для увеличения инвестиций и торговли в технологическом секторе между Китаем и Турцией.

В работе анализируются стратегические геополитические позиции Китая и Турции, их технологические сильные и слабые стороны, а также возможные синергии в рамках совместных проектов. Особое внимание уделяется секторам с наибольшим потенциалом сотрудничества: развитию цифровой инфраструктуры, цифровым финансам, электронной коммерции и искусственному интеллекту. Особое внимание уделяется вызовам, присущим данному партнерству: регуляторным барьерам, вопросам кибербезопасности, защите цифрового суверенитета и возможным геополитическим рискам. В заключение оценивается потенциал Цифрового Шелкового пути как катализатора значительного экономического роста и технологического прогресса обеих стран, а также определяются ключевые стратегии по минимизации рисков и максимальному использованию преимуществ данного сотрудничества.

Исследование рассматривает основные направления двустороннего сотрудничества, существующие возможности и вызовы в контексте геополитической обстановки, влияющей на развитие китайско-турецких отношений. Анализируются преимущества и риски для Китая и Турции, связанные с углублением цифрового партнерства.

Статья также исследует концепцию Цифрового Шелкового пути в качестве важнейшего технологического компонента инициативы «Один пояс, один путь». Анализируется ее значение для укрепления цифрового взаимодействия между Китаем и Турцией. Особый акцент сделан на развитии цифровой инфраструктуры, в том числе сетей связи следующего поколения, электронной коммерции, искусственного интеллекта, больших данных и связанных с ними технологий. А также освещает стратегические направления Китая по продвижению своей цифровой повестки за рубежом, а также подчеркивает важную роль Турции как технологического моста между Европой и Азией. Анализируются основные возможности двустороннего взаимодействия, такие как инвестиции в цифровые платформы, трансфер технологий и совместные инновационные проекты. Одновременно рассматриваются риски и ограничения сотрудничества, включая вопросы кибербезопасности, цифрового суверенитета и геополитической конкуренции. Делается вывод о том, что при сохранении реалистичного подхода к регулированию и защите национальных интересов

Цифровой Шелковый Путь становится важным драйвером цифрового сотрудничества между Китаем и Турцией.

Ключевые слова: Цифровой Шелковый Путь, цифровые технологии, международное сотрудничество, глобальная инновация, цифровая инфраструктура, цифровое партнерство, инвестиции, торговля, технологии, 5G, искусственный интеллект, электронная коммерция, геополитика.

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