



Kazakhstan



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ON THE WAY TOWARDS A MORE INCLUSIVE
AND EQUITABLE DIGITAL FUTURE FOR ALL
CITIZENS

MOVING TOWARDS A MORE INCLUSIVE AND EQUITABLE DIGITAL FUTURE FOR ALL THE CITIZENS

Kazakhstan's digital transformation witnessed significant growth in e-commerce, fintech, and mobile technology, fostering social impact ventures. Challenges include limited data access and outdated legislation. Impact is notable in governance and education, though democratisation hurdles persist. Recommendations prioritize bridging the digital divide, fostering inclusivity, empowering women, and promoting collaboration for equitable digital policies.

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Kazakhstan extends over 2,700,000 square km of area – equivalent in size to Western Europe and the ninth-largest country, and the largest landlocked country in the

world with only seven people on 1 square km, 69 times less than in India with its territory only 25 per cent larger.

This must be taken into account when assessing the country's digital transformation – from limited internet access at the end of the 20th century to a thriving digital ecosystem at present.

1. How would you describe the digital trends in your country, especially regarding digital social impact ventures?

Kazakhstan's digital landscape has significantly transformed in recent years, driven by government initiatives and a growing tech-savvy population. Here are some key trends with a focus on social impact ventures.

1.1 Growth of E-commerce and Financial Technology (Fintech)

The rise of online shopping platforms and mobile banking has boosted financial inclusion and convenience. Cashless transactions have seen a surge, fostering transparency and economic activity. Figures from the National Bank of Kazakhstan, The Global Findex database by the World Bank, PricewaterhouseCoopers, and McKinsey & Company indicate a significant increase in both the volume and number of non-cash transactions over recent years.

In 2022, digital payments accounted for 83 per cent of payments in Kazakhstan's economy. A striking illustration of the penetration of fintech into the masses is the fact that the transfers and QR payments of the leader of the country's banking sector, Kaspi Bank, make up more than 90 per cent of the money turnover in bazaars within large Kazakhstani cities at 2023.

This trend creates opportunities for social impact ventures to provide financial services to underserved communities, promote e-commerce platforms for local businesses, and leverage data for targeted solutions.

1.2 Bridging the Digital Divide

While internet penetration is high at 92.9 per cent, a gap still exists between rural and urban areas. Initiatives are underway to address this, like building infrastructure and offering digital literacy programs.

However, infrastructure construction, given the very low rural population density of about 3.8 people per square km, is a very expensive undertaking. The research worked on ways to overcome the digital divide, carried out by the author at the request of a government agency back in 2007, had proposed a solution to the last mile problem without building the appropriate infrastructure through the development of mobile peer-to-peer communication devices and selling them to the population. However, the complexity of application development at that time prevented the decision to implement P2P communication.

This solution nowadays and the adoption of the law on the use of Starlink and OneWeb Internet are good drivers for organising communication in low population density regions. Social impact ventures can contribute by developing offline-enabled solutions, creating localised content, and promoting digital skills training in underprivileged communities.

1.3 Government Support for Innovation

The “Digital Kazakhstan” program and initiatives like Astana Hub International Technology Park Center aim to foster innovation and attract tech companies.

The government has established a supportive legal and regulatory framework to encourage innovation. This includes intellectual property laws, investment regulations, and business-friendly policies that facilitate the establishment and growth of innovative enterprises.

This creates an environment for social impact ventures to

collaborate with the government and access resources to develop solutions for education, healthcare, and environmental sustainability.

1.4 Growing Importance of Mobile Technology

The growing importance of mobile technology in Kazakhstan is a significant trend that has impactful implications for various aspects of society. With approximately 82% of the population now owning a smartphone, which is higher than the global average, mobile technology has become a crucial platform for reaching people in the country and a wide spectrum of services for a person.

From a societal standpoint, the widespread adoption of smartphones has led to the emergence of social impact ventures that leverage mobile apps to address critical needs. These ventures are utilising mobile technology to deliver educational content, provide healthcare services in remote areas, and connect communities with relevant resources. This indicates a shift towards using mobile technology as a tool for positive social impact and community development.

The educational sector is witnessing a transformation as mobile technology enables the delivery of educational content to a wider audience. Mobile apps are being utilised to provide access to learning materials, online courses, and educational resources, thereby democratising education and making it more accessible to individuals across different regions of Kazakhstan.

Furthermore, the healthcare sector is experiencing significant changes due to the adoption of mobile technology. Mobile apps are being used to deliver healthcare services in remote and underserved areas, bridging the gap in access to medical facilities and healthcare professionals. This has the potential to improve overall healthcare outcomes and enhance the well-being of individuals in these areas.

Additionally, the use of mobile technology to connect communities with relevant resources is fostering a sense of interconnectedness and empowerment. Mobile apps are serving as platforms for sharing information, facilitating communication, and providing access to essential services, ultimately contributing to the development and cohesion of communities across Kazakhstan.

1.5 Growing Focus on Cybersecurity

As Kazakhstan's digital ecosystem expands, cybersecurity concerns become paramount. Social impact ventures are playing an important role in raising awareness about online safety, promoting responsible digital citizenship, and developing solutions to combat cyber threats.

These trends highlight the immense potential for social impact ventures to leverage technology to address Kazakhstan's pressing social and economic challenges. By collaborating with stakeholders and tailoring solutions to local needs, these ventures are making a significant contribution to building a more inclusive and prosperous digital future for the country.

2. How would you describe recent digital shifts in your country?

2.1 Setting the Stage

Two decades ago, in the early 2000s, Kazakhstan's digital landscape was vastly different. UN E-government Development Index was 83, E-Participation Index was 69, and internet penetration was below 10 per cent, concentrated mainly in urban areas.¹ Access to technology was limited, and e-commerce was virtually non-existent. Despite the concept of National Information Infrastructure developed by that time and the Unified Electronic Document Management System (UEDMS),

1. To learn more about the methodology, visit: <https://publicadministration.un.org/egovkb/en-us/About/Overview/-E-Government-Development-Index>

State Databases of physical and juridical entities were running, the government services were largely paper-based, and the overall digital infrastructure was underdeveloped.

The hopes for democratisation through digitalisation in Kazakhstan from 2000–2006 championed by young, tech-savvy leaders faced several hurdles:

- The entrenched political system: Despite scholarships for Kazakh citizens to study abroad, aiming to train specialists for the country's priority sectors, well-known as the Bolashak program's exposure to democratic ideals, Kazakhstan's political system concentrates power in the presidency. This limited the room for manoeuvring for young leaders pushing for significant reforms.
- Inertia and resistance: Bureaucratic inertia and resistance from entrenched elites who benefit from the status quo can impede the implementation of digital reforms to increase transparency and accountability. Here is an example. UEDMS emerged as a pioneering two-tiered structure encompassing divisional and national echelons. At its core, this revolutionary system mandated that the inter-agency exchange of crucial documents traverse through a national-level nexus. These documents underwent a metamorphosis, meticulously structured utilising the world's premiere Kazakhstan machine-understandable communication format. However, beneath the surface of this technological marvel lurked a controversy that quickly unfolded. A realisation dawned upon the heads of government agencies, akin to an epiphany of imminent peril. They swiftly discerned the inherent danger entwined within such a system. Their collective insistence reverberated through the corridors of

power, advocating for the dismantling of this elaborate structure. What emerged from this tumultuous fervour was a simplification of the document exchange process, reduced to a mere semblance of its former self—a streamlined workflow devoid of the intricate layers of the UEDMS.

- Challenges of digitalisation: Tech can be a double-edged sword. Digitalisation can also be used for surveillance and control. Without proper safeguards, increased online government presence can stifle dissent instead of fostering openness.
- The role of civil society: A strong civil society is crucial for holding governments accountable. The public wasn't actively engaged in demanding democratic reforms, and digitalisation alone might not be enough to create lasting change. Restrictions on freedom of speech, assembly, and the press hindered civil society's ability to effectively advocate for democratic reforms.
- Economic considerations: Kazakhstan's dependence on resource exports made it vulnerable to external pressures and limited its ability to pursue fully independent democratic reforms.
- Corruption concerns: Digitalisation efforts were hampered by corruption when funds were misallocated, and systems were designed to benefit certain groups rather than improve transparency.

Digitalisation is a complex process, and six years wasn't enough to achieve significant democratisation effects, especially considering the entrenched political system at the time. These young leaders' expertise had been in business, not necessarily in political reform. They hadn't the experience or influence to navigate the political landscape effectively. These business

leaders lacked the political capital to challenge the existing power structures. The entrenched elite had resisted efforts that could diminish their control.

The Bolashak program

While the Bolashak program exposed young leaders to democratic practices, it might not be enough to overcome these deeply ingrained challenges. The program itself was influenced by the government’s agenda, and graduates found it difficult to implement significant reforms upon returning.

In general, the failures of those times still reverberate today. Digitalisation has the potential to be a powerful tool for democratisation, but it’s not a magic bullet. Overcoming the challenges mentioned above is crucial for Kazakhstan to achieve a more democratic future through digital transformation. A holistic approach that addresses political reform, digital inclusion, civil society empowerment, and economic diversification is necessary for sustainable progress.

2.2 Fast Forward to Today

Today, Kazakhstan boasts a thriving digital ecosystem. In 2023, almost 94 per cent of the population had internet access, with a significant reduction in the urban-rural digital divide (4 per cent). The number of E-Government users was 13.7 million in 2023, while the population was 19.6 million that year. The UN Participation Index was 15 in 2022, the UN E-Government Development Index was 28, and the UN Online Service Index was 8.2 This remarkable progress can be attributed to several factors:

- Above mentioned the “Digital Kazakhstan” programme.

² Full report can be accessed here: <https://publicadministration.un.org/egovkb/en-us/About/Overview/E-Participation-Index>

- Infrastructure Upgrade: Significant investments have been made in broadband infrastructure, expanding internet coverage nationwide.
- The Mobile Revolution has played a crucial role in increasing digital inclusivity, especially in rural areas.

2.3 The Impact

These digital shifts have had a profound impact on various aspects of Kazakh life:

- Economy: E-commerce has flourished, contributing to about a 2.5 per cent increase in its share in 2023 compared to 2016. The government estimates that digital technologies can lead to increased productivity and economic growth.
- Governance: E-government services, such as egov.kz (mobile app MGov) with about 33 million online services rendered and about 17 million services in front offices of -government provided in 2023, eotinish.kz to submit appeals to government agencies and monitor their progress, have streamlined bureaucratic processes, making them more efficient and accessible for citizens. 92 per cent of 1,353 public services are online ones. To increase convenience for citizens with the ability to choose different platforms for receiving government services, eliminate dependence on a single point of service provision represented by the e-government portal, as well as increase the level of receipt of government services among the population, the withdrawal of services to external platforms/mobile applications is provided.
- Education: Distant learning complex development, including using the best world-class solutions and local R&D implementations – webinar platforms,

LMS (Learning Management System), video conferencing, cloud services for collaboration, AR/VR, IoT in close connection with AI. Among them are Moodle, Google Classroom, Zoom, Microsoft Teams, Khan Academy, Coursera, EdX, Google Docs, Trello, Slack, eMentor, Wonderscope, Merge Cube, Academicus, and many others. This integrated approach is aimed at implementing a large number of small but continuous improvements within the framework of the educational Kaizen philosophy, creating in smart classrooms an atmosphere of 100 per cent loading, concentration of attention, competition, cooperation, and the formation of project Kaizen groups under IoT technology complex control. In universities, it is a combination of teaching knowledge and skills in conjunction with students' scientific research work. An important direction of the Kazakh teacher's work, with the support of sophisticated AI-driven hardware and software equipment, is to motivate each student to the highest level of self-confidence.

- Healthcare: Telemedicine services implementation started at the beginning of the 21st century and developed into the National Telemedicine Network, reaching the most remote rural areas and connecting them with famous local and international hospitals.
- International and regional cooperation: Exchange with knowledge using BD Epigraph, Aknurpress, e-uni.kz, Elslantar.kz, Smart Kitap, EastView, DataLib.Ru, IPR Smart, Znanium.com, AcademSearchComplete, eBookAcademicCollection, IEEE Xplore Electronic Library, Oxford Academic Journals, Oxford Scholarship Online, Springer Link, Web of Science, Scopus, Wiley Online Library, Science Direct, SciVal, eLibrary USA, India academic knowledge network, India telemedicine

network.

3. Describe and provide insight into your country being democratic or the internet breaking democracy in your body politic?

While Kazakhstan has made strides in digitalisation, Freedom House’s “Freedom on the Net 2023” report classifies it as “Not Free.”³ Here’s a breakdown of the indicators:

- **Obstacles to access (12/25):** While internet penetration is high nationally, there’s a rural-urban divide in access to affordable and reliable internet. It can hinder citizens’ ability to participate in online discourse and access information freely.
- **Limits on content (12/35):** The government can restrict online content and may block access to websites critical of the government. It can stifle freedom of expression and limit access to diverse viewpoints.
- **Violations of user rights (10/40):** Government surveillance, restrictions on freedom of speech, and pressure on journalists to limit online user rights create a climate of fear and self-censorship, discouraging online engagement.

Despite some digital progress, Kazakhstan’s internet environment falls short of being democratic. The government’s control over access, content, and user rights restricts online freedoms and hinders the potential of the Internet as a platform for open dialogue and civic participation.

4. Digital Tools are considered to be empowering. Can you describe which sector in your country has been most helped by the digital?

While digitalisation has undeniably benefited numerous sectors

³ Full report can be accessed here: <https://freedomhouse.org/report/freedom-net>

in Kazakhstan, two areas stand out as potential winners in the “most helped” category: e-government and education. Let’s delve deeper into the transformative impact of digital tools in each sector.

4.1 E-government: streamlining bureaucracy and empowering citizens

The e-government platform exemplifies the transformative power of digitalisation in government services:

- *Enhanced efficiency and transparency:* Streamlining government processes through e-government systems can significantly enhance the efficiency of administrative tasks, reducing bureaucratic hurdles and improving service delivery. This, in turn, fosters transparency in governance by providing citizens with clearer insights into governmental operations and decision-making processes.
 - *Accessibility and convenience:* Further development of e-government should prioritise making government services more accessible and convenient for the population. This involves ensuring that citizens have access to a steadily expanding range of services and information through digital platforms, irrespective of their location, thereby narrowing the gap between the government and its citizens.
 - *Increased participation:* E-government must catalyse increased citizen participation in governance processes. Through digital platforms, citizens can engage in public consultations, provide feedback on policies, and participate in decision-making, thus fostering a more participatory democracy.

4.2 Education: Bridging the Gap and Igniting Engagement

Just as Oscar Peschel declared victory for the “Prussian

schoolmaster” due to superior education, Kazakhstan stands poised for a similar triumph. But this time, the weapons are not drill sergeants and muskets but a powerful arsenal of AI, IoT, AR/VR-tools, and many other hardware-software machinery that redefine the role of the educator.

Digital tools are revolutionising education in Kazakhstan, transforming classrooms into dynamic hubs of learning:

- Improved Access is no longer limited by geography, fostering inclusivity and bridging the gap to quality education.
- Enhanced learning: Static textbooks give way to immersive experiences. AR/VR transports students to historical events, while AI personalises learning paths, maximising engagement and knowledge retention.
- Teacher training and support: The role of the educator is amplified. With access to online professional development and AI-powered teaching assistants, teachers can become facilitators, curators, and mentors, guiding students on a personalised learning journey.
- The Modern teacher, armed and victorious: This digital revolution equips educators with the tools to ignite a passion for learning, cultivate critical thinking skills, and prepare students for the demands of the future with the motto “Spiro Study”. It’s a victory not just for the teacher but for every student who can now unlock their full potential.

4.3 The Challenge of Choosing a Winner

Both sectors present compelling cases. E-government directly impacts every citizen, simplifying daily interactions with the government and fostering trust. However, the transformative

potential of digital tools in education can have long-lasting effects on future generations and overall societal development.

Ultimately, the “most helped” sector depends on the evaluation criteria. E-government prioritises immediate citizen convenience and participation. Education focuses on long-term development and empowering future generations.

Both sectors are crucial for Kazakhstan’s digital transformation journey.

5. What are the biggest challenges in your country in terms of digital transformation?

Kazakhstan’s digital transformation journey is impressive, but there are still significant challenges to overcome, particularly regarding the digital divide. President Tokayev’s commitment to digitalising Kazakhstan’s economy and leveraging AI for innovation presents an exciting vision for the future. However, translating this vision into reality necessitates addressing several crucial challenges.

Limited access to anonymised data

Despite recognising data as the “fuel” for AI, Kazakhstan faces a critical bottleneck: access to a comprehensive and readily available database from both the public and private sectors. This necessitates establishing a unified data management system with robust security and privacy protocols. Notably, the 2001 National Information Infrastructure Concept envisioned such a system, but its implementation remains outstanding.

Outdated and restrictive legislation

Kazakhstan’s existing legal framework poses a significant hurdle for digital innovation and social impact ventures. The current system has three main issues:

- Cumbersome, contradictory and unstable legislation

creates uncertainty. Companies struggle with frequently changing and unclear regulations. This stifles innovation.

- Excessive government regulation at all levels limits operational autonomy. Restrictive rules prevent organisations from adopting best practices and new digital solutions.
- Legislative gaps fail to adequately safeguard digital human rights, ethical AI use, and digital service providers. Specifically,
 - No protections exist for privacy and other digital civil liberties. This enables unchecked “digital surveillance” by the state.
 - There are no controls over the ethical use of AI and big data. This raises concerns about the potential misuse of these technologies.
 - The lack of regulations for digital service providers creates an uneven playing field. This hinders the growth of the digital economy.

Overall, Kazakhstan needs legislative reforms to support digital social ventures. Reducing bureaucracy, enabling autonomy, and closing legislative gaps around digital rights and tech ethics are critical next steps.

6. Does your country consume digital content more than it produces, or vice versa?

Kazakhstan leans more towards consuming digital content rather than producing it. Users here are highly active in various online activities, including communication on social networks, using search engines, LLM, making financial transactions, posting materials, viewing entertainment content, downloading media, reading news, shopping, and more. Consumers of media and information are predominantly trilingual, especially the young generation with specialised secondary and higher

education, whose share of the total population is about 25 per cent, or Russian-speaking, with a small proportion (less than 10 per cent) consuming solely Kazakh-language content.

The country's active engagement in various online activities and high internet penetration rates reflect a strong culture of digital consumption among its population.

7. Can you make recommendations on how your country should make digital policies an equaliser?

Here are some recommendations on how Kazakhstan can make digital policies an equaliser:

Bridge the digital divide

- Invest in internet infrastructure: Expand access to high-speed internet by laying fiber optic cables and utilising wireless technologies like 5G. In rural areas, as mentioned above, to expand the use of Starlink, and OneWeb Internet, P2P communication.
- Provide affordable devices and data plans: Offer subsidies or low-cost options for digital devices and internet data plans, making them accessible to low-income communities and vulnerable groups.
- Promote digital literacy: Implement nationwide programs to equip vulnerable citizens with basic digital skills, including computer literacy, online safety, and critical thinking in the digital sphere.

Foster inclusive digital content and services

- Support the development of local content: Encourage the creation of websites, apps, and digital resources in local languages that are relevant to local needs and cultural context, as Kazakhstan is a country of 124 ethnic groups.
- Promote content accessibility: Ensure that digital content

and platforms are accessible to people with disabilities, including those with visual, auditory, or cognitive impairments. SEZUAL short-listed WSA nominee's project "The Inclusive City" is a bright example of how many services can be given to people with disabilities in every smart settlement without big expenses.

- Continue to develop e-government services with an emphasis on healthcare and social services.

Empower women and girls in the digital sphere

- Encourage girls' and women's participation in STEM education and digital skills development.
- Raise awareness about online safety and empower women and girls to report and combat online harassment and discrimination.

Foster collaboration and stakeholder engagement

- Actively involve citizens, civil society organisations, and private sector representatives in the policy-making process to ensure policies reflect diverse needs and perspectives.
- Partnerships with international organisations to leverage their expertise and resources in promoting digital inclusion and ethical frameworks for AI development.
- Regularly assess the effectiveness of digital policies and make adjustments to ensure their continued relevance and equitable impact across all segments of society.

By implementing these recommendations and prioritising policies that bridge the digital divide, empower marginalised groups, and promote inclusive digital content and services, Kazakhstan can strive towards a more inclusive and equitable digital future for all its citizens.

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