# Kazakhstan Internet Landscape

## Understanding Threats and Opportunities

June 2025

## Background

The Internet Society produced a report in April 2025 on Kazakhstan's digital connectivity landscape, thanks to the generous funding support of CAPS Unlock. This memo extracts key recommendations and findings from this report for the attention of Kazakhstani policymakers.

## Recommendations

Kazakhstan's ambition to become a regional digital hub can only be achieved if Internet connectivity in Kazakhstan is resilient, open, trustworthy, and secure. Internet Society recommends that the government of Kazakhstan:

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Foster a **more resilient Internet** by:

1. Encouraging the development of open, market-driven Internet Exchanges instead of government-led ones. A more robust local Internet ecosystem will reduce dependency on international connectivity.
2. Encouraging network operators to deploy IPv6 and adopt routing security and DNS best practices to increase their overall Internet resilience.
3. Exploring satellite Internet options from a diverse range of providers to create redundancies in its connectivity infrastructure.
4. Prioritizing fiber over satellite Internet as a long-term connectivity solution due to its superior speed, lower latency, and reliability.

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Foster a **more open Internet** by:

1. Eliminating the barriers to entry for smaller ISPs such as taxes on IT equipment, access to spectrum, operator license, etc.
2. Removing regulatory requirements such as majority local ownership for international operators, to boost market competition.
3. Encouraging infrastructure sharing between operators for long-haul fiber routes and providing fair rates to smaller ISPs.

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4. <u>Promoting fair competition between operators</u> to increase market diversity. Resilience is achieved by technical as well as economic diversity.

5. <u>Developing the data center market</u> and <u>investing in carrier-neutral data centers</u> to attract international and local cloud and hosting providers, making the local content hosting scene more attractive.

Foster a **more trustworthy and secure Internet** by:

1. <u>Removing content surveillance and blocking requirements for ISPs</u>, including satellite Internet providers. Surveillance requirements violate key cybersecurity principles, put users at risk, and harm the right to privacy and associated rights.

2. Supporting policies that keep the Internet on and strong to build a strong economy and give Kazakh citizens an opportunity for a prosperous future by <u>removing obligations to route traffic through the Unified Gateway to Internet Access</u>.

3. <u>Formally discontinuing its root certificate program</u> and <u>working with service providers to remove the root certificate from user devices</u>, restoring public trust in the Internet.

4. <u>Endorsing encryption as a key component of national security</u>, acknowledging its value in protecting users from attack.

5. <u>Encouraging ISPs to adopt security best practices</u> to increase Internet resilience.

# Key Takeaways

Kazakhstan has a robust digital infrastructure. However, the ownership of Kazakh telecommunication companies is highly concentrated. This limited market competition encourages state control over the network. Recent government initiatives aim to reform the telecom market by introducing more competition. A new phase of private investments in the sector seems to be ramping up. [See Figure 1]

The incumbent operator, KazakhTelecom, plays a central role in the country both at the domestic and international connectivity levels. [See Figure 2]

Kazakhstan's international Internet traffic has depended on Russia for decades and continues to. However, we have started seeing the impact of strategies to diversify routes towards Europe and other Asian countries. [See Figure 3]

Dependence on Russia for international Internet connectivity is a resiliency issue for Kazakhstan. However, bypassing Russia is difficult for Kazakh Internet Service Providers (ISPs), since their Russian partners provide valuable connectivity solutions that are easily reachable and at an attractive price.

Moreover, the Kazakh population's consumption of Russian-language and Russian-hosted content creates consumer demand for connectivity with Russia. [See Figure 4]

Emerging connectivity options via the Caspian Sea could enable Kazakhstan to create alternative paths towards Europe, increasing resiliency. Developing this data corridor could also enable Kazakh ISPs to earn increased revenues from the Europe-East Asia transit line. At the same time, new connectivity routes could be attacked in the case of future geopolitical conflict. [See Figure 5]

Kazakhstan has one of the highest levels of Internet content localization within the region. However, there is still room for growth in this domain. Russia is the first foreign destination for Kazakh website hosting followed by Europe and the U.S. [See Figure 6]

The January 2022 events of civil unrest in Kazakhstan and the resulting government-led Internet shutdowns have shown that the Kazakh government has strong control over the country's networks.

## About the Internet Society

The Internet Society is a global charity founded in 1992 by some of the Internet's early pioneers. We believe the Internet is a force for good and work towards an open, globally connected, secure and trustworthy Internet that benefits everyone. With more than 110 active chapters across six continents, including Chapters in Kazakhstan and Kyrgyzstan, and more than 125,000 individual users supporting our activities, the Internet Society is a reliable, technically informed civil society interlocutor for Internet governance issues.

# Appendix

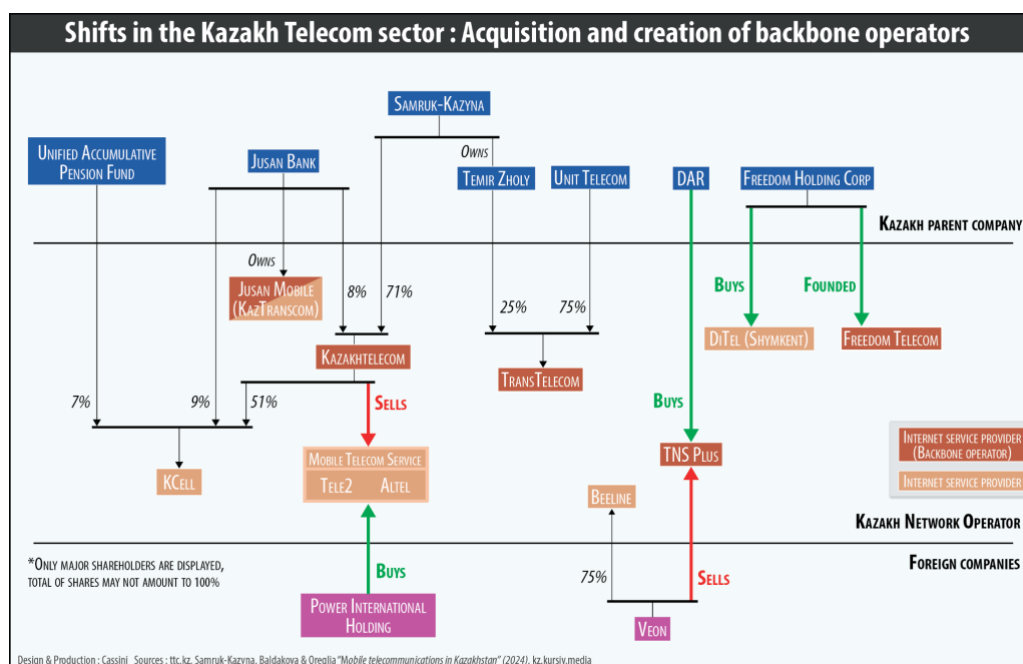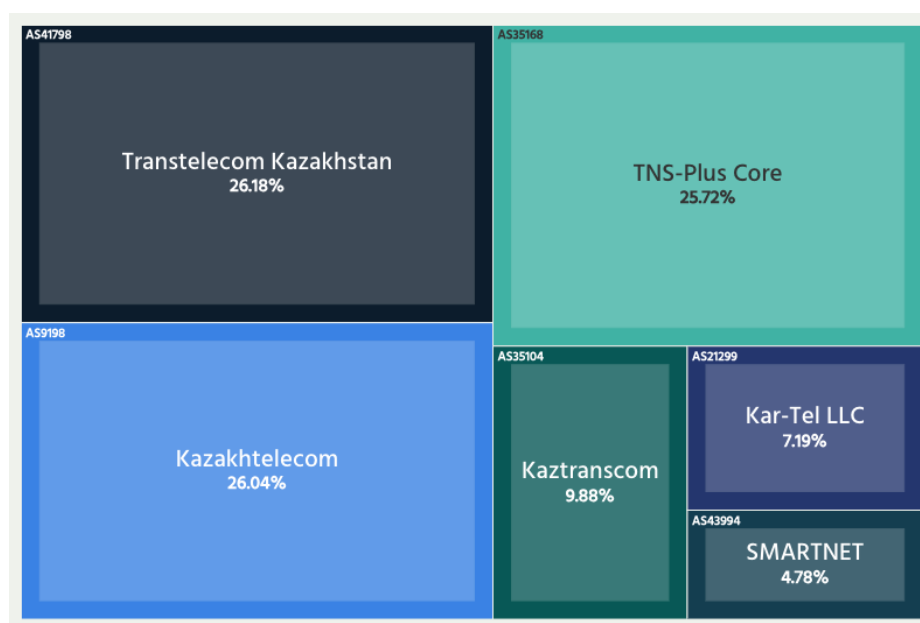<u>Figure 1.</u> Ownership structure of telecommunication operators[1]



<u>Figure 2.</u> The top 6 transit providers in Kazakhstan and the percentage of Kazakh networks reachable through them. (Internet Health Report).



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[1] Sources: "TTC." TTC Transtelecom, 22 Jan. 2025, ttc.kz; Samruk-Kazyna; Baldakova & Oreglia (2024); "Mobile telecommunications in Kazakhstan"; "Kursiv." Kursiv Media Kazakhstan, 31 Jan. 2025, https://kz.kursiv.media/en/, accessed on 14 Mar. 2025.
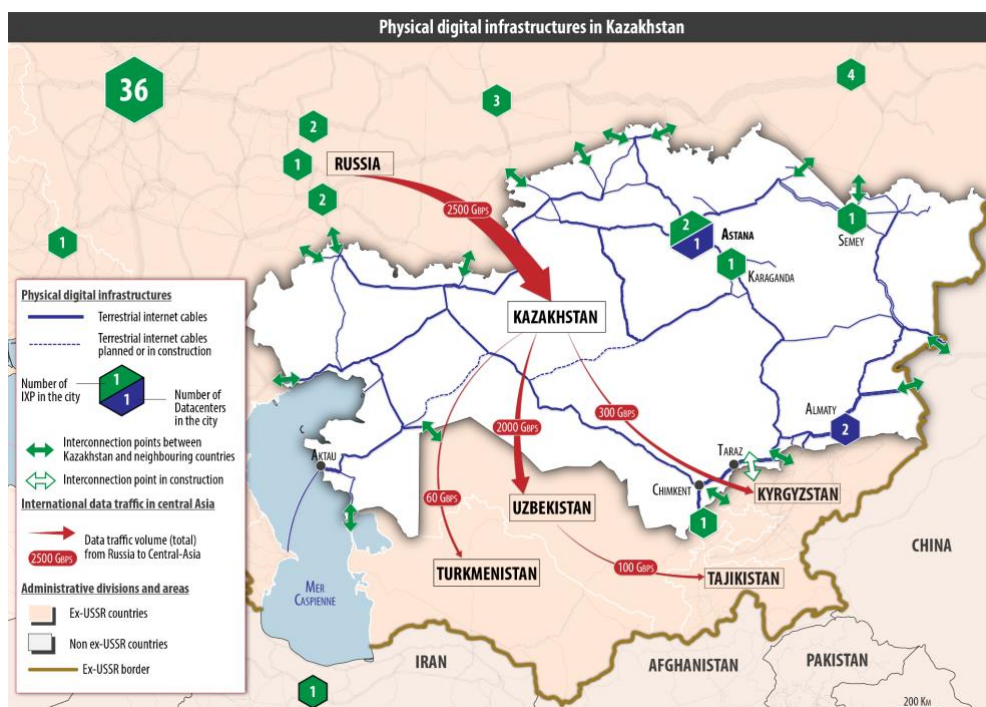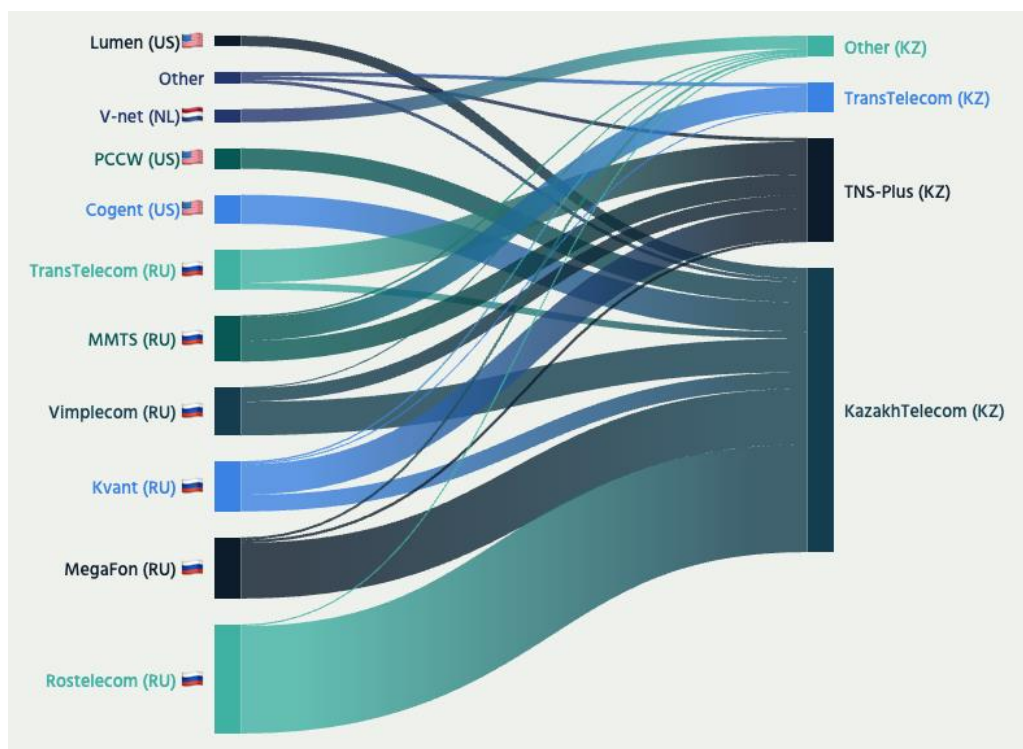
Figure 3. Kazakhstan's physical Internet connectivity map.[2]



Figure 4. Kazakhstan International connectivity in September 2024. (Source: RouteViews, RIPE RIS).
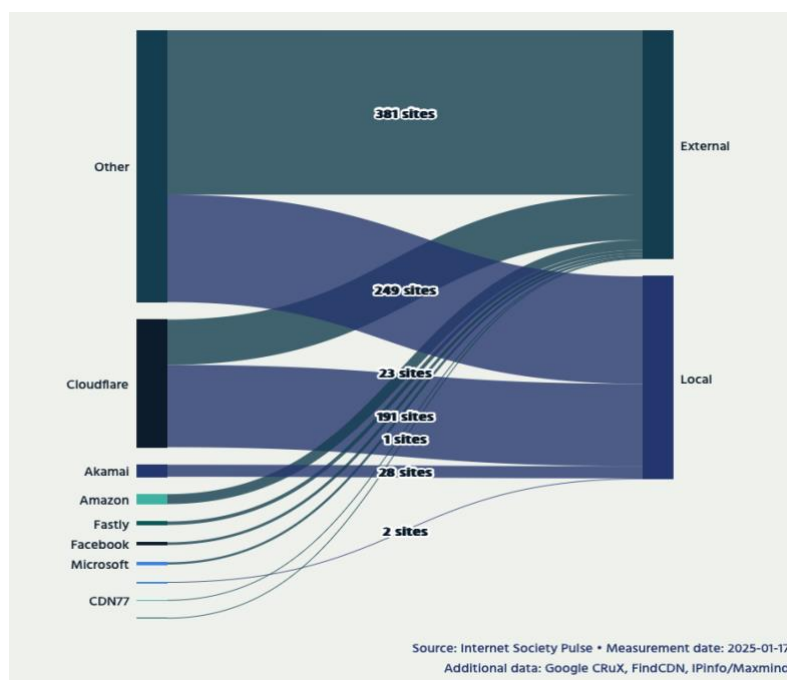


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[2] Sources: UNICEF, www.unicef.org/. Accessed 31 Jan. 2025; "Empowering Connectivity through Broadband Mapping." ITU, bbmaps.itu.int/. Accessed 31 Jan. 2025; worldbank.org.

Figure 5. Map of Kazakhstan's digital constraints and opportunities in the wider Eurasian region[3]



Figure 6. Number of websites (out of 1,000) hitting either a local or external cache.



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[3] Sources: cabar.asia; *Broadband, TV, Landline & Mobile Comparison | Broadbandchoices*, https://www.broadbandchoices.co.uk/, accessed 31 Jan. 2025., "Empowering Connectivity through Broadband Mapping." *ITU*, bbmaps.itu.int/, accessed 31 Jan. 2025.; "Connectivity beyond Borders." *Digital Silk Way*, digitalsilkway.az/, accessed 31 Jan. 2025.