

State of the Internet and Digital Rights in Kazakhstan (2019–2025)

This report provides a comprehensive analysis of the state of internet infrastructure, legislation, and digital rights in Kazakhstan for the period from 2019 to 2025. The study covers a wide range of topics: from technical aspects such as the development of the national domain, speed and quality of access, to the level of internet penetration among the population. The document highlights the key trends shaping the country's digital environment and provides insight into its current state and development trajectory.

A key feature of Kazakhstan's internet market is its high degree of consolidation, where JSC Kazakhtelecom holds a dominant position. Despite the high level of penetration of both fixed and mobile internet, reaching 92.9% of the population, such a market structure limits competition and affects the quality and cost of services. The report analyzes the development of autonomous systems, the adoption of the IPv6 protocol, as well as the country's position in the global connectivity index, which allows assessing the degree of Kazakhstan's integration into the global internet infrastructure.

Particular attention in the document is paid to issues of state regulation and control over the internet space of the internet. Legislative acts that shape policy in the field of communications and information are analyzed, including mechanisms for blocking illegal content and restricting access to online resources. The report examines issues of digital rights and freedoms, the practice of censorship, as well as the use of VPN services by citizens to bypass blocks, which reflects the general trend toward strengthening state sovereignty in the digital sphere.

Disclaimer

This document was partially generated using several large language models (LLM). The information presented in it is based on the analysis and generalization of data from the specified sources; however, the process of its structuring, generalization, and presentation was carried out using artificial intelligence technologies. It is recommended to use this text as a starting point for further research and to cross-check critically important data with primary sources.

State of the Internet and Digital Rights in Kazakhstan (2019–2025)	1
Disclaimer	1
1. General Information	3
1.1 Geographical Location	3
1.2 Population	3
1.3 Gross Domestic Product (GDP)	4
1.4 Main Economic Characteristics	5
1.5 General Political Situation	6
2. Internet	7
2.1 National Domain	7
2.2 Number of Users	8
2.2.1 Fixed Internet	9
2.2.2 Mobile Internet	10
2.3 Internet Access Speed and Quality of Services Provided	12
2.4 Development of Providers and Autonomous Systems	13
2.5. IPv6 Adoption	17
2.6. Connectivity Index	18
3. Internet Legislation	21
3.1. Principles of Internet Governance	21
3.1.1. Regulation	22
3.1.2. Regulatory Agencies and Responsible Persons	23
3.2. Market Monopolization	24
3.3. Internet Shutdowns Ordered by Authorities	25
3.4. Legislation on “Words on the Internet”	26
3.5. Legislation on Internet Blocking	27
3.5.1. Legislation	27
3.5.2. Blocking Procedures	28
3.5.3. Registries of Blocked Internet Resources	29
3.5.5. Development of Blocking Practices	30
4. Human Rights Violations on the Internet	31
4.1. Internet Shutdowns Ordered by Authorities	32
4.2. Criminalization of Online Speech	32
4.3. Persecution of Media and NGOs	33
5. Civil Society in Internet Governance	34
5.1. Organizations	35
5.2. VPN and Circumvention Tools	36
5.2.1. Status of VPN Services	36

5.2.2. Number of VPN Users	37
5.2.3. Cases of Prosecution for Using VPN	38
5.2.4. Monitoring of Blocking	39
6. Conclusion	40
Sources	42

1. General Information

1.1 Geographical Location

The Republic of Kazakhstan is the largest state in Central Asia and the ninth largest country in the world without access to the World Ocean.¹ The country borders the Russian Federation to the north and west, the People's Republic of China to the east, and Kyrgyzstan, Uzbekistan, and Turkmenistan to the south. In the southwest, Kazakhstan has an extensive coastline along the Caspian Sea.¹

The capital of the state is the city of Astana, and the largest city, economic and cultural center, is Almaty.¹ The landscape of Kazakhstan is extremely diverse and includes vast steppes in the north, deserts and semi-deserts in the south and center, as well as mountain systems (Altai, Tien Shan, Dzungarian Alatau) in the east and southeast.¹

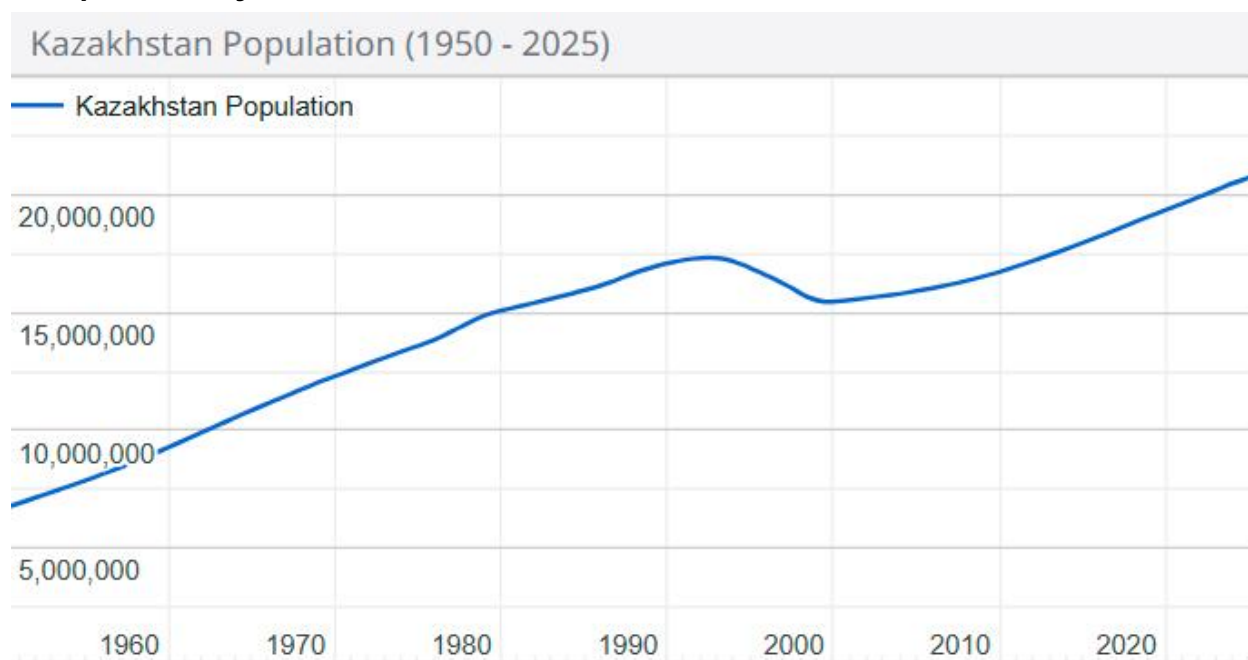
Such geographical location and huge territory have a significant impact on the development of infrastructure, including telecommunication networks. Providing universal and high-quality Internet access, especially in sparsely populated and remote rural areas, is associated with significant technical and economic difficulties.⁴ This creates prerequisites for the emergence and persistence of digital inequality between urban and rural regions of the country.

1.2 Population

At the beginning of 2024, the population of the Republic of Kazakhstan exceeded 20 million people.⁶ The country is characterized by one of the lowest population densities in the world – about 7.4 people per square kilometer.⁸ The ethnic composition of the population is predominantly represented by Kazakhs (about 71% at the beginning of 2024), with a significant share of Russians (about 15%); Uzbeks, Ukrainians, Uyghurs, Germans, Tatars and other ethnic groups also live here.² Kazakhstan is a secular state, but the majority of the population practices Islam.²

The level of urbanization in the country is about 63%, which means that almost two-thirds of the population lives in cities.⁷ The median age of the population is relatively young – about 29.7 years⁸, which indicates a significant proportion of young people and people of working age. This demographic structure influences the dynamics of internet and social media usage, as the younger generation is generally a more active user of digital technologies.¹³

Chart 1: Population dynamics of Kazakhstan (1950–2025)



Source: *worldometers.info*

The observed steady population growth creates a constantly expanding base of potential and actual internet users. This increases both the economic potential of the digital sector and the scale of the audience subject to state control and regulation of online space. Given the youth of the population, issues of digital rights, freedom of expression and access to information on the internet become particularly relevant.

1.3 Gross Domestic Product (GDP)

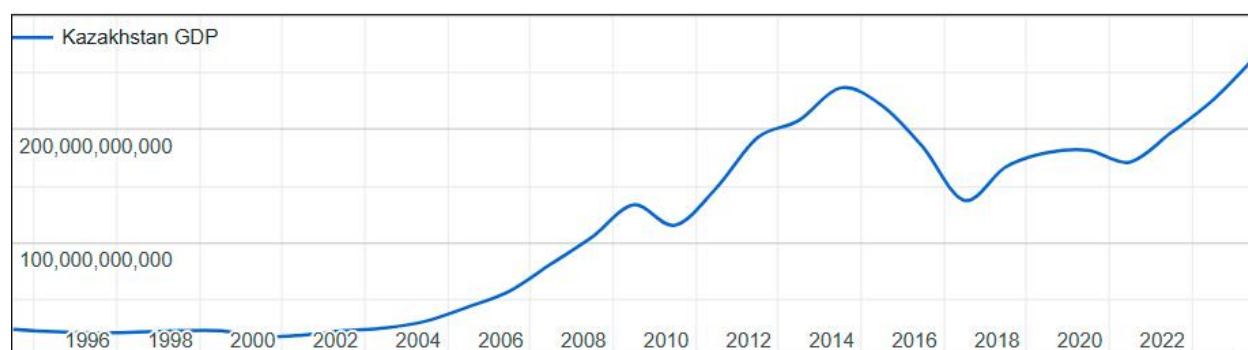
Kazakhstan holds a leading position in the economy of Central Asia, providing about 60% of the region's total GDP.² Economic growth is largely based on revenues from the oil and gas sector and the extraction of other minerals (uranium, coal, metals), which form a significant share of GDP and

exports.² According to the World Bank classification, Kazakhstan belongs to upper-middle-income countries.¹⁶

Dependence on the export of raw materials makes the country's economy vulnerable to fluctuations in global prices for energy and other external shocks.¹⁹ This economic vulnerability can indirectly affect internet policy: during periods of instability, authorities may show a greater tendency to restrict criticism and strengthen control over the information space to maintain social stability, as was observed, for example, against the background of protests triggered by rising gas prices in January 2022.²¹ On the other hand, awareness of the need to diversify the economy encourages the government to declare reforms aimed at improving the investment climate¹⁶, however, their implementation is uneven.¹⁷

Chart 2: Dynamics of nominal GDP of Kazakhstan (1993–2023)

Kazakhstan GDP (Nominal, \$USD) 1993-2023



Source: *worldometers.info*

1.4 Main Economic Characteristics

Kazakhstan's economy has shown growth in recent years, for example, by 4.8% in 2024, which was driven by consumer spending and investment.¹⁶ However, forecasts of international organizations and the World Bank indicate a possible slowdown in growth rates in the medium term to 3.5–4.5%.¹⁶

The key sectors of the economy remain the extraction of minerals (oil, gas, uranium, non-ferrous and ferrous metals), which accounts for a significant part of industrial production and exports.¹⁷ Agriculture, especially grain production and livestock breeding, and the transport and logistics sector, which uses the country's transit potential, also play an important role.¹⁷ The service sector accounts for the largest share of GDP (about 62% in 2021).³⁵

Despite the achievements, Kazakhstan's economy faces a number of serious structural problems. These include:

- **Excessive dependence on the extractive sector** and insufficient economic diversification.¹⁶
- **Low labor productivity.**¹⁶
- **Aging infrastructure**, especially in the energy sector, where the wear and tear of networks and thermal power plants exceeds 60–65%, creating risks of electricity shortages by 2030.³⁹
- **High inflation** exceeding the National Bank's targets.¹⁶
- **Significant state participation in the economy** (state capitalism) and associated "manual control".²⁰
- **Competition problems**, including the dominance of state or state-affiliated companies.¹⁷
- **Corruption and inefficient bureaucracy.**¹⁷
- **Growing vulnerability to the effects of climate change**, including water scarcity and threats to agriculture.²⁰

These structural problems, in particular the wear and tear of infrastructure and the need for large capital investments in its modernization, can limit the resources available for the development of modern digital infrastructure throughout the country. This, in turn, can exacerbate digital inequality between regions. The dominance of state-owned companies, such as Kazakhtelecom in the telecommunications sector⁴¹, can hinder the development of competition, the introduction of innovations and affect the quality and cost of internet services for end consumers.

1.5 General Political Situation

According to the Constitution, Kazakhstan is a unitary republic with a presidential form of government.² The President has broad powers, determines the main directions of domestic and foreign policy and is the head of state.⁴⁶ The executive power is headed by the Prime Minister, appointed by the President with the consent of the Mazhilis (lower house of Parliament).⁴⁶ Parliament consists of two chambers: the Senate (upper chamber) and the Mazhilis.⁴⁶ Despite the constitutional framework, Kazakhstan's political system is often characterized by international observers as authoritarian.²

After Nursultan Nazarbayev left the post of president in 2019, his successor Kassym-Jomart Tokayev initiated a series of political reforms.² The procedure for registering political parties was simplified (the registration threshold was reduced from 20,000 to 5,000 members)⁴⁹, a mixed proportional-majority system of elections to the Mazhilis was introduced⁴⁹, the Constitutional Court

was restored. Currently, seven political parties are officially registered in the country: Amanat (formerly Nur Otan, the dominant party), Democratic Party Ak Zhol, People's Party of Kazakhstan (PPK), People's Democratic Patriotic Party Auyl, Green Party Baytaq, Nationwide Social Democratic Party (OSDP) and the Respublica party.⁴⁹ Country leadership: President – Kassym-Jomart Tokayev⁴⁶, Prime Minister – Olzhas Bektenov.⁴⁶

In administrative-territorial terms, Kazakhstan is divided into 17 regions and 3 cities of republican significance – Astana, Almaty and Shymkent.⁵³ The regions, in turn, are divided into districts.⁵⁴

The high concentration of power in the hands of the executive branch and the dominance of one party create conditions for centralized control over various aspects of society, including the information space and the internet. The declared political reforms may be limited in nature or face resistance from a system oriented toward maintaining control. This is manifested in the adoption of legislative acts that, on the one hand, may declare liberalization (such as simplifying party registration⁴⁹), and on the other hand, tighten control over the online sphere (for example, the law on online platforms⁴). The absence of a strong and influential political opposition and limited competition⁴⁰ reduce the possibilities for effectively challenging restrictive measures in the digital sphere through parliamentary or other political mechanisms. Thus, the political situation in the country contributes to the preservation and potential strengthening of state control over the internet.

2. Internet

2.1 National Domain

The national top-level domain (ccTLD) of the Republic of Kazakhstan is **.kz**.⁵⁷ It was officially delegated and put into operation on September 19, 1994 – this date is considered the birthday of the Kazakhstani segment of the internet (Kaznet).⁵⁸ Administration of the .kz domain zone is carried out by the KazNIC organization (Kazakhstan Network Information Center), which is closely connected with the Association of IT Companies of Kazakhstan.⁵⁷

Registration of domain names in the .kz zone is open to both residents and non-residents of Kazakhstan.⁵⁷ However, there are certain restrictions: registration of domains containing names related to the promotion of violence, ethnic hatred, drugs, as well as content contrary to the legislation of the Republic of Kazakhstan is prohibited.⁵⁷ The length of the domain name must be between 2–3 and 63 characters.⁵⁷ Support for internationalized domain names (IDN) in the .kz zone

is a controversial issue: some sources indicate its absence⁵⁷, others – its presence.⁶³ The WHOIS Privacy service for hiding domain owner data is not provided⁵⁷, which makes information about registrants publicly available.

One of the most significant and discussed aspects of regulating the .kz domain zone is the requirement for physical placement of servers (hosting) for sites with the .kz domain and their subdomains on the territory of the Republic of Kazakhstan.⁶² Although DNS servers and mail servers can be located outside the country⁶², the hosting localization requirement, if strictly applied, provides state authorities with significant leverage of control. This simplifies access to server data, traffic monitoring, and the enforcement of decisions on blocking or deleting content compared to resources hosted abroad. This requirement, together with the absence of WHOIS Privacy, reduces the anonymity of site owners and enhances the possibilities of state supervision over the national segment of the internet.

In addition to first-level .kz domains, second-level domains such as .com.kz (for commercial organizations), .org.kz (for non-profit organizations)⁶¹, .edu.kz (for educational institutions) and others are also actively used.

2.2 Number of Users

According to various international and national sources, the level of internet penetration in Kazakhstan has reached very high levels. As of the beginning of 2025, the number of internet users in the country was estimated at 19.2 million people, which corresponds to a coverage of 92.9% of the total population.⁴ Data from the Bureau of National Statistics of the Republic of Kazakhstan based on a 2024 survey show that 96.2% of the population aged 16 to 74 are internet users (including mobile access).⁶⁸ Other sources, such as DataReportal and Internet Society Pulse, also confirm a penetration level above 90% in 2023–2024.¹⁴ There is a steady, though slowing, increase in the number of users.¹⁴

Main sources of data on the number of internet users in Kazakhstan:

- International Telecommunication Union (ITU)⁴
- DataReportal (Kepios analysis)¹³
- Bureau of National Statistics of the Republic of Kazakhstan (stat.gov.kz)⁶⁸
- FRED St. Louis database (World Bank data)⁶⁶
- Internet Society Pulse⁶⁹

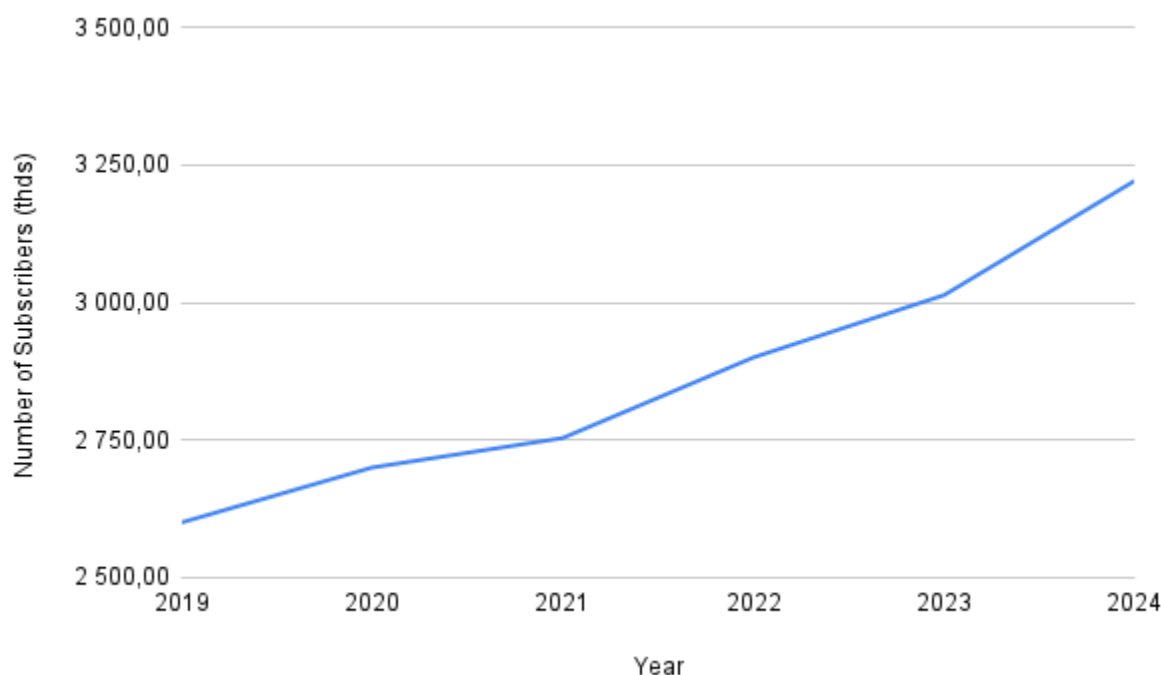
The almost universal spread of the internet has turned it into the main platform for communication, obtaining information, education, doing business and interacting with government agencies for the overwhelming majority of Kazakhstan's citizens. This significantly increases the importance of issues related to the regulation of internet space, freedom of speech, access to information and digital rights, since any restrictions or disruptions in the network affect almost all aspects of society's life. High dependence on the internet also makes the practice of its shutdowns (shutdowns), observed in the country²¹, especially destructive both for the economy and for the daily life of citizens, limiting access to vital services and information.²³

2.2.1 Fixed Internet

Fixed broadband internet access (BBA) in Kazakhstan continues to develop, but its penetration significantly lags behind mobile access. The main technology for connecting households is fiber-optic (FTTH), which is actively laid both by the national operator Kazakhtelecom and other providers. The volume of the fixed BBA services market in 2022 was estimated at 127 billion tenge.⁷⁴

The dynamics of the number of fixed internet subscribers shows steady growth. According to the Bureau of National Statistics of the Republic of Kazakhstan, the number of subscribers increased from approximately 2.75 million in 2021⁷⁵ to 3.22 million by the end of 2024.⁷⁶ By the end of the first quarter of 2025, their number reached 3.24 million.⁷⁷ Despite the growth, the penetration level of fixed BBA remains relatively low – according to ITU, in 2023 it was 17.6%.⁴

Chart 3: Dynamics of the number of fixed BBA subscribers in Kazakhstan (2019–2024)



Note: Estimates for 2019, 2020, 2022 are based on data for adjacent years from.⁷⁵ Data for 2023 – operational as of November.

The fixed BBA market is clearly dominated by the national operator JSC Kazakhtelecom, controlled by the state fund Samruk-Kazyna. Its market share at the end of 2023 – beginning of 2024 was about 64%.⁴² The second significant player is LLP Kar-Tel (Beeline trademark), occupying about 22% of the market.⁴² The remaining providers, such as JSC Transtelecom, JSC KazTransCom (now part of Jusan Mobile), JSC ASTEL and others, have significantly smaller shares.⁴³

- **JSC Kazakhtelecom:** <https://telecom.kz/> (83), share ~64%⁴²
- **Beeline (LLP Kar-Tel):** <https://beeline.kz/> (85), share ~22%⁴²

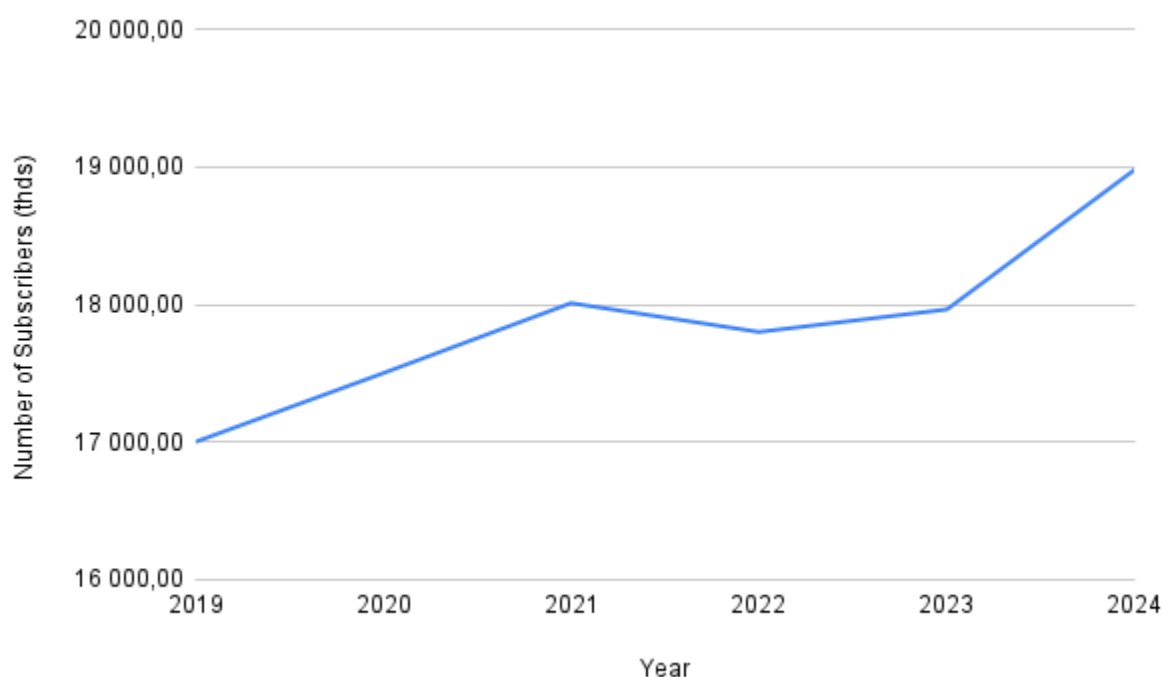
Such a dominant position of Kazakhtelecom creates risks for healthy competition, which can potentially affect tariffs, quality of services and the speed of introduction of new technologies. At the same time, state control over the main infrastructure operator significantly simplifies the implementation of policies for monitoring and filtering internet traffic, as well as the execution of orders for blocking. The recent deterioration of Kazakhtelecom's financial performance⁴¹ may lead to a reduction in investment in modernization and network expansion, especially in economically less attractive rural areas, which threatens to preserve the digital divide.

2.2.2 Mobile Internet

Mobile internet is the main means of access to the network for the vast majority of the population of Kazakhstan. Its role is especially important for rural and remote areas where the development of fixed infrastructure is difficult.⁴ 4G/LTE network coverage is quite wide, covering, according to 2023 data, about 89% of the population.⁶⁹ In recent years, operators have been actively investing in the deployment of fifth-generation (5G) networks, especially in large cities.⁶⁹

The number of mobile subscribers with internet access also shows growth, although slower than in previous years, which is associated with the high level of market saturation. According to the Bureau of National Statistics of the Republic of Kazakhstan, by the end of 2024 their number reached almost 19 million.⁷⁶ The total number of active mobile connections (including M2M and multi-SIM) exceeds the population and amounted to 26.6 million at the beginning of 2025.¹⁵

Chart 4: Dynamics of the number of mobile BBA subscribers in Kazakhstan (2019–2024)



Note: Estimates for 2019, 2020, 2022 are based on data for adjacent years from.⁷⁵ Data for 2023 – operational as of November.

The mobile communications market in Kazakhstan has historically been concentrated around three main operator groups: Kcell (brands Kcell and Activ), Tele2/Altel and Beeline (LLP Kar-Tel). Until the beginning of 2025, JSC Kazakhtelecom controlled both Kcell and Tele2/Altel, which created a situation of de facto duopoly with Beeline. However, in January 2025, Kazakhtelecom’s subsidiary Mobile Telecom-Service (MTS), operating under the Tele2 and Altel brands, was sold to the Qatari holding Power International Holding (PIH) for \$1.1 billion.⁴² This transaction was initiated as part of the state policy of demonopolization of the market.⁴²

As a result of the sale of MTS, market shares were redistributed. According to estimates at the end of 2023 – beginning of 2024, the leader became Beeline with a share of about 45%, followed by Kcell (remaining under the control of Kazakhtelecom) with a share of about 30% and the sold Tele2/Altel with a share of about 26%.⁴² Virtual operators (MVNO) such as IZI and Jusan Mobile are also present on the market.⁴³

- **Beeline (LLP Kar-Tel):** <https://beeline.kz/> (85), share ~45%⁴²
- **Kcell (JSC Kcell, brands Kcell, Activ):** <https://www.kcell.kz/> (92), share ~30%⁴²

- **Tele2/Altel (Mobile Telecom-Service LLP, owned by PIH):** <https://tele2.kz/> (94), <https://altel.kz/> (96), share ~26%⁴²

The sale of Tele2/Altel is a significant step towards increasing competition in the mobile market. The emergence of three independent major players can potentially lead to improved service quality, lower tariffs and accelerated introduction of new technologies. However, the preservation of Kazakhtelecom's control over Kcell means that the state still has significant influence on the sector. The long-term consequences of this transaction, including the impact of the new foreign investor (PIH) and its interaction with Kazakhstani regulators, require further monitoring.

2.3 Internet Access Speed and Quality of Services Provided

Internet access speed in Kazakhstan shows positive dynamics, especially in the mobile segment, but the indicators still lag behind world leaders, and the quality of services causes complaints from users.

According to Ookla Speedtest Intelligence, the median mobile internet speed in Kazakhstan has increased significantly over the past year: from 35.49 Mbit/s at the beginning of 2024¹⁴ to 81.7 Mbit/s in March 2025 (50th place in the world).⁸⁹ This jump is largely explained by the active deployment of 5G networks, which provide download speeds 10 or more times higher than 4G indicators.⁸⁸ According to Ookla for the first half of 2024, the median download speed in 5G networks reached 332 Mbit/s.⁸⁸

Fixed BBA speed is also growing, but more slowly. At the beginning of 2024, the median speed was 51.41 Mbit/s¹⁴, by January 2025 it reached, according to various estimates, from 66.38 Mbit/s¹⁵ to 78 Mbit/s⁴³, which corresponds to 83rd place in the world ranking.⁴³ Despite the growth, Kazakhstan lags behind not only developed countries in fixed internet speed, but also some regional neighbors, including Russia, Uzbekistan and Kyrgyzstan.⁴¹

The quality of internet services remains a subject of criticism. Users, especially in the regions, complain about unstable connections, discrepancy between actual speed and declared speed, and frequent outages.¹⁰⁰ At the same time, the cost of mobile internet in Kazakhstan is one of the lowest in the world – about \$0.59 per 1 GB according to 2024 data.⁴³ This paradox – low price with not always high quality – may be associated both with competition in the mobile market and with insufficient investment in infrastructure, especially in the fixed segment, where Kazakhtelecom dominates.⁴¹ There are also noticeable differences in quality and access speed between large cities (the best indicators in Almaty) and the rest of the country.⁴ Improving average speed indicators due

to 5G may mask persistent problems with coverage and quality of previous generation networks (4G/3G), especially in rural areas.

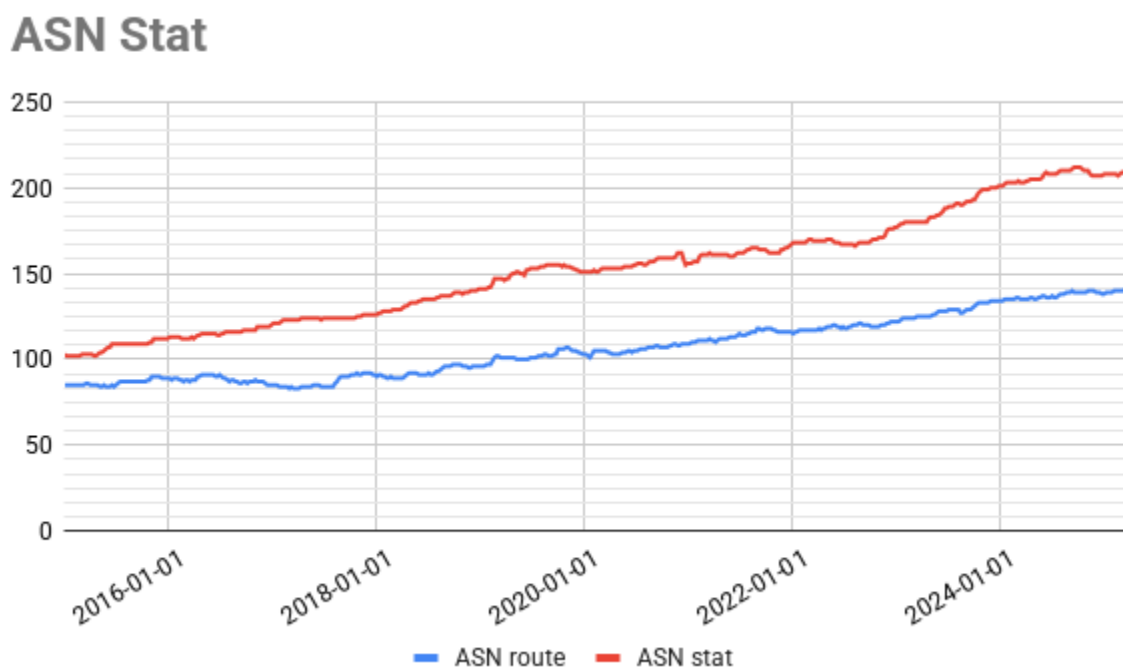
Sources of data on speed and quality:

- Ookla Speedtest Intelligence¹⁴
- Internet Society Pulse⁶⁹
- Freedom House⁴
- Reports and articles based on data from Cable.co.uk, Ranking.kz, local media⁴¹

2.4 Development of Providers and Autonomous Systems

An autonomous system (AS) is a collection of IP networks and routers managed by one or more operators that have a single routing policy when interacting with other AS on the Internet. The accounting and allocation of AS numbers (ASN), like IP addresses, is carried out by regional internet registries (RIR). For the region that includes Kazakhstan, such an RIR is RIPE NCC (Réseaux IP Européens Network Coordination Centre). The RIPEstat service provided by RIPE NCC is the main tool for obtaining statistical data on the allocation and use of internet resources, including ASN, by country.

The dynamics of the number of registered and actively routed (announcing prefixes in BGP) autonomous systems in the country is an important indicator of the development and maturity of the national internet infrastructure. The growth in the number of AS usually indicates an increase in the number of independent network operators (internet providers, large companies, academic networks), the development of competition and the complication of the topology of the national network segment.

Chart 5: Dynamics of Autonomous Systems in Kazakhstan (2015–2025)

Total number of AS (ASN stat): The red line shows a steady increase in the number of registered autonomous systems. Growth started from approximately 100 systems in 2016 and reached the current value of 228. This indicates the systematic development of the internet market and the emergence of new players (internet providers, large companies, hosters).

Number of routed AS (ASN route): The blue line, reflecting the number of AS announcing their networks on the global internet, also shows steady growth – from less than 100 to 150.

An important observation is the increasing gap between the number of registered and actually routed AS. Currently, 78 autonomous systems (228 minus 150) are registered but not active in the global routing table. This may indicate several processes:

1. Companies register AS “for growth”, planning future development of their network infrastructure.
2. Some AS are used for internal needs, peering within the country or for specific projects without the need for global visibility.
3. Some registered AS may belong to inactive or ceased companies.

To assess the level of decentralization and competition in the internet market, it is useful to compare the number of AS with the population size.

Population of Kazakhstan (estimate for 2025): ~20.8 million people.

Total AS: 1 autonomous system per ~91,200 people (20.8 million / 228 AS).

For comparison (data for 2025):

Russia: ~4987 AS for ~146 million people, which is approximately 1 AS per 29,300 people.

Conclusions

Sustainable development: The internet in Kazakhstan is developing extensively. The growth in the number of both registered and active AS by more than twofold over 10 years indicates the maturity and stability of the market.

Growth potential: The presence of 78 “dormant” autonomous systems is a good indicator of future potential. These systems can be activated as the business of their owners grows, which will lead to further decentralization of the country’s internet space.

Degree of market concentration: The density indicator of the number of inhabitants per active AS (~139 thousand) is significantly lower than in Russia (~29 thousand). This indicates a lower degree of consolidation of the internet market in Kazakhstan. The market is likely largely controlled by several major telecom operators, and the level of competition at the level of internet providers is lower than in neighboring countries with higher AS density.

Table 1: Top 10 Largest Autonomous Systems of Kazakhstan

#	Number of AS	Name	Web Site	Foreign neighbour count	Local neighbour count	Total neighbour count	Foreign neighbours share
1	9198	АО "Казакхтелеком"	http://www.online.kz	742	87	829	90%

			kz				
2	35168	TNS-Plus-Core	http://tnsplus.kz/	35	47	82	43%
3	41798	Transtelecom Kazakhstan	http://www.ttc.kz	18	64	82	22%
4	35104	Kaztranscom	<a href="http://Kaztransco
m.kz">http://Kaztransco m.kz	31	43	74	42%
5	21299	Beeline Kazakhstan	http://beeline.kz	1	27	28	4%
6	200590	asnls	http://nls.kz	9	18	27	33%
7	205516	NLS ASTANA LLP	http://nls.kz	5	18	23	22%
8	43994	SMARTNET	<a href="http://www.smart
net.kz">http://www.smart net.kz	1	15	16	6%
9	48716	PS Internet Company Network	https://www.ps.kz	3	9	12	25%
10	51162	PFNB-AS		2	10	12	17%

The data in the table clearly indicate the dominant position of JSC Kazakhtelecom.

Connectivity scale: Kazakhtelecom has 829 neighboring networks (peers), which is 10 times more than the closest competitor (TNS-Plus-Core with 82 peers). This speaks of its central role in the country's network infrastructure.

International gateway: 90% (742 out of 829) of all Kazakhtelecom connections are foreign. This makes it the absolute and main gateway for access to the global internet for the whole of Kazakhstan. The vast majority of the country's international traffic passes through this autonomous system.

“The Big Four” and high market concentration

The first four companies on the list – Kazakhtelecom, TNS-Plus-Core, Transtelecom and Kaztranscom – form the core of the Kazakhstani internet. Their total number of peering connections significantly exceeds the indicators of the rest of the market participants. This confirms the conclusion about the high degree of consolidation and centralization of the internet market, made on the basis of the analysis of AS density per capita.

The table also shows that large players have different business models and network strategies:

1. **International transit operators:** Kazakhtelecom (90% foreign peers), Kaztranscom (42%) and TNS-Plus-Core (43%) are clearly focused on international connectivity, acting as major traffic transit operators.
2. **Operators focused on the domestic market:** Beeline (only 4% foreign peers) and Transtelecom (22%) have significantly more local connections than foreign ones. Their strategy is aimed at maximum coverage within the country and traffic exchange with other Kazakhstani operators. To access global resources, they most likely purchase transit from larger players such as Kazakhtelecom.

Overall conclusion

The analysis of the Top-10 autonomous systems not only confirms that the internet market of Kazakhstan is consolidated, but also shows that it is centralized around one super-dominant player – JSC Kazakhtelecom. This company controls the overwhelming part of international traffic, while the other major players either also specialize in transit or focus on working within the country.

Such a structure directly affects traffic routing, prices for internet access and the overall resilience of the national network.

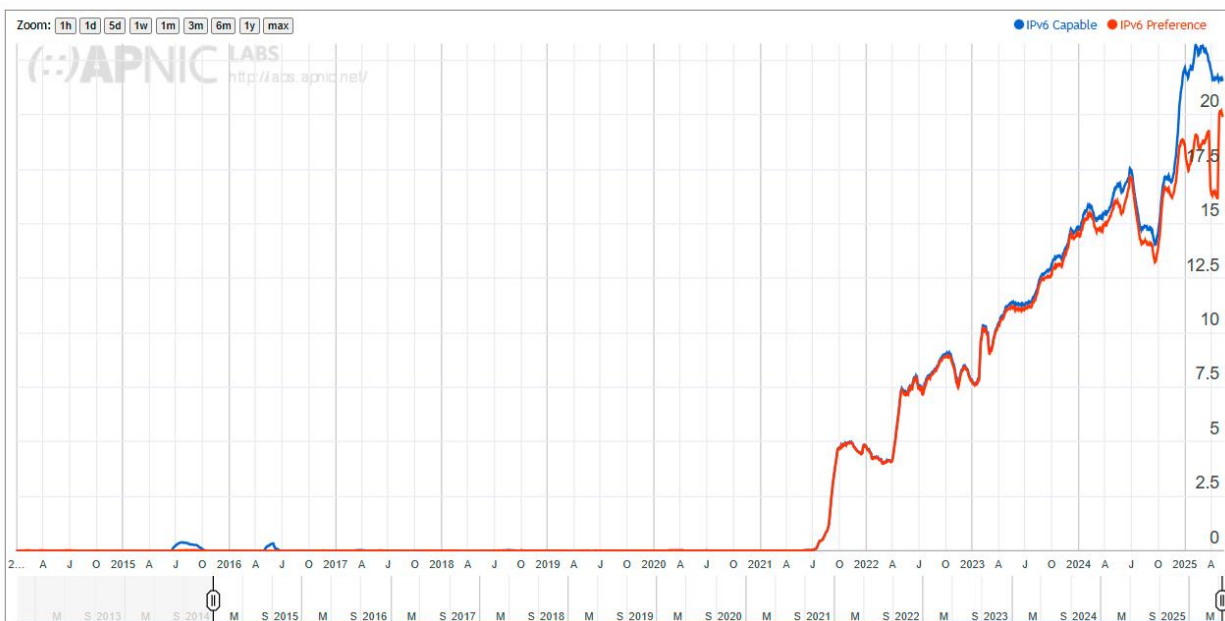
2.5. IPv6 Adoption

The transition to the new version of the Internet protocol IPv6 is an important factor for the further development of the Internet, allowing to overcome the problem of IPv4 address exhaustion and ensure the ability to connect a growing number of devices, including the Internet of Things (IoT).

In Kazakhstan, the pace of IPv6 adoption remains relatively low. According to Internet Society Pulse, as of the beginning of 2025, the share of users able to access resources via the IPv6 protocol was 19%.⁶⁹ This figure is below the average level for the Asian region (estimated at 21–39% by various sources⁶⁹) and significantly lags behind the leading countries in IPv6 adoption.

Chart 6: Dynamics of IPv6 adoption in Kazakhstan (2015–2025)

Use of IPv6 for Kazakhstan (KZ)



Source: stats.labs.apnic.net

The low pace of IPv6 adoption may become a constraining factor for the future growth of the Kazakhstani internet segment. Although the country's main internet providers have allocated IPv6 address blocks¹⁰³, their active use and provision to end users are still limited. Dependence on the outdated IPv4 protocol¹⁰⁴ may lead to wider use of network address translation (NAT) technologies, which complicates the operation of certain internet applications (e.g., peer-to-peer networks, some types of online games and VoIP) and may hinder user identification in cybercrime investigations. In the long term, lagging in IPv6 adoption may negatively affect the competitiveness of Kazakhstan's digital sector.

2.6. Connectivity Index

To assess the level of integration of the internet segment, two key indicators are used, based on the analysis of pairwise connections (peering) between Autonomous Systems (ASN).

Global Connectivity Index: This index represents the total number of unique connections between each Kazakhstani ASN and each external (foreign) ASN. Essentially, it measures how widely and diversely the internet segment is connected to the rest of the world. The higher this indicator, the more "windows" the country has to the global network.

Local Connectivity Index: This index is calculated as the total number of unique connections between different local ASNs. It reflects the intensity and complexity of the domestic internet market, in particular, activity at internet exchange points (IXP). A high value indicates a developed internal ecosystem that allows efficient local traffic exchange, minimizing latency and dependence on external channels for local data.

Analysis of the ratio of these two indices makes it possible to understand the strategic orientation of the national network: whether it is predominantly self-sufficient or deeply integrated into the global infrastructure.

Chart 7: Dynamics of global connectivity of Kazakhstan’s Autonomous Systems (2019–2025)

Global connectivity statistics



This chart demonstrates a sharp, inorganic growth in the global integration of the Kazakhstani internet. For a long time, until early 2023, the number of unique connections to the outside world remained stably low, fluctuating around 200–250. This indicates a period of stagnation or lack of active diversification of external channels. However, in 2023 and especially at the end of 2024, two sharp, almost vertical jumps occurred, as a result of which the indicator more than tripled, approaching 900.

Such “step-like” growth is untypical for organic market development and indicates the implementation of several large, targeted projects to expand international connectivity. Most likely, one or more dominant operators (which is consistent with previous findings) concluded large-scale peering agreements or commissioned new cross-border transitions. This radically increased the number of “windows” to the world, improving resilience and bandwidth, but at the same time likely further centralized control over international traffic in the hands of these players.

In contrast to global connectivity, the dynamics of local connections show steady, stable, and organic growth. The chart shows an almost linear trend in which the number of unique peerings between Kazakhstani ASs increased from approximately 350 at the beginning of 2020 to more than 700 by 2025. The absence of sharp jumps and drops indicates systematic and healthy development of the domestic internet market.

This growth is a direct indicator of the strengthening of the internal ecosystem and increasing its complexity. The increase in the number of direct connections between local operators is likely driven by the development of internet exchange points (IXP). As a result, traffic within the country is increasingly closed at the local level, which leads to reduced latency, lower traffic costs for operators, and reduced dependence on backbone providers for exchanging local data.

Chart 8: Dynamics of local connectivity of Kazakhstan’s Autonomous Systems (2019–2025)

Local connectivity statistics

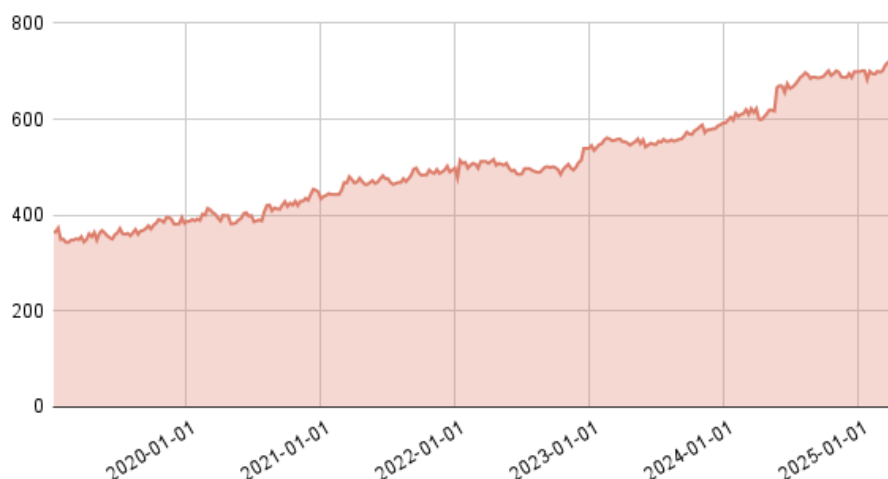
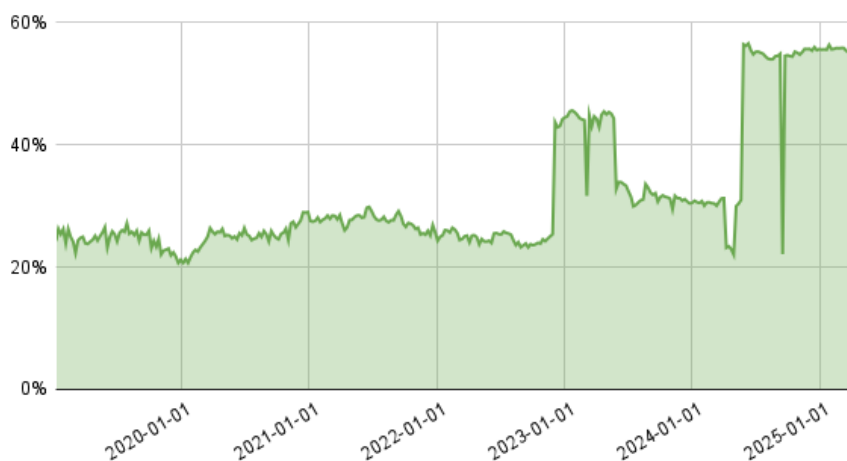


Chart 9: Dynamics of the ratio of global to local connectivity of Kazakhstan’s Autonomous Systems (2015–2025)

Total connectivity share



The chart clearly illustrates the turnaround of the entire internet segment of Kazakhstan. Until 2023, the share of global connections remained stable at 20–30%, meaning that local connectivity dominated over external. The internet ecosystem was more oriented “inward.” However, starting in 2023, a sharp turning point occurred: the share of global connectivity first jumped to 40–45%, and by the end of 2024 soared to almost 60%.

This shift means that the Kazakhstani internet has changed its structure, turning from a predominantly self-sufficient network into one integrated into the global infrastructure. The sharp nature of the changes confirms that this was not an evolutionary process, but the result of deliberate actions by key players to massively build up external connections. Now, strategically, the national segment is more focused on interaction with the outside world than on internal connections.

3. Internet Legislation

3.1. Principles of Internet Governance

Internet governance in Kazakhstan is characterized by the dominant role of the state and the desire to ensure “digital sovereignty”.¹⁰⁵ This concept implies increased control over the national information space, infrastructure, and data flows. Officially declared principles include ensuring the information security of the state and society⁵⁵, protecting the rights and freedoms of citizens, including the right to freely receive and disseminate information (with reservations provided by law)⁵⁵, as well as combating the dissemination of illegal content.⁵⁵

Along with this, Kazakhstan participates in international internet governance initiatives such as the Internet Governance Forum (IGF) and holds the national Qazaqstan IGF forum.¹⁰⁶ These platforms declare principles of openness, accessibility, and a multi-stakeholder approach involving dialogue between the state, business, the technical community, and civil society.¹⁰⁶ However, in practice, there is a significant gap between these declarations and actual policy. Priority is given to issues of state control and security (as interpreted by the authorities), while the influence of non-state actors on decision-making in internet regulation remains limited.¹⁰⁸ This creates an internal contradiction between the desire to comply with international norms and the desire to maintain strict control over the digital environment.

3.1.1. Regulation

Internet regulation in the Republic of Kazakhstan is carried out through a comprehensive system of legislative and subordinate acts. The key laws are:

- Law of the Republic of Kazakhstan “On Communications”¹⁰⁹: Regulates the activities of communication operators, use of the radio frequency spectrum, numbering, provision of services, rights and obligations of users, and also contains provisions on suspension of network operation (Article 41-1).¹¹¹
- Law of the Republic of Kazakhstan “On Informatization”¹¹²: Defines the foundations of state policy in the field of informatization, the functioning of “e-government”, requirements for information systems and resources.
- Law of the Republic of Kazakhstan “On Mass Media”¹¹²: Extends its effect to internet resources, equating them to mass media, and establishes rules for their activities and liability for disseminated information.
- Law of the Republic of Kazakhstan “On Online Platforms and Online Advertising” (2023)⁴: Introduces specific regulation for large social networks and messengers, obliging them to have a representative in the Republic of Kazakhstan, moderate content (including Kazakh-language content), and remove “false” or illegal information at the request of the authorities.
- Criminal Code of the Republic of Kazakhstan: Contains articles applied to online activities, including dissemination of knowingly false information (Art. 274)¹¹⁵, defamation (Art. 130)¹¹⁸, insult (Art. 131)¹¹⁸, incitement to discord (Art. 174).¹¹²
- Other laws: “On Countering Extremism”, “On Countering Terrorism”, “On Personal Data and Their Protection”¹²², “On Protecting Children from Information Harmful to Their Health and Development”.

Regulation covers a wide range of issues: from technical aspects (infrastructure, frequencies) to content (blocking, liability for statements) and economic activity (licensing, antitrust control). A characteristic feature is active state intervention and the granting of broad powers to supervisory and law enforcement agencies.⁴ Legislation often contains vague wording, which creates room for arbitrary interpretation and application of norms for the purpose of restricting freedom of speech and criticism.¹⁰⁸ Overall, the regulatory system is more focused on ensuring control and security than on stimulating development and protecting digital rights.

3.1.2. Regulatory Agencies and Responsible Persons

Management and regulation of the internet in Kazakhstan is distributed among several state bodies:

- **Ministry of Digital Development, Innovation and Aerospace Industry (MDRIAI):** Is the central authorized body responsible for the formation and implementation of state policy in the fields of communications, informatization, digital assets, innovation, aerospace industry, “e-government”, as well as in the field of online platforms and online advertising.⁵⁵
 - *MDRIAI structure includes:* Telecommunications Committee¹²⁶, Information Security Committee¹²⁴, Public Services Committee¹²⁴, Geodesy and Cartography Committee¹²⁴, Aerospace Committee¹²⁴, Artificial Intelligence and Innovation Development Committee.¹²⁸
 - *Leadership (as of May 2025):*
 - Minister: **Zhaslan Khasenovich Madiyev** (¹²⁵; Profile: ¹²⁹)
 - First Vice-Minister: **Kanysh Amanbayevich Tuleushin** (¹²⁴; Profile: ¹²⁵)
 - Vice-Ministers: **Rostislav Anatolyevich Konyashkin** (¹²⁵; Profile: ¹²⁵), **Malik Serikovich Olzhabekov** (¹²⁴; Profile: ¹²⁵), **Dmitry Andreevich Mun** (¹²⁵; Profile: ¹²⁵)
 - Chairman of the Telecommunications Committee: **Yerzhan Bolatovich Meirambekov** (¹²⁴)
 - Chairman of the Information Security Committee: **Ruslan Kenzhebekovich Abdikalikov** (¹²⁴; mentioned in ¹³¹)
- **Committee of National Security (KNB):** Has significant powers in the field of internet control, including the right to suspend networks and access to resources extrajudicially in “urgent cases”.⁴ The KNB oversees the activities of JSC State Technical Service (STS), which is responsible for traffic monitoring and filtering, management of internet exchange points (IXP), and technical implementation of blocking.⁴
 - *KNB leadership:* (Information not available in the provided materials)
- **Prosecutor General’s Office of the Republic of Kazakhstan:** Exercises supervision over compliance with legality and has the right to submit submissions for blocking internet resources or suspending networks if they are used for illegal purposes.⁴
 - *Leadership of the Prosecutor General’s Office:* (Information not available in the provided materials)
- **Ministry of Culture and Information (MCI)** (formerly Ministry of Information and Social Development): Is the authorized body in the field of mass media, online platforms and online advertising. Responsible for content monitoring, identifying violations (including dissemination of false information) and issuing orders to block access or remove illegal content.⁵⁵
 - *MCI leadership:* (Information not available in the provided materials)

- **Agency for Protection and Development of Competition (AZRK):** Responsible for antitrust regulation, including the communications services market, and conducts investigations into operators for signs of violation of competition law.¹³⁶
 - *AZRK leadership:* Chairman Marat Omarov (mentioned in ¹³⁷)

Such distribution of powers among different agencies, especially granting law enforcement agencies (KNB, Prosecutor General's Office) the right to extrajudicial interference in the operation of the internet, creates a complex and opaque management system. This enhances the state's ability to control and restrict the digital space under various pretexts, often prioritizing security considerations (as interpreted by the authorities) over principles of freedom of information and economic incentives.

3.2. Market Monopolization

The legislation of the Republic of Kazakhstan in the field of communications and competition protection is formally aimed at creating a competitive environment and preventing abuse by dominant market entities. The Law "On Communications", adopted in 2004, aimed to liberalize the telecommunications sector and overcome the monopoly of the national operator JSC Kazakhtelecom.¹³⁸ Antimonopoly legislation is applied by the Agency for Protection and Development of Competition (AZRK) to investigate possible violations by telecom operators.¹³⁷

Despite legislative norms, in practice, JSC Kazakhtelecom, whose controlling stake belongs to the state through the Samruk-Kazyna National Welfare Fund, retains a dominant position in the telecommunications services market. Its position is particularly strong in the fixed-line segment: the company controls most of the backbone infrastructure, international gateways and occupies about 64% of the fixed broadband internet access market.⁴ Until recently, Kazakhtelecom also dominated the mobile market, owning two of the three largest operators – Kcell and Tele2/Altel.⁴²

As part of the demonopolization policy initiated by the country's leadership, in early 2025, the sale of the mobile operator Tele2/Altel (Mobile Telecom-Service LLP) to the Qatari holding Power International Holding (PIH) was completed.⁴² This led to the emergence of three independent major players in the mobile market (Beeline, Kcell, Tele2/Altel) and a reduction in Kazakhtelecom's share (through Kcell) to approximately 30%.⁴² The AZRK continues to monitor the market and conducts investigations into operators for suspected anti-competitive concerted actions (e.g., when raising tariffs) or abuse of dominant position.⁴⁴

Thus, there is a gap between the declared goals of liberalization and the actual preservation of the dominance of the state company in key market segments, especially in fixed communications. This “quasi-monopoly” is supported by the historical and infrastructural advantages of Kazakhtelecom. Although steps have been taken to demonopolize the mobile market, control over the main fixed-line infrastructure remains with the state company, which preserves significant levers of influence over the entire internet sector of the country for the authorities.

3.3. Internet Shutdowns Ordered by Authorities

Kazakhstan’s legislation grants state bodies, primarily law enforcement agencies, broad powers to suspend the operation of networks and communications facilities, including full or partial internet shutdowns. The legal basis for such actions is provided by the provisions of the Law of the Republic of Kazakhstan “On Communications” (in particular, Article 41-1)¹¹, the Law “On National Security”⁴, as well as legislation on countering terrorism and extremism, and on the state of emergency.

The shutdown procedure can be initiated extrajudicially. The Prosecutor General of the Republic of Kazakhstan or his deputies may submit a submission to the Committee of National Security (KNB) or the authorized body in the field of mass media (MCI) on the need to suspend the operation of networks or restrict access to resources.⁴ Grounds for such a submission may include: use of networks for criminal purposes, dissemination of calls for extremism, terrorism, mass riots, unauthorized actions, violation of election legislation, dissemination of child pornography, cyberbullying against a child, and others.⁴

In addition, the KNB (Chairman, his deputies or heads of territorial bodies) has the right to independently decide to suspend the operation of networks and/or communications facilities, as well as access to internet resources in “cases that do not tolerate delay and may lead to the commission of grave or especially grave crimes”, as well as in the actions of criminal groups.⁴ Such a decision is made without a court sanction, with subsequent notification of the authorized bodies and the Prosecutor General’s Office within 24 hours.⁴

Upon receiving the relevant submission or order, communication operators and/or the State Technical Service (STS), under the control of the KNB⁴, are obliged to execute it as soon as possible – usually within two to three hours.²¹

The existence of such broad and rapid powers for law enforcement agencies, especially the right to act without a court decision, creates significant risks to freedom of access to information and freedom of expression. The vagueness of the grounds for shutdown (“use for criminal purposes”,

“threat of grave crimes”) allows the authorities to apply these measures arbitrarily, including to suppress protest activity and restrict access to information during politically significant periods. The practice of shutdowns, including the complete shutdown in January 2022²² and local throttling during rallies⁴, confirms the use of these legislative mechanisms for political purposes.⁷² The centralization of internet infrastructure and the dominance of Kazakhtelecom technically facilitate the implementation of such large-scale shutdowns.

3.4. Legislation on “Words on the Internet”

In Kazakhstan, there are a number of legislative norms establishing liability for statements and dissemination of information on the internet, which are often used to restrict freedom of speech and persecute critics of the authorities.

The central place is occupied by **Article 274 of the Criminal Code of the Republic of Kazakhstan “Dissemination of knowingly false information”**.¹¹⁵ It provides for punishment for disseminating information that “does not correspond to reality or contains significant distortions of facts”⁵⁵ and at the same time “creates a danger of violating public order or causing significant harm” to the rights and interests of citizens, organizations or the state.¹¹⁵ The key feature is “knowingness”, i.e., intentional dissemination of information that the person realizes is false.¹¹⁸ Punishment ranges from a large fine (up to 7,000 MCI) to imprisonment for up to 7 years, especially if the act was committed using mass media, telecommunications networks or online platforms, or caused grave consequences.¹¹⁵

The vagueness of the wording “danger of violating public order” and “significant harm” creates ample opportunities for interpretation and application of the article against undesirable statements.

The Law of the Republic of Kazakhstan “On Online Platforms and Online Advertising” (entered into force in September 2023)⁴ introduced additional control mechanisms. It obliges owners of popular online platforms (social networks, messengers with an audience of more than 100,000 users per day in the Republic of Kazakhstan) to cooperate with the authorized body (MCI) in combating “false information”.⁵⁵ Platforms must, upon MCI order, remove such content.⁵⁵ The law also introduced administrative liability for users of online platforms (bloggers, influencers) for posting and disseminating false information – a fine of up to 100 MCI (approximately USD 756 at the time of introduction).⁵⁶

In addition to the article on “fakes”, other articles of the Criminal Code are actively used to prosecute statements on the internet:

- **Article 130 of the Criminal Code “Defamation”:** Dissemination of knowingly false information discrediting honor, dignity or reputation.¹¹⁸
- **Article 131 of the Criminal Code “Insult”:** Humiliation of honor and dignity in an indecent form.¹¹⁸ Administrative liability for insult, including using telecommunications networks, is also provided.¹³⁹
- **Article 174 of the Criminal Code “Incitement of social, national, clan, racial, class or religious discord”:** This article with very broad wording is often applied against activists, journalists and bloggers for critical publications and comments on social networks.¹¹²
- **Article 147 of the Criminal Code “Violation of the inviolability of private life and the legislation of the Republic of Kazakhstan on personal data and their protection”.**¹¹⁹

This set of legislative norms creates a legal basis for criminalizing and administratively prosecuting a wide range of statements on the internet. In practice, these laws are often applied selectively to suppress criticism of the authorities, discussion of sensitive topics, and activities of opposition activists and independent journalists.¹⁰⁸ Requirements for online platforms to remove content reinforce censorship and contribute to self-censorship by both users and the platforms themselves.

3.5. Legislation on Internet Blocking

Blocking of internet resources is one of the main tools of state control over the information space in Kazakhstan. There is a developed legislative base and an established practice of applying blocking.

The possibility of blocking websites is provided both judicially and extrajudicially. Extrajudicial blocking can be initiated by the Prosecutor General’s Office (or its deputies) and the Committee of National Security (KNB) on the basis of the Law “On Communications” (Art. 41-1)⁴ and other laws. The Ministry of Culture and Information (MCI) is also authorized to issue blocking orders based on court decisions, submissions from the prosecutor’s office, or within its powers to control online platforms.⁵⁵ The grounds for blocking are very broad and include the dissemination of information recognized by a court as illegal, calls for extremism, terrorism, mass riots, dissemination of false information, propaganda of cruelty and violence, pornography, drug-related information, suicide, as well as information damaging the interests of the individual, society and the state.²¹

The existence of extrajudicial blocking mechanisms and the breadth of grounds for their application make the content control system opaque and create conditions for abuse. Blocking is

often used to restrict access to resources of independent media, opposition groups, human rights organizations, and critical content.⁷³

3.5.1. Legislation

The legislation regulating the blocking of internet resources in Kazakhstan exists and includes provisions from several key laws:

- **Law of the Republic of Kazakhstan “About Communications”:** Article 41-1 details the procedure and grounds for temporarily suspending access to internet resources and/or information posted on them, both upon submission by the Prosecutor General and by decision of the KNB.¹¹¹
- **Law of the Republic of Kazakhstan “About Mass Media”:** Equates internet resources to mass media and establishes liability for disseminating illegal information.
- **Law of the Republic of Kazakhstan “About Countering Extremism” and Law “About Countering Terrorism”:** Provide for the possibility of blocking resources containing materials of an extremist or terrorist nature.
- **Law of the Republic of Kazakhstan “About Online Platforms and Online Advertising”:** Establishes the obligation of online platform owners to remove illegal content upon MCI order and provides for the possibility of blocking platforms for non-compliance with requirements.⁵⁵
- **Criminal Procedure Code and Civil Procedure Code of the Republic of Kazakhstan:** Determine the procedure for court decisions that may serve as grounds for blocking resources (e.g., in cases of protection of honor and dignity, copyright).

These laws collectively provide state bodies with a wide range of tools to restrict access to information on the internet. The trend in recent years, including the adoption of the law on online platforms, indicates further tightening of regulation and expansion of grounds and mechanisms for carrying out censorship and blocking.

3.5.2. Blocking Procedures

Procedures for blocking internet resources in Kazakhstan can be divided into judicial and extrajudicial.

- **Judicial procedure:** Blocking is carried out on the basis of a court decision that has entered into legal force. The claim may be filed by interested parties (e.g., copyright holders in case

of copyright infringement) or state bodies (e.g., the prosecutor’s office demanding to recognize information as illegal). After the court decision, the authorized body (MCI) sends an order to communication operators and/or STS for execution.

- **Extrajudicial procedure:** This procedure is used much more often and is carried out at the initiative of law enforcement agencies or authorized bodies:
 - **Upon submission by the Prosecutor General or his deputies:** When information falling under the grounds listed in Art. 41-1 of the Law “On Communications” (extremism, calls for riots, fakes, etc.) is detected, the prosecutor’s office sends a submission to the MCI.⁴ The MCI, in turn, issues an order to restrict access to communication operators and/or STS.¹¹¹
 - **By KNB decision:** In “urgent cases” related to the threat of grave crimes or actions of criminal groups, KNB leadership may directly issue an order to suspend access to resources or communication networks, notifying the prosecutor’s office and MDRIAI/MCI post factum.⁴
 - **By MCI order (within the framework of the Law on Online Platforms):** MCI may directly order owners of online platforms to remove illegal content. In case of non-execution, measures up to blocking the platform may be applied.⁵⁵

Execution of blocking orders is assigned to communication operators and/or JSC State Technical Service (STS). They are obliged to take measures to restrict access to the specified resources or information within a short time (usually no more than 2–3 hours) after receiving the order.²¹ Technically, blocking can be carried out by various methods, including filtering by IP address, URL, DNS filtering, or using deep packet inspection (DPI) systems.

3.5.3. Registries of Blocked Internet Resources

In Kazakhstan, there is officially no single, public and comprehensive registry of blocked internet resources. Information about blocking is fragmented.

The Ministry of Culture and Information (formerly MIOR) periodically publishes on its website lists of internet resources whose access is restricted on the basis of court decisions or submissions by the Prosecutor General’s Office. However, these lists are not always complete and promptly updated. In 2025, a section appeared on the e-government portal gov.kz where one can file a complaint about content or check whether a specific URL is included in some list of “prohibited sites”.¹³⁴ However, the functionality and completeness of this database raise questions, and it cannot be considered a full-fledged open registry.¹³⁴

The lack of a transparent and accessible official registry of blocked resources is a serious problem. Users and site owners often cannot obtain reliable information about the reasons and legal grounds for blocking a specific resource.¹⁴² This makes it difficult to challenge blocking and contributes to the opacity of actions by state bodies. Civil society and independent researchers have to rely on unofficial monitoring projects and data from international organizations to track the situation with blocking.

Due to the absence of an official public registry, monitoring of blocking in Kazakhstan is carried out by independent projects and organizations.

- **Kaz Blocking Tracker (KAZBT.COM):** This project¹⁴⁴ tracks the availability of more than 100,000 websites from IP addresses inside and outside Kazakhstan. A site is considered blocked if it is accessible from abroad but inaccessible from Kazakhstan. The check is performed by sending an HTTP HEAD request to the robots.txt file. The project provides the ability to check the availability of a specific site, view the history of blocking in the form of a chart, and view the list of most frequently blocked resources. KAZBT emphasizes the opacity of blocking in the country and the lack of clarity regarding the reasons for the unavailability of many sites.¹⁴⁴
- **OONI (Open Observatory of Network Interference):** A global project collecting data on internet censorship using tests run by volunteers around the world. OONI Explorer data allow analysis of blocking of specific URLs, site categories (news, human rights, political criticism, VPN, etc.) and censorship methods used in Kazakhstan.¹³⁴ OONI collaborates with local partners such as Internet Freedom Kazakhstan (IFKZ)¹⁴⁶ to conduct research and analysis of the situation.
- **Civil society monitoring:** Human rights organizations such as Adil Soz¹⁴⁸ and the Kazakhstan International Bureau for Human Rights and Rule of Law (KIBHR)¹⁵⁰, as well as media organizations, track cases of blocking and pressure on internet resources within their activities to protect freedom of speech and human rights.¹¹⁴

These unofficial resources play an important role in documenting and highlighting internet censorship in Kazakhstan, providing data for researchers, human rights defenders, and the international community. However, they cannot fully replace an official, transparent, and accountable mechanism for informing about blocking.

3.5.5. Development of Blocking Practices

The practice of blocking internet resources in Kazakhstan has a long history and shows a trend toward expansion. Initially, blocking was mainly applied to sites containing pornography or materials recognized as extremist.⁷³ However, over time, the grounds and scale of blocking have expanded to include independent news sites, blogs, social networks, petition platforms, and tools for bypassing censorship (VPNs, anonymizers).⁷³

OONI data for the period 2023–2024 confirm blocking in Kazakhstan of:

- **News sites:** Including Russian (Tsargrad, Sputnik i Pogrom, 360tv), Kyrgyz (Kloop, Centralasia.media) and international (Vice News) resources.¹⁴⁶ Previously, other independent Kazakhstani and foreign media were also blocked.¹⁴²
- **Human rights and socio-political resources:** Blocking of the Russian-language version of the Amnesty International website (amnesty.org.ru), petition sites change.org, ipetitions.com and egov.press was recorded.¹⁴⁶
- **Circumvention tools:** At least 73 VPN service websites (NordVPN, ExpressVPN, ProtonVPN, TunnelBear, Surfshark, etc.) and anonymizers were blocked.¹⁴⁶ The Tor Project website is also included in the official (though difficult to access) list of blocked resources.¹³⁴ At the same time, the Tor and Psiphon VPN networks themselves, according to OONI data in mid-2024, remained accessible.¹⁴⁶
- **Technical aspects:** OONI studies also revealed the use of TLS MITM (Man-In-The-Middle) techniques on the networks of some Kazakhstani providers between 2021 and 2024, which allowed intercepting and potentially modifying users' encrypted traffic.¹⁴⁶ Earlier, in 2019, the authorities attempted to force users to install an untrusted root certificate for similar purposes.¹⁵²

Conclusion: The dynamics of blocking in Kazakhstan indicate systematic use of this tool to restrict access to a wide range of information far beyond combating universally recognized illegal content. The targets of blocking are independent media, human rights resources, platforms for civic activism, and tools that allow bypassing censorship. This indicates a consistent policy by the authorities to control the information space and restrict freedom of speech and access to information on the internet.

4. Human Rights Violations on the Internet

The internet space in Kazakhstan is characterized by the presence of serious violations of digital human rights. The country's authorities use various methods to control the online sphere, restrict

freedom of expression, and access to information. The most common violations include arbitrary internet shutdowns, website blocking, criminal and administrative prosecution of citizens for online statements, as well as pressure on independent media and non-governmental organizations (NGOs).

These actions create an atmosphere of fear and self-censorship among users, journalists, and activists.¹⁰⁸ International human rights organizations such as Freedom House⁴, Amnesty International¹²⁰ and Human Rights Watch¹⁵⁴ regularly include Kazakhstan among countries with a “not free” internet and document numerous cases of digital rights violations.

4.1. Internet Shutdowns Ordered by Authorities

The practice of internet shutdowns has been repeatedly used by the authorities of Kazakhstan, especially during periods of political tension and mass protests. The most large-scale case occurred in January 2022 during nationwide protests known as “Bloody January” (“Қаңтар”).

- January 2022:** Against the background of protests triggered by a sharp increase in liquefied gas prices, the authorities first resorted to local throttling (slowdown) of mobile internet in the western regions, and then, from January 5 to 10, carried out an almost complete internet shutdown throughout the country.²¹ The official reason for the shutdown was the need to conduct an “anti-terrorist operation” and suppress the activities of “terrorists”.⁴ The shutdown paralyzed not only access to information and communication between citizens, but also the operation of many services, including banking systems, online payments, and public services, which led to significant economic losses (estimated at \$410 million²²) and serious difficulties for the population.²³ Human rights defenders and independent observers regarded the shutdown as a measure to suppress protests and conceal information about the use of force by the authorities.²³
- Local shutdowns/throttling:** In addition to the January shutdown, the authorities resorted to temporary slowdown or disconnection of the internet in places where unsanctioned rallies and protest actions were held. Such cases were recorded, for example, in December 2022 and January 2023 in Almaty during commemorative actions for the events of “Qantar”, in April 2023 in Almaty and Zhanaozen²¹, as well as in May 2024 in the city of Kulsary and other

areas affected by floods, during spontaneous rallies.⁴ Similar practices were observed in previous years, for example, in 2019 during presidential elections and related protests.⁷²

These cases demonstrate the authorities' readiness to use internet shutdowns as a tool for controlling information and suppressing public activity, despite negative economic and social consequences.

4.2. Criminalization of Online Speech

In Kazakhstan, citizens are regularly subjected to criminal and administrative prosecution for their statements on the internet, including posts on social networks, comments, and blog publications. The authorities actively use articles of the Criminal Code on the dissemination of knowingly false information (Art. 274 of the Criminal Code of the RK)¹¹⁵, incitement to discord (Art. 174 of the Criminal Code of the RK)¹¹², defamation (Art. 130 of the Criminal Code of the RK), and insult (Art. 131 of the Criminal Code of the RK)¹¹⁸ to prosecute persons criticizing officials, state policy, or expressing dissenting opinions. Administrative liability is provided, in particular, for insult on telecommunications networks¹³⁹ and dissemination of false information by bloggers.⁵⁶

The most frequently mentioned cases of prosecution in recent years:

- **Temirlan Ensebek (2025):** A satirical blogger, author of the Instagram account Qaznews24, was arrested in January 2025 on charges of “inciting interethnic discord” (Art. 174 of the Criminal Code of the RK) because of one of his publications.¹²¹ The case caused widespread public resonance and criticism from human rights defenders.
- **Activists associated with DVK and “Köşe Partiyasy”:** Dozens of citizens were convicted on charges of participation in or support for the banned “extremist” organizations Democratic Choice of Kazakhstan (DVK) and “Köşe Partiyasy”.¹²⁰ The basis for the charges was often posts, comments, likes, or reposts on social networks, as well as participation in online chats. Those convicted in these cases are often added to the list of persons associated with the financing of terrorism and extremism, which entails the blocking of their bank accounts and serious economic restrictions.¹²⁰
- **Daniyar Khasenov (2019):** A human rights defender and activist monitoring rallies was detained and charged with participation in the activities of a banned organization (DVK) on the basis of his posts and correspondence on social networks. He was forced to leave the country.¹⁵⁶
- **Other cases:** Human rights organizations regularly report dozens of cases of administrative liability (fines, arrests) for posts and comments on Facebook, Telegram, and other platforms

that the authorities regard as calls for unsanctioned rallies, insults against representatives of the authorities, or dissemination of false information.¹¹⁴

These examples illustrate the systematic use of legislation to suppress freedom of speech on the internet and prosecute citizens for expressing critical or opposition views.

4.3. Persecution of Media and NGOs

Mass media and non-governmental organizations (NGOs) in Kazakhstan, especially those taking an independent or critical position, also face pressure and persecution for their online activities. This manifests itself in various forms, including legal prosecution, economic pressure, cyberattacks, and website blocking.

- **Legal prosecution:** Journalists and editorial offices can be held liable under the same articles as ordinary citizens (defamation, insult, dissemination of false information, incitement to discord) for their publications.
 - **Daniyar Adilbekov (2024):** A journalist faces up to 8 years in prison on charges of defamation (Art. 130 of the Criminal Code of the RK) and dissemination of knowingly false information (Art. 274 of the Criminal Code of the RK) for posts on a Telegram channel in which he accused the Deputy Minister of Energy of corruption.¹⁴¹
 - **Lawsuits for protection of honor and dignity:** Officials and companies often file lawsuits against media demanding retraction of information and payment of large compensation, which can lead to financial exhaustion of editorial offices.
 - **Charges of violating media or online platform legislation:** The new Law “On Online Platforms and Online Advertising”⁵⁵ and amendments to the Administrative Code on liability for fakes⁵⁶ create additional risks for online media and bloggers. In 2024, 12 court cases were recorded against journalists and bloggers on charges of disseminating false information, with fines imposed in 7 cases.¹¹⁴
- **Website blocking and cyberattacks:** Independent news sites and NGO portals are often subjected to blocking¹¹⁴ and DDoS attacks¹¹⁴, which make it difficult or impossible for readers to access their content. Examples of attacked or blocked resources include Radio Azattyk (RFE/RL), Respublika, Guljan.org, Stan TV, Nakanune.kz, Ulysmedia.kz, Press.kz, Vera.kz, and others.¹¹⁴
- **Pressure through the “foreign agents” law:** Amendments to the Tax Code requiring NGOs and individuals receiving foreign funding and engaged in certain types of activities (including collecting and disseminating information) to register and report as “foreign agents” create

additional pressure.¹⁵⁷ Publication of registries of such persons and organizations violates their rights and can be used for discrediting.¹⁵⁷

- **Accreditation problems:** Journalists from independent media may face refusals or delays in obtaining accreditation, which limits their access to official information and events (example – accreditation problems for Radio Azattyk journalists in 2024).¹¹⁴

These actions create a difficult and hostile environment for the work of independent media and NGOs in Kazakhstan, limiting their ability to freely cover events, criticize the authorities, and protect human rights in the digital space.

5. Civil Society in Internet Governance

Civil society in Kazakhstan plays a certain, though limited, role in issues of internet governance and protection of digital rights. There are a number of non-governmental organizations (NGOs), media projects, and expert groups engaged in monitoring the situation, analyzing legislation, providing legal assistance, raising digital literacy, and advocacy.¹⁰⁸ These organizations seek to promote principles of openness, freedom of speech, and access to information in the online environment, often entering into dialogue or confrontation with state bodies on internet regulation issues.

However, the activities of civil society in this area face significant difficulties. These include restrictive legislation (including norms on “foreign agents”¹⁵⁷), pressure from the authorities, lack of resources, and a low level of public awareness about digital rights issues.¹⁰⁸ Despite this, civil initiatives continue their work, using various platforms, including international forums and cooperation with international organizations¹⁰⁶, to protect digital freedoms in the country.

5.1. Organizations

Several key organizations operate in Kazakhstan focused on protecting digital rights and freedom of speech on the internet:

- **International Foundation for Protection of Freedom of Speech “Adil Soz”:** One of the oldest and most authoritative organizations in Kazakhstan engaged in protecting the rights of journalists and media.¹⁴⁸ “Adil Soz” monitors violations of freedom of speech (including the online sphere), provides legal assistance to journalists and media, analyzes media legislation, and conducts educational seminars.¹⁴⁸ The foundation is a member of the international IFEX network.¹⁴⁸
 - Website: <http://www.adilsoz.kz/>¹⁴⁸

- **Kazakhstan International Bureau for Human Rights and Rule of Law (KIBHR):** A large human rights organization with a network of branches across the country.¹⁵⁰ It deals with a wide range of human rights, including civil and political rights. KIBHR monitors the situation with freedom of speech, freedom of assembly, torture, conducts monitoring, analysis, and advocacy, including on issues related to digital rights.¹⁵⁰ The organization has been subjected to pressure from the authorities.¹⁵⁰
 - Website: <https://bureau.kz/>¹⁵⁸
- **Internet Freedom Kazakhstan (IFKZ):** A project directly focused on internet freedom issues in Kazakhstan. IFKZ's goals include ensuring an internet without unlawful censorship, increasing transparency of state bodies in the ICT sphere, analyzing legal grounds for blocking, and advocating for digital rights.¹⁶⁰ IFKZ cooperates with international organizations such as OONI to conduct internet censorship research.¹⁴⁶
 - Website: (Direct link not found in the snippets, but mentioned in the OONI context¹⁴⁶)
- **International Center for Journalism MediaNet:** An organization operating since 2004 in the field of media development, media literacy, and journalist support.¹⁶¹ MediaNet implements projects aimed at increasing the professionalism of journalists, supporting independent media, as well as fact-checking (Factcheck.kz project) and digital rights issues, including combating disinformation and protecting journalists in the online environment.¹⁵⁷
 - Website: <https://medianet.ngo/>¹⁶¹
- **Digital Rights Center Qazaqstan (DRCQ):** An organization engaged in legal protection in the field of digital rights, in particular, challenging the blocking of VPN services.¹⁶³
 - Website: <https://kz.drc.law/> (mentioned in ¹⁶³)

These and other organizations make an important contribution to monitoring, analysis, and protection of digital rights in Kazakhstan despite difficult working conditions.

5.2. VPN and Circumvention Tools

The use of VPN (Virtual Private Network) and other circumvention tools is a common practice among internet users in Kazakhstan to access blocked resources and protect their privacy. Against the background of periodic blocking of popular sites, social networks, and news resources, as well as during internet shutdowns, demand for VPN services sharply increases.⁷²

The authorities of Kazakhstan are taking steps to restrict access to VPN services and other anonymizers themselves, viewing them as means of accessing illegal content.¹³⁴ This creates a situation where tools used to exercise the right to access information become objects of censorship themselves.

5.2.1. Status of VPN Services

Formally, at the legislative level, there is no direct prohibition on the use of VPN services by individuals in Kazakhstan.¹³¹ Representatives of authorized bodies have also stated that a complete ban on VPN is not planned and would be negatively received by society.¹³¹

However, the legislation contains norms that can be used to restrict access to VPN and anonymizers. The Law of the RK “On Communications”, in particular Article 41-1, allows blocking access to internet resources used for disseminating prohibited information.¹¹¹ Article 41-2 of the same law (although its exact content requires verification in the current edition¹⁰⁹) may contain or be interpreted as containing restrictions on means providing anonymity or bypassing blocking. In addition, the Law “On Online Platforms and Online Advertising”⁵⁵ and the Law “On Informatization”¹¹³ may also contain relevant provisions.

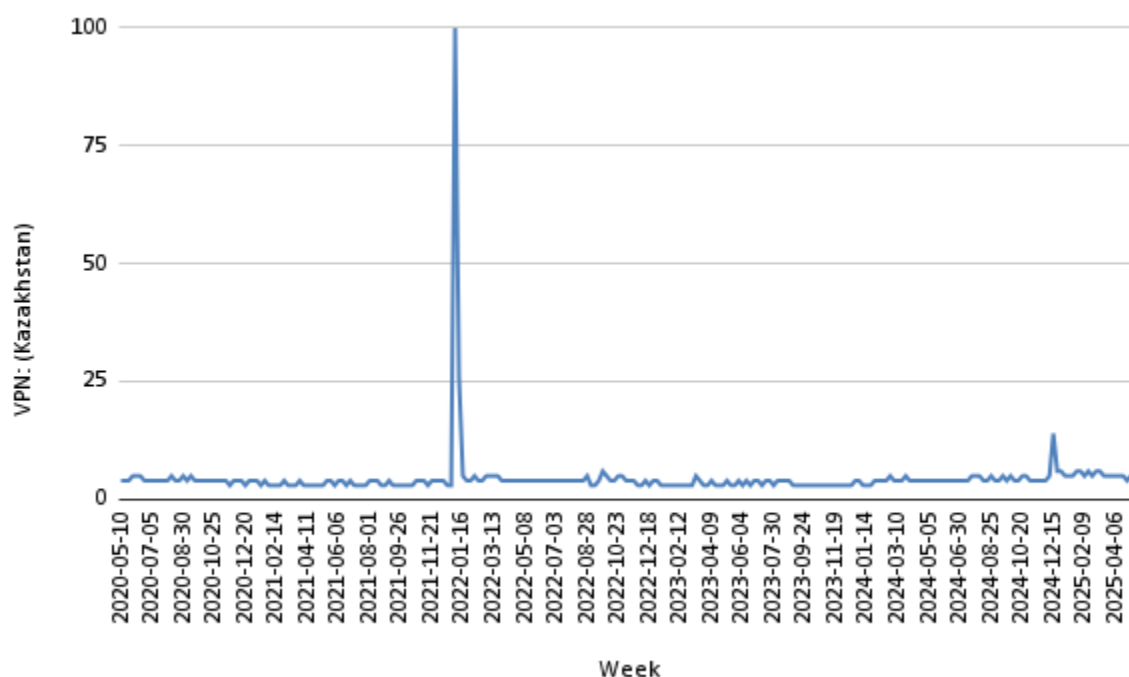
In practice, the authorities actively block websites and IP addresses of well-known VPN services.¹³⁴ The basis for blocking is usually the wording of violation of the norms of the Law “On Communications” in terms of providing access to prohibited resources (through anonymizers, proxy servers, VPN).¹³⁴ In 2018, the VPN service IPVanish was blocked.¹³¹ In 2023–2024, users reported blocking of ExpressVPN¹⁷¹ and other popular services.¹⁴⁶ Thus, although the use of VPN itself is not criminalized for the end user, access to these services is deliberately made difficult by the state.

5.2.2. Number of VPN Users

It is difficult to estimate the exact number of VPN users in Kazakhstan and its dynamics due to the lack of regular official statistics on this issue. Data from international studies and commercial reports can only provide approximate estimates.

- **Download data:** A 2019 Top10VPN study showed explosive growth in VPN app downloads in Kazakhstan – 4.1 million downloads in a year, representing a 210% increase compared to the previous year (third place in the world in growth rate).¹⁷² This indicates high demand for VPN during that period, likely related to blocking during elections and protests.
- **Global trends:** Global reports show an overall increase in VPN usage related to remote work, privacy concerns, and content access.¹⁷³ About 31% of internet users worldwide use VPN.¹⁷³
- **Dynamics:** Data on the dynamics of the number of VPN users in Kazakhstan for the period 2019–2025 are absent in the provided materials.

Chart 10: Dynamics of VPN-related search queries in Kazakhstan (2020–2025)



Source: *trends.google.com*

The chart clearly demonstrates that for the overwhelming majority of Kazakhstanis, VPN is not a tool for daily use. Throughout almost the entire five-year period (2020–2025), interest in this topic remains at a minimal, almost zero level. This indicates that under normal conditions, the mass user does not feel the need to bypass blocking, protect privacy, or access foreign content using VPN.

The situation changes at the moment of an acute national crisis. The extreme peak of interest in January 2022, reaching the maximum mark of 100, is directly linked to the complete internet shutdown in the country. This explosive demand shows that VPN is perceived by the population primarily as an emergency means to restore basic access to information under conditions of total restrictions. As soon as internet operation was restored, interest in VPN instantly returned to its usual low level, confirming its situational rather than permanent nature of use.

Despite the overall low activity, the chart shows a small but steady increase in search queries at the end of 2024 – beginning of 2025. These spikes are incomparable with the January 2022 peak, but they stand out clearly against the background of previous “silence”.

This may indicate a new trend: the emergence of demand for VPN to solve more local and less critical tasks. Most likely, these spikes are caused not by global shutdowns, but by temporary or

permanent blocking of individual popular resources, services, or sites. Thus, a broader audience is gradually forming an understanding of VPN no longer as a survival tool during a shutdown, but as a functional solution for bypassing targeted restrictions that they begin to encounter in everyday life.

Blocking of VPN services: As already noted, the authorities of Kazakhstan actively block access to websites and servers of VPN providers.¹³⁴ Blocking is carried out on the basis of orders from authorized bodies (MCI, KNB) by communication operators and STS.¹⁶³ Technical blocking methods may include IP filtering, DNS blocking, or the use of DPI to detect and block VPN protocols.

This makes the use of VPN less reliable and requires users to search for working services or apply additional traffic masking methods.

5.2.3. Cases of Prosecution for Using VPN

At the moment, the provided materials contain no information about cases of direct criminal or administrative prosecution of individuals in Kazakhstan solely for the fact of using VPN to access information or protect privacy.⁷² The legislation does not criminalize the use of VPN as such.¹³¹

However, prosecution is possible if VPN is used to commit illegal actions such as disseminating prohibited information (extremism, drugs, child pornography), fraud, copyright infringement, cyberattacks, etc.¹⁷⁵ In such cases, liability arises not for using VPN, but for the crime or offense committed with its help.

At the same time, cases of prosecution of **organizations providing VPN services** have been recorded. For example, in 2023, the Ministry of Culture and Information of the RK initiated a court case to block the VPN service hidemy.name (hi.me). The case went through several instances, including the Supreme Court, and illustrates the legal mechanisms used by the authorities to restrict the operation of VPN providers in the country.¹⁶³ Although this prosecution is directed at the service rather than users, it is part of the overall strategy to restrict access to circumvention tools.

5.2.4. Monitoring of Blocking

Monitoring of internet resource blocking, including VPN services, in Kazakhstan is carried out by several resources:

- **Kaz Blocking Tracker (KAZBT.COM):** An independent project tracking the availability of sites from Kazakhstan and abroad.¹⁴⁴ Provides the ability to check specific URLs and displays statistics of unavailable resources. Over the past 5 years (since the project was created in

2016–2018), KAZBT has recorded blocking of a wide range of sites, including news resources, social networks, blogs, and services.¹⁴⁵

- **OONI (Open Observatory of Network Interference):** A global network for measuring internet censorship. OONI Explorer data show the results of tests for blocking specific sites and services in Kazakhstan.¹³⁴ In recent years, OONI has recorded blocking in Kazakhstan of news sites (including Russian and Kyrgyz), human rights resources (Amnesty.org.ru), petition sites (change.org), and numerous VPN services.¹⁴⁶ Cases of TLS MITM application were also detected.¹⁴⁶
- **Reports of human rights and media organizations:** Organizations such as “Adil Soz”, KIBHR, Internet Freedom Kazakhstan, MediaNet, as well as international Freedom House, Amnesty International, Human Rights Watch, CPJ, publish reports and statements about cases of blocking, shutdowns, and other forms of internet censorship in Kazakhstan.⁴ These reports often contain analysis of specific cases and trends for certain periods. For example, the reports recorded spikes in blocking during elections (2019)⁷², protests (2019, 2022)²¹, as well as blocking of sites covering sensitive topics such as corruption or criticism of the authorities.¹⁴²

Digest of events for 2019–2024:

- **2019:** Blocking of social networks and news sites during presidential elections and protests; attempt to introduce a state security certificate to intercept HTTPS traffic.⁷²
- **2020–2021:** Continuation of blocking of independent media and opposition-related resources; adoption of amendments strengthening control over the online space.¹⁰⁸
- **2022:** Large-scale internet shutdown in January during protests (“Qantar”)²¹; local throttling during rallies.²¹
- **2023:** Adoption of the Law “On Online Platforms and Online Advertising” tightening requirements for social networks and bloggers⁴; blocking of VPN services and petition sites; local throttling.²¹
- **2024–2025:** Continuation of blocking of VPN and independent media¹³⁴; local shutdowns during protests⁴; detection of a large-scale cyberattack on telecom operators, presumably linked to a foreign state.⁴

Overall, monitoring shows a steady trend toward the use of blocking and shutdowns as tools for controlling information and suppressing dissent in Kazakhstan.

6. Conclusion

The analysis of the state of the internet and digital rights in Kazakhstan for the period from 2019 to 2025 reveals a complex and contradictory picture. On the one hand, there is a high level of internet penetration, especially mobile, infrastructure development (including the introduction of 5G), and relatively low cost of mobile traffic. The state declares goals of digital transformation and participates in international dialogue platforms on internet governance.

On the other hand, the digital space in Kazakhstan is subject to strict state control. Legislation grants the authorities, including law enforcement agencies, broad and often extrajudicial powers to restrict access to information, block resources, and suspend the operation of communication networks. These powers are actively used in practice, as evidenced by cases of internet shutdowns, regular blocking of independent media, human rights sites, and circumvention tools (VPN), as well as prosecution of citizens, journalists, and activists for online statements under articles on “fakes”, “incitement to discord”, and defamation.

The dominance of the state-owned company “Kazakhtelecom” in the fixed-line market and its significant presence in the mobile market (even after the sale of part of its assets) creates an infrastructural basis for centralized control and limits competition. The adoption of new laws, such as the law on online platforms, indicates a trend toward further tightening of regulation. The activities of civil society in the field of digital rights protection exist but face serious restrictions.

Overall, in Kazakhstan, there is a significant gap between the high level of technical internet penetration and the low level of observance of digital rights and freedoms. Priority is given to issues of state security and control over information, often at the expense of freedom of speech, access to information, and user privacy.

Forecast of developments:

- **Neutral scenario:** Preservation of the current status quo. The state will continue to balance between the need for digital development (for the economy and public services) and the desire to control the information space. Targeted blocking of undesirable resources and prosecutions for online activity will continue, possibly with some regard for international reaction. Infrastructure development will continue, but digital inequality and connection quality problems may persist. Legislation will slowly tighten as new technologies or social challenges emerge.
- **Positive scenario (liberalization):** Under the influence of internal (growing demand for freedoms from the young population, pressure from business interested in a stable and open internet) and external (international obligations, the need to attract investment) factors, the

authorities may move toward some liberalization. This may include: increasing the transparency of blocking procedures, narrowing the grounds for extrajudicial restrictions, revising the most repressive articles of the Criminal Code and Administrative Code used against online statements, real strengthening of competition in the telecom market, expanding dialogue with civil society on internet governance issues. The probability of such a scenario in the near future appears low but possible in the event of serious political or economic changes.

- **Negative scenario (strengthening of censorship):** In the event of an aggravation of the internal political situation, economic difficulties, or under the influence of external factors (e.g., strengthening of authoritarian tendencies in the region), the authorities may move toward further tightening of control. This may manifest itself in: expansion of the practice of shutdowns, mass blocking of VPN and other circumvention tools, introduction of new filtering and surveillance technologies (e.g., strengthening DPI, attempts to control encryption), tightening of legislation on “foreign agents” for NGOs working in the digital sphere, increased pressure on international online platforms with demands for full compliance with local legislation under threat of blocking. This scenario corresponds to the observed trends in a number of neighboring countries and cannot be ruled out.

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