

Kazakhstan: Digital Data, Resilience and Digital Development Policy Assessment (executive summary)

Connect2Recover

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EXECUTIVE SUMMARY

Connectivity of the Community Anchor Locations

This report prepared for the Government of the Republic of Kazakhstan (hereinafter - the Government) within the framework of the Connect2Recover initiative of the International Telecommunication Union (hereinafter - ITU). The initiative aims at supporting countries in identifying gaps and shortcomings, that impede use of broadband and digital technologies for emergency preparedness and mitigation, based on the experience gained during the COVID pandemic. The first phase of the Connect2Recover initiative resulted in a methodology¹ with several key findings and recommendations on data sources, resiliency and policy and regulatory measures, which enable countries to adapt to the new normal and better prepare for future challenges.

The report is an assessment of data on fixed and mobile broadband in Kazakhstan, digital resiliency, and broadband development strategies and plans. This report contains an analysis of the collected data, existing data gaps and recommendations for improving data collection practices, resiliency of infrastructure, ISPs and markets, as well as for strengthening digital development policies and regulations. As Kazakhstan is a Giga beneficiary country (a joint ITU-UNICEF initiative aimed at connecting all schools in the world to the Internet)², the report focuses on the issue of school connectivity and provides for an analysis of the relevant regulatory measures, that impede or facilitate universal and meaningful connectivity of all schools in Kazakhstan. The Government can use this report to review approaches to ICT data collection, to address gaps and shortcomings to improve digital resiliency, and to update and effectively implement digital development policies. This report was made possible with extensive support of the Ministry of Digital Development, Innovation and Aerospace Industry of the Republic of Kazakhstan (hereinafter – the Ministry) and the Infocommunication Holding ‘Zerde’.

Fixed and Mobile Connectivity Data

High-quality data is key to having an accurate picture of fixed and mobile broadband availability, adoption, and usage, and is the basis for data-driven policymaking. Based on a review of available data, the following observations can be made about available fixed and mobile broadband data in Kazakhstan.

Information on core network infrastructure provided to the ITU is outdated. The current broadband infrastructure maps dated between 2008 and 2015 years and cannot be used to understand the current fixed broadband population coverage. Some telecom operators provided up-to-date broadband maps for this study. But for ease of use, such maps should be published, continuously updated and provide information on the last mile development. Such online maps can be used to identify gaps, improve planning, and provide information to stakeholders.

¹ Connect2Recover initiative: A methodology for identifying connectivity gaps and strengthening resilience in the new normal. ITU, 2021. Access link: <https://www.itu.int/hub/publication/D-TND-04-2021/>

² Giga consists of the three pillars: mapping, financing, connecting. Access link: <https://giga.global>

The functionality of coverage maps is not sufficiently developed. The Ministry and telecom operators have developed a sufficient number of coverage maps and coverage-related services, but many of them need to be finalized. The Digital Map of Communication Coverage of Kazakhstan contains lots of data, but lacks filters to analyse it. For example, a filter that allows you to select only those localities where KaR-Tel LLP operates or localities with 4G coverage. Kazakhtelecom JSC provides a service to check availability of FTTH, however an interactive map with such information would be preferable. Another important element in terms of coverage maps is the ability to download data for further analysis, for example, in .xlsx format.

Data on the number of telecom operators' subscribers and settlements' coverage is not publicly available. However, most telecom operators provided data on the number of subscribers for this study. For market analysis it is recommended to ensure inclusion of this data into annual reports of the operators. Population coverage data was not provided. It is possible to manually collect this data using the Digital Map of Communication Coverage of Kazakhstan, but it will be time consuming due to the lack of necessary filters (as mentioned in the previous paragraph).

Many broadband indicators are being collected, including disaggregated by regions. This information allows comparing regions, finding patterns and anomalies, which contributes to the subsequent development of ICT in the country.

Data on school connectivity is collected in a way, that allows analysis. The data includes actual and contractual broadband speed, it is easy to find patterns and anomalies. At present, data is collected for a megabit split by download speed up to 10 Mbps and an 'over 10 Mbps' category. However, taking into account Giga's guidelines and school connectivity targets set in the National Project "Technological Leapfrog through Digitalization, Innovation and Science", known also as Digital Era Lifestyle (hereinafter – DigitEL Project), there is a need to add a megabit split by download speed up to 20 Mbps and to allow reporting speed that exceeds this threshold.

The reverse situation is for data collection on hospitals connectivity. There is no predefined drop-down menu to choose the type of telecommunication service, technology or download speed. Qualitative data analysis is not possible.

Sufficient number of broadband indicators, including digital skills indicators, is collected with regard to various historically vulnerable groups, including disaggregated by rural and urban localities, sex and age. However, data on broadband access, adoption and use, and on digital literacy among people with disabilities is lacking.

Country-Level Resilience

Country-level resilience is assessed through the following three components: critical infrastructure resilience, market resilience, and network/ISP resilience.

In terms of fixed and mobile network infrastructure and power critical infrastructure of Kazakhstan is resilient and well diversified. Nevertheless, Kazakhstan needs to continue developing 4G networks, start commercial implementation of 5G networks, consider the

possibility of creating additional Internet exchange points, and create more content and applications in the local language.

Network/ISP resilience: Kazakhstan is developing fixed broadband access, but lags behind its regional peers and generally ranks low globally. Further introduction and development of fibre-optic networks is necessary to ensure growth and realization of potential. Fostered development of 4G networks and commercial implementation of 5G networks will improve broadband speed and increase Kazakhstan's global ranking. Kazakhstan is one of the leaders on cybersecurity in the CIS region. However, there is a need to increase the number of secure Internet servers, continue to participate in the ITU CyberDrills for capacity building, ensure that more of its Internet servers are secure, and implement DNSSEC for top-level domains.

In terms of market resilience, Kazakhstan could take additional steps to strengthen competition in the provision of mobile and fixed broadband access. The availability of data on the presence/absence of telecom operators in all settlements of the country is necessary to determine the OP2/OP3 coverage concentration. The Digital Map of Communication Coverage of Kazakhstan contains this data, but it is not downloadable and cannot be filtered, which makes analysis not feasible. Upgrading the map and adding relevant filters is recommended. Kazakhstan is commended for ensuring broadband affordability and is encouraged to maintain current affordability level.

Policy and Regulation

Kazakhstan has no National Broadband Plan. But its high-level strategic documents, such as the State Program "Digital Kazakhstan" (hereinafter – the Digital Kazakhstan Program) and the DigitEL Project, do contain, inter alia, indicators and activities aimed at providing broadband access, upgrading basic ICT infrastructure, bridging the urban-rural digital divide, ensuring universal school connectivity and improving digital literacy. The Government also demonstrates its willingness to introduce innovative regulatory approaches such as regulatory 'sandbox', subsidies for the use of spectrum for operators involved in broadband development projects. These measures encourage private sector to initiate its broadband rural development projects, participate in PPP projects on ICT infrastructure development, share infrastructure and negotiate discounts for digital learning.

There is no Universal Service Fund in Kazakhstan. As the Government is the main shareholder of the largest fixed operator and two of the three mobile operators, most of the burden of ICT infrastructure development falls on the Government, directly or indirectly. Market liberalization following Kazakhstan's accession to the WTO has not attracted new operators. According to some experts, the trend is reversed: as all niches are occupied, the market is no longer attractive for new investors³. At the same time, legislation enshrines the concept of universal communication services. These services include, inter alia, provision of Internet

³ Murat Abdrakhmanov: a lot of money, but few professionals in the country. IT portal PROFIT. Access date: April 10, 2022. Access link: <https://profit.kz/articles/13519/Murat-Abdrahmanov-deneg-v-strane-mnogo-professionalov-malo/>

access with download speed up to 8 Mbps for mobile networks and above 8 Mbps for fixed networks.

The Digital Kazakhstan Program (expired in May 2022) and the DigitEL Project altogether have many characteristics of successful national broadband development plans. They are comprehensive and cover various aspects of digitalization from core network infrastructure development to cybersecurity, digital skills and digitalization of selected sectors of the economy. They contain clear and achievable targets, envisage supply-side interventions and demand stimulation activities, as well as network resiliency measures. Finally, they envisage introduction of innovative regulatory approaches such as “sandboxes”.

However, the process of adoption of these strategic documents wasn't transparent and open enough. In particular, the draft DigitEL Project was not publicly available and opened for comments and suggestions from the general public. In this regard, additional measures to ensure transparent and open decision-making are welcomed. This might also include summarizing the comments and provision of feedback with regard to the most popular suggestions received during open consultations. Secondly, the Digital Kazakhstan Program and the DigitEL Project, which have many similarities and are complementary to each other, co-existed for several years. This had a negative impact on society and led to mistrust of the Government. Thirdly, analysis of both documents showed that targets were not always supported by activities and often did not contain baselines. This complicates analysis of the level of ambition of the targets and adequacy of the measures taken to achieve them. Finally, despite annual monitoring and evaluation, documents have not been adjusted over the course of the implementation to address the challenging environment. There were also cases, when strategic documents were early terminated instead of adjustment.

Non-reporting up-to-date information on policy and regulations to international organizations, in particular ITU, is also a significant shortcoming. Kazakhstan's non-participation in global questionnaires such as the Telecommunication/ICT Regulatory Survey, Tariff Policies Survey leads to low ranking in global indices and, consequently, a false perception of potential investors about regulatory measures and market situation in place. Before entering a new market, international companies always carefully scrutinize and consult UN publications and tools as a source of reliable and independent information on the situation in the country. ITU data for Kazakhstan are in some cases based on the Government's responses and information from operators dated 2009 - 2013.

Kazakhstan is exposed to a wide range of natural disasters, including seasonal floods and drought, mudflows, avalanches, extreme temperatures and forest fires. 11 per cent of Kazakhstan's territory is located in a high seismic hazard zone, with about 40 per cent of industrial activity and more than 5 million people concentrated in this area. ICT technologies play a key role in disaster prevention, mitigation and management. Kazakhstan does not have a National Emergency Communications Plan, but there is a well-developed legal framework on the use of ICT for disaster prevention and response. The current system includes the following key elements: designation of authorities and allocation of roles among them; description of disaster warning procedures; standard emergency procedures and regular simulating exercises; coordination of the use of public, governmental and emergency communication services; order of interaction with telecom operators and coordination of the use of their communication channels, networks and means of communication; procedures to

respond to and handle calls to the Unified Duty Dispatcher Service '112'; management of Internet resources and core network infrastructure. Policy and regulatory measures and enforcement practices of Kazakhstan with regard to emergencies can be improved by mapping possible risks and vulnerabilities of core network infrastructure and of key telecommunications/ICT facilities necessary in various emergencies. Mapping could be further supported by the development of appropriate clear but flexible action plans. In addition, given high risk of disasters, it is recommended to consider acceding to the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations.

Taking into account participation of Kazakhstan in Giga, the report also pays particular attention to school connectivity, as well as policy and regulatory measures that impede or facilitate universal and meaningful school connectivity. The Government takes serious efforts to ensure bridging the digital divide and universal broadband Internet access for schools. There are extensive investments into core network infrastructure through PPP, subsidizing use of the spectrum, providing special broadband tariffs for digital learning. However, current school connectivity targets set by the Government (8 Mbps) do not meet Giga's global minimum criteria for meaningful connectivity (annexed to the report). In this regard, it is recommended to adjust existing school connectivity targets with those recommended by Giga. Further amendments to legislation allowing local authorities to finance the capex of connecting schools and allowing subsidies for school connectivity improvement as part of the provision of universal communication services, will accelerate universal and meaningful school connectivity. Giga's real-time monitoring of the quality of service provided to schools will also help to eliminate the difference between the contractual and actual download speeds, which is currently recorded in 15% of schools.