

Key messages:

- The COVID-19 pandemic has shown the correct path taken by the Government of Kazakhstan to develop an E-Gov platform and to digitalise public services, which enabled the Government to take civil services to the online mode and to ensure the efficiency of the critical public services online amid the pandemic.
- The level of digital readiness through recent large national ICT projects e.g. enabling broadband internet access across the country has significantly increased fixed and mobile internet availability at the level of households, workspaces, and schools. This serves as a good foundation for progressing with the digital economy and making the country much more resilient to the effect of the pandemic.
- The ability to reduce exposure to the COVID-19 pandemic has shown the way ahead in speeding up the introduction and practicing valid e-services both public and private. Education, social aid, healthcare, banking and finance, trade and freight including cross-border import-export-transit operations are the fields for further ICT interventions and respective cooperation within the SPECA region and beyond.
- Large infrastructure development projects implemented in the recent past allowed Kazakhstan to release the pressures resulting from its land-locked status, connecting the country to the main international transport corridors. These projects enabled favourable investment environment, public-private partnerships serve as a solid foundation for further development of the infrastructure both of large and smaller scales. In line with this, infrastructure co-deployment has a great potential to make more efficient investments. Regional collaboration and integration are the keys to further progressing in this direction.



KAZAKHSTAN: ADDING VALUE TO DIGITALIZATION EFFORTS

Introduction

The COVID-19 pandemic has depressed the economy of Kazakhstan by - 2.6% in 2020 and continues slowing down the economy in the first half of 2021 with only 2.5% growth rate.¹ The depression inside of the service sector due to the drop down in trade, tourism, hospitality sub-sectors was compensated by the growth in the ICT and telecommunications, education. Though, the ICT sector with telecommunication networks, e-services and e-businesses can be considered an engine for balancing the economy of Kazakhstan within the COVID-19 in 2020, while the global economy dipped by 4.5% in 2020.² have dropped down more significantly. It provides evidence for the need to further digitize the economy for being better prepared for such disruptive events in the future.

This Policy Brief highlights the urgency of the issues and gaps to be addressed and presents findings and recommendations that can justify and guide the digitalization efforts. Online tools developed to support this process and country e-readiness assessments of the other Central Asian and the Asian-Pacific countries have been prepared to examine ICT co-deployment with the development of the other infrastructure e.g. roads, railways, powerlines, oil and gas pipelines.

¹ <https://stat.gov.kz/>

² <https://www.statista.com/topics/6139/covid-19-impact-on-the-global-economy/>

Where Kazakhstan stands with e-resilience readiness?

The e-resilience readiness monitoring panel as a planning tool has been introduced recently by ESCAP. A number of dedicated surveys and analytical reports on e-resilience readiness of Kazakhstan, Kyrgyzstan, and Mongolia³ as well as of the entire SPECA region⁴ had highlighted a four pillar approach in organising the ICT statistics.

The four-pillar measuring e.g. the **ICT related country policy** for various sectors of the economy, then the **ICT role in developing new systems and products** as for e-adapting and recovery from COVID-19, the **role of the ICT in data gathering and management**, those driving respective policies, decisions and actions, and then **existing ICT infrastructure** as a physical foundation for all above was proposed and used.

The set of quantitative indicators and indices used to build each pillar were gathered as the result of the above-mentioned surveys and the use of valid international data sources e.g. ITU ICT Development Index (IDI)⁵ or E-Government Development Index (EGDI) of the UN DESA.⁶

A major finding, using data aggregation, qualifying and visualisation of the E-resilience readiness monitoring dashboard⁷ shows that

Kazakhstan illustrates a decent e-resilience readiness of ICT infrastructure.

The 4G network coverage, mobile cellular subscriptions, households with a computer and internet access demonstrate high scores, and therefore better e-resilience readiness, that may support the foundations of the digital economy.

Specifically, the internet and mobile network have spread to most individuals and households showing high e-resilience in ICT infrastructure. However, the necessity of addressing the quality and affordability of internet connections still remains with comparably high prices of fixed broadband subscriptions and handsets.

Meanwhile, the ICT's role is instrumental at the e-governance level, as well as on the personal, which is reflected in the high values of the online services, use of virtual social networks, ICT skills, availability of local online content.

Kazakhstan, by this, may want to share experience and best practices with neighbouring states. For further development, it would be worthwhile to accelerate the development of online financial services, such as fintech, and utilization of open data to complete e-readiness in data management.

³ <https://www.unescap.org/sites/default/d8files/knowledge-products/ASSESSING%20E-RESILIENCE%20in%20Kazakhstan%2C%20Kyrgyzstan%20%20and%20Mongolia.pdf>

⁴ https://www.unescap.org/sites/default/files/Understanding%20of%20the%20E-Resilience%20Framework%20for%20Crises%20Preparedness%20in%20RECI%20and%20SPECA%20countries%2C%20Ms.%20Aida%20Karazhanova_0_0.pdf

⁵ <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

⁶ <https://www.un.org/development/desa/publications/publication/2020-united-nations-e-government-survey>

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<https://app.powerbi.com/view?r=eyJrjoiYTQ5NzJiYjktYTM3Yy00ZmVklWJiNzktMWYxOGZhYjg0OWI4liwidCI6IjgwNGZhNDQzLTUzZGltNDNiMS1hZmUzLWY5NGE2MGVknjUzZSJ9>

Figure 1: ICT infrastructure status in Kazakhstan, Kyrgyzstan and Mongolia

ICT infrastructure as a physical foundation	Kazakhstan	Kyrgyzstan	Mongolia
Mobile cellular subscriptions per 100 inhabitants (0-100 max)	120	120	120
Percentage of Individuals using the Internet (0-100 % max)	78.9	38	47.16
Fixed (wired) broadband subscriptions per 100 inhabitants	13.44	5.64	9.66
Active mobile-broadband subscriptions per 100 inhabitants (0-100 % max)	77.57	94.03	83.72
Mobile tariffs (%monthly GDP per capita) (0-100 % max)	93.53	33.43	48.92
Handset prices (%monthly GDP per capita) (0-100 max)	55.61	16.35	30.46
Computer software spending (0-100 % max)	0.02	0.09	0.13
Percentage of households with Internet access at home (0-100 % max)	87.59	21.11	22.99
Percentage of Households with a computer (0-100 % max)	80.53	23.29	30
4G mobile network coverage (0-100 % max)	75.3	70	45
Fixed-broadband subscriptions, >10 Mbit/s, % of total fixed-broadband subscriptions, (0-100 % max)	51.83	64.27	0.58
International Internet bandwidth per Internet user (kbit/s)	55,067.84	47,863.64	22,399.44
Internet access in schools (0-100 % max)	n/a	41.37	70.66

Source: ESCAP (2021), *E-resilience Monitoring Dashboard | ICT & DRR Gateway*,

Where to apply infrastructure co-deployment?

The Government of Kazakhstan has made and is making a significant effort to build land transport infrastructure crossing the country and connecting it to the main international transport corridors.

Roads, railways, power transmission lines are also interlinking the interior of the country, better connecting geographically distant provinces and cities, empowering the economy. Oil and gas pipelines are also laid to the East and West through the country, enabling them to supply the largest world markets.

There is still growing demand for further built ICT infrastructure and laid FOCLs to meet the country's plans in building its digital economy.

Infrastructure co-deployment significantly reduces the cost of construction and increases the efficiency of the investments as the best world experiences show.

To enable ICT co-deployment with the other infrastructure there is a need to frame up the legal and policy bases, build regulations and co-deployment standards, as well as generate cross-sectoral interests and programmes.

Representatives of respective Government agencies and experts participated at the subregional and country workshops held as part of the RECI project. The ESCAP Secretariat held

background studies including on Kazakhstan⁸, developed a methodology⁹, which served as a foundation for two newly launched online tools to promote and technically enable ICT

infrastructure co-deployment both among the group of neighbouring countries and inside of one country to pledge and then justify infrastructure co-deployment.

Co-deployment Partnership Portal

The Partnership Portal on Co-deployment¹⁰ is a generic online facility to assess co-deployment opportunities, set up bilateral and multilateral partnership communication, generate interests and commitments as well as initiate co-deployment projects. The essence of the tool is in its powerful technical and substantial backup with pre-assessed measurement, background database, and programmed calculating algorithms, those elaborated and serviced by a highly professional team of the ICT and infrastructure co-deployment experts. To communicate it among target countries and their interested institutions and then to train

experts the ESCAP Secretariat invited ITLLDC to collaborate. Experts representing ICT, road, railway, and energy sectors in the Government, specialized state-owned institutions and enterprises, private sector, universities took part in the online training session for Kazakhstan held on May 17, 2021. ITLLDC employed its expertise to test the portal and share professional views on possible improvements and the vision of the future for the country and relevant ministries, agencies, and state-owned as well as private companies with the co-deployment portal.

Figure 2: Almaty -Cholpon-Ata corridor for infrastructure co-deployment



Source: ESCAP (2021), *E-resilience Monitoring Dashboard | ICT & DRR Gateway*

Simulator of the Integrated Infrastructure Corridors

The Simulator of the Integrated Infrastructure Corridors¹¹ is logically bound with the above co-deployment portal and serves for in-depth

assessing and justifying benefits of the infrastructure co-deployment within agreed and planned integrated corridors. The Simulator

⁸ <https://drrgateway.net/Web-Toolkit-Integrated-Planning-Infrastructure-Corridors-Kazakhstan>

⁹ <https://www.unescap.org/sites/default/d8files/knowledge>

= [products/Output%20%20Methodology Part II EN 2.pdf](products/Output%20%20Methodology%20Part%20II%20EN%202.pdf)

¹⁰ <https://drrgateway.net/partnership-portal-co-deployment>

¹¹ <https://broadband.shinyapps.io/SmartCorridorsSimulator/>

includes three corridors connecting Kazakhstan with Kyrgyzstan (**Almaty – Cholpon-Ata**), with China (**Urzhar – Chugunchak**), and with Russian Federation (**Semei - Rubtsovsk**) integrated transport corridor, those were proposed by experts from Kazakhstan and Kyrgyzstan at the joint workshop of the RECI project in October 2019. Following the proposal of country experts

at the above workshop the ESCAP Secretariat conducted an in-depth study¹² on these model corridors for infrastructure co-deployment. ITLLDC employed its expertise to test the Simulator and to communicate the benefits of using it among relevant government agencies as well as research and development institutions, and private companies.

¹²

<https://www.unescap.org/sites/default/d8files/knowledge>

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[products/Output%201%20Analysis%20of%203%20corridors_Part I EN 1.pdf](#)

Conclusions and Recommendations

The way ahead with the e-resilience readiness monitoring dashboard

- The Dashboard enables decision makers and experts to assess and compare where the country stands with ICT, e-services, and e-businesses and fosters their capacity to be better prepared and more e-resilient to pandemics and the other extreme events. Further use of it would allow to trace and compare the progress made, build regular and milestone reporting, while enabling regulations, policies, and decisions. The shared use of the dashboard would also leverage the cooperation among respective countries and set up the baseline for developing joint and country programmes and actions.
- Kazakhstan succeeded in expanding its online market for businesses and establishing an enhanced mobile environment through the applications developed. The country also showed its aspirations for developing and applying emerging technologies to boost economic growth. Despite the desire for advanced technology, the actual progress of transition towards new systems and applications is not remarkable. In this context, it is essential to facilitate substantial investment in emerging technologies, especially by private sectors, to acquire sophisticated technologies.
- Kazakhstan, like other countries of the region, may want to implement measures to further improve network quality, especially the fixed network; and improve the affordability of devices to enhance substantial internet penetration. If not addressed in a timely manner, this may hamper the development of a full-fledged e-resilient society.

Infrastructure co-deployment

- Kazakhstan commits itself to re-enable the classical Silk Way as a cross-continental land transport hub connecting East and West.¹³ Large transport infrastructure development is underway. Kazakhstan is building large logistical hubs, sea and land ports. There are substantial infrastructure construction and refurbishment taking place inside of the country. Power transmission lines are also developing. All these give an excellent opportunity for co-deployed development of the infrastructure, specifically with ICT.
- The studies¹⁴ and online tools developed by the ESCAP Secretariat give a foundation and capabilities to leverage the interest and technically enable infrastructure co-deployment both inside of Kazakhstan and with neighboring countries while planning co-deployed development of the cross-border integrated corridors.
- Leveraged interest and cross-sectoral networking emerged using the co-deployment portal are to foster political will and development of the co-deployment policies, regulations, and then strategies, programmes and projects. The Simulator, meanwhile, would visibly and thoroughly demonstrate the benefits of the co-deployment upon reaching pre-feasibility and feasibility phases of the co-deployment.

¹³ <https://www.pwc.com/kz/en/publications/new-2017/silk-way-publication-eng.pdf>

¹⁴ https://www.unescap.org/sites/default/d8files/knowledge-products/Output%203%20Calculus%20Part_III_EN_2.pdf

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ESCAP, in collaboration with the ITLLDC helped Kazakhstan, Kyrgyzstan, and Mongolia to assess the needs and then to develop online tools for measuring e-resilience readiness, enabling and simulating ICT integration and co-deployment with other infrastructure specifically within integrated international transport corridors.