Kazakhstan

Kazakhstan has a highly-developed mobile cellular network infrastructure. Prices of telecommunication services are relatively low and continue to fall. As a result, Kazakhstan has the highest level of mobile-broadband penetration in the CIS region. The country is also a regional leader in access to computers and Internet use.

Mobile services: Mobile communications is presently the most dynamic market in the telecommunication sector. There are three mobile-cellular operators in Kazakhstan: Kcell[257] (Kcell, Activ), Kar-Tel (Beeline)[258] and Mobile Telecom-Service (Tele2, Altel).[259,260,261] 3G technology was introduced in 2011. By 2015, it covered all settlements with above 10 000 inhabitants. The first LTE network was launched in 2012. By 2014, LTE networks covered towns with populations above 50 000. It is planned to provide LTE services in all local centres by the end of 2017. The number of LTE subscribers exceeded 2 million by the end of 2016. Mobile cellular telecommunication operators are allowed to use their GSM, DCS-1800 (GSM-1800) and UMTS/WCDMA (3G) frequency bands for LTE services. In recent years a rural telecommunication network development project was implemented. Rural areas were covered by CDMA/EVDO networks. Obsolete analogue exchanges (PBXs) were replaced by wireless local loop (WLL) base stations. Localities of 50 or more inhabitants acquired access to telephone services and broadband Internet of up to 3.1 Mbit/s.[262] Many of them (801) were installed in 2016.[263] In the same year, mobile network portability (MNP) was introduced.[264]

Fixed services: In 2008, the national telecommunication operator Kazakhtelecom finished the project of national information backhaul network construction that started in 1997. By 2008, over 11 500 km of optical fibre lines had been deployed.[265] The network connected regional centres, Astana and Almaty cities. It enabled further e-government development, ensured high quality of Internet and telephone services, and increased core capacity for international Internet traffic transit. Digital fixed telephony replaced analogue for long-distance intercity and international links in 1999. Analogue systems of local telephone networks had been replaced by digital by the end of 2015.

Key indicators for Kazakhstan (2017)		CIS	World
Fixed-telephone sub. per 100 inhab.	20.3	19.8	13.0
Mobile-cellular sub. per 100 inhab.	145.4	138.3	103.6
Active mobile-broadband sub. per 100 inhab.	75.1	72.0	61.9
3G coverage (% of population)	87.3	80.3	87.9
LTE/WiMAX coverage (% of population)	72.5	61.1	76.3
Individuals using the Internet (%)	76.4	68.6	48.6
Households with a computer (%)	76.2	68.1	47.1
Households with Internet access (%)	84.9	73.6	54.7
International bandwidth per Internet user (kbit/s)	69.8	66.8	76.6
Fixed-broadband sub. per 100 inhab.	14.1	17.8	13.6
Fixed-broadband sub. by speed tiers, % distribution			
-256 kbit/s to 2 Mbit/s	*5.8*	*12.2*	*4.2*
-2 to 10 Mbit/s	*37.6*	*25.1*	*13.2*
-equal to or above 10 Mbit/s	*56.6*	*62.7*	*82.6*

Note: Data in italics are ITU estimates. Source: ITU (as of June 2018).

From 2011 to 2014, Kazakhtelecom deployed FTTH (fibre-to-the-home) networks in cities of regional significance. By the end of 2016, more than 600 000 subscribers got Internet access over FTTH.[266] Kazakhstan is planning to continue to provide rural areas with fixed broadband access. One of the goals is to provide local state institutions with at least 10 Mbit/s Internet access, and to deploy FTTx networks in 1227 rural localities in 2018 to 2020. From 2021 to 2025, it aims to use alternative technologies to optical fibre to cover more than 4000 settlements.[267]

Government policy: The Kazakhstan Government makes significant efforts to develop the ICT sector. The national programme *Informational Kazakhstan – 2020* was approved in 2013.[268] The activities under the programme aim to increase public administration efficiency, improve ICT infrastructure availability and accessibility, provide ICT education for population, businesses and public officials, develop national Internet content and media.[269]A lot of attention is being paid to e-services development. Kazakhstan ranks 33rd among 193 countries in the United Nations E-government Development Index.[270] To adapt to fast changing ICT environment the 'Digital Kazakhstan' national programme was recently developed.[271]It covers the period from 2017 to 2021 and highlights state-of-the-art ICT directions such as, intelligent transportation systems, Internet-of-things, smart cities, blockchain technology. Since 2017, one of the main goals of ICT development in Kazakhstan has been to provide the population with broadband Internet access.[272] Kazakhstan also is also developing the transit networks capacity, and a direct network connection between Kazakhstan and Turkmenistan

was opened in 2013. Kazakhtelecom completed the project of a new transit network construction aimed at increasing gateway capacities to international telecommunication operators (in particular, Rostelecom, MegaFon, China Telecom, China Mobile) in 2014.[273]Internet traffic of about 75 Gbit/s is being transmitted from Europe to Asia and vice versa through Kazakhstan. It is expected that the traffic volume will increase to 537 Gbit/s by 2030. E-services are developing, and the popularity of data-centres is growing. In 2017, 24 data-centres were in operation. The largest TIER-III data-centre was opened in 2012. Kazakhstan's national company, Zerde, is an important stakeholder in building ICT sector cooperation in the CIS region.[273]

Conclusion: ICT growth rate in Kazakhstan is one of the highest in the region. The government implements its policy in telecommunications via strategies, plans, and projects with clearly stated targets. Telecommunication operators are involved in these activities. As a result, the population is getting access to quality services provided over high-speed telecommunication infrastructure.