# Network Readiness Index 2023

Azerbaijan

The Network Readiness Index (NRI) is one of the leading global indices on the application and impact of information and communication technology (ICT) in economies around the world. In its latest version of 2023 the NRI Report maps the network-based readiness landscape of 134 economies based on their performances in four different pillars: Technology, People, Governance, and Impact. Each of these pillars is itself comprised of three sub-pillars (see Figure 1) that have been populated by a total of 58 variables.
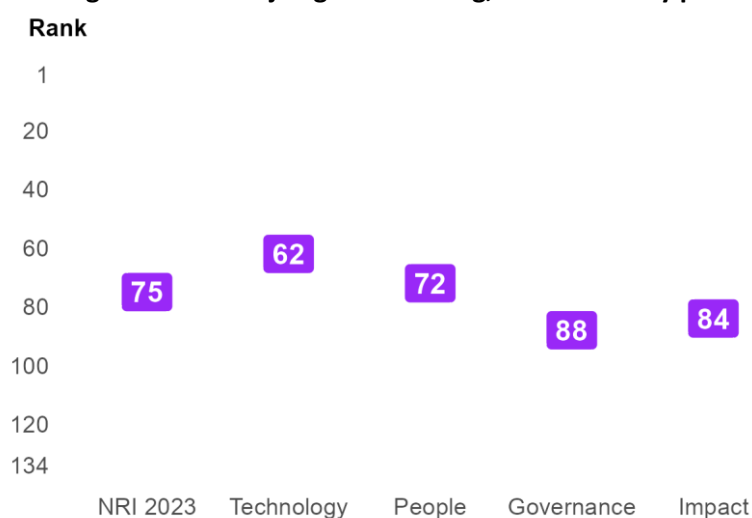
Figure 1: The NRI 2023 model
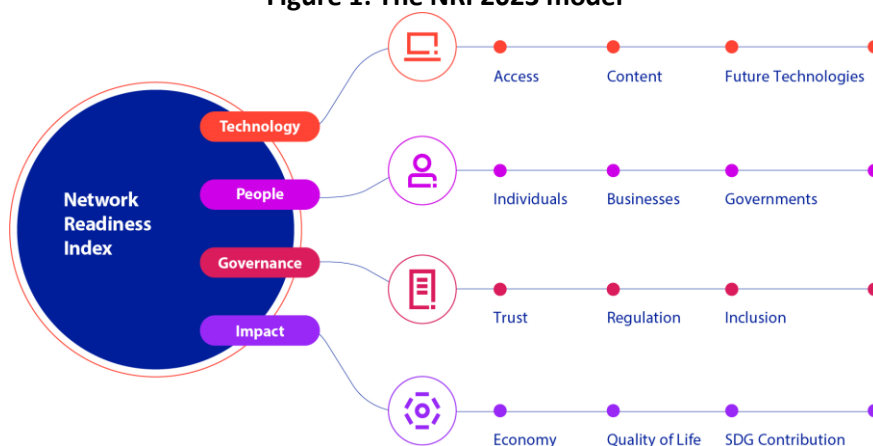
Global NRI position of Azerbaijan

Azerbaijan ranks 75th out of the 134 economies included in the NRI 2023 (Figure 2). Its main strength relates to Technology. The greatest scope for improvement, meanwhile, concerns Governance.

Figure 2: Azerbaijan global ranking, overall and by pillar

Performance at sub-pillar level

When it comes to sub-pillars, the strongest showings of Azerbaijan relate to Future Technologies, Governments and Access, among others (Table 1). More could be done, though, to improve the economy's performances in the Inclusion, Content and Regulation sub-pillars.

Table 1: Azerbaijan rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Future Technologies	35	Quality of Life	78
Governments	52	Economy	81
Access	72	Individuals	89
SDG Contribution	72	Inclusion	90
Trust	76	Content	98
Businesses	77	Regulation	103

NRI score and income

Figure 3 shows the position of Azerbaijan in terms of both NRI score and GDP per capita (PPP). The trend line shows the expected NRI score given an economy's income level. As can be seen, Azerbaijan is slightly below the trend line, which suggests that its network readiness is more or less in line with what would be expected given its income level.

Figure 3: NRI score and GDP per capita PPP (log)
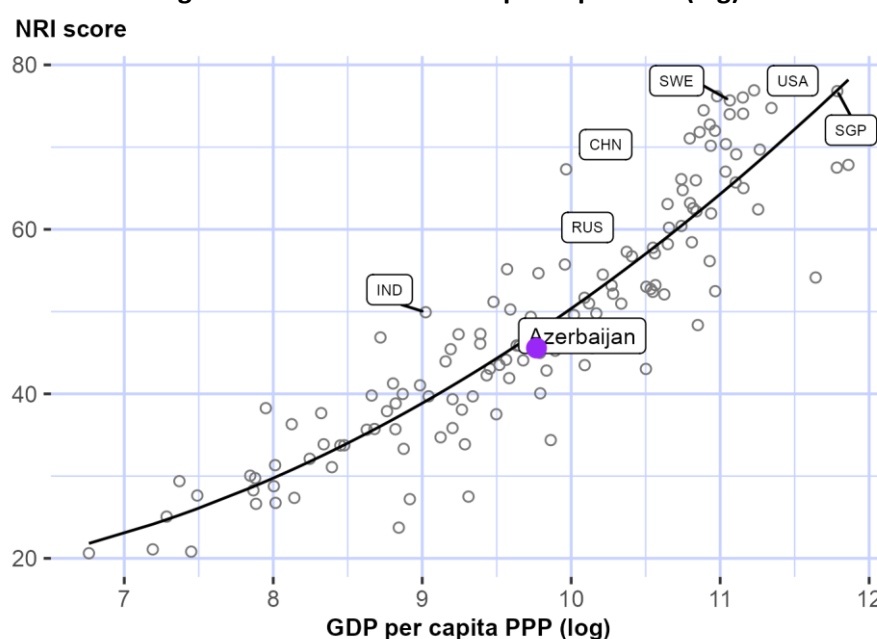
Note: USA = United States (rank: 1), SGP = Singapore (rank: 2), FIN = Finland (3), NLD = Netherlands (4), SWE = Sweden (5), CHN = China (20), IND = India (61). Azerbaijan belongs to the group of upper-middle-income countries, where the best performer is China (CHN). The top performer of its region-CIS-is Russian Federation (RUS).

Performance against its income group and region

Upper-middle-income countries
Azerbaijan is ranked 22nd in the group of upper-middle-income countries (Figure 4, left panel). In terms of pillar performance, it has a score higher than the income group average in one of the four pillars: Technology. At the sub-pillar level, it outperforms upper-middle-income countries in two of the twelve sub-pillars: Future Technologies and Governments.

CIS
Azerbaijan is ranked 4th within CIS (Figure 4, right panel). It has a score above the regional average in two of the four pillars: Technology and People. With regard to sub-pillars, it outperforms the average in CIS in six of the twelve sub-pillars: Access, Future Technologies, Businesses, Governments, Regulation and Economy.

Figure 4: Performance of Azerbaijan against its income group and region, overall and by pillar

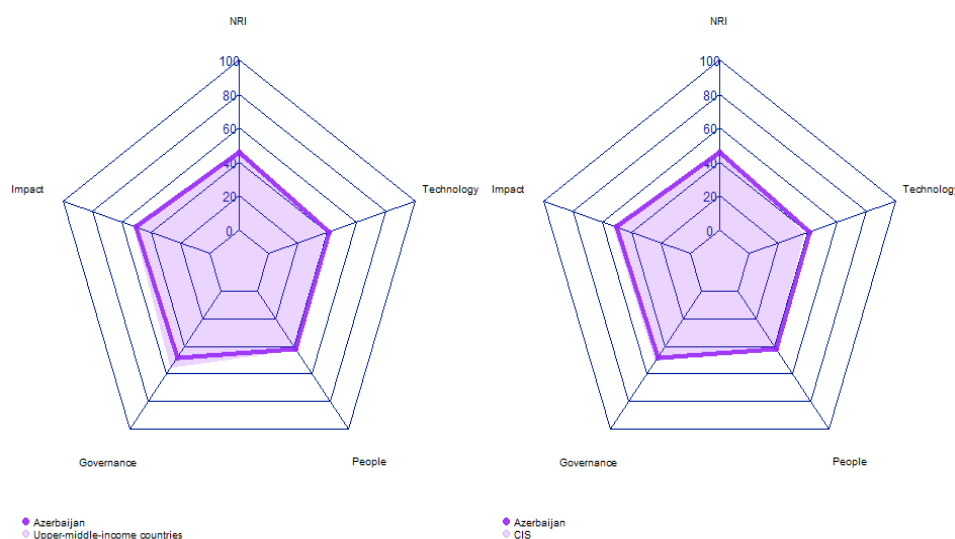**Table 2: Azerbaijan scores vs. averages of its income group and region, overall and by pillar**

Dimension	Azerbaijan	Upper-middle-income countries	CIS
NRI	45.57	47.35	45.81
Technology	41.37	38.48	38.11
People	42.13	42.59	41.35
Governance	48.46	55.90	51.08
Impact	50.30	52.43	52.69

Strongest and weakest indicators

The indicators where Azerbaijan performs particularly well include 2.1.5 Adult literacy rate, 4.1.5 Prevalence of gig economy, and 2.3.3 Government promotion of investment in emerging technologies (Table 3). By contrast, the economy's weakest indicators include 3.3.5 Rural gap in use of digital payments, 3.1.3 Online access to financial account, and 3.2.2 ICT regulatory environment.

Table 3: Highlight of Strengths and Opportunities for Azerbaijan

Strongest indicators	Rank	Weakest indicators	Rank
2.1.5 Adult literacy rate	8	2.2.5 GERD performed by business enterprise	87
4.1.5 Prevalence of gig economy	16	3.2.4 E-commerce legislation	87
2.3.3 Government promotion of investment in emerging technologies	20	3.1.3 Online access to financial account	117
1.3.2 Investment in emerging technologies	23	3.2.2 ICT regulatory environment	117
3.3.3 Availability of local online content	24	3.3.5 Rural gap in use of digital payments	118
1.3.1 Adoption of emerging technologies	34		
4.3.5 SDG 11: Sustainable Cities and Communities	38		
1.1.4 Population covered by at least a 3G mobile network	40		
2.2.1 Firms with website	41		
3.1.2 Cybersecurity	48		

Note: For the full list of strengths and weaknesses, see At-A-Glance table.

Network Readiness Index 2023

Portulans Institute · University of Oxford Saïd Business School

NRI 2023 At-A-Glance: Azerbaijan

Network Readiness Index Rank: 75 (out of 134) Score: 45.57

Pillar/sub-pillar	Rank	Score		Pillar/sub-pillar	Rank	Score
A. Technology pillar	62	41.37		C. Governance pillar	88	48.46
1st sub-pillar: Access	72	62.69		1st sub-pillar: Trust	76	37.95
2nd sub-pillar: Content	98	16.46		2nd sub-pillar: Regulation	103	55.44
3rd sub-pillar: Future Technologies	35	44.98		3rd sub-pillar: Inclusion	90	52.00
B. People pillar	72	42.13		D. Impact pillar	84	50.30
1st sub-pillar: Individuals	89	41.16		1st sub-pillar: Economy	81	23.67
2nd sub-pillar: Businesses	77	41.98		2nd sub-pillar: Quality of Life	78	65.77
3rd sub-pillar: Governments	52	43.25		3rd sub-pillar: SDG Contribution	72	61.48

The Network Readiness Index in detail

Indicator	Rank	Score		Indicator	Rank	Score	
A. Technology pillar	62	41.37		**C. Governance pillar**	88	48.46	
1st sub-pillar: Access	72	62.69		*1st sub-pillar: Trust*	76	37.95	
1.1.1 Mobile tariffs	55	67.28		3.1.1 Secure Internet servers	84	45.49	
1.1.2 Handset prices	79	41.13		3.1.2 Cybersecurity	48	89.12	●
1.1.3 FTTH/building Internet subscriptions	60	30.16		3.1.3 Online access to financial account	117	6.93	○
1.1.4 Population covered by at least a 3G mobile network	40	99.93	●	3.1.4 Internet shopping	90	10.25	
1.1.5 International Internet bandwidth	54	73.31		*2nd sub-pillar: Regulation*	103	55.44	
1.1.6 Internet access in schools	48	64.32		3.2.1 Regulatory quality	73	48.25	
2nd sub-pillar: Content	98	16.46		3.2.2 ICT regulatory environment	117	59.41	○
1.2.1 GitHub commits	74	4.40		3.2.3 Regulation of emerging technologies	NA	NA	
1.2.2 Internet domain registrations	93	1.38		3.2.4 E-commerce legislation	87	66.67	○
1.2.3 Mobile apps development	92	57.73		3.2.5 Privacy protection by law content	102	47.42	
1.2.4 AI scientific publications	84	2.31		*3rd sub-pillar: Inclusion*	90	52.00	
3rd sub-pillar: Future Technologies	35	44.98		3.3.1 E-Participation	89	37.21	
1.3.1 Adoption of emerging technologies	34	62.72	●	3.3.2 Socioeconomic gap in use of digital payments	98	54.39	
1.3.2 Investment in emerging technologies	23	67.00	●	3.3.3 Availability of local online content	24	85.10	●

Indicator	Rank	Score	
1.3.3 Robot density	NA	NA	
1.3.4 Computer software spending	101	5.21	
B. People pillar	72	42.13	
1st sub-pillar: Individuals	89	41.16	
2.1.1 Mobile broadband internet traffic within the country	88	4.47	
2.1.2 ICT skills in the education system	NA	NA	
2.1.3 Use of virtual social networks	100	36.46	
2.1.4 Tertiary enrollment	78	23.97	
2.1.5 Adult literacy rate	8	99.72	●
2.1.6 AI talent concentration	NA	NA	
2nd sub-pillar: Businesses	77	41.98	
2.2.1 Firms with website	41	65.50	●
2.2.2 GERD financed by business enterprise	56	38.07	
2.2.3 Knowledge intensive employment	59	33.37	
2.2.4 Annual investment in telecommunication services	101	72.85	
2.2.5 GERD performed by business enterprise	87	0.09	○
3rd sub-pillar: Governments	52	43.25	
2.3.1 Government online services	81	57.11	
2.3.2 Publication and use of open data	NA	NA	
2.3.3 Government promotion of investment in emerging tech	20	69.05	●
2.3.4 R&D expenditure by governments and higher education	88	3.59	

Indicator	Rank	Score	
3.3.4 Gender gap in Internet use	78	62.58	
3.3.5 Rural gap in use of digital payments	118	20.72	○
D. Impact pillar	84	50.30	
1st sub-pillar: Economy	81	23.67	
4.1.1 High-tech and medium-high-tech manufacturing	83	13.66	
4.1.2 High-tech exports	97	3.56	
4.1.3 PCT patent applications	85	0.92	
4.1.4 Domestic market size	74	50.08	
4.1.5 Prevalence of gig economy	16	70.06	●
4.1.6 ICT services exports	103	3.72	
2nd sub-pillar: Quality of Life	78	65.77	
4.2.1 Happiness	89	52.47	
4.2.2 Freedom to make life choices	49	79.84	
4.2.3 Income inequality	NA	NA	
4.2.4 Healthy life expectancy at birth	90	65.00	
3rd sub-pillar: SDG Contribution	72	61.48	
4.3.1 SDG 3: Good Health and Well-Being	87	60.63	
4.3.2 SDG 4: Quality Education	62	27.81	
4.3.3 SDG 5: Women's economic opportunity	88	69.91	
4.3.4 SDG 7: Affordable and Clean Energy	76	69.22	
4.3.5 SDG 11: Sustainable Cities and Communities	38	79.80	●

NOTE: ● a strength and ○ a weakness.

Sources

Dutta, S., & Lanvin, B. (eds.) (2022). The Network Readiness Index 2022: Benchmarking the Future of the Network Economy. Washington DC: Portulans Institute.

Berry, B. (2019). berryFunctions: Function Collection Related to Plotting and Hydrology. R package version 1.18.2. URL: https://CRAN.R-project.org/package=berryFunctions

Dutta, S., & Lanvin, B. (eds.) (2019). The Network Readiness Index 2019: Towards a Future-Ready Society. Washington DC: Portulans Institute.

Dutta, S., & Lanvin, B. (eds.) (2020). The Network Readiness Index 2020: Fostering Digital Transformation in a post-COVID Global Economy. Washington DC: Portulans Institute.

Dutta, S., & Lanvin, B. (eds.) (2021). The Network Readiness Index 2021: Shaping the Global Recovery. How digital technologies can make the post-COVID world more equal. Washington DC: Portulans Institute.

Gohel, D. (2019). officer: Manipulation of Microsoft Word and PowerPoint Documents. R package version 0.3.6. URL: https://CRAN.R-project.org/package=officer

Gohel, D. (2019). flextable: Functions for Tabular Reporting. R package version 0.5.6. URL: https://CRAN.R-project.org/package=flextable

Milton Bache, S. & Wickham, H. (2014). magrittr: A Forward-Pipe Operator for R. R package version 1.5. URL: https://CRAN.R-project.org/package=magrittr

Nakazawa, M. (2019). fmsb: Functions for Medical Statistics Book with some Demographic Data. R package version 0.7.0. URL: https://CRAN.R-project.org/package=fmsb

R Core Team (2018). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL: https://www.R-project.org/.

Slowikowski, K. (2019). ggrepel: Automatically Position Non-Overlapping Text Labels with 'ggplot2'. R package version 0.8.1. URL: https://CRAN.R-project.org/package=ggrepel

Wickham, H. (2007). Reshaping Data with the reshape Package. Journal of Statistical Software, 21(12), 1-20. URL: http://www.jstatsoft.org/v21/i12/.

Wickham, H. (2016). ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag. New York.

Wickham et al., (2019). Welcome to the tidyverse. Journal of Open Source Software, 4(43), 1686, URL: https://doi.org/10.21105/joss.01686