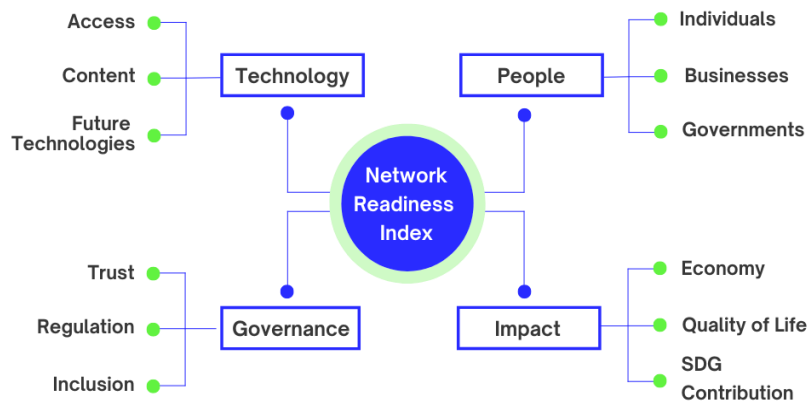


Network Readiness Index 2022

Türkiye

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 2022 the NRI Report maps the network-based readiness landscape of 131 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.

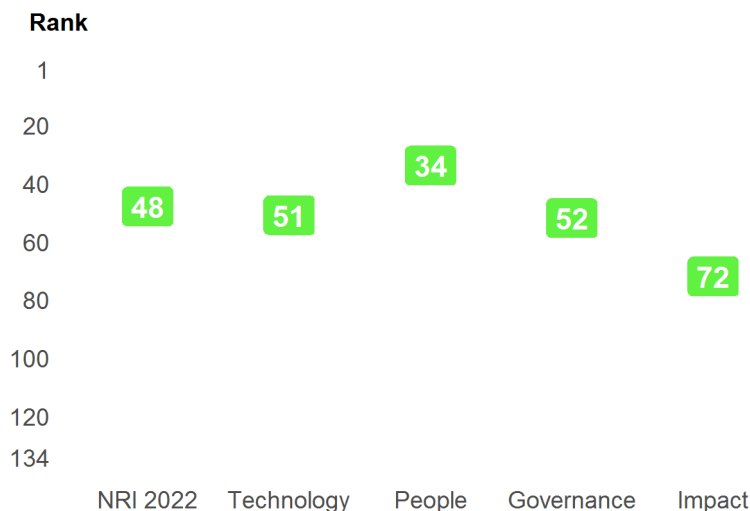
Figure 1: The NRI 2022 model



Global NRI position of Türkiye

Türkiye ranks 48th out of the 131 economies included in the NRI 2022 (Figure 2). Its main strength relates to People. The greatest scope for improvement, meanwhile, concerns Impact.

Figure 2: Türkiye global ranking, overall and by pillar



Performance at sub-pillar level

When it comes to sub-pillars, the strongest showings of Türkiye relate to Individuals, SDG Contribution and Access, among others (Table 1). More could be done, though, to improve the economy's performances in the Inclusion, Future Technologies and Quality of Life sub-pillars.

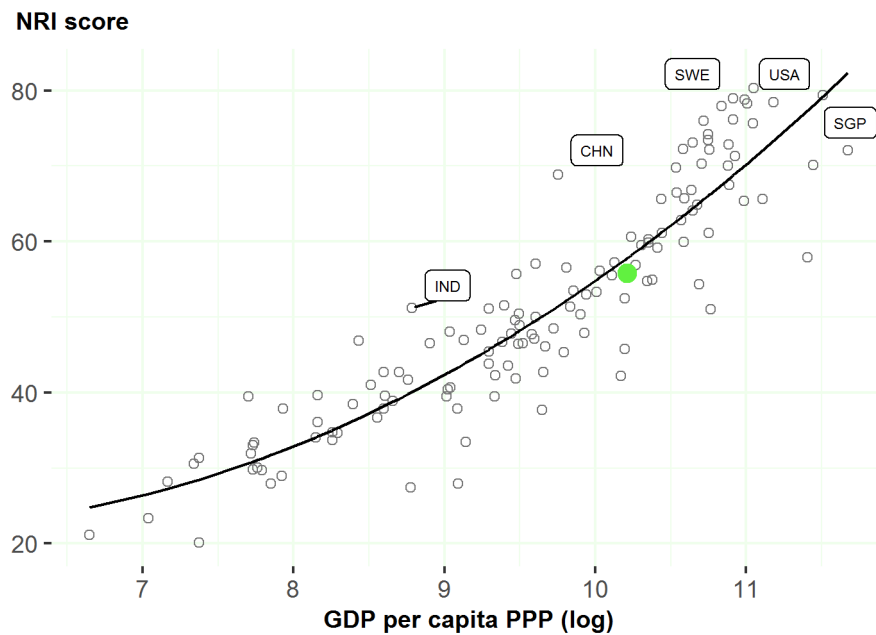
Table 1: Türkiye rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Individuals	8	Businesses	48
SDG Contribution	34	Economy	54
Access	42	Regulation	60
Content	42	Inclusion	61
Governments	43	Future Technologies	67
Trust	46	Quality of Life	115

NRI score and income

Figure 3 shows the position of Türkiye 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, Türkiye is well below the trend line, which suggests that it is underachieving and that one would expect it could raise its network readiness in view of its income level.

Figure 3: NRI score and GDP per capita PPP (log)



Note: USA = United States (rank: 1), SGP = Singapore (rank: 2), SWE = Sweden (3), CHN = China (23), IND = India (61). Netherlands (NLD) is ranked 4th. Türkiye belongs to the group of upper-middle-income countries, where the best performer is China (CHN). The top performer of its region-Europe-is Sweden (SWE).

Performance against its income group and region

Upper-middle-income countries

Türkiye is ranked 6th 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 three of the four pillars: nri.score, technology, people and governance. At the sub-pillar level, it outperforms upper-middle-income countries in eleven of the twelve sub-pillars: Access, Content, Future Technologies, Individuals, Businesses, Governments, Trust, Regulation, Inclusion, Economy and SDG Contribution.

Europe

Türkiye is ranked 30th within Europe (Figure 4, right panel). It lags behind its region in each of the four pillars. With regard to sub-pillars, it outperforms the average in Europe in two of the twelve sub-pillars: Access and Individuals.

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

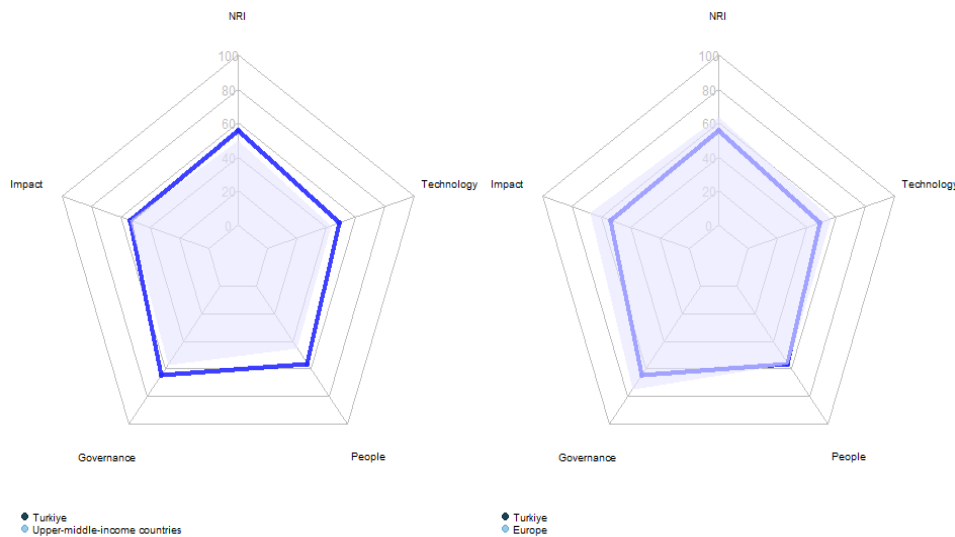


Table 2: Türkiye scores vs. averages of its income group and region, overall and by pillar

Dimension	Türkiye	Upper-middle-income countries	Europe
NRI	55.77	49.66	63.72
Technology	49.05	43.11	56.43
People	56.13	44.94	56.35
Governance	64.54	57.08	74.79
Impact	53.37	53.50	67.30

Strongest and weakest indicators

The indicators where Türkiye performs particularly well include 3.2.4 E-commerce legislation, 2.1.4 Tertiary enrollment, and 2.1.1 Mobile broadband internet traffic within the country (Table 3). By contrast, the economy's weakest indicators include 4.2.2 Freedom to make life choices, 4.2.1 Happiness, and 3.2.5 Privacy protection by law content.

Table 3: Strongest and weakest indicators of Türkiye

Strongest indicators	Rank	Weakest indicators	Rank
3.2.4 E-commerce legislation	1	3.3.4 Gender gap in Internet use	90
2.1.4 Tertiary enrollment	2	1.3.2 Investment in emerging technologies	104
2.1.1 Mobile broadband internet traffic within the country	3	3.2.5 Privacy protection by law content	105
1.1.5 International Internet bandwidth	11	4.2.1 Happiness	108
4.1.4 Domestic market size	11	4.2.2 Freedom to make life choices	125
1.1.1 Mobile tariffs	15		
1.1.3 FTTH/building Internet subscriptions	15		
1.2.4 AI scientific publications	15		
3.1.2 Cybersecurity	16		
2.2.2 GERD financed by business enterprise	17		
1.3.4 Computer software spending	20		

NRI 2022 At-A-Glance: Türkiye

Network Readiness Index

Rank: 48 (out of 131)

Score: 55.77

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
A. Technology pillar	51	49.05	C. Governance pillar	52	64.54
1st sub-pillar: Access	42	71.82	1st sub-pillar: Trust	46	61.55
2nd sub-pillar: Content	42	44.23	2nd sub-pillar: Regulation	60	64.88
3rd sub-pillar: Future Technologies	67	31.10	3rd sub-pillar: Inclusion	61	67.19
B. People pillar	34	56.13	D. Impact pillar	72	53.37
1st sub-pillar: Individuals	8	65.59	1st sub-pillar: Economy	54	36.95
2nd sub-pillar: Businesses	48	51.19	2nd sub-pillar: Quality of Life	115	46.28
3rd sub-pillar: Governments	43	51.61	3rd sub-pillar: SDG Contribution	34	76.89

The Network Readiness Index in detail

Indicator	Rank	Score	Indicator	Rank	Score
A. Technology pillar	51	49.05	C. Governance pillar	52	64.54
1st sub-pillar: Access	42	71.82	1st sub-pillar: Trust	46	61.55
1.1.1 Mobile tariffs	15	85.06	3.1.1 Secure Internet servers	46	70.37
1.1.2 Handset prices	95	40.74	3.1.2 Cybersecurity	16	97.45
1.1.3 FTTH/building Internet subscriptions	15	47.90	3.1.3 Online access to financial account	41	43.39
1.1.4 Population covered by at least a 3G mobile network	66	99.61	3.1.4 Internet shopping	53	35.00
1.1.5 International Internet bandwidth	11	85.78	2nd sub-pillar: Regulation	60	64.88
1.1.6 Internet access in schools	NA	NA	3.2.1 Regulatory quality	73	40.80
2nd sub-pillar: Content	42	44.23	3.2.2 ICT regulatory environment	20	93.53
1.2.1 GitHub commits	68	5.17	3.2.3 Regulation of emerging technologies	66	42.89
1.2.2 Internet domain registrations	49	8.08	3.2.4 E-commerce legislation	1	100.00
1.2.3 Mobile apps development	45	85.29	3.2.5 Privacy protection by law content	105	47.18
1.2.4 AI scientific publications	15	78.37	3rd sub-pillar: Inclusion	61	67.19
3rd sub-pillar: Future Technologies	67	31.10	3.3.1 E-Participation	23	88.89
1.3.1 Adoption of emerging technologies	58	49.37	3.3.2 Socioeconomic gap in use of digital payments	78	61.83
1.3.2 Investment in emerging technologies	104	27.50	3.3.3 Availability of local online content	47	69.95
1.3.3 Robot density	36	5.59	3.3.4 Gender gap in Internet use	90	55.48
1.3.4 Computer software spending	20	41.95	3.3.5 Rural gap in use of digital payments	71	59.78

Indicator	Rank	Score	Indicator	Rank	Score
B. People pillar	34	56.13	D. Impact pillar	72	53.37
<i>1st sub-pillar: Individuals</i>	8	65.59	<i>1st sub-pillar: Economy</i>	54	36.95
2.1.1 Mobile broadband internet traffic within the country	3	81.85	• 4.1.1 High-tech and medium-high-tech manufacturing	40	40.55
2.1.2 ICT skills in the education system	104	28.11	4.1.2 High-tech exports	60	27.46
2.1.3 Use of virtual social networks	42	75.46	4.1.3 PCT patent applications	31	20.47
2.1.4 Tertiary enrollment	2	77.19	• 4.1.4 Domestic market size	11	78.02
2.1.5 Adult literacy rate	36	95.84	4.1.5 Prevalence of gig economy	66	39.83
2.1.6 AI talent concentration	9	35.09	4.1.6 ICT services exports	90	15.37
<i>2nd sub-pillar: Businesses</i>	48	51.19	<i>2nd sub-pillar: Quality of Life</i>	115	46.28
2.2.1 Firms with website	69	46.07	4.2.1 Happiness	108	38.96
2.2.2 GERD financed by business enterprise	17	70.80	• 4.2.2 Freedom to make life choices	125	12.19
2.2.3 Knowledge intensive employment	64	35.45	4.2.3 Income inequality	86	53.02
2.2.4 Annual investment in telecommunication services	20	85.12	4.2.4 Healthy life expectancy at birth	43	80.97
2.2.5 GERD performed by business enterprise	33	18.53	<i>3rd sub-pillar: SDG Contribution</i>	34	76.89
<i>3rd sub-pillar: Governments</i>	43	51.61	4.3.1 SDG 3: Good Health and Well-Being	34	82.57
2.3.1 Government online services	22	85.45	4.3.2 SDG 4: Quality Education	40	54.14
2.3.2 Publication and use of open data	49	33.82	4.3.3 SDG 5: Women's economic opportunity	65	75.44
2.3.3 Government promotion of investment in emerging tech	39	50.16	4.3.4 SDG 7: Affordable and Clean Energy	23	89.22
2.3.4 R&D expenditure by governments and higher education	50	37.01	4.3.5 SDG 11: Sustainable Cities and Communities	32	83.07

NOTE: ● a strength and ○ a weakness.

Sources

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>