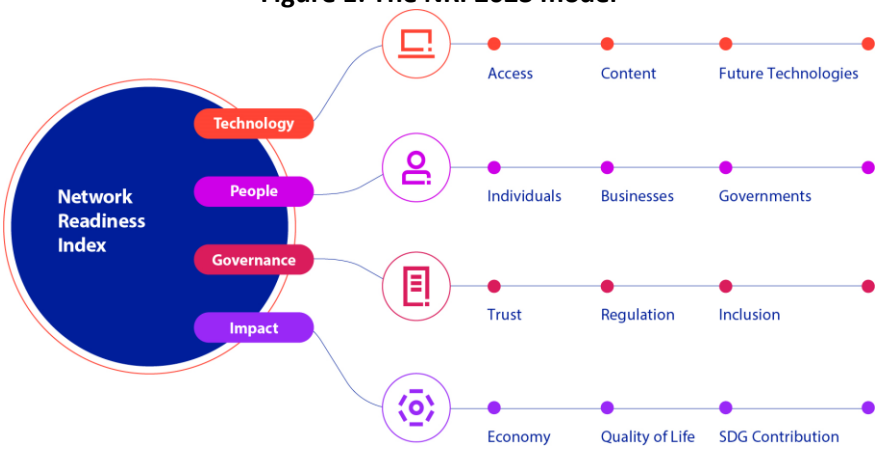
Czech Republic

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.

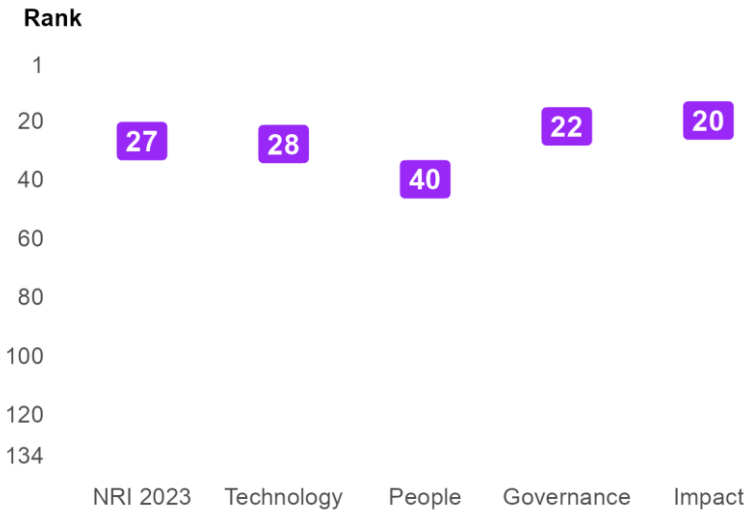
Figure 1: The NRI 2023 model



Global NRI position of Czech Republic

Czech Republic ranks 27th out of the 134 economies included in the NRI 2023 (Figure 2). Its main strength relates to Impact. The greatest scope for improvement, meanwhile, concerns People.

Figure 2: Czech Republic global ranking, overall and by pillar



Performance at sub-pillar level

When it comes to sub-pillars, the strongest showings of Czech Republic relate to Quality of Life, Trust and Content, among others (Table 1). More could be done, though, to improve the economy's performances in the Governments, Access and Individuals sub-pillars.

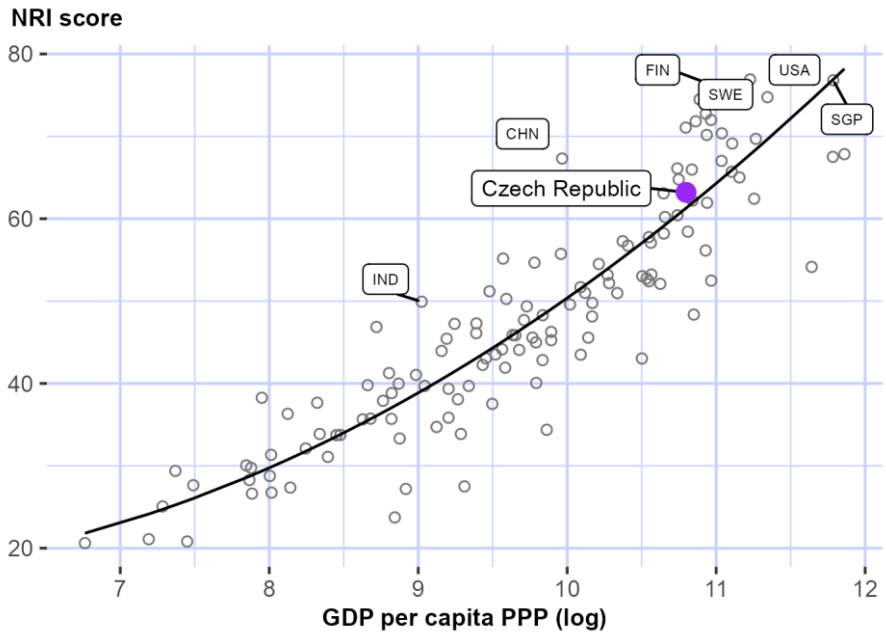
Table 1: Czech Republic rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Quality of Life	9	SDG Contribution	31
Trust	15	Future Technologies	32
Content	21	Inclusion	36
Regulation	21	Governments	39
Economy	24	Access	55
Businesses	30	Individuals	87

NRI score and income

Figure 3 shows the position of Czech Republic 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, Czech Republic is slightly above 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). Czech Republic belongs to the group of high-income countries, where the best performer is United States of America (USA). The top performer of its region-Europe-is Finland (FIN).

Performance against its income group and region

High-income countries

Czech Republic is ranked 26th in the group of high-income countries (Figure 4, left panel). In terms of pillar performance, it has a score higher than the income group average in two of the four pillars: Governance and Impact. At the sub-pillar level, it outperforms high-income countries in five of the twelve sub-pillars: Content, Trust, Regulation, Economy and Quality of Life.

Europe

Czech Republic is ranked 18th within Europe (Figure 4, right panel). It has a score above the regional average in three of the four pillars: NRI, Technology, Governance and Impact. With regard to sub-pillars, it outperforms the average in Europe in nine of the twelve sub-pillars: Content, Future Technologies, Businesses, Trust, Regulation, Inclusion, Economy, Quality of Life and SDG Contribution.

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

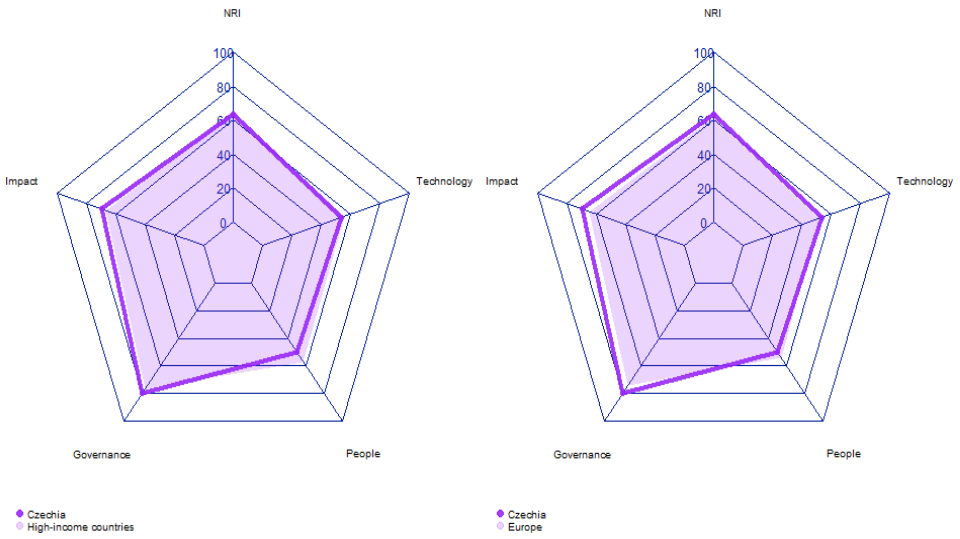


Table 2: Czech Republic scores vs. averages of its income group and region, overall and by pillar

Dimension	Czech Republic	High-income countries	Europe
NRI	63.20	64.07	61.25
Technology	53.39	55.76	51.90
People	50.37	56.99	54.16
Governance	79.76	76.81	74.33
Impact	69.27	66.73	64.61

Strongest and weakest indicators

The indicators where Czech Republic performs particularly well include 3.2.4 E-commerce legislation, 4.1.1 High-tech and medium-high-tech manufacturing, and 4.2.3 Income inequality (Table 3). By contrast, the economy's weakest indicators include 3.3.4 Gender gap in Internet use, 1.1.5 International Internet bandwidth, and 4.3.4 SDG 7: Affordable and Clean Energy.

Table 3: Highlight of Strengths and Opportunities for Czech Republic

Strongest indicators	Rank	Weakest indicators	Rank
3.2.4 E-commerce legislation	1	3.1.2 Cybersecurity	76
4.1.1 High-tech and medium-high-tech manufacturing	4	4.3.4 SDG 7: Affordable and Clean Energy	77
4.2.3 Income inequality	9	1.1.5 International Internet bandwidth	78
3.1.4 Internet shopping	10	3.3.4 Gender gap in Internet use	80
3.1.1 Secure Internet servers	12		
3.1.3 Online access to financial account	12		
2.2.1 Firms with website	13		
3.3.2 Socioeconomic gap in use of digital payments	14		
1.2.1 GitHub commits	19		
3.2.5 Privacy protection by law content	19		
3.3.3 Availability of local online content	19		

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

NRI 2023 At-A-Glance: Czech Republic

Network Readiness Index Rank: 27 (out of 134) Score: 63.20

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
A. Technology pillar	28	53.39	C. Governance pillar	22	79.76
1st sub-pillar: Access	55	67.92	1st sub-pillar: Trust	15	81.11
2nd sub-pillar: Content	21	46.35	2nd sub-pillar: Regulation	21	83.18
3rd sub-pillar: Future Technologies	32	45.92	3rd sub-pillar: Inclusion	36	74.99
B. People pillar	40	50.37	D. Impact pillar	20	69.27
1st sub-pillar: Individuals	87	42.20	1st sub-pillar: Economy	24	43.44
2nd sub-pillar: Businesses	30	60.76	2nd sub-pillar: Quality of Life	9	87.35
3rd sub-pillar: Governments	39	48.13	3rd sub-pillar: SDG Contribution	31	77.04

The Network Readiness Index in detail

Indicator	Rank	Score		Indicator	Rank	Score	
A. Technology pillar	28	53.39		**C. Governance pillar**	22	79.76	
1st sub-pillar: Access	55	67.92		*1st sub-pillar: Trust*	15	81.11	
1.1.1 Mobile tariffs	24	81.99		3.1.1 Secure Internet servers	12	88.74	●
1.1.2 Handset prices	46	60.44		3.1.2 Cybersecurity	76	73.92	○
1.1.3 FTTH/building Internet subscriptions	67	28.08		3.1.3 Online access to financial account	12	75.65	●
1.1.4 Population covered by at least a 3G mobile network	40	99.93		3.1.4 Internet shopping	10	86.12	●
1.1.5 International Internet bandwidth	78	69.15	○	*2nd sub-pillar: Regulation*	21	83.18	
1.1.6 Internet access in schools	NA	NA		3.2.1 Regulatory quality	21	80.06	
2nd sub-pillar: Content	21	46.35		3.2.2 ICT regulatory environment	45	87.06	
1.2.1 GitHub commits	19	55.84	●	3.2.3 Regulation of emerging technologies	36	62.86	
1.2.2 Internet domain registrations	20	43.24		3.2.4 E-commerce legislation	1	100.00	●
1.2.3 Mobile apps development	27	75.17		3.2.5 Privacy protection by law content	19	85.93	●
1.2.4 AI scientific publications	43	11.14		*3rd sub-pillar: Inclusion*	36	74.99	
3rd sub-pillar: Future Technologies	32	45.92		3.3.1 E-Participation	57	59.31	
1.3.1 Adoption of emerging technologies	24	72.11		3.3.2 Socioeconomic gap in use of digital payments	14	96.86	●
1.3.2 Investment in emerging technologies	36	55.00		3.3.3 Availability of local online content	19	86.30	●

Indicator	Rank	Score	
1.3.3 Robot density	17	25.79	
1.3.4 Computer software spending	34	30.77	
B. People pillar	40	50.37	
1st sub-pillar: Individuals	87	42.20	
2.1.1 Mobile broadband internet traffic within the country	57	10.93	
2.1.2 ICT skills in the education system	33	67.34	
2.1.3 Use of virtual social networks	42	72.53	
2.1.4 Tertiary enrollment	44	44.10	
2.1.5 Adult literacy rate	NA	NA	
2.1.6 AI talent concentration	27	16.09	
2nd sub-pillar: Businesses	30	60.76	
2.2.1 Firms with website	13	84.73	●
2.2.2 GERD financed by business enterprise	51	44.60	
2.2.3 Knowledge intensive employment	29	60.76	
2.2.4 Annual investment in telecommunication services	44	81.62	
2.2.5 GERD performed by business enterprise	19	32.11	
3rd sub-pillar: Governments	39	48.13	
2.3.1 Government online services	72	63.45	
2.3.2 Publication and use of open data	35	44.12	
2.3.3 Government promotion of investment in emerging tech	40	49.16	
2.3.4 R&D expenditure by governments and higher education	19	35.80	

Indicator	Rank	Score	
3.3.4 Gender gap in Internet use	80	62.44	○
3.3.5 Rural gap in use of digital payments	49	70.07	
D. Impact pillar	20	69.27	
1st sub-pillar: Economy	24	43.44	
4.1.1 High-tech and medium-high-tech manufacturing	4	75.43	●
4.1.2 High-tech exports	23	36.57	
4.1.3 PCT patent applications	33	17.30	
4.1.4 Domestic market size	47	60.48	
4.1.5 Prevalence of gig economy	53	45.35	
4.1.6 ICT services exports	38	25.49	
2nd sub-pillar: Quality of Life	9	87.35	
4.2.1 Happiness	NA	NA	
4.2.2 Freedom to make life choices	NA	NA	
4.2.3 Income inequality	9	92.46	●
4.2.4 Healthy life expectancy at birth	36	82.23	
3rd sub-pillar: SDG Contribution	31	77.04	
4.3.1 SDG 3: Good Health and Well-Being	35	82.04	
4.3.2 SDG 4: Quality Education	23	65.89	
4.3.3 SDG 5: Women's economic opportunity	29	91.15	
4.3.4 SDG 7: Affordable and Clean Energy	77	68.79	○
4.3.5 SDG 11: Sustainable Cities and Communities	42	77.34	

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