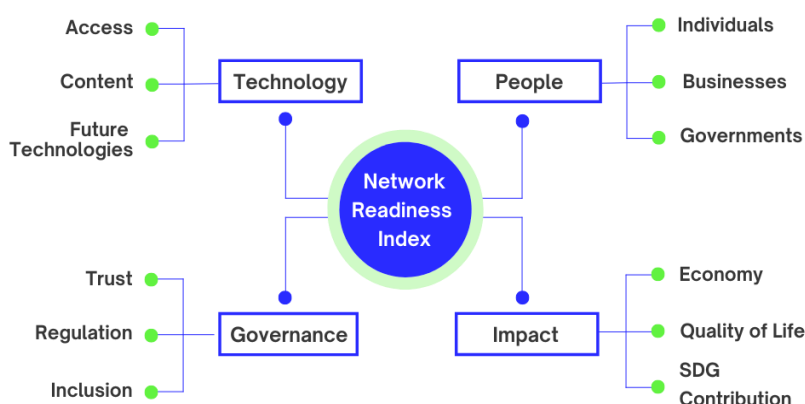


Network Readiness Index 2022

South Africa

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.

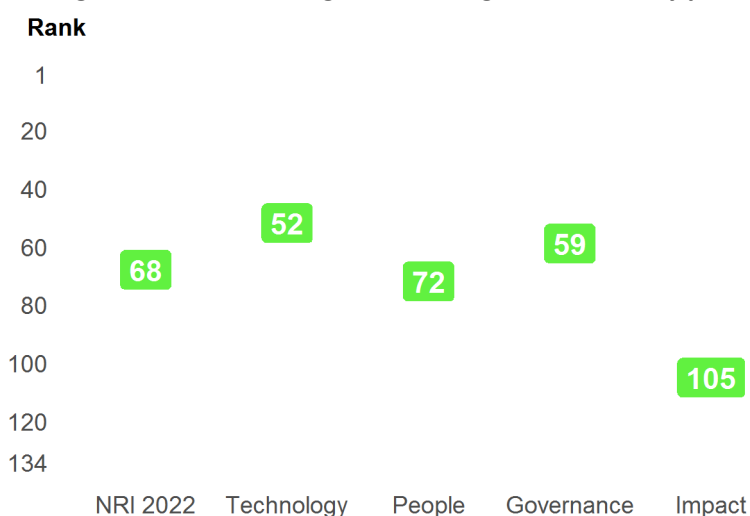
Figure 1: The NRI 2022 model



Global NRI position of South Africa

South Africa ranks 68th out of the 131 economies included in the NRI 2022 (Figure 2). Its main strength relates to Technology. The greatest scope for improvement, meanwhile, concerns Impact.

Figure 2: South Africa global ranking, overall and by pillar



Performance at sub-pillar level

When it comes to sub-pillars, the strongest showings of South Africa relate to Businesses, Future Technologies and Governments, among others (Table 1). More could be done, though, to improve the economy's performances in the Economy, Individuals and Quality of Life sub-pillars.

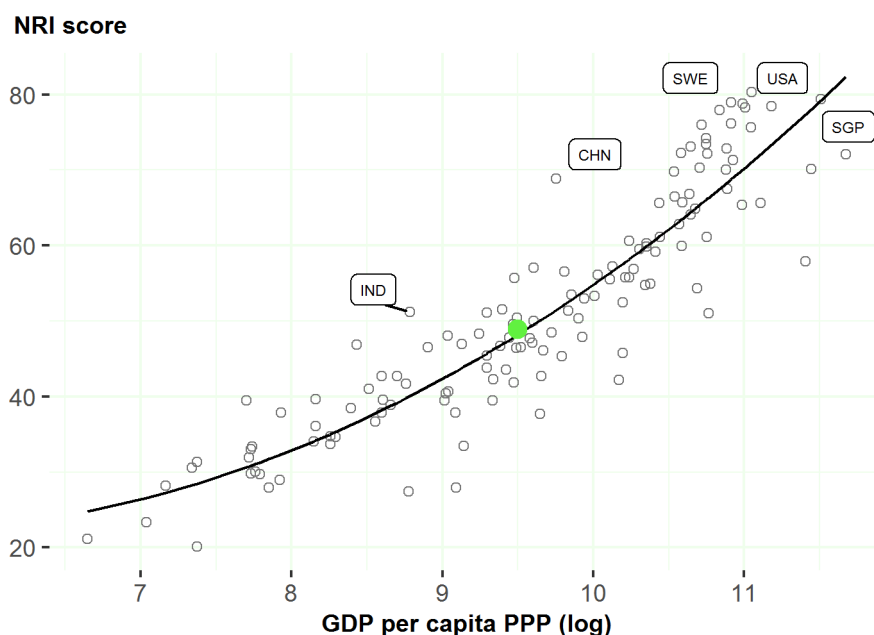
Table 1: South Africa rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Businesses	47	Regulation	61
Future Technologies	48	Inclusion	62
Governments	51	SDG Contribution	70
Content	52	Economy	71
Trust	60	Individuals	109
Access	61	Quality of Life	124

NRI score and income

Figure 3 shows the position of South Africa 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, South Africa 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), SWE = Sweden (3), CHN = China (23), IND = India (61). Netherlands (NLD) is ranked 4th. South Africa belongs to the group of upper-middle-income countries, where the best performer is China (CHN). The top performer of its region-Africa-is South Africa (ZAF).

Performance against its income group and region

Upper-middle-income countries

South Africa is ranked 17th 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 two of the four pillars: technology and governance. At the sub-pillar level, it outperforms upper-middle-income countries in eight of the twelve sub-pillars: Access, Content, Future Technologies, Businesses, Governments, Trust, Regulation and Inclusion.

Africa

South Africa is ranked 1st within Africa (Figure 4, right panel). It outperforms its region in each of the four pillars. With regard to sub-pillars, it outperforms the average in Africa in eleven of the twelve sub-pillars: Access, Content, Future Technologies, Individuals, Businesses, Governments, Trust, Regulation, Inclusion, Economy and SDG Contribution.

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

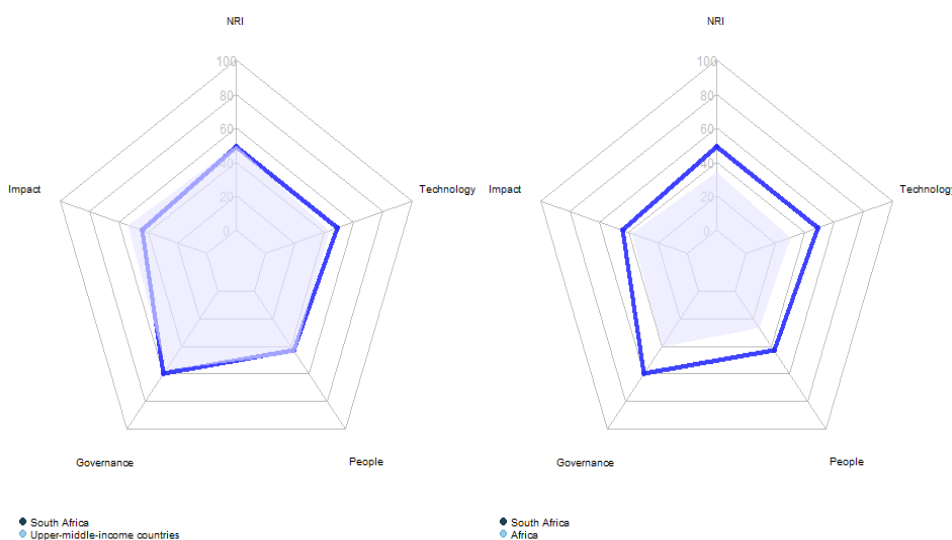


Table 2: South Africa scores vs. averages of its income group and region, overall and by pillar

Dimension	South Africa	Upper-middle-income countries	Africa
NRI	48.90	49.66	33.77
Technology	48.79	43.11	29.96
People	42.96	44.94	26.81
Governance	60.13	57.08	40.37
Impact	43.71	53.50	37.94

Strongest and weakest indicators

The indicators where South Africa performs particularly well include 3.2.4 E-commerce legislation, 2.2.1 Firms with website, and 1.2.4 AI scientific publications (Table 3). By contrast, the economy's weakest indicators include 2.1.2 ICT skills in the education system, 4.3.4 SDG 7: Affordable and Clean Energy, and 4.2.3 Income inequality.

Table 3: Strongest and weakest indicators of South Africa

Strongest indicators	Rank	Weakest indicators	Rank
3.2.4 E-commerce legislation	1	2.1.6 AI talent concentration	39
2.2.1 Firms with website	22	4.2.4 Healthy life expectancy at birth	112
1.2.4 AI scientific publications	23	4.2.3 Income inequality	117
2.2.4 Annual investment in telecommunication services	23	4.3.4 SDG 7: Affordable and Clean Energy	120
1.3.4 Computer software spending	27	2.1.2 ICT skills in the education system	124
1.1.3 FTTH/building Internet subscriptions	30		
4.1.4 Domestic market size	31		
1.3.1 Adoption of emerging technologies	33		
1.1.4 Population covered by at least a 3G mobile network	37		
1.1.5 International Internet bandwidth	38		
3.1.1 Secure Internet servers	38		

NRI 2022 At-A-Glance: South Africa

Network Readiness Index

Rank: 68 (out of 131)

Score: 48.90

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
A. Technology pillar	52	48.79	C. Governance pillar	59	60.13
1st sub-pillar: Access	61	67.04	1st sub-pillar: Trust	60	49.65
2nd sub-pillar: Content	52	40.84	2nd sub-pillar: Regulation	61	64.65
3rd sub-pillar: Future Technologies	48	38.49	3rd sub-pillar: Inclusion	62	66.08
B. People pillar	72	42.96	D. Impact pillar	105	43.71
1st sub-pillar: Individuals	109	30.37	1st sub-pillar: Economy	71	29.71
2nd sub-pillar: Businesses	47	51.36	2nd sub-pillar: Quality of Life	124	39.13
3rd sub-pillar: Governments	51	47.16	3rd sub-pillar: SDG Contribution	70	62.29

The Network Readiness Index in detail

Indicator	Rank	Score	Indicator	Rank	Score
A. Technology pillar	52	48.79	C. Governance pillar	59	60.13
1st sub-pillar: Access	61	67.04	1st sub-pillar: Trust	60	49.65
1.1.1 Mobile tariffs	39	72.73	3.1.1 Secure Internet servers	38	76.42
1.1.2 Handset prices	76	47.86	3.1.2 Cybersecurity	67	78.08
1.1.3 FTTH/building Internet subscriptions	30	39.26	3.1.3 Online access to financial account	65	28.13
1.1.4 Population covered by at least a 3G mobile network	37	99.96	3.1.4 Internet shopping	72	15.99
1.1.5 International Internet bandwidth	38	75.38	2nd sub-pillar: Regulation	61	64.65
1.1.6 Internet access in schools	NA	NA	3.2.1 Regulatory quality	62	46.40
2nd sub-pillar: Content	52	40.84	3.2.2 ICT regulatory environment	73	80.39
1.2.1 GitHub commits	73	4.13	3.2.3 Regulation of emerging technologies	60	44.74
1.2.2 Internet domain registrations	50	7.93	3.2.4 E-commerce legislation	1	100.00
1.2.3 Mobile apps development	69	77.60	3.2.5 Privacy protection by law content	93	51.70
1.2.4 AI scientific publications	23	73.70	3rd sub-pillar: Inclusion	62	66.08
3rd sub-pillar: Future Technologies	48	38.49	3.3.1 E-Participation	56	74.07
1.3.1 Adoption of emerging technologies	33	64.29	3.3.2 Socioeconomic gap in use of digital payments	65	72.97
1.3.2 Investment in emerging technologies	40	51.75	3.3.3 Availability of local online content	90	49.76
1.3.3 Robot density	34	5.97	3.3.4 Gender gap in Internet use	NA	NA
1.3.4 Computer software spending	27	31.96	3.3.5 Rural gap in use of digital payments	53	67.52

Indicator	Rank	Score	Indicator	Rank	Score	
B. People pillar	72	42.96	D. Impact pillar	105	43.71	
<i>1st sub-pillar: Individuals</i>	109	30.37	<i>1st sub-pillar: Economy</i>	71	29.71	
2.1.1 Mobile broadband internet traffic within the country	37	19.82	4.1.1 High-tech and medium-high-tech manufacturing	60	25.91	
2.1.2 ICT skills in the education system	124	9.76	○ 4.1.2 High-tech exports	55	29.53	
2.1.3 Use of virtual social networks	98	41.97	4.1.3 PCT patent applications	44	9.64	
2.1.4 Tertiary enrollment	91	15.08	4.1.4 Domestic market size	31	66.19	●
2.1.5 Adult literacy rate	49	93.62	4.1.5 Prevalence of gig economy	86	33.72	
2.1.6 AI talent concentration	39	1.95	○ 4.1.6 ICT services exports	95	13.24	
<i>2nd sub-pillar: Businesses</i>	47	51.36	<i>2nd sub-pillar: Quality of Life</i>	124	39.13	
2.2.1 Firms with website	22	80.98	● 4.2.1 Happiness	69	60.90	
2.2.2 GERD financed by business enterprise	39	51.30	4.2.2 Freedom to make life choices	106	55.71	
2.2.3 Knowledge intensive employment	72	31.17	4.2.3 Income inequality	117	0.00	○
2.2.4 Annual investment in telecommunication services	23	84.42	● 4.2.4 Healthy life expectancy at birth	112	39.90	○
2.2.5 GERD performed by business enterprise	47	8.94	<i>3rd sub-pillar: SDG Contribution</i>	70	62.29	
<i>3rd sub-pillar: Governments</i>	51	47.16	4.3.1 SDG 3: Good Health and Well-Being	78	64.22	
2.3.1 Government online services	54	73.94	4.3.2 SDG 4: Quality Education	NA	NA	
2.3.2 Publication and use of open data	38	41.18	4.3.3 SDG 5: Women's economic opportunity	45	83.33	
2.3.3 Government promotion of investment in emerging tech	84	31.61	4.3.4 SDG 7: Affordable and Clean Energy	120	43.94	○
2.3.4 R&D expenditure by governments and higher education	47	41.90	4.3.5 SDG 11: Sustainable Cities and Communities	79	57.67	

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>