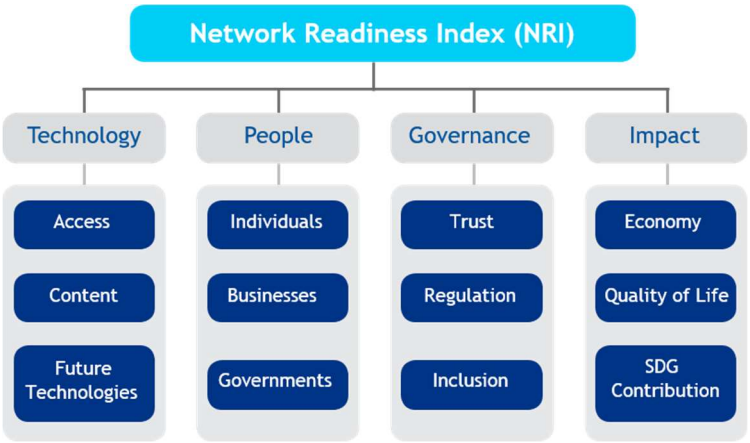
PORTULANS INSTITUTE

Network Readiness Index 2019 Zambia

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 2019 the NRI Report maps the network-based readiness landscape of 121 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 62 variables.

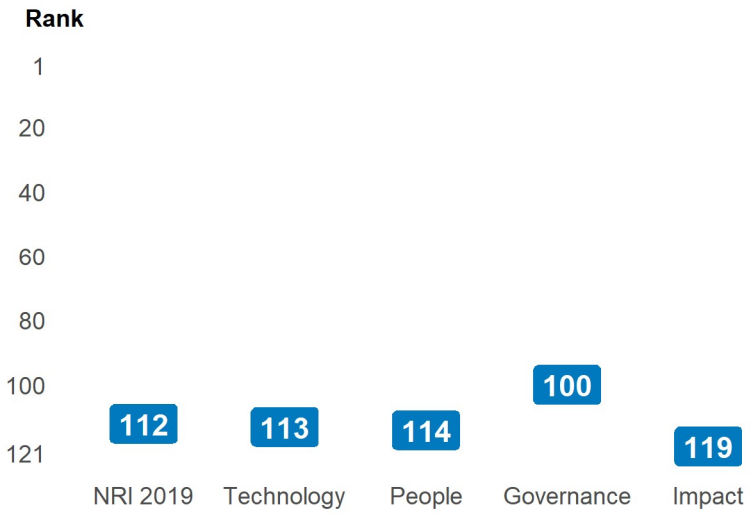
Figure 1: The NRI 2019 model



Global NRI position of Zambia

Zambia ranks 112th out of the 121 economies included in the NRI 2019 (Figure 2). Its main strength relates to Governance. The greatest scope for improvement, meanwhile, concerns Impact.

Figure 2: Zambia global ranking, overall and by pillar



Performance at sub-pillar level

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

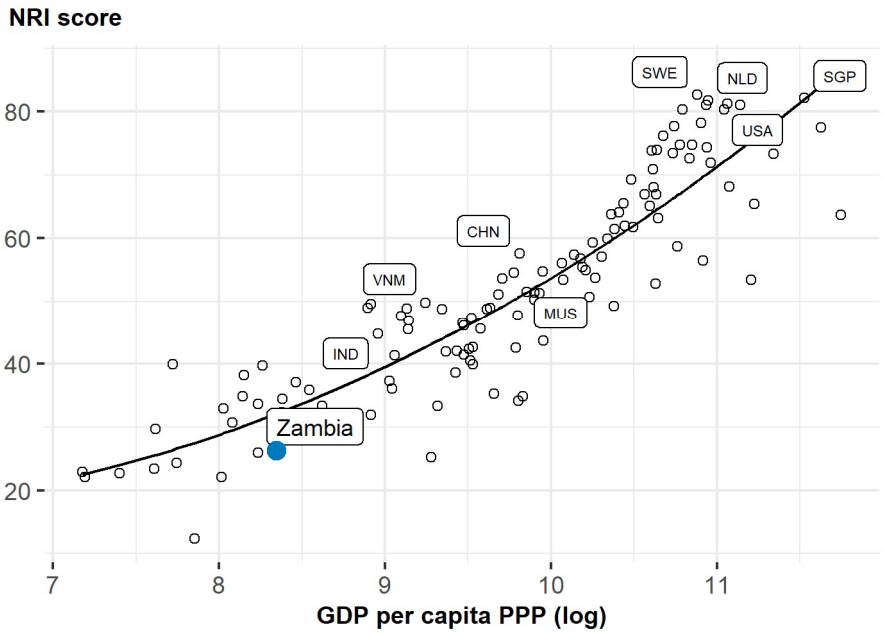
Table 1: Zambia rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Economy	83	Inclusion	111
Future Technologies	84	Access	112
Regulation	84	Businesses	112
Trust	95	Quality of Life	117
Individuals	105	SDG Contribution	119
Governments	110	Content	120

NRI score and income

Figure 3 shows the position of Zambia 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, Zambia 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: SWE = Sweden (rank: 1), SGP = Singapore (2), NLD = Netherlands (3), CHN = China (41), IND = India (79). USA is ranked 8th. Zambia belongs to the group of lower-middle-income countries, where the best performer is Vietnam (VNM). The top performer of its region—Africa—is Mauritius (MUS).

Performance against its income group and region

Lower-middle-income countries

Zambia is ranked 22nd in the group of lower-middle-income countries (Figure 4, left panel). In terms of pillar performance, it has a score below the income group average in each of the four pillars. At the sub-pillar level, it outperforms lower-middle-income countries in one of the twelve sub-pillars: Regulation.

Africa

Zambia is ranked 12th within Africa (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 Africa in two of the twelve sub-pillars: Regulation and Economy.

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

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

Dimension	Zambia	Lower-middle-income countries	Africa
NRI	26.20	37.18	31.07
Technology	18.87	32.15	26.03
People	18.99	30.04	23.76
Governance	44.52	46.17	45.32
Impact	22.43	40.35	29.15

Strongest and weakest indicators

The indicators where Zambia performs particularly well include E-commerce legislation, Online trust and safety, and Government procurement of advanced technology products (Table 3). By contrast, the economy's weakest indicators include Digital participation and content creation, Mobile apps development, Internet users, and Access to basic services.

Table 3: Top-ranked and bottom-ranked indicators of Zambia

Strongest indicators	Rank	Weakest indicators	Rank
E-commerce legislation	1	Use of virtual social networks	109
Online trust and safety	47	Firms with website	109
Government procurement of advanced technology products	49	Availability of local online content	111
Internet access in schools	62	Tertiary enrolment	113
Adult literacy rate	70	Happiness	113
Maths proficiency in schools	72	Healthy life expectancy at birth	115
Medium and high-tech industry	74	Internet users	117
Freedom to make life choices	74	Access to basic services	117
Reading proficiency in schools	74	Mobile apps development	119
Professionals	75	Digital participation and content creation	120

PORTULANS INSTITUTE

NRI 2019 At-A-Glance: Zambia

Network Readiness Index Rank: 112 (out of 121) Score: 26.20

Pillar/sub-pillar	Rank	Score
A. Technology pillar	113	18.87
1st sub-pillar: Access	112	27.43
2nd sub-pillar: Content	120	3.25
3rd sub-pillar: Future Technologies	84	25.92
B. People pillar	114	18.99
1st sub-pillar: Individuals	105	23.45
2nd sub-pillar: Businesses	112	11.69
3rd sub-pillar: Governments	110	21.84

Pillar/sub-pillar	Rank	Score
C. Governance pillar	100	44.52
1st sub-pillar: Trust	95	40.18
2nd sub-pillar: Regulation	84	56.99
3rd sub-pillar: Inclusion	111	36.40
D. Impact pillar	119	22.43
1st sub-pillar: Economy	83	12.50
2nd sub-pillar: Quality of Life	117	29.12
3rd sub-pillar: SDG Contribution	119	25.68

The Network Readiness Index in detail

Indicator	Rank	Score
A. Technology pillar		
1st sub-pillar: Access		
1.1.1 Mobile tariffs	107	35.21
1.1.2 Handset prices	99	29.32
1.1.3 Internet access	109	12.19
1.1.4 4G mobile network coverage	102	43.41
1.1.5 Fixed-broadband subscriptions	97	6.65
1.1.6 International Internet bandwidth	102	59.83
1.1.7 Internet access in schools	62	5.43
2nd sub-pillar: Content		
1.2.1 Digital participation and content creation	*	*
1.2.2 Mobile apps development	119	10.70
1.2.3 Intellectual property receipts	98	0.00
3rd sub-pillar: Future Technologies		
1.3.1 Availability of latest technologies	102	32.42
1.3.2 Company investment in emerging technology	86	25.58
1.3.3 Government procurement of advanced technology products	49	45.68
1.3.4 ICT PCT patent applications	NA	NA
1.3.5 Computer software spending	97	0.00
1.3.6 Robot density	NA	NA
B. People pillar		
1st sub-pillar: Individuals		
2.1.1 Internet users	117	5.01
2.1.2 Active mobile-broadband subscriptions	87	20.75
2.1.3 Use of virtual social networks	109	9.56
2.1.4 Tertiary enrolment	113	2.42
2.1.5 Adult literacy rate	70	79.49
2.1.6 ICT skills	NA	NA
2nd sub-pillar: Businesses		
2.2.1 Firms with website	109	2.21
2.2.2 Internet shopping	84	6.50
2.2.3 Professionals	75	18.82
2.2.4 Technicians and associate professionals	97	14.83
2.2.5 Extent of staff training	97	27.68
2.2.6 R&D expenditure by businesses	85	0.14
3rd sub-pillar: Governments		
2.3.1 Government online services	101	42.31
2.3.2 Publication and use of open data	96	3.82
2.3.3 ICT use and government efficiency	78	37.58
2.3.4 R&D expenditure by governments and higher education	102	3.63

Indicator	Rank	Score
C. Governance pillar		
1st sub-pillar: Trust		
3.1.1 Rule of law	81	45.47
3.1.2 Software piracy rate	83	12.16
3.1.3 Secure Internet servers	106	31.63
3.1.4 Cybersecurity	87	45.72
3.1.5 Online trust and safety	47	65.91
2nd sub-pillar: Regulation		
3.2.1 Regulatory quality	96	41.67
3.2.2 Ease of doing business	78	64.92
3.2.3 Legal framework's adaptability to digital business models	86	33.88
3.2.4 E-commerce legislation	1	100.00
3.2.5 Social safety net protection	85	31.21
3.2.6 ICT regulatory environment	92	70.28
3rd sub-pillar: Inclusion		
3.3.1 E-Participation	106	31.85
3.3.2 Socioeconomic gap in use of digital payments	88	49.51
3.3.3 Availability of local online content	111	6.96
3.3.4 Gender gap in internet use	77	40.88
3.3.5 Rural gap in use of digital payments	90	52.80
D. Impact pillar		
1st sub-pillar: Economy		
4.1.1 Medium and high-tech industry	74	26.74
4.1.2 High-tech exports	98	3.78
4.1.3 PCT patent applications	NA	NA
4.1.4 Labour productivity per employee	91	6.97
2nd sub-pillar: Quality of Life		
4.2.1 Happiness	113	20.50
4.2.2 Freedom to make life choices	74	60.68
4.2.3 Income inequality	105	15.53
4.2.4 Healthy life expectancy at birth	115	19.78
3rd sub-pillar: SDG Contribution		
4.3.1 Access to basic services	117	25.03
4.3.2 Pollution	83	78.59
4.3.3 Road safety	101	31.25
4.3.4 Reading proficiency in schools	74	0.00
4.3.5 Maths proficiency in schools	72	6.99
4.3.6 Use of clean fuels and technology	108	12.22

* Confidential data

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 Index 2019: Towards a Future-Ready Society. 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