Rwanda

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.
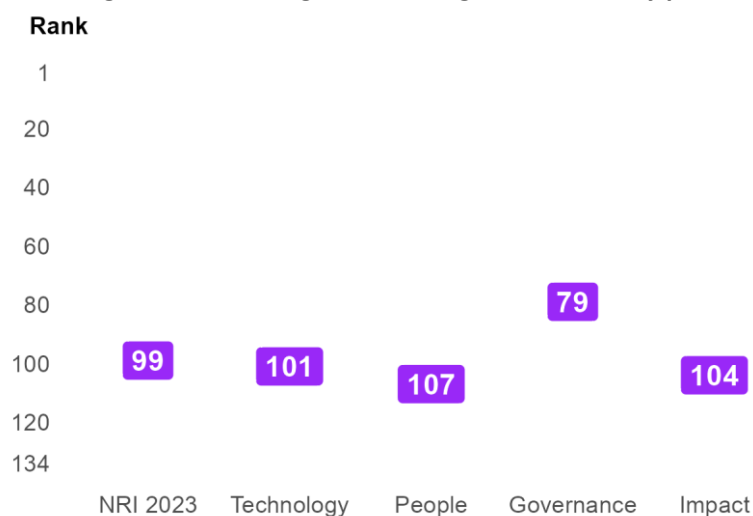
Figure 1: The NRI 2023 model

Global NRI position of Rwanda

Rwanda ranks 99th out of the 134 economies included in the NRI 2023 (Figure 2). Its main strength relates to Governance. The greatest scope for improvement, meanwhile, concerns People.

Figure 2: Rwanda global ranking, overall and by pillar

Performance at sub-pillar level

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

Table 1: Rwanda rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Governments	57	Economy	107
Regulation	60	Content	109
Future Technologies	66	Quality of Life	110
SDG Contribution	83	Access	113
Inclusion	84	Individuals	116
Trust	96	Businesses	122

NRI score and income

Figure 3 shows the position of Rwanda 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, Rwanda is well above the trend line, which suggests that it has a greater network readiness than would be expected given its income level.

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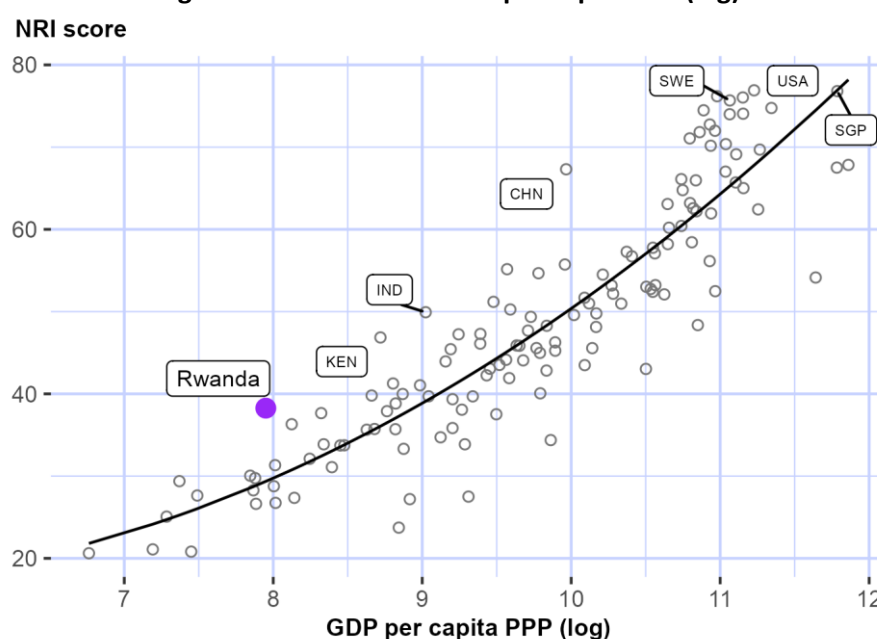
Note: USA = United States (rank: 1), SGP = Singapore (rank: 2), FIN = Finland (3), NLD = Netherlands (4), SWE = Sweden (5), CHN = China (20), IND = India (61). Rwanda belongs to the group of low-income countries, where the best performer is Rwanda (RWA). The top performer of its region-Africa-is Kenya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

Performance against its income group and region

Low-income countries
Rwanda is ranked 1st in the group of low-income countries (Figure 4, left panel). In terms of pillar performance, it has a score higher than the income group average in each of the four pillars. At the sub-pillar level, it outperforms low-income countries in eleven of the twelve sub-pillars: Access, Content, Future Technologies, Individuals, Governments, Trust, Regulation, Inclusion, Economy, Quality of Life and SDG Contribution.

Africa
Rwanda is ranked 6th 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 ten of the twelve sub-pillars: Content, Future Technologies, Individuals, Governments, Trust, Regulation, Inclusion, Economy, Quality of Life and SDG Contribution.

Figure 4: Performance of Rwanda against its income group and region, overall and by pillar
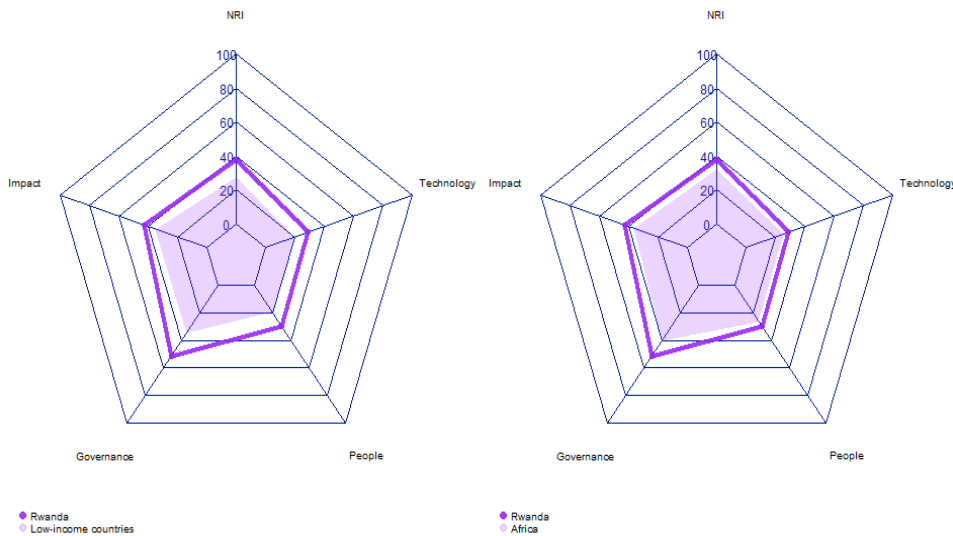
Table 2: Rwanda scores vs. averages of its income group and region, overall and by pillar

Dimension	Rwanda	Low-income countries	Africa
NRI	38.26	27.19	32.14
Technology	29.14	19.75	25.14
People	29.97	19.57	26.19
Governance	51.47	34.61	40.44
Impact	42.46	34.82	36.77

Strongest and weakest indicators

The indicators where Rwanda performs particularly well include 3.2.4 E-commerce legislation, 2.3.3 Government promotion of investment in emerging technologies, and 4.2.2 Freedom to make life choices (Table 3). By contrast, the economy's weakest indicators include 2.1.3 Use of virtual social networks, 3.1.4 Internet shopping, and 4.2.1 Happiness.

Table 3: Highlight of Strengths and Opportunities for Rwanda

Strongest indicators	Rank	Weakest indicators	Rank
3.2.4 E-commerce legislation	1	2.2.2 GERD financed by business enterprise	95
2.3.3 Government promotion of investment in emerging technologies	32	4.1.3 PCT patent applications	99
4.2.2 Freedom to make life choices	39	4.2.1 Happiness	127
2.3.1 Government online services	41	2.1.3 Use of virtual social networks	128
1.3.2 Investment in emerging technologies	42	3.1.4 Internet shopping	128
3.2.2 ICT regulatory environment	45		
2.3.4 R&D expenditure by governments and higher education	48		
3.3.5 Rural gap in use of digital payments	52		
3.3.1 E-Participation	53		
4.1.5 Prevalence of gig economy	56		
3.2.3 Regulation of emerging technologies	57		

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

Network Readiness Index 2023

NRI 2023 At-A-Glance: Rwanda

Network Readiness Index   Rank: 99 (out of 134)   Score: 38.26

Pillar/sub-pillar	Rank	Score		Pillar/sub-pillar	Rank	Score
A. Technology pillar	101	29.14		C. Governance pillar	79	51.47
1st sub-pillar: Access	113	42.83		1st sub-pillar: Trust	96	32.34
2nd sub-pillar: Content	109	12.61		2nd sub-pillar: Regulation	60	67.07
3rd sub-pillar: Future Technologies	66	31.98		3rd sub-pillar: Inclusion	84	55.00
B. People pillar	107	29.97		D. Impact pillar	104	42.46
1st sub-pillar: Individuals	116	25.62		1st sub-pillar: Economy	107	17.18
2nd sub-pillar: Businesses	122	23.33		2nd sub-pillar: Quality of Life	110	50.32
3rd sub-pillar: Governments	57	40.97		3rd sub-pillar: SDG Contribution	83	59.89

The Network Readiness Index in detail

Indicator	Rank	Score		Indicator	Rank	Score	
A. Technology pillar	101	29.14		**C. Governance pillar**	79	51.47	
1st sub-pillar: Access	113	42.83		*1st sub-pillar: Trust*	96	32.34	
1.1.1 Mobile tariffs	115	26.02		3.1.1 Secure Internet servers	106	35.01	
1.1.2 Handset prices	127	14.77		3.1.2 Cybersecurity	65	79.60	
1.1.3 FTTH/building Internet subscriptions	78	24.52		3.1.3 Online access to financial account	96	14.35	
1.1.4 Population covered by at least a 3G mobile network	70	99.59		3.1.4 Internet shopping	128	0.40	○
1.1.5 International Internet bandwidth	116	60.29		*2nd sub-pillar: Regulation*	60	67.07	
1.1.6 Internet access in schools	61	31.78		3.2.1 Regulatory quality	69	51.20	
2nd sub-pillar: Content	109	12.61		3.2.2 ICT regulatory environment	45	87.06	●
1.2.1 GitHub commits	92	2.88		3.2.3 Regulation of emerging technologies	57	46.75	●
1.2.2 Internet domain registrations	121	0.18		3.2.4 E-commerce legislation	1	100.00	●
1.2.3 Mobile apps development	109	45.63		3.2.5 Privacy protection by law content	95	50.33	
1.2.4 AI scientific publications	92	1.75		*3rd sub-pillar: Inclusion*	84	55.00	
3rd sub-pillar: Future Technologies	66	31.98		3.3.1 E-Participation	53	62.80	●
1.3.1 Adoption of emerging technologies	78	41.88		3.3.2 Socioeconomic gap in use of digital payments	123	36.12	
1.3.2 Investment in emerging technologies	42	50.00	●	3.3.3 Availability of local online content	83	51.44	

Indicator	Rank	Score	
1.3.3 Robot density	NA	NA	
1.3.4 Computer software spending	105	4.06	
B. People pillar	107	29.97	
1st sub-pillar: Individuals	116	25.62	
2.1.1 Mobile broadband internet traffic within the country	98	2.18	
2.1.2 ICT skills in the education system	58	52.82	
2.1.3 Use of virtual social networks	128	2.93	○
2.1.4 Tertiary enrollment	119	3.07	
2.1.5 Adult literacy rate	87	67.09	
2.1.6 AI talent concentration	NA	NA	
2nd sub-pillar: Businesses	122	23.33	
2.2.1 Firms with website	76	38.24	
2.2.2 GERD financed by business enterprise	95	0.78	○
2.2.3 Knowledge intensive employment	116	6.15	
2.2.4 Annual investment in telecommunication services	114	70.37	
2.2.5 GERD performed by business enterprise	72	1.11	
3rd sub-pillar: Governments	57	40.97	
2.3.1 Government online services	41	77.18	●
2.3.2 Publication and use of open data	73	19.12	
2.3.3 Government promotion of investment in emerging tech	32	54.09	●
2.3.4 R&D expenditure by governments and higher education	48	13.48	●

Indicator	Rank	Score	
3.3.4 Gender gap in Internet use	NA	NA	
3.3.5 Rural gap in use of digital payments	52	69.65	●
D. Impact pillar	104	42.46	
1st sub-pillar: Economy	107	17.18	
4.1.1 High-tech and medium-high-tech manufacturing	95	7.17	
4.1.2 High-tech exports	76	8.99	
4.1.3 PCT patent applications	99	0.00	○
4.1.4 Domestic market size	120	34.13	
4.1.5 Prevalence of gig economy	56	44.77	●
4.1.6 ICT services exports	88	8.02	
2nd sub-pillar: Quality of Life	110	50.32	
4.2.1 Happiness	127	17.03	○
4.2.2 Freedom to make life choices	39	82.29	●
4.2.3 Income inequality	95	48.49	
4.2.4 Healthy life expectancy at birth	103	53.47	
3rd sub-pillar: SDG Contribution	83	59.89	
4.3.1 SDG 3: Good Health and Well-Being	106	41.78	
4.3.2 SDG 4: Quality Education	NA	NA	
4.3.3 SDG 5: Women's economic opportunity	69	76.99	
4.3.4 SDG 7: Affordable and Clean Energy	69	71.60	
4.3.5 SDG 11: Sustainable Cities and Communities	94	49.19	

NOTE: ● a strength and ○ a weakness.

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