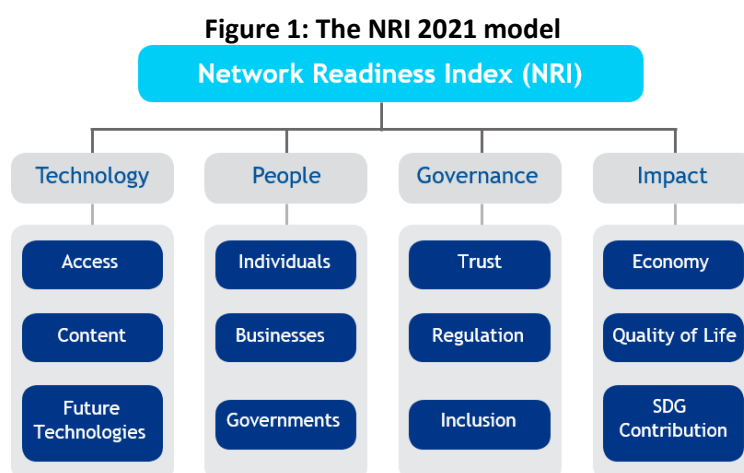


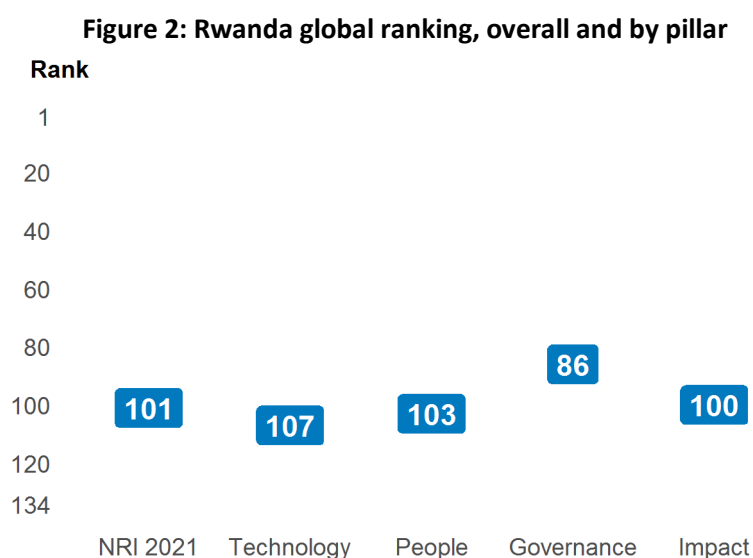
Network Readiness Index 2021 Rwanda

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 2021 the NRI Report maps the network-based readiness landscape of 130 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 60 variables.



Global NRI position of Rwanda

Rwanda ranks 101st out of the 130 economies included in the NRI 2021 (Figure 2). Its main strength relates to Governance. The greatest scope for improvement, meanwhile, concerns Technology.



Performance at sub-pillar level

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

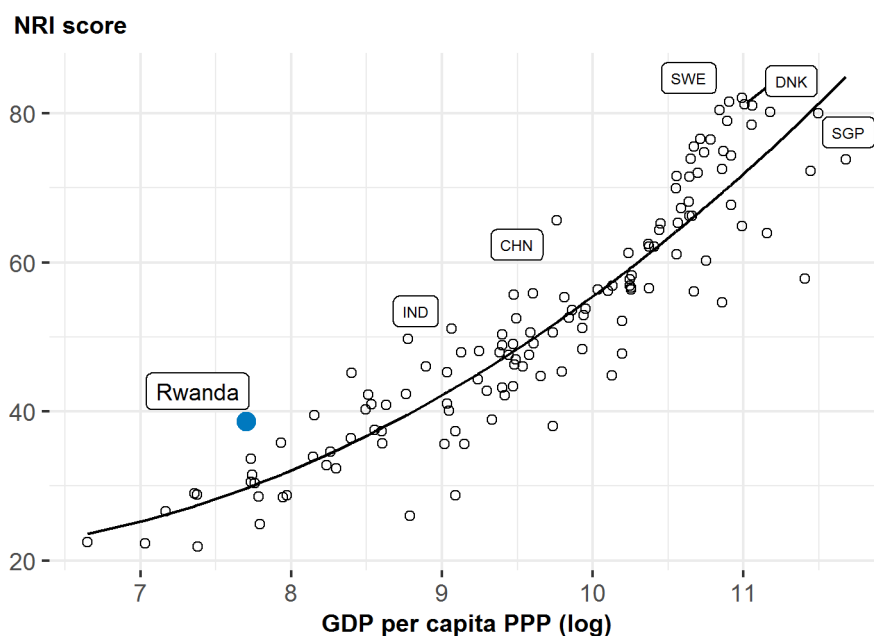
Table 1: Rwanda rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Governments	57	SDG Contribution	102
Future Technologies	65	Access	111
Economy	76	Quality of Life	111
Inclusion	86	Content	116
Trust	89	Individuals	116
Regulation	89	Businesses	121

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: NLD = Netherlands (rank: 1), SWE = Sweden (2), DNK = Denmark (3), CHN = China (29), IND = India (67). USA is ranked 4th. Rwanda belongs to the group of low-income countries, where the best performer is Rwanda (RWA). The top performer of its region-Africa-is South Africa (ZAF).

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 7th 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 eight of the twelve sub-pillars: Future Technologies, 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	38.65	28.84	33.19
Technology	29.03	21.78	26.99
People	34.94	25.42	30.56
Governance	47.58	32.91	39.23
Impact	43.03	35.24	35.99

Strongest and weakest indicators

The indicators where Rwanda performs particularly well include 4.1.4 Growth rate of GDP per person engaged, 2.3.4 R&D expenditure by governments and higher education, and 2.3.3 Government promotion of investment in emerging technologies (Table 3). By contrast, the economy's weakest indicators include 4.2.1 Happiness, 2.1.3 Use of virtual social networks, and 3.1.4 Internet shopping.

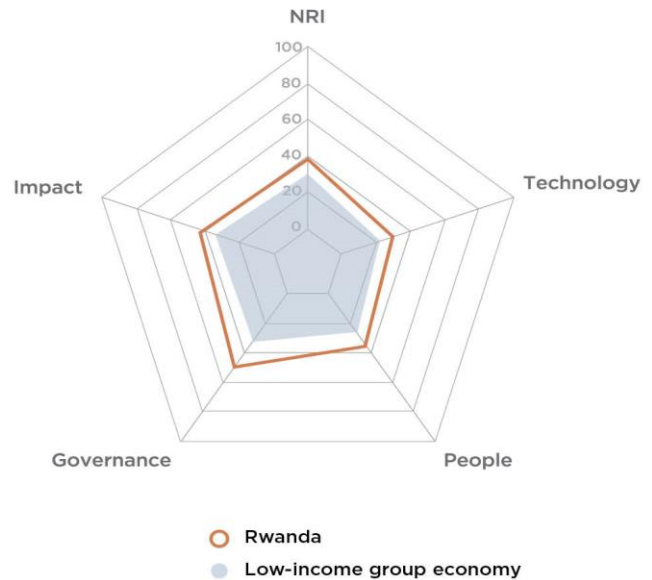
Table 3: Strongest and weakest indicators of Rwanda

Strongest indicators	Rank	Weakest indicators	Rank
4.1.4 Growth rate of GDP per person engaged	3	4.1.3 PCT patent applications	96
2.3.4 R&D expenditure by governments and higher education	29	2.2.2 GERD financed by business enterprise	97
2.3.3 Government promotion of investment in emerging technologies	31	3.1.4 Internet shopping	119
1.3.2 Investment in emerging technologies	42	2.1.3 Use of virtual social networks	125
4.2.2 Freedom to make life choices	45	4.2.1 Happiness	127
4.1.5 Prevalence of gig economy	55		
3.2.3 Legal framework's adaptability to emerging technologies	57		
3.3.5 Rural gap in use of digital payments	57		
3.2.2 ICT regulatory environment	61		
3.1.2 Cybersecurity	64		

Rwanda

Network Readiness Index Rank (out of 130) **101** Score **38.65**

Pillar/sub-pillar	Rank	Score
A. Technology pillar	107	29.03
1st sub-pillar: Access	111	38.05
2nd sub-pillar: Content	116	17.09
3rd sub-pillar: Future Technologies	65	31.95
B. People pillar	103	34.94
1st sub-pillar: Individuals	116	36.65
2nd sub-pillar: Businesses	121	21.63
3rd sub-pillar: Governments	57	46.55
C. Governance pillar	86	47.58
1st sub-pillar: Trust	89	32.58
2nd sub-pillar: Regulation	89	57.52
3rd sub-pillar: Inclusion	86	52.65
D. Impact pillar	100	43.03
1st sub-pillar: Economy	76	33.36
2nd sub-pillar: Quality of Life	111	47.46
3rd sub-pillar: SDG Contribution	102	48.27



Network Readiness Index in detail

Indicator	Rank	Score
A. Technology pillar	107	29.03
1st sub-pillar: Access	111	38.05
1.1.1 Mobile tariffs	113	32.34
1.1.2 Handset prices	120	18.25
1.1.3 Households with internet access	119	9.07
1.1.4 SMS sent by population 15-69	65	76.79
1.1.5 Population covered by at least a 3G mobile network	69	99.48
1.1.6 International Internet bandwidth	73	0.37
1.1.7 Internet access in schools	50	30.01
2nd sub-pillar: Content	116	17.09
1.2.1 GitHub commits	104	0.68
1.2.2 Wikipedia edits	105	27.12
1.2.3 Internet domain registrations	*	*
1.2.4 Mobile apps development	120	41.84
1.2.5 AI scientific publications	104	15.69
3rd sub-pillar: Future Technologies	65	31.95
1.3.1 Adoption of emerging technologies	77	41.88
1.3.2 Investment in emerging technologies	42	50.02
1.3.3 Robot density	NA	NA
1.3.4 Computer software spending	99	3.95
B. People pillar	103	34.94
1st sub-pillar: Individuals	116	36.65
2.1.1 Active mobile broadband subscriptions	77	73.40
2.1.2 ICT skills	NA	NA
2.1.3 Use of virtual social networks	125	3.85
2.1.4 Tertiary enrollment	117	3.81
2.1.5 Adult literacy rate	89	65.54
2nd sub-pillar: Businesses	121	21.63
2.2.1 Firms with website	78	38.30
2.2.2 GERD financed by business enterprise	97	0.73
2.2.3 Professionals	100	13.90
2.2.4 Technicians and associate professionals	118	5.66
2.2.5 Annual investment in telecommunication services	105	70.34
2.2.6 GERD performed by business enterprise	73	0.87
3rd sub-pillar: Governments	57	46.55
2.3.1 Government online services	82	60.60
2.3.2 Publication and use of open data	72	19.39
2.3.3 Government promotion of investment in emerging tech	31	54.29
2.3.4 R&D expenditure by governments and higher education	29	51.92

Indicator	Rank	Score
C. Governance pillar	86	47.58
1st sub-pillar: Trust	89	32.58
3.1.1 Secure Internet servers	104	35.13
3.1.2 Cybersecurity	64	79.60
3.1.3 Online access to financial account	92	14.35
3.1.4 Internet shopping	119	1.23
2nd sub-pillar: Regulation	89	57.52
3.2.1 Regulatory quality	65	43.23
3.2.2 ICT regulatory environment	61	83.92
3.2.3 Legal framework's adaptability to emerging technologies	57	44.54
3.2.4 E-commerce legislation	76	75.00
3.2.5 Privacy protection by law content	114	40.90
3rd sub-pillar: Inclusion	86	52.65
3.3.1 E-Participation	80	61.73
3.3.2 Socioeconomic gap in use of digital payments	107	27.80
3.3.3 Availability of local online content	85	51.40
3.3.4 Gender gap in Internet use	NA	NA
3.3.5 Rural gap in use of digital payments	57	69.65
D. Impact pillar	100	43.03
1st sub-pillar: Economy	76	33.36
4.1.1 High-tech and medium-high-tech manufacturing	NA	NA
4.1.2 High-tech exports	86	10.79
4.1.3 PCT patent applications	96	0.00
4.1.4 Growth rate of GDP per person engaged	3	93.47
4.1.5 Prevalence of gig economy	55	47.13
4.1.6 ICT services exports	88	15.44
2nd sub-pillar: Quality of Life	111	47.46
4.2.1 Happiness	127	2.29
4.2.2 Freedom to make life choices	45	83.80
4.2.3 Income inequality	96	50.26
4.2.4 Healthy life expectancy at birth	101	53.47
3rd sub-pillar: SDG Contribution	102	48.27
4.3.1 SDG 3: Good Health and Well-Being	99	47.54
4.3.2 SDG 4: Quality Education	NA	NA
4.3.3 Females employed with advanced degrees	98	12.97
4.3.4 SDG 7: Affordable and Clean Energy	66	76.36
4.3.5 SDG 11: Sustainable Cities and Communities	111	56.19

NOTE: * Indicates confidential data; • a strength and ○ a weakness.

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