

United Arab Emirates

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 Future Technologies Access Content Network Individuals Businesses Governments Readiness Index 囯 Trust Regulation Inclusion Impact (<u>o</u>) **SDG** Contribution

Global NRI position of United Arab Emirates

United Arab Emirates ranks 30th out of the 134 economies included in the NRI 2023 (Figure 2). Its main strength relates to People. The greatest scope for improvement, meanwhile, concerns Governance.

Figure 2: United Arab Emirates global ranking, overall and by pillar Rank 1 18 20 22 30 31 40 47 60 80 100 120 134 NRI 2023 Technology People Impact Governance







Performance at sub-pillar level

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

Table 1: United Arab Emirates rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Access	3	Inclusion	31
Individuals	7	Economy	37
Quality of Life	13	Trust	46
Future Technologies	14	SDG Contribution	48
Governments	25	Content	57
Businesses	26	Regulation	74

NRI score and income

Figure 3 shows the position of United Arab Emirates 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, United Arab Emirates 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.

NRI score 80 -USA SGP CHN 00 60 -United Arab Emirates IND 40 -0 12 8 9 11 GDP per capita PPP (log)

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). United Arab Emirates belongs to the group of high-income countries, where the best performer is United States of America (USA). The top performer of its region-Arab States-is United Arab Emirates (ARE).



Performance against its income group and region

High-income countries

United Arab Emirates is ranked 29th 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: Technology and People. At the sub-pillar level, it outperforms high-income countries in five of the twelve sub-pillars: Access, Future Technologies, Individuals, Businesses and Quality of Life.

Arab States

United Arab Emirates is ranked 1st within Arab States (Figure 4, right panel). It outperforms its region in each of the four pillars. With regard to sub-pillars, it has a higher score than the regional average in each of the twelve sub-pillars.

Figure 4: Performance of United Arab Emirates against its income group and region, overall and by pillar

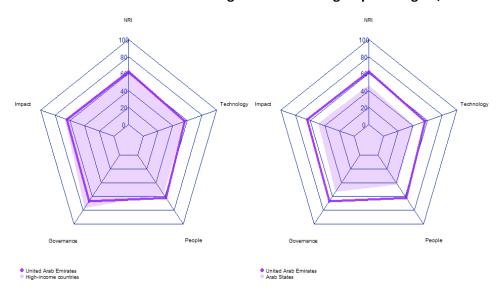


Table 2: United Arab Emirates scores vs. averages of its income group and region, overall and by pillar

Dimension	United Arab Emirates	High-income countries	Arab States
NRI	62.43	64.07	46.59
Technology	56.61	55.76	41.17
People	62.20	56.99	42.66
Governance	66.63	76.81	53.45
Impact	64.26	66.73	49.08



Strongest and weakest indicators

The indicators where United Arab Emirates performs particularly well include 1.1.4 Population covered by at least a 3G mobile network, 1.1.6 Internet access in schools, and 2.1.3 Use of virtual social networks (Table 3). By contrast, the economy's weakest indicators include 3.2.5 Privacy protection by law content, 3.3.5 Rural gap in use of digital payments, and 3.2.4 E-commerce legislation.

Table 3: Highlight of Strengths and Opportunities for United Arab Emirates

Strongest indicators	Rank	Weakest indicators	Rank
1.1.4 Population covered by at least a 3G mobile network	1	4.3.2 SDG 4: Quality Education	46
1.1.6 Internet access in schools	1	2.3.2 Publication and use of open data	65
2.1.3 Use of virtual social networks	1	3.2.4 E-commerce legislation	87
2.3.3 Government promotion of investment in emerging technologies	4	3.3.5 Rural gap in use of digital payments	89
1.1.2 Handset prices	5	3.2.5 Privacy protection by law content	131
2.2.2 GERD financed by business enterprise	5		
4.2.3 Income inequality	5		
2.1.2 ICT skills in the education system	6		
1.1.1 Mobile tariffs	7		
3.1.2 Cybersecurity	8		
3.2.3 Regulation of emerging technologies	9		
4.2.2 Freedom to make life choices	10		

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



Rank: 30 (out of 134) Score: 62.43

NRI 2023 At-A-Glance: United Arab Emirates

Network Readiness Index

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
A. Technology pillar	22	56.61	C. Governance pillar	47	66.63
1st sub-pillar: Access	3	84.41	1st sub-pillar: Trust	46	61.08
2nd sub-pillar: Content	57	25.29	2nd sub-pillar: Regulation	74	62.99
3rd sub-pillar: Future Technologies	14	60.14	3rd sub-pillar: Inclusion	31	75.82
B. People pillar	18	62.20	D. Impact pillar	31	64.26
1st sub-pillar: Individuals	7	67.82	1st sub-pillar: Economy	37	36.39
2nd sub-pillar: Businesses	26	62.49	2nd sub-pillar: Quality of Life	13	85.05
3rd sub-pillar: Governments	25	56.30	3rd sub-pillar: SDG Contribution	48	71.34

The Network Readiness Index in detail

Indicator	Rank	Score	Indicator Rank Sco	re
A. Technology pillar	22	56.61	C. Governance pillar 47 66.6	3
1st sub-pillar: Access	3	84.41	1st sub-pillar: Trust 46 61.0	8
1.1.1 Mobile tariffs	7	91.70	3.1.1 Secure Internet servers 60 58.3	4
1.1.2 Handset prices	5	91.79 •	3.1.2 Cybersecurity 8 98.0	3 •
1.1.3 FTTH/building Internet subscriptions	39	38.60	3.1.3 Online access to financial account 23 59.1	6
1.1.4 Population covered by at least a 3G mobile network	1	100.00	3.1.4 Internet shopping 59 28.7	8
1.1.5 International Internet bandwidth	15	84.34	2nd sub-pillar: Regulation 74 62.9	9
1.1.6 Internet access in schools	1	100.00 •	3.2.1 Regulatory quality 30 72.5	0
2nd sub-pillar: Content	57	25.29	3.2.2 ICT regulatory environment 74 80.0	0
1.2.1 GitHub commits	53	11.02	3.2.3 Regulation of emerging technologies 9 82.0	8 •
1.2.2 Internet domain registrations	42	10.55	3.2.4 E-commerce legislation 87 66.6	7 0
1.2.3 Mobile apps development	15	76.85	3.2.5 Privacy protection by law content 131 13.7	0 0
1.2.4 Al scientific publications	79	2.76	3rd sub-pillar: Inclusion 31 75.8	2
3rd sub-pillar: Future Technologies	14	60.14	3.3.1 E-Participation 18 77.9	1
1.3.1 Adoption of emerging technologies	17	78.00	3.3.2 Socioeconomic gap in use of digital payments 32 91.4	7
1.3.2 Investment in emerging technologies	10	79.50	3.3.3 Availability of local online content 21 85.8	2







Indicator	Rank	Score		Indicator	Rank	Score	
1.3.3 Robot density	NA	NA		3.3.4 Gender gap in Internet use	26	71.55	
1.3.4 Computer software spending	60	22.93		3.3.5 Rural gap in use of digital payments	89	52.36	0
B. People pillar	18	62.20		D. impact pillar	31	64.26	
1st sub-pillar: Individuals	7	67.82		1st sub-pillar: Economy	37	36.39	
2.1.1 Mobile broadband internet traffic within the country	36	21.21		4.1.1 High-tech and medium-high-tech manufacturing	41	35.76	
2.1.2 ICT skills in the education system	6	84.93	•	4.1.2 High-tech exports	56	16.00	
2.1.3 Use of virtual social networks	1	100.00	•	4.1.3 PCT patent applications	54	5.27	
2.1.4 Tertiary enrollment	60	35.49		4.1.4 Domestic market size	33	64.96	
2.1.5 Adult literacy rate	29	97.44		4.1.5 Prevalence of gig economy	11	79.94	
2.1.6 Al talent concentration	NA	NA		4.1.6 ICT services exports	59	16.43	
2nd sub-pillar: Businesses	26	62.49		2nd sub-pillar: Quality of Life	13	85.05	
2.2.1 Firms with website	NA	NA		4.2.1 Happiness	20	81.56	
2.2.2 GERD financed by business enterprise	5	91.89	•	4.2.2 Freedom to make life choices	10	92.83	•
2.2.3 Knowledge intensive employment	41	52.74		4.2.3 Income inequality	5	92.96	•
2.2.4 Annual investment in telecommunication services	28	85.04		4.2.4 Healthy life expectancy at birth	65	72.86	
2.2.5 GERD performed by business enterprise	33	20.28		3rd sub-pillar: SDG Contribution	48	71.34	
3rd sub-pillar: Governments	25	56.30		4.3.1 SDG 3: Good Health and Well-Being	39	81.16	
2.3.1 Government online services	12	89.10		4.3.2 SDG 4: Quality Education	46	40.56	0
2.3.2 Publication and use of open data	65	25.00	0	4.3.3 SDG 5: Women's economic opportunity	71	75.22	
2.3.3 Government promotion of investment in emerging tech	4	84.34	•	4.3.4 SDG 7: Affordable and Clean Energy	80	68.28	
2.3.4 R&D expenditure by governments and higher education	26	26.77		4.3.5 SDG 11: Sustainable Cities and Communities	19	91.50	

NOTE: • a strength and o 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