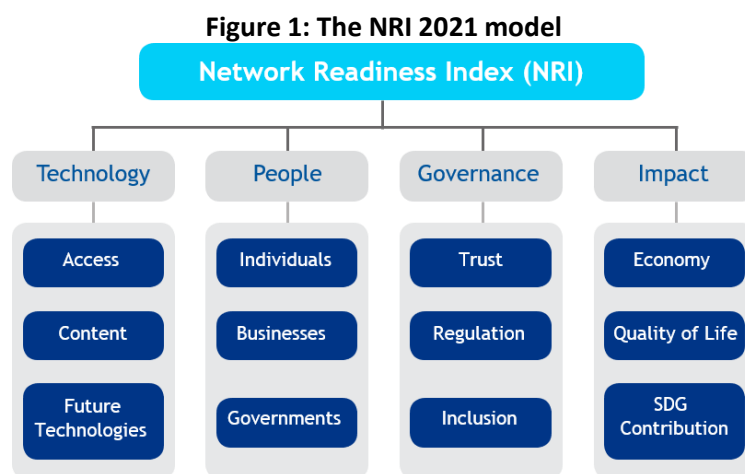


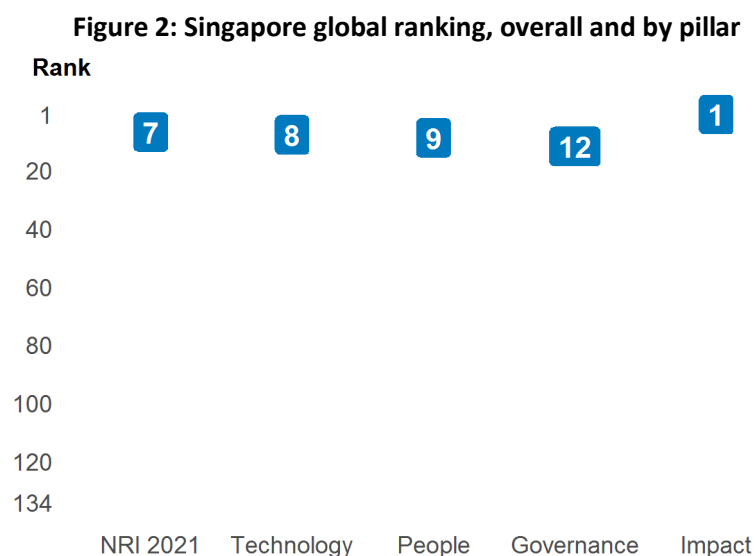
Network Readiness Index 2021 Singapore

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 Singapore

Singapore ranks 7th out of the 130 economies included in the NRI 2021 (Figure 2). Its main strength relates to Impact. The greatest scope for improvement, meanwhile, concerns Governance.



Performance at sub-pillar level

When it comes to sub-pillars, the strongest showings of Singapore relate to Inclusion, Economy and SDG Contribution, among others (Table 1). More could be done, though, to improve the economy's performances in the Businesses, Trust and Content sub-pillars.

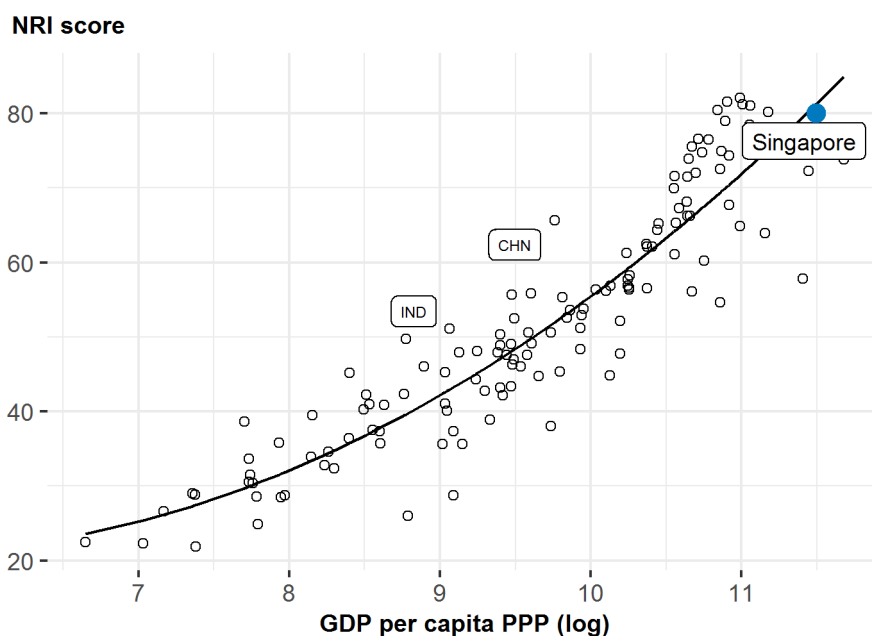
Table 1: Singapore rankings by sub-pillar

| Sub-pillar | Rank | Sub-pillar | Rank |
|---------------------|------|-----------------|------|
| Inclusion | 1 | Regulation | 10 |
| Economy | 1 | Individuals | 11 |
| SDG Contribution | 1 | Quality of Life | 12 |
| Access | 3 | Businesses | 16 |
| Future Technologies | 4 | Trust | 19 |
| Governments | 4 | Content | 22 |

NRI score and income

Figure 3 shows the position of Singapore 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, Singapore is slightly below 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: NLD = Netherlands (rank: 1), SWE = Sweden (2), DNK = Denmark (3), CHN = China (29), IND = India (67). USA is ranked 4th. Singapore belongs to the group of high-income countries, where the best performer is Netherlands (NLD). The top performer of its region-Asia & Pacific is Singapore (SGP).

Performance against its income group and region

High-income countries

Singapore is ranked 7th 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 each of the four pillars. At the sub-pillar level, it has a higher score than the average of high-income countries in all of them.

Asia & Pacific

Singapore is ranked 1st within Asia & Pacific (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 Singapore against its income group and region, overall and by pillar

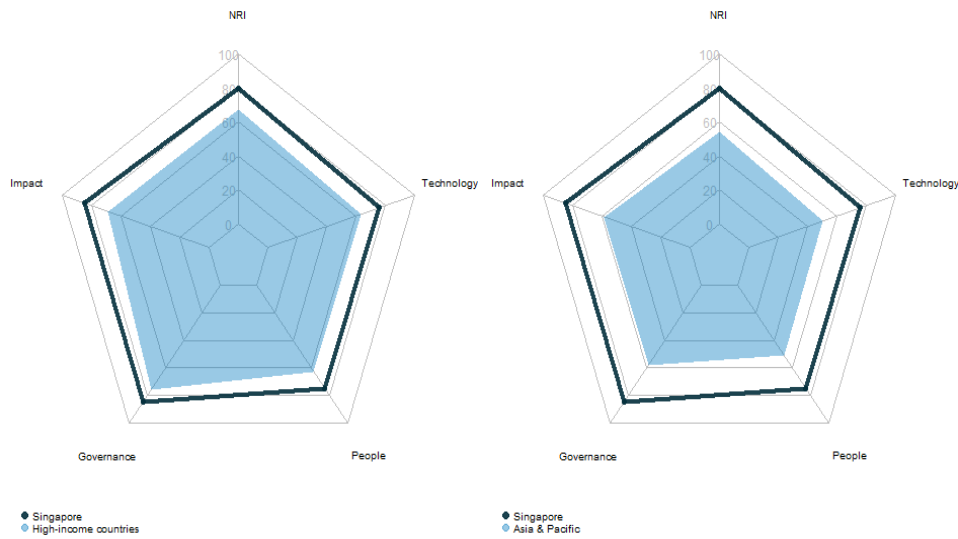


Table 2: Singapore scores vs. averages of its income group and region, overall and by pillar

| Dimension | Singapore | High-income countries | Asia & Pacific |
|------------|-----------|-----------------------|----------------|
| NRI | 80.01 | 67.45 | 54.38 |
| Technology | 75.80 | 62.99 | 50.01 |
| People | 74.75 | 62.65 | 51.22 |
| Governance | 84.74 | 75.52 | 58.01 |
| Impact | 84.77 | 68.63 | 58.28 |

Strongest and weakest indicators

The indicators where Singapore performs particularly well include 1.1.2 Handset prices, 1.1.5 Population covered by at least a 3G mobile network, and 1.2.4 Mobile apps development (Table 3). By contrast, the economy's weakest indicators include 3.2.5 Privacy protection by law content, 4.1.4 Growth rate of GDP per person engaged, and 1.1.4 SMS sent by population 15-69.

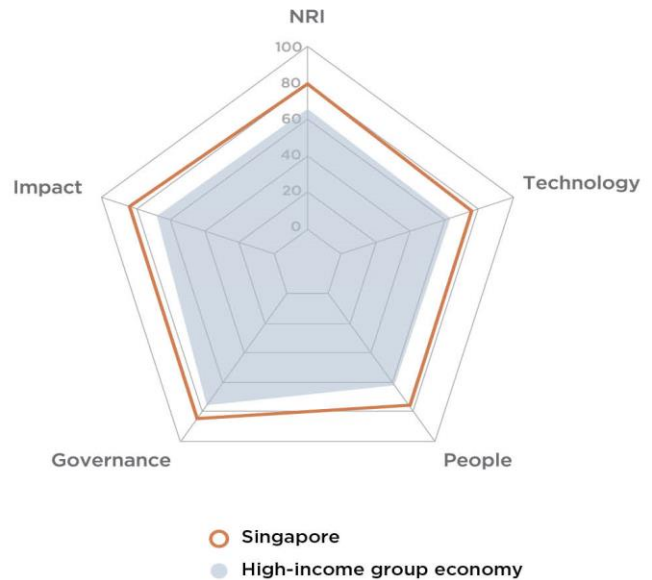
Table 3: Strongest and weakest indicators of Singapore

| Strongest indicators | Rank | Weakest indicators | Rank |
|---|-------------|---|-------------|
| 1.1.2 Handset prices | 1 | 2.1.1 Active mobile broadband subscriptions | 64 |
| 1.1.5 Population covered by at least a 3G mobile network | 1 | 1.1.4 SMS sent by population 15-69 | 67 |
| 1.2.4 Mobile apps development | 1 | 4.1.4 Growth rate of GDP per person engaged | 70 |
| 1.3.3 Robot density | 1 | 3.2.5 Privacy protection by law content | 95 |
| 2.3.3 Government promotion of investment in emerging technologies | 1 | | |
| 3.2.1 Regulatory quality | 1 | | |
| 3.2.4 E-commerce legislation | 1 | | |
| 4.1.1 High-tech and medium-high-tech manufacturing | 1 | | |
| 3.3.5 Rural gap in use of digital payments | 2 | | |
| 4.2.4 Healthy life expectancy at birth | 2 | | |
| 4.3.2 SDG 4: Quality Education | 2 | | |
| 4.3.5 SDG 11: Sustainable Cities and Communities | 2 | | |
| 2.2.4 Technicians and associate professionals | 3 | | |
| 3.1.1 Secure Internet servers | 4 | | |
| 3.2.3 Legal framework's adaptability to emerging technologies | 4 | | |

Singapore

Network Readiness Index Rank (out of 130) **7** Score **80.01**

| Pillar/sub-pillar | Rank | Score |
|-------------------------------------|-----------|--------------|
| A. Technology pillar | 8 | 75.80 |
| 1st sub-pillar: Access | 3 | 93.17 |
| 2nd sub-pillar: Content | 22 | 61.77 |
| 3rd sub-pillar: Future Technologies | 4 | 72.46 |
| B. People pillar | 9 | 74.75 |
| 1st sub-pillar: Individuals | 11 | 77.16 |
| 2nd sub-pillar: Businesses | 16 | 64.96 |
| 3rd sub-pillar: Governments | 4 | 82.13 |
| C. Governance pillar | 12 | 84.74 |
| 1st sub-pillar: Trust | 19 | 77.71 |
| 2nd sub-pillar: Regulation | 10 | 86.71 |
| 3rd sub-pillar: Inclusion | 1 | 89.78 |
| D. Impact pillar | 1 | 84.77 |
| 1st sub-pillar: Economy | 1 | 74.65 |
| 2nd sub-pillar: Quality of Life | 12 | 87.25 |
| 3rd sub-pillar: SDG Contribution | 1 | 92.42 |



Network Readiness Index in detail

| Indicator | Rank | Score |
|---|------|----------|
| A. Technology pillar | 8 | 75.80 |
| 1st sub-pillar: Access | 3 | 93.17 |
| 1.1.1 Mobile tariffs | 5 | 90.92 |
| 1.1.2 Handset prices | 1 | 100.00 ● |
| 1.1.3 Households with internet access | 6 | 98.64 |
| 1.1.4 SMS sent by population 15-69 | 67 | 76.30 ○ |
| 1.1.5 Population covered by at least a 3G mobile network | 1 | 100.00 ● |
| 1.1.6 International Internet bandwidth | NA | NA |
| 1.1.7 Internet access in schools | NA | NA |
| 2nd sub-pillar: Content | 22 | 61.77 |
| 1.2.1 GitHub commits | 17 | 51.94 |
| 1.2.2 Wikipedia edits | 37 | 72.32 |
| 1.2.3 Internet domain registrations | * | * |
| 1.2.4 Mobile apps development | 1 | 100.00 ● |
| 1.2.5 AI scientific publications | 24 | 63.58 |
| 3rd sub-pillar: Future Technologies | 4 | 72.46 |
| 1.3.1 Adoption of emerging technologies | 8 | 88.54 |
| 1.3.2 Investment in emerging technologies | 13 | 78.60 |
| 1.3.3 Robot density | 1 | 100.00 ● |
| 1.3.4 Computer software spending | 52 | 22.69 |
| B. People pillar | 9 | 74.75 |
| 1st sub-pillar: Individuals | 11 | 77.16 |
| 2.1.1 Active mobile broadband subscriptions | 64 | 75.52 ○ |
| 2.1.2 ICT skills | 24 | 66.83 |
| 2.1.3 Use of virtual social networks | 12 | 84.82 |
| 2.1.4 Tertiary enrollment | 10 | 62.00 |
| 2.1.5 Adult literacy rate | 34 | 96.61 |
| 2nd sub-pillar: Businesses | 16 | 64.96 |
| 2.2.1 Firms with website | NA | NA |
| 2.2.2 GERD financed by business enterprise | 24 | 65.64 |
| 2.2.3 Professionals | 14 | 57.63 |
| 2.2.4 Technicians and associate professionals | 3 | 95.11 ● |
| 2.2.5 Annual investment in telecommunication services | 40 | 81.00 |
| 2.2.6 GERD performed by business enterprise | 20 | 25.43 |
| 3rd sub-pillar: Governments | 4 | 82.13 |
| 2.3.1 Government online services | 5 | 96.36 |
| 2.3.2 Publication and use of open data | 23 | 52.56 |
| 2.3.3 Government promotion of investment in emerging tech | 1 | 100.00 |
| 2.3.4 R&D expenditure by governments and higher education | 9 | 79.62 |

| Indicator | Rank | Score |
|---|------|----------|
| C. Governance pillar | 12 | 84.74 |
| 1st sub-pillar: Trust | 19 | 77.71 |
| 3.1.1 Secure Internet servers | 4 | 93.86 ● |
| 3.1.2 Cybersecurity | 5 | 98.49 |
| 3.1.3 Online access to financial account | 27 | 56.92 |
| 3.1.4 Internet shopping | 22 | 61.58 |
| 2nd sub-pillar: Regulation | 10 | 86.71 |
| 3.2.1 Regulatory quality | 1 | 100.00 ● |
| 3.2.2 ICT regulatory environment | 20 | 93.53 |
| 3.2.3 Legal framework's adaptability to emerging technologies | 4 | 86.76 ● |
| 3.2.4 E-commerce legislation | 1 | 100.00 ● |
| 3.2.5 Privacy protection by law content | 95 | 53.28 ○ |
| 3rd sub-pillar: Inclusion | 1 | 89.78 |
| 3.3.1 E-Participation | 6 | 97.53 |
| 3.3.2 Socioeconomic gap in use of digital payments | 25 | 88.74 |
| 3.3.3 Availability of local online content | 9 | 91.63 |
| 3.3.4 Gender gap in Internet use | 8 | 72.13 |
| 3.3.5 Rural gap in use of digital payments | 2 | 98.86 ● |
| D. Impact pillar | 1 | 84.77 |
| 1st sub-pillar: Economy | 1 | 74.65 |
| 4.1.1 High-tech and medium-high-tech manufacturing | 1 | 100.00 ● |
| 4.1.2 High-tech exports | 5 | 88.79 |
| 4.1.3 PCT patent applications | 16 | 79.29 |
| 4.1.4 Growth rate of GDP per person engaged | 70 | 57.39 ○ |
| 4.1.5 Prevalence of gig economy | 9 | 85.52 |
| 4.1.6 ICT services exports | 45 | 36.93 |
| 2nd sub-pillar: Quality of Life | 12 | 87.25 |
| 4.2.1 Happiness | 32 | 68.05 |
| 4.2.2 Freedom to make life choices | 11 | 95.51 |
| 4.2.3 Income inequality | NA | NA |
| 4.2.4 Healthy life expectancy at birth | 2 | 98.18 ● |
| 3rd sub-pillar: SDG Contribution | 1 | 92.42 |
| 4.3.1 SDG 3: Good Health and Well-Being | 6 | 95.08 |
| 4.3.2 SDG 4: Quality Education | 2 | 90.79 ● |
| 4.3.3 Females employed with advanced degrees | 5 | 89.85 |
| 4.3.4 SDG 7: Affordable and Clean Energy | 24 | 86.42 |
| 4.3.5 SDG 11: Sustainable Cities and Communities | 2 | 99.94 ● |

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

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