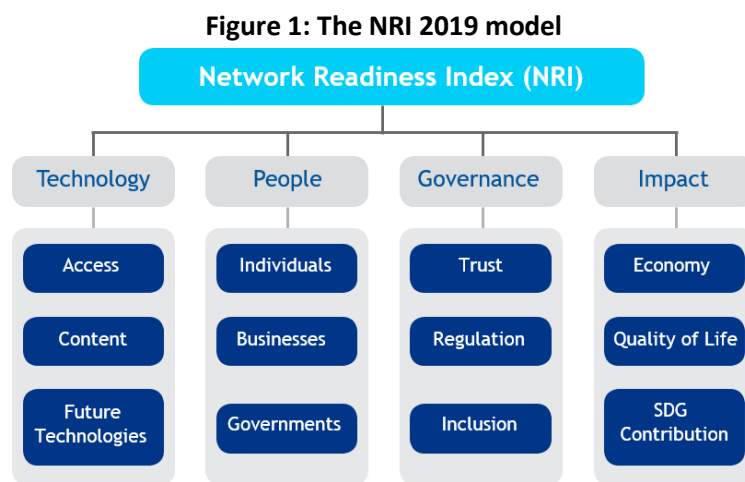


Network Readiness Index 2019

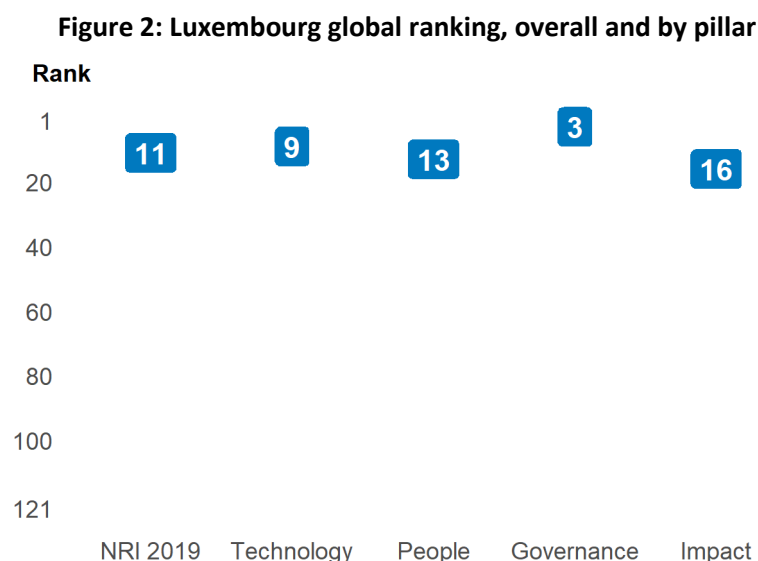
Luxembourg

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.



Global NRI position of Luxembourg

Luxembourg ranks 11th 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.



Performance at sub-pillar level

When it comes to sub-pillars, the strongest showings of Luxembourg relate to Access, Trust and Businesses, among others (Table 1). More could be done, though, to improve the economy's performances in the Quality of Life, Economy and Individuals sub-pillars.

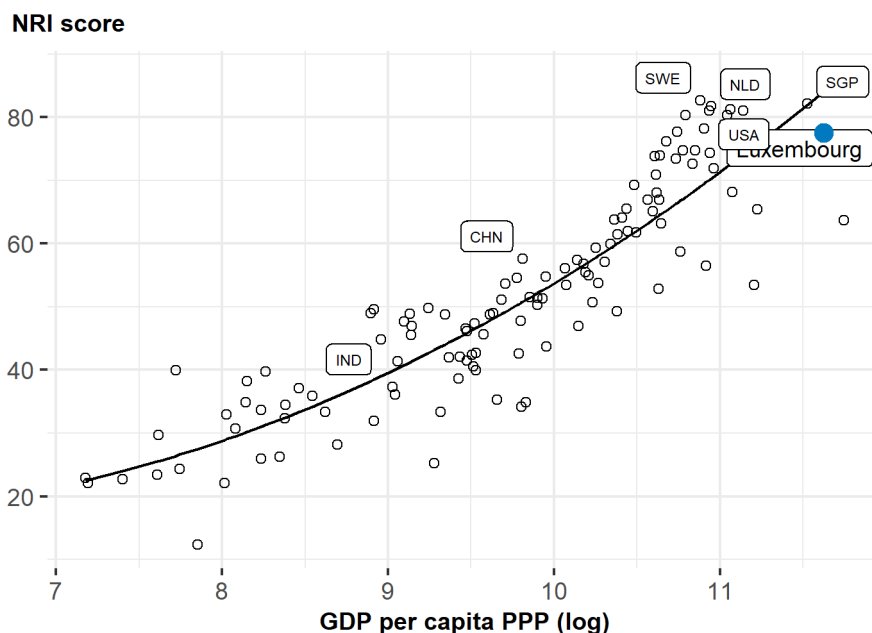
Table 1: Luxembourg rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Access	1	Content	14
Trust	1	Inclusion	14
Businesses	8	Governments	15
Regulation	8	Quality of Life	15
Future Technologies	9	Economy	23
SDG Contribution	13	Individuals	39

NRI score and income

Figure 3 shows the position of Luxembourg 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, Luxembourg 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. Luxembourg belongs to the group of high-income countries, where the best performer is Sweden (SWE). The top performer of its region—Europe—is also Sweden (SWE).

Performance against its income group and region

High-income countries

Luxembourg is ranked 11th 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 outperforms high-income countries in eleven of the twelve sub-pillars: Access, Content, Future Technology, Businesses, Governments, Trust, Regulation, Inclusion, Economy, Quality of Life and SDG Contribution.

Europe

Luxembourg is ranked 9th within Europe (Figure 4, right panel). It outperforms its region in each of the four pillars. With regard to sub-pillars, it outperforms the average in Europe in eleven of the twelve sub-pillars: Access, Content, Future Technology, Businesses, Governments, Trust, Regulation, Inclusion, Economy, Quality of Life and SDG Contribution.

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

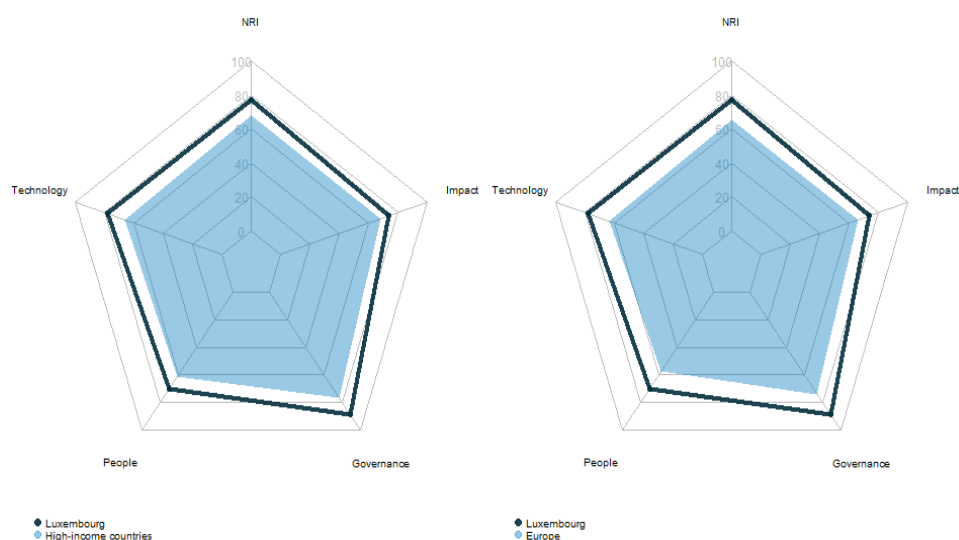


Table 2: Luxembourg scores vs. averages of its income group and region, overall and by pillar

Dimension	Luxembourg	High-income countries	Europe
NRI	77.46	68.12	65.20
Technology	77.66	66.07	63.08
People	69.86	61.07	57.50
Governance	88.92	77.07	73.99
Impact	73.39	68.29	66.24

Strongest and weakest indicators

The indicators where Luxembourg performs particularly well include International Internet bandwidth, Professionals, and E-commerce legislation (Table 3). By contrast, the economy's weakest indicators include Tertiary enrolment, Medium and high-tech industry, Ease of doing business, and ICT regulatory environment.

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

Strongest indicators	Rank	Weakest indicators	Rank
International Internet bandwidth	1	Income inequality	42
Professionals	1	Fixed-broadband subscriptions	44
E-commerce legislation	1	4G mobile network coverage	45
Use of clean fuels and technology	1	Use of virtual social networks	45
Mobile tariffs	3	Computer software spending	59
ICT skills	3	High-tech exports	64
Extent of staff training	3	Ease of doing business	65
Legal framework's adaptability to digital business models	3	ICT regulatory environment	65
Social safety net protection	3	Medium and high-tech industry	68
Software piracy rate	4	Tertiary enrolment	93

NRI 2019 At-A-Glance: Luxembourg

Network Readiness Index

Rank: 11 (out of 121)

Score: 77.46

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
A. Technology pillar	9	77.66	C. Governance pillar	3	88.92
1st sub-pillar: Access	1	92.27	1st sub-pillar: Trust	1	94.51
2nd sub-pillar: Content	14	73.41	2nd sub-pillar: Regulation	8	89.72
3rd sub-pillar: Future Technologies	9	67.30	3rd sub-pillar: Inclusion	14	82.53
B. People pillar	13	69.86	D. Impact pillar	16	73.39
1st sub-pillar: Individuals	39	61.60	1st sub-pillar: Economy	23	41.37
2nd sub-pillar: Businesses	8	72.35	2nd sub-pillar: Quality of Life	15	83.28
3rd sub-pillar: Governments	15	75.61	3rd sub-pillar: SDG Contribution	13	95.51

The Network Readiness Index in detail

Indicator	Rank	Score	Indicator	Rank	Score
A. Technology pillar			C. Governance pillar		
<i>1st sub-pillar: Access</i>			<i>1st sub-pillar: Trust</i>		
1.1.1 Mobile tariffs	3	97.81	3.1.1 Rule of law	10	94.63
1.1.2 Handset prices	6	82.46	3.1.2 Software piracy rate	4	97.30
1.1.3 Internet access	15	92.52	3.1.3 Secure Internet servers	10	91.06
1.1.4 4G mobile network coverage	45	97.00	3.1.4 Cybersecurity	12	95.07
1.1.5 Fixed-broadband subscriptions	44	83.86	3.1.5 Online trust and safety	NA	NA
1.1.6 International Internet bandwidth	1	100.00	<i>2nd sub-pillar: Regulation</i>		
1.1.7 Internet access in schools	NA	NA	3.2.1 Regulatory quality	11	90.12
<i>2nd sub-pillar: Content</i>			3.2.2 Ease of doing business	65	69.64
1.2.1 Digital participation and content creation	*	*	3.2.3 Legal framework's adaptability to digital business models	3	96.06
1.2.2 Mobile apps development	10	89.20	3.2.4 E-commerce legislation	1	100.00
1.2.3 Intellectual property receipts	13	12.24	3.2.5 Social safety net protection	3	99.11
<i>3rd sub-pillar: Future Technologies</i>			3.2.6 ICT regulatory environment	65	83.40
1.3.1 Availability of latest technologies	10	91.76	<i>3rd sub-pillar: Inclusion</i>		
1.3.2 Company investment in emerging technology	10	77.85	3.3.1 E-Participation	19	92.99
1.3.3 Government procurement of advanced technology products	9	78.29	3.3.2 Socioeconomic gap in use of digital payments	8	97.26
1.3.4 ICT PCT patent applications	8	70.42	3.3.3 Availability of local online content	18	83.16
1.3.5 Computer software spending	59	18.18	3.3.4 Gender gap in internet use	35	62.99
1.3.6 Robot density	NA	NA	3.3.5 Rural gap in use of digital payments	20	76.25
B. People pillar			D. Impact pillar		
<i>1st sub-pillar: Individuals</i>			<i>1st sub-pillar: Economy</i>		
2.1.1 Internet users	7	97.12	4.1.1 Medium and high-tech industry	68	27.92
2.1.2 Active mobile-broadband subscriptions	38	36.06	4.1.2 High-tech exports	64	13.20
2.1.3 Use of virtual social networks	45	61.54	4.1.3 PCT patent applications	12	41.91
2.1.4 Tertiary enrolment	93	13.50	4.1.4 Labour productivity per employee	4	82.46
2.1.5 Adult literacy rate	NA	NA	<i>2nd sub-pillar: Quality of Life</i>		
2.1.6 ICT skills	3	99.80	4.2.1 Happiness	10	87.18
<i>2nd sub-pillar: Businesses</i>			4.2.2 Freedom to make life choices	35	82.28
2.2.1 Firms with website	11	84.09	4.2.3 Income inequality	42	76.84
2.2.2 Internet shopping	20	65.55	4.2.4 Healthy life expectancy at birth	15	86.81
2.2.3 Professionals	1	100.00	<i>3rd sub-pillar: SDG Contribution</i>		
2.2.4 Technicians and associate professionals	10	77.19	4.3.1 Access to basic services	40	98.34
2.2.5 Extent of staff training	3	90.11	4.3.2 Pollution	15	94.94
2.2.6 R&D expenditure by businesses	28	17.18	4.3.3 Road safety	25	88.75
<i>3rd sub-pillar: Governments</i>			4.3.4 Reading proficiency in schools	NA	NA
2.3.1 Government online services	22	91.54	4.3.5 Maths proficiency in schools	NA	NA
2.3.2 Publication and use of open data	NA	NA	4.3.6 Use of clean fuels and technology	1	100.00
2.3.3 ICT use and government efficiency	8	83.08			
2.3.4 R&D expenditure by governments and higher education	27	52.21			

* Confidential data

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