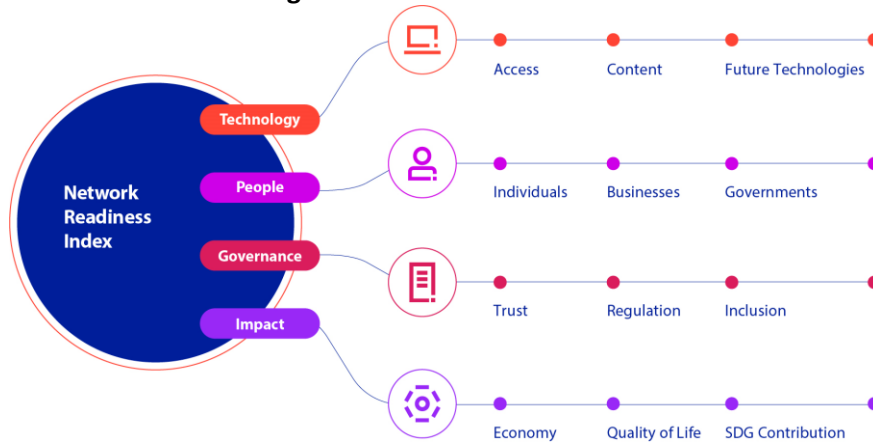# Estonia

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.
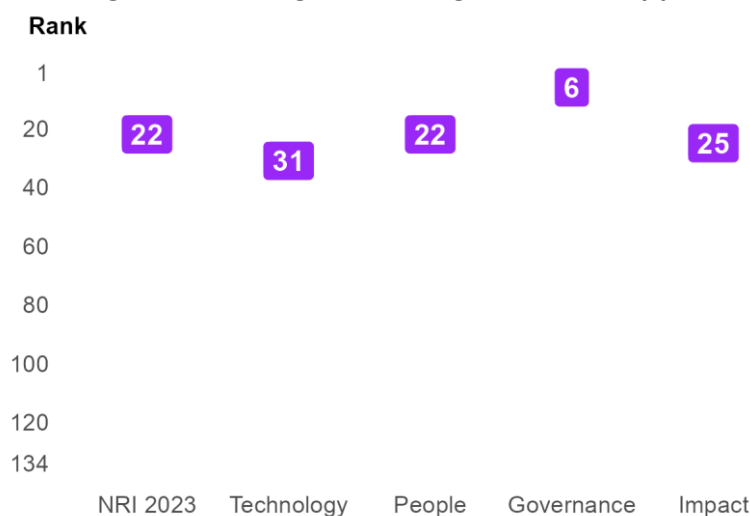
Figure 1: The NRI 2023 model

Global NRI position of Estonia

Estonia ranks 22nd 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 Technology.

Figure 2: Estonia global ranking, overall and by pillar

Performance at sub-pillar level

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

Table 1: Estonia rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Inclusion	3	Economy	25
Trust	7	Governments	26
Regulation	7	SDG Contribution	27
Quality of Life	20	Individuals	31
Content	24	Access	41
Businesses	25	Future Technologies	54

NRI score and income

Figure 3 shows the position of Estonia 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, Estonia 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)
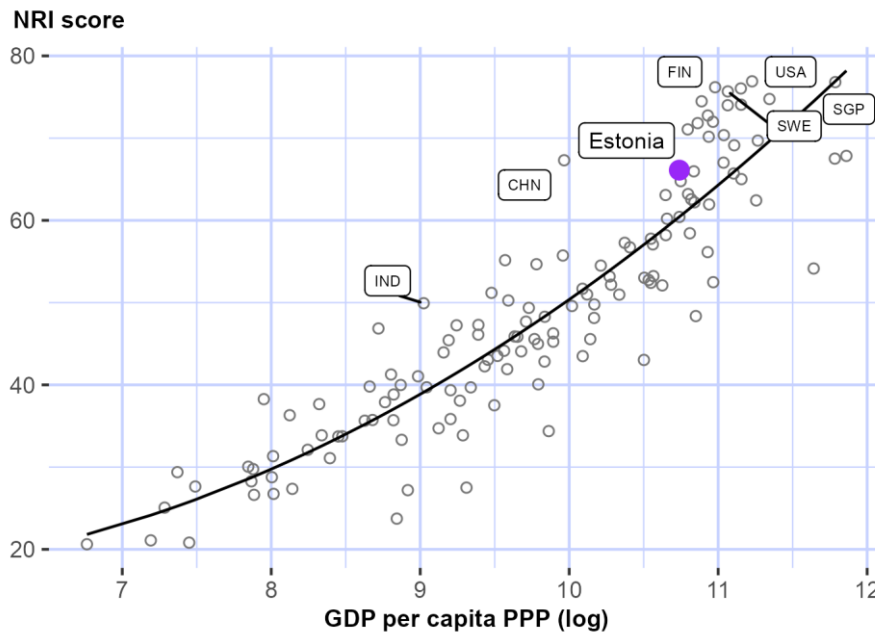
Note: USA = United States (rank: 1), SGP = Singapore (rank: 2), FIN = Finland (3), NLD = Netherlands (4), SWE = Sweden (5), CHN = China (20), IND = India (61). Estonia belongs to the group of high-income countries, where the best performer is United States of America (USA). The top performer of its region-Europe-is Finland (FIN).

Performance against its income group and region

High-income countries
Estonia is ranked 21st 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 three of the four pillars: NRI, People, Governance and Impact. At the sub-pillar level, it outperforms high-income countries in eight of the twelve sub-pillars: Content, Individuals, Businesses, Trust, Regulation, Inclusion, Quality of Life and SDG Contribution.

Europe
Estonia is ranked 15th within Europe (Figure 4, right panel). It has a score above the regional average in three of the four pillars: NRI, People, Governance and Impact. With regard to sub-pillars, it outperforms the average in Europe in eleven of the twelve sub-pillars: Access, Content, Individuals, Businesses, Governments, Trust, Regulation, Inclusion, Economy, Quality of Life and SDG Contribution.

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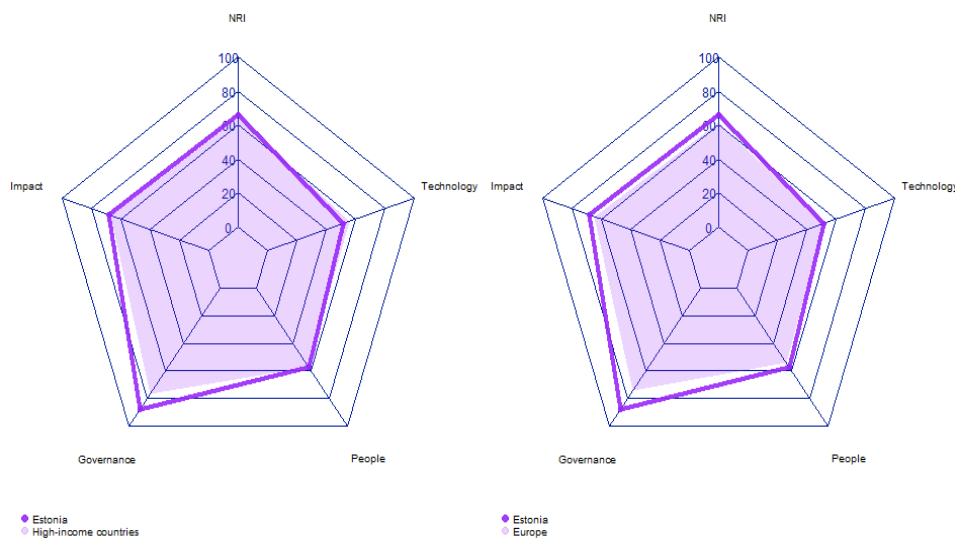

Table 2: Estonia scores vs. averages of its income group and region, overall and by pillar

Dimension	Estonia	High-income countries	Europe
NRI	66.11	64.07	61.25
Technology	51.33	55.76	51.90
People	57.59	56.99	54.16
Governance	87.71	76.81	74.33
Impact	67.80	66.73	64.61

Strongest and weakest indicators

The indicators where Estonia performs particularly well include 1.1.4 Population covered by at least a 3G mobile network, 2.3.1 Government online services, and 3.2.4 E-commerce legislation (Table 3). By contrast, the economy's weakest indicators include 1.1.5 International Internet bandwidth, 4.3.4 SDG 7: Affordable and Clean Energy, and 4.1.4 Domestic market size.

Table 3: Highlight of Strengths and Opportunities for Estonia

Strongest indicators	Rank	Weakest indicators	Rank
1.1.4 Population covered by at least a 3G mobile network	1	1.1.3 FTTH/building Internet subscriptions	92
2.3.1 Government online services	1	2.2.4 Annual investment in telecommunication services	93
3.2.4 E-commerce legislation	1	4.1.4 Domestic market size	102
3.3.1 E-Participation	3	4.3.4 SDG 7: Affordable and Clean Energy	104
2.1.5 Adult literacy rate	4	1.1.5 International Internet bandwidth	110
3.1.2 Cybersecurity	4		
4.3.2 SDG 4: Quality Education	4		
1.2.3 Mobile apps development	5		
3.1.1 Secure Internet servers	8		
3.1.3 Online access to financial account	8		
4.1.6 ICT services exports	8		
3.3.2 Socioeconomic gap in use of digital payments	13		

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

NRI 2023 At-A-Glance: Estonia

Network Readiness Index   Rank: 22 (out of 134)   Score: 66.11

Pillar/sub-pillar	Rank	Score		Pillar/sub-pillar	Rank	Score
A. Technology pillar	31	51.33		C. Governance pillar	6	87.71
1st sub-pillar: Access	41	72.00		1st sub-pillar: Trust	7	87.92
2nd sub-pillar: Content	24	45.15		2nd sub-pillar: Regulation	7	88.74
3rd sub-pillar: Future Technologies	54	36.84		3rd sub-pillar: Inclusion	3	86.46
B. People pillar	22	57.59		D. Impact pillar	25	67.80
1st sub-pillar: Individuals	31	54.56		1st sub-pillar: Economy	25	42.43
2nd sub-pillar: Businesses	25	62.83		2nd sub-pillar: Quality of Life	20	81.87
3rd sub-pillar: Governments	26	55.38		3rd sub-pillar: SDG Contribution	27	79.10

The Network Readiness Index in detail

Indicator	Rank	Score		Indicator	Rank	Score	
A. Technology pillar	31	51.33		**C. Governance pillar**	6	87.71	
1st sub-pillar: Access	41	72.00		*1st sub-pillar: Trust*	7	87.92	
1.1.1 Mobile tariffs	38	75.63		3.1.1 Secure Internet servers	8	90.51	●
1.1.2 Handset prices	19	77.12		3.1.2 Cybersecurity	4	99.47	●
1.1.3 FTTH/building Internet subscriptions	92	17.53	○	3.1.3 Online access to financial account	8	82.82	●
1.1.4 Population covered by at least a 3G mobile network	1	100.00	●	3.1.4 Internet shopping	15	78.87	
1.1.5 International Internet bandwidth	110	62.48	○	*2nd sub-pillar: Regulation*	7	88.74	
1.1.6 Internet access in schools	30	99.24		3.2.1 Regulatory quality	15	84.82	
2nd sub-pillar: Content	24	45.15		3.2.2 ICT regulatory environment	31	90.00	
1.2.1 GitHub commits	16	60.05		3.2.3 Regulation of emerging technologies	11	81.56	
1.2.2 Internet domain registrations	25	34.69		3.2.4 E-commerce legislation	1	100.00	●
1.2.3 Mobile apps development	5	84.06	●	3.2.5 Privacy protection by law content	15	87.33	
1.2.4 AI scientific publications	89	1.80		*3rd sub-pillar: Inclusion*	3	86.46	
3rd sub-pillar: Future Technologies	54	36.84		3.3.1 E-Participation	3	97.68	●
1.3.1 Adoption of emerging technologies	22	73.19		3.3.2 Socioeconomic gap in use of digital payments	13	97.51	●
1.3.2 Investment in emerging technologies	35	58.75		3.3.3 Availability of local online content	20	86.06	

Indicator		Rank	Score	
1.3.3	Robot density	37	5.15	
1.3.4	Computer software spending	89	10.26	
B. People pillar		22	57.59	
1st sub-pillar: Individuals		31	54.56	
2.1.1	Mobile broadband internet traffic within the country	66	9.45	
2.1.2	ICT skills in the education system	32	67.79	
2.1.3	Use of virtual social networks	30	76.34	
2.1.4	Tertiary enrollment	42	44.77	
2.1.5	Adult literacy rate	4	99.82	●
2.1.6	AI talent concentration	14	29.18	
2nd sub-pillar: Businesses		25	62.83	
2.2.1	Firms with website	19	81.21	
2.2.2	GERD financed by business enterprise	29	62.01	
2.2.3	Knowledge intensive employment	17	71.81	
2.2.4	Annual investment in telecommunication services	93	74.05	○
2.2.5	GERD performed by business enterprise	23	25.06	
3rd sub-pillar: Governments		26	55.38	
2.3.1	Government online services	1	100.00	●
2.3.2	Publication and use of open data	41	38.24	
2.3.3	Government promotion of investment in emerging tech	35	51.86	
2.3.4	R&D expenditure by governments and higher education	22	31.41	

Indicator		Rank	Score	
3.3.4	Gender gap in Internet use	13	74.48	
3.3.5	Rural gap in use of digital payments	14	76.59	
D. Impact pillar		25	67.80	
1st sub-pillar: Economy		25	42.43	
4.1.1	High-tech and medium-high-tech manufacturing	37	36.63	
4.1.2	High-tech exports	22	37.17	
4.1.3	PCT patent applications	30	18.80	
4.1.4	Domestic market size	102	39.31	○
4.1.5	Prevalence of gig economy	27	63.37	
4.1.6	ICT services exports	8	59.30	●
2nd sub-pillar: Quality of Life		20	81.87	
4.2.1	Happiness	36	74.48	
4.2.2	Freedom to make life choices	22	88.11	
4.2.3	Income inequality	25	81.16	
4.2.4	Healthy life expectancy at birth	33	83.73	
3rd sub-pillar: SDG Contribution		27	79.10	
4.3.1	SDG 3: Good Health and Well-Being	41	80.73	
4.3.2	SDG 4: Quality Education	4	78.15	●
4.3.3	SDG 5: Women's economic opportunity	15	96.46	
4.3.4	SDG 7: Affordable and Clean Energy	104	59.39	○
4.3.5	SDG 11: Sustainable Cities and Communities	35	80.79	

NOTE: ● a strength and ○ a weakness.

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