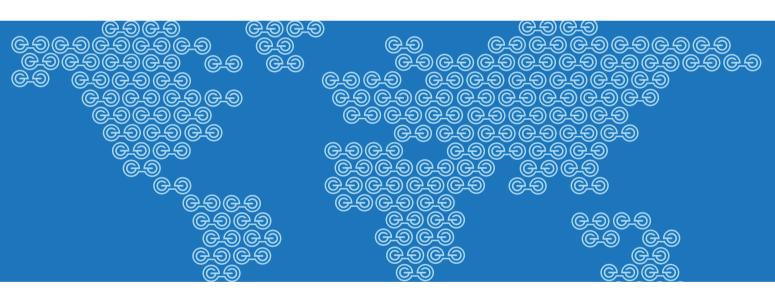


National Cyber Security Index 2018









National Cyber Security Index 2018

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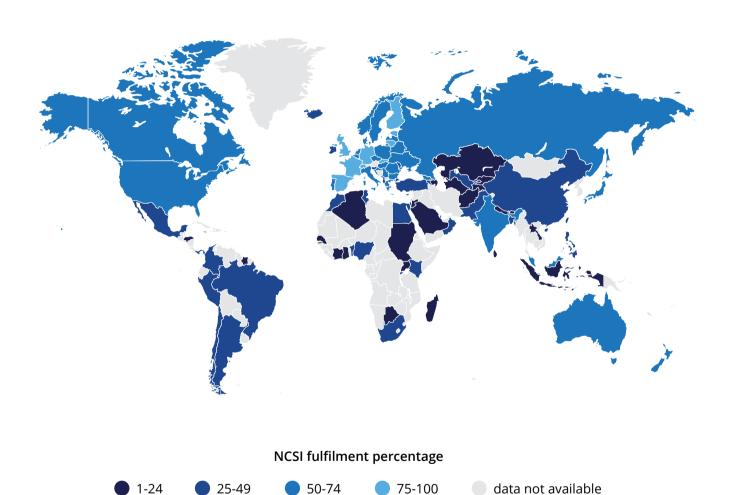


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NCSI World Reach



Foreword

Raul Rikk

NCSI Project manager Programme Director of National Cyber Security e-Governance Academy

I am pleased to introduce the National Cyber Security Index version 2.0.

We all know that cyber security is a global challenge and one country alone cannot ensure its security in cyberspace. Therefore, it is extremely important to find ways to make our digital world secure together.

The NCSI provides an overview of the cyber security capacity of countries, pointing out good practices and showing which aspects could be improved. The NCSI is based on publicly available evidence, which is presented on the NCSI website: www.ncsi.ega.ee.

Currently, the index has 100 countries in the ranking list. The data collection continues and we have planned to include most of the countries to the NCSI by the end of 2018. If your country does not appear in the index and you could provide relevant information, please contact us at ncsi@ega.ee.

Our idea is to provide continuous developments on an ongoing basis. We do not publish annual iterations of the ranking list. When we receive information about new evidence, we will check it and update the website within a month. If you are able to provide evidence about a country, we encourage you to contact us at ncsi@ega.ee.

New aspects of version 2.0

The new version of the index takes into account the cyber security principles developed in the European Union in recent years. It includes the most important aspects of network and information security, electronic identification, trust services, personal data protection and many other aspects.

The NCSI web environment is also updated. Now it is compatible with different devices and provides a better overview of the countries' cyber security capacities. We have developed different comparison tools that help to analyse the current situation of countries and place it into regional or global context.

I would like to thank everyone, who contributed to the development of this index – all state officials, organisations, companies and individual experts around the world. My special thanks go to the NCSI core team members Agu Kivimägi and Marit Lani, who have made significant effort to develop version 2.0 and ensure the quality of the data. Also, I would like to thank Kala Ruudus Ltd. and especially Rene Saare, who developed the new website for the index.

Methodology

Purpose

The National Cyber Security Index is a global index, which measures the preparedness of countries to prevent cyber threats and manage cyber incidents. The NCSI is also a database with publicly available evidence materials and a tool for national cyber security capacity building.

Cyber security database Cyber Security Evidence based global index Capacity building checklist

NCSI Development Process

The index has been developed in 5 steps:

- 1) Identification of fundamental cyber threats at the national level
- 2) Identification of national level cyber security measures and capacities
- 3) Selection of important and measurable aspects
- 4) Development of cyber security indicators
- 5) Grouping of cyber security indicators

1	Identification of main cyber threats
2	Identification of capacities and measures
3	Selection of measurable aspects
4	Development of indicators
5	Grouping of indicators

Focus and scope

The NCSI focuses on measurable aspects of cyber security implemented by the central government:

- 1) Legislation in force legal acts, regulations, official orders, etc.
- 2) Established units existing organisations, departments, etc.
- 3) Cooperation formats council, committee, official working group, etc.
- 4) Outcomes / Products policies, exercises, technologies, websites, programmes, etc.

Measurable Aspects of Cyber Security

Implemented by the central government



Structure

The NCSI has 3 categories, 12 capacities and 46 indicators.



Values of indicators

Each indicator has a value, which shows the relative importance of the indicator in the index. The values are given by the expert group according to the following consideration:

1 point – a legal act that regulates a specific area 2–3 points – a unit that has a specific cyber security responsibility

2 points – an official cooperation format 1–3 points – an outcome / product (document, exercise, technology, etc.)

Legal act	1 Point
Established unit	2-3 Points
Official cooperation format	2 Points
Outcomes / Products	1-3 Points

Evidence

Country ratings are based on public evidence:

- 1) Legal acts
- 2) Official documents
- 3) Official websites



NCSI Score

The NCSI Score shows the percentage the country received from the maximum value of the indicators. The maximum NCSI Score is always 100 (100%) regardless of whether indicators are added or removed.



Digital Development Level (DDL)

In addition to the NCSI Score, the index table also shows the Digital Development Level (DDL). The DDL is calculated according to the ICT Development Index (IDI) and Networked Readiness Index (NRI). The DDL is the average percentage the country received from the maximum value of both indices.



Difference

The Difference shows the relationship between the NCSI Score and DDL. A positive result shows that the country's cyber security development is in accordance with, or ahead of, its digital development. A negative result shows, that the country's digital society is more advanced than the national cyber security area.

The Difference shows
the relationship
between NCSI and DDL

Difference
=
NCSI Score - DDL

Ranking

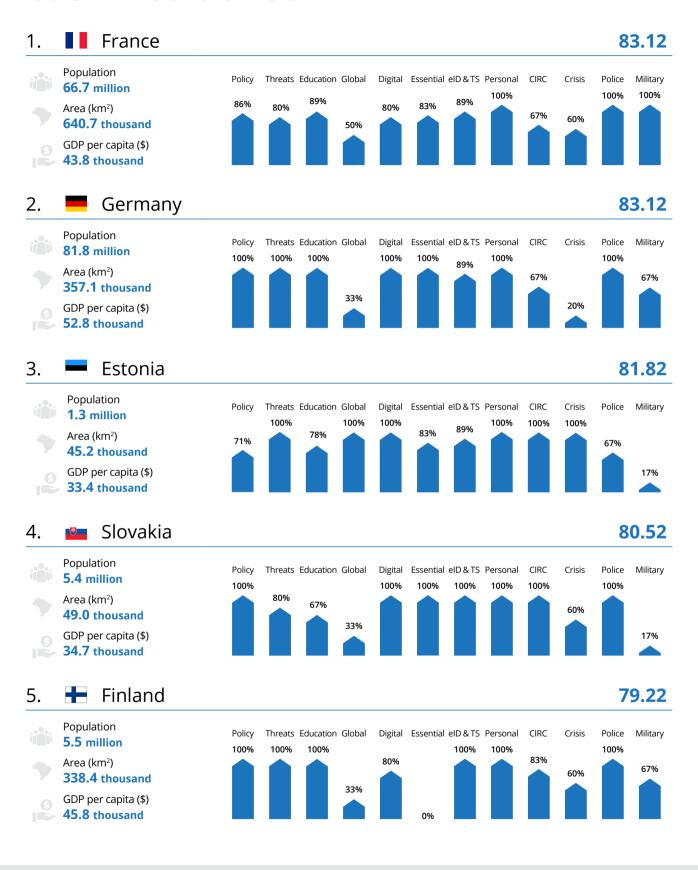
Rank	Country	Nation	al Cyber Security Index	Digit	al Development Level	Difference
1.	France	83.12		79.06		4.06
2.	Germany	83.12		81.95		1.17
3.	Estonia	81.82		79.27		2.55
4.	Slovakia	80.52		66.73		13.79
5.	Finland	79.22		82.26		-3.04
6.	Lithuania	77.92		70.95		6.97
7.	Spain	77.92		73.24		4.68
8.	United Kingdor	m 75.32		83.96		-8.64
9.	+ Switzerland	75.32		85.13		-9.81
10.	Czech Republic	74.03		69.37		4.66
11.	Malaysia	72.73		66.90		5.83
12.	Latvia	72.73		70.59		2.14
13.	Portugal	68.83		70.65		-1.82
14.	Belgium	68.83		77.62		-8.79
15.	Poland	67.53		66.59		0.94
16.	Serbia	66.23		61.62		4.61
17.	Japan	66.23		82.15		-15.92
18.	Netherlands	66.23		83.88		-17.65
19.	Georgia	64.94		59.66		5.28
20.	Italy	64.94		66.63		-1.69
21.	United States	64.94		82.33		-17.39
22.	Russian Federa	tion 63.64		67.49		-3.85
23.	Norway	63.64		83.78		-20.14
24.	Hungary	62.34		66.08		-3.74
25.	Luxembourg	62.34		83.06		-20.72

Rank		Country	Nation	al Cyber Security Index	Digita	al Development Level	Difference
26.	+	Sweden	61.04		83.48		-22.44
27.		Ukraine	58.44		58.10		0.34
28.	╚	Greece	58.44		65.44		-7.00
29.		Croatia	57.14		66.91		-9.77
30.		Qatar	57.14		73.19		-16.05
31.	*	Canada	57.14		78.85		-21.71
32.	(::	Singapore	57.14		83.11		-25.97
33.		Belarus	55.84		75.50		-19.66
34.	*	Australia	55.84		80.49		-24.65
35.		Romania	54.55		61.69		-7.14
36.		Denmark	54.55		83.55		-29.00
37.		Bulgaria	51.95		63.59		-11.64
38.	##.·.	New Zealand	51.95		80.94		-28.99
39.	®	India	50.65		42.29		8.36
40.		Moldova (Republic of)	48.05		60.82		-12.77
41.		Mauritius	46.75		60.83		-14.08
42.	*	Israel	46.75		77.97		-31.22
43.		Iceland	46.75		84.19		-37.44
44.	C*	Turkey	45.45		61.83		-16.38
45.		Nigeria	44.16		35.86		8.30
46.	0	Slovenia	44.16		70.47		-26.31
47.		Albania	42.86		53.56		-10.70
48.	+	Malta	42.86		73.59		-30.73
49.		Benin	41.56		30.41		11.15
50		Kenya	38.96		41.69		-2.73

Rank		Country	Nation	al Cyber Security Index	Digita	al Development Level	Difference
51.	•	Peru	38.96		51.39		-12.43
52.		Colombia	38.96		56.09		-17.13
53.	*[:	China	38.96		58.00		-19.04
54.	4	Brunei	38.96		67.50		-28.54
55.	*	Chile	37.66		65.71		-28.05
56.	C ::	Uzbekistan	36.36		49.00		-12.64
57.	③	Mexico	36.36		54.37		-18.01
58.		Argentina	36.36		61.09		-24.73
59.	Ž.	Egypt	35.06		49.58		-14.52
60.	*	Montenegro	33.77		62.91		-29.14
61.	*	Oman	32.47		62.86		-30.39
62.		Ireland	32.47		77.96		-45.49
63.	*	Philippines	31.17		51.92		-20.75
64.	O	Tunisia	31.17		51.96		-20.79
65.		Cyprus	31.17		71.71		-40.54
66.	C	Pakistan	29.87		36.39		-6.52
67.		Brazil	29.87		59.17		-29.30
68.	×	Jamaica	28.57		52.06		-23.49
69.	>	South Africa	28.57		54.80		-26.23
70.	*	Rwanda	27.27	11111	38.76		-11.49
71.	*	Morocco	27.27	11111	51.71		-24.44
72.	* *	Panama	27.27		55.26		-27.99
73.		Bangladesh	25.97	11111	36.22		-10.25
74.		Armenia	25.97	11111	59.51		-33.54
75.	•	Uganda	24.68		33.09		-8.41

Rank		Country	Nation	al Cyber Security Index	Digita	al Development Level	Difference
76.		Côte d'Ivoire	23.38	11111	39.99	11111111	-16.61
77.		Sri Lanka	23.38	11111	49.55		-26.17
78.	C•	Azerbaijan	23.38		61.71		-38.33
79.	5.000 —	Saudi Arabia	23.38		67.64		-44.26
80.	*	Ghana	20.78	1111	45.25		-24.47
81.		Trinidad and Tobago	20.78	1111	59.49		-38.71
82.	6	Kyrgyzstan	19.48	1111	48.28		-28.80
83.		Indonesia	19.48	1111	50.22		-30.74
84.		Kazakhstan	19.48	1111	66.81		-47.33
85.	*	Senegal	16.88	111	37.59		-20.71
86.		Lao PDR	16.88	111	38.84		-21.96
87.	@	Afghanistan	15.58	111	19.50	1111	-3.92
88.	43	Tajikistan	15.58	111	47.14		-31.56
89.	©	Algeria	14.29	111	46.21		-31.92
90.		Botswana	14.29	 	47.95		-33.66
91.	•	Jordan	14.29	111	60.00		-45.71
92.		Nepal	12.99	111	37.26		-24.27
93.	بهر	Bhutan	12.99	111	45.59		-32.60
94.		Sudan	6.49	1	25.50		-19.01
95.	*	Suriname	6.49	1	51.50		-45.01
96.	•	Samoa	5.19	1	33.00	111111	-27.81
97.	:•:	Honduras	3.90	1	42.83		-38.93
98.	<u> </u>	Turkmenistan	3.90	1			
99.		Madagascar	2.60	1	26.97	11111	-24.37
100.		Kiribati	1.30		21.70	1111	-20.40

Countries Outlook



6. Lithuania 77.92 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 2.8 million 100% 100% 100% 80% 78% Area (km2) 67% 65.3 thousand 50% GDP per capita (\$) 34.1 thousand 7. **Spain** 77.92 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 46.4 million 100% 100% 100% 100% 100% 86% Area (km2) 78% 60% 506.0 thousand GDP per capita (\$) 40.3 thousand 8. **United Kingdom** 75.32 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 65.1 million 100% 100% 100% 100% 89% Area (km²) 71% 67% 67% 242.9 thousand 50% 40% GDP per capita (\$) 44.1 thousand 9. **Switzerland** 75.32 **Population** Threats Education Global Digital Essential eID & TS Personal Police Military 8.3 million 100% 100% 100% 100% 100% 83% Area (km2) 78% 57% 41.3 thousand 50% GDP per capita (\$) 20% 61.4 thousand Czech Republic 10. 74.03 **Population** Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 10.6 million 100% 100% 78% 80% Area (km2) 78.9 thousand 33% GDP per capita (\$) 36.8 thousand

Malaysia 72.73 11. Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 31.9 million 100% 100% 100% 80% Area (km²) 80% 78% 330.8 thousand GDP per capita (\$) 30.4 thousand 12. 72.73 Latvia Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 2.0 million 100% 100% 100% 100% 100% Area (km²) 80% 56% 64.6 thousand 33% GDP per capita (\$) 29.0 thousand 13. 🧧 Portugal 68.83 Population Threats Education Global Digital Essential eID & TS Personal Police Military 10.4 million 100% 100% 100% 100% 100% 83% Area (km²) 78% 92.1 thousand 43% GDP per capita (\$) 32.0 thousand 14. Belgium 68.83 **Population** Threats Education Global Digital Essential eID & TS Personal Military Police 11.3 million 100% 100% 100% 20% 83% Area (km²) 67% 30.5 thousand 40% GDP per capita (\$) 44.9 thousand 15. **Poland** 67.53 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 38.4 million 100% 100% 89% 86% 80% 80% Area (km2) 67% 56% 312.7 thousand 50% 33% GDP per capita (\$) 31.4 thousand

Global

16. **Serbia** 66.23 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 7.1 million 100% 100% 100% 100% 86% Area (km2) 60% 88.4 thousand 33% 33% GDP per capita (\$) 16.1 thousand 17. 🖲 Japan 66.23 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military **127.0** million 100% 100% 100% Area (km2) 60% 60% 56% **377.9** thousand 50% 50% GDP per capita (\$) 44.4 thousand Netherlands 18. 66.23 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 17.0 million 100% 100% 83% Area (km²) 80% 71% 67% 41.9 thousand GDP per capita (\$) 53.1 thousand 0% 19. 🏪 Georgia 64.94 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Police Military 3.7 million 100% 100% 100% 100% 100% Area (km2) 60% 69.7 thousand 50% GDP per capita (\$) 10.6 thousand 20. Italy 64.94 **Population** Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 60.7 million 100% 100% 100% 20% Area (km2) 67% 60% 57% 301.3 thousand 50% 33% GDP per capita (\$) 36.8 thousand

Cyber crisis

management

Fight against

cvbercrime

Military cyber

operations

Cyber incidents

response 24/7

F-identification and

trust services

Protection of

United States 64.94 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 325.7 million 100% 100% 100% 100% 89% Area (km²) 80% 57% 9.8 million GDP per capita (\$) 61.7 thousand Russian Federation 22. 63.64 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 144.5 million 89% 89% 86% Area (km²) 78% 67% 60% 17.1 million 50% GDP per capita (\$) 28.9 thousand Norway 63.64 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 5.2 million 100% 100% 100% 100% 89% Area (km²) 323.8 thousand 50% 50% 29% GDP per capita (\$) 72.7 thousand Hungary 24. 62.34 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Police Military 9.8 million 100% 100% 100% 89% Area (km2) 78% 60% 93.0 thousand 43% 20% GDP per capita (\$) 31.4 thousand Luxembourg 25. 62.34 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 0.6 million 100% 100% 100% 80% Area (km2) 78% 67% 2.6 thousand 43% 40% GDP per capita (\$) 109.2 thousand

Contribution to global

Cyber threats analysis

Cyber security policy

Education and

26. Sweden 61.04 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 9.9 million 100% 100% 89% 83% 80% 80% Area (km2) 60% **450.3** thousand 50% 44% GDP per capita (\$) 53.1 thousand 27. Ukraine 58.44 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 42.7 million 100% 100% 89% Area (km2) 67% 67% 67% 603.7 thousand GDP per capita (\$) 8.7 thousand 0% 28. 58,44 Greece Population Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 10.9 million 100% 83% 83% Area (km²) 78% 78% 67% 60% 57% 132.0 thousand 50% GDP per capita (\$) 29.1 thousand 29. 🍱 57.14 Croatia **Population** Threats Education Global Digital Essential eID & TS Personal Police Military 4.2 million 100% 100% 20% Area (km2) 71% 56% 56.6 thousand 50% 50% 40% 40% 33% GDP per capita (\$) 25.3 thousand 30. Qatar 57.14 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 2.6 million 100% 100% Area (km2) 78% 78% 67% 60% 11.6 thousand 50% 33% 20% GDP per capita (\$) 124.5 thousand 0%

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management

Fight against

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Military cyber

operations

Cyber incidents

response 24/7

F-identification and

trust services

Protection of

31. Canada 57.14 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 36.2 million 100% 100% 100% Area (km2) 80% 10.0 million 50% GDP per capita (\$) 49.6 thousand Singapore 32. **57.14** Population Policy Threats Education Global Police Digital Essential eID & TS Personal CIRC Crisis Military 5.5 million 100% 100% 100% 86% Area (km2) 80% 0.7 thousand GDP per capita (\$) 98.0 thousand 55.84 33. Belarus Population Threats Education Global Digital Essential eID & TS Personal Police Military 9.5 million 100% 100% Area (km²) 78% 78% 67% 67% 60% 207.6 thousand GDP per capita (\$) 19.2 thousand Australia 55.84 **Population** Threats Education Global Digital Essential eID & TS Personal Police Military 24.1 million 100% 100% 100% 100% Area (km2) 67% 7.7 million 50% 50% GDP per capita (\$) 20% 51.5 thousand 35. Romania 54.55 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 19.9 million 100% 80% Area (km2) 78% 67% 67% 60% 238.4 thousand 50% 50% GDP per capita (\$) 25.5 thousand

36. Denmark 54.55 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 5.7 million 100% 100% Area (km2) 67% 67% 43.1 thousand 50% 50% 43% 33% GDP per capita (\$) 49.6 thousand 37. Bulgaria 51.95 Population Policy Threats Education Global Military Digital Essential eID & TS Personal CIRC Crisis Police 7.2 million 100% 83% Area (km2) 80% 78% 67% 110.9 thousand GDP per capita (\$) 21.6 thousand New Zealand 38. 51.95 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 4.7 million 100% 100% Area (km²) 78% 71% 60% 270.5 thousand 50% 33% 33% 20% GDP per capita (\$) 40.0 thousand 39. India 50.65 **Population** Threats Education Global Digital Essential eID & TS Personal Police Military 1,295.2 million 100% Area (km2) 78% 78% 67% 60% 57% 3.3 million 50% GDP per capita (\$) 20% 7.8 thousand 0% 40. Moldova (Republic of) 48.05 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 3.6 million 100% 89% Area (km2) 33.8 thousand 50% 50% 33% 33% 29% GDP per capita (\$) 20% 20% 5.7 thousand

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management

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operations

Fight against

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F-identification and

trust services

Protection of

41. Mauritius 46.75 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 1.3 million 100% 100% 78% Area (km²) 2.0 thousand 50% 29% GDP per capita (\$) 21.7 thousand 0% 42. 46.75 Israel Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 8.5 million 100% Area (km²) 78% 60% 20.8 thousand 50% 44% GDP per capita (\$) 37.7 thousand 43. # Iceland 46.75 Population Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 0.3 million 100% 100% 86% 83% Area (km²) 67% 56% 102.8 thousand 33% GDP per capita (\$) 54.3 thousand 44. Turkey 45.45 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Police Military 80.8 million 100% 100% Area (km²) 783.4 thousand 50% 50% 50% 43% 40% 33% GDP per capita (\$) 20% 27.6 thousand 45. Nigeria 44.16 **Population** Threats Education Global Digital Essential eID & TS Personal Crisis Police Military **187.0** million 100% Area (km²) 67% 57% 923.8 thousand 50% GDP per capita (\$) 20% 6.0 thousand

Contribution to global

Protection of

Protection of

essential services

Education and

Cyber threats analysis

Cyber security policy

46. Slovenia 44.16 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 2.1 million 100% 83% Area (km2) 67% 20.3 thousand 40% 33% 33% GDP per capita (\$) 14% 36.6 thousand Albania 47. 42.86 Population Policy Military Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police 2.9 million 100% Area (km2) 67% 57% 28.7 thousand GDP per capita (\$) 20% 13.2 thousand 48. Malta 42.86 Population Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 0.4 million 100% 89% Area (km²) 83% 67% 0.3 thousand 33% 20% GDP per capita (\$) 14% 45.1 thousand 0% 49. Benin 41.56 Population Threats Education Global Digital Essential eID & TS Personal Police Military 10.7 million 100% Area (km2) 78% 67% 112.6 thousand 50% 50% 44% 33% GDP per capita (\$) 2.3 thousand 0% 0% 50. Kenya 38.96 **Population** Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 47.3 million Area (km2) 80% 78% 67% 60% 580.4 thousand 43% 44% 33% GDP per capita (\$) 3.7 thousand

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trust services

Protection of

8.96	3										Peru	51.
Military	Police	Crisis	CIRC	Personal	eID & TS	Essential	Digital	Education Global	Threats	Policy	Population 31.5 million	i ia ji
67%	78%				78%			67%			Area (km²)	
			50%	25%				33%			1.3 million GDP per capita (\$)	
		0%				0%	0%		0%	0%	14.0 thousand	
8.96	3										Colombia	52.
Military	Police	Crisis	CIRC		eID & TS	Essential	Digital	Education Global	Threats	Policy	Population 48.8 million	
67%				100%	67%						Area (km²)	
	44%	20%	50%					44%	20%	29%	1.1 million GDP per capita (\$)	,
						0%	0%				15.0 thousand	(5)
8.96	3										China	53.
Military	Police	Crisis	CIRC	Personal	eID & TS	Essential	Digital	Education Global	Threats	Policy	Population 1,377.4 million	
						83%	60%	89%			Area (km²)	
50%		20%	50%	25%	22%		60%	17%	20%	4.40/	9.6 million GDP per capita (\$)	
	11%							1770	20%	14%	467	(5)
8.96	3										Rrunei	54.
Military	Police	Crisis	CIRC	Personal	eID & TS	Essential	Digital	Education Global	Threats	Policy	Population 0.4 million	
			83%	100%							Area (km²)	
	44%	60%			44%		60%	56%	222/		5.8 thousand	
0%						0%		17%	20%	0%	GDP per capita (\$) 77.7 thousand	
7.66	3										Chile	55.
Military	Police	Crisis	CIRC	Personal	elD & TS	Essential	Digital	Education Global	Threats	Policy	Population 18.2 million	
	78%							67%			Area (km²)	
170/		20%	50%	25%	33%		20%		20%	57%	756.1 thousand	7
17%		2070				0%	2070	17%	2070		GDP per capita (\$) 25.4 thousand	(5)

56. Uzbekistan 36.36 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 33.0 million Area (km²) 80% 67% 60% 449.0 thousand 50% GDP per capita (\$) 7.0 thousand 0% 57. Mexico 36.36 Population Policy Threats Education Global Digital Essential eID & TS Personal Police CIRC Crisis Military 122.3 million Area (km2) 78% 67% 2.0 million 50% 43% 22% GDP per capita (\$) 20.0 thousand 0% 58. Argentina 36.36 Population Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 43.6 million 100% Area (km²) 67% 60% 2.8 million 50% 44% 44% 44% GDP per capita (\$) 21.4 thousand ٥% 59. Egypt 35.06 **Population** Threats Education Global Digital Essential eID & TS Personal Police 91.3 million Area (km2) 71% 67% 56% 1.0 million 50% 44% 33% GDP per capita (\$) 20% 12.6 thousand 60. Montenegro 33.77 **Population** Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 0.6 million 100% Area (km2) 67% 57% 13.8 thousand 50% 50% GDP per capita (\$) 22% 18.3 thousand

Cyber crisis

management

Military cyber

operations

Fight against

cvbercrime

Cyber incidents

response 24/7

F-identification and

trust services

Protection of

61.	Cman											3	2.47
i	Population 4.4 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
	Area (km²) 309.5 thousand		60%		67%			67%		50%	60%		
	GDP per capita (\$)			22%						30%		44%	
	46.5 thousand	0%				0%	0%		0%				0%
52.	Ireland											3	2.47
	Population 6.4 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
	Area (km²)			78%				89%	100%				
	70.3 thousand									50%			
6	GDP per capita (\$) 79.9 thousand	0%	20%		0%	0%	0%				0%	11%	17%
		0,0			070	070	070				070		
53.	Philippines											3	1.17
	Population 103.3 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS		CIRC	Crisis	Police	Military
	Area (km²)	570/							100%			78%	
	342.4 thousand GDP per capita (\$)	57%		22%	17%			56%					470/
\$	8.8 thousand		0%		1790	0%	0%			0%	0%		17%
54.	Tunisia											3	1.17
	Population 11.2 million	Policy	Threats	Education	Global	Digital	Essential	elD & TS	Personal	CIRC	Crisis	Police	Military
	Area (km²)			78%					75%				
	163.6 thousand							44%		67%	60%		
\$	GDP per capita (\$) 12.1 thousand	0%	20%		17%	0%	0%					11%	0%
		070				070	070						070
55.	Cyprus											3	1.17
	Population 0.8 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS		CIRC	Crisis	Police	Military
	Area (km²)			78%					100%				
7	9.3 thousand				33%			44%			200/	56%	
\$	GDP per capita (\$) 35.0 thousand	14%	0%			0%	0%			0%	20%		0%

Military cyber

operations

Fight against

cvbercrime

66. Pakistan 29.87 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military **194.1** million Area (km2) 78% 67% 881.9 thousand 56% 33% GDP per capita (\$) 5.4 thousand 0% 0% 67. Brazil 29.87 Population Policy Military Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police 206.1 million Area (km2) 80% 67% 57% 8.5 million 50% 33% GDP per capita (\$) 17% 16.2 thousand 68. 🔀 Jamaica 28.57 Population Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 2.7 million Area (km²) 78% 67% 11.0 thousand 50% 33% 29% GDP per capita (\$) 9.3 thousand 69. South Africa 28.57 **Population** Threats Education Global Digital Essential eID & TS Personal Police Military 55.7 million 100% Area (km2) 56% 1.2 million 50% 43% 33% GDP per capita (\$) 20% 13.6 thousand 70. Rwanda 27.27 **Population** Digital Essential eID & TS Personal Threats Education Global Crisis Police Military 11.6 million Area (km2) 78% 60% 26.3 thousand 50% 11% 33% GDP per capita (\$) 2.1 thousand

Cyber crisis

management

Cyber incidents

response 24/7

F-identification and

trust services

Protection of

1. Morocco										2	7.27
Population 33.8 million	Policy	Threats Educa	ation Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
Area (km²) 710.9 thousand			_,	60%		56%		50%			
GDP per capita (\$)		44	% 17%					30%		11%	
8.3 thousand	0%	0%			0%				0%	1170	0%
2. 🔀 Panama										2	7.27
Population 3.8 million	Policy	Threats Educa	ation Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
Area (km²) 75.4 thousand				60%							
GDP per capita (\$)	14%	44	% 17%			44%		50%	20%	44%	
25.7 thousand	14%	0%			0%		0%				0%
3. Dangladesh										2	5.97
Population 163.0 million	Policy	Threats Educa	ation Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Militar
Area (km²) 147.6 thousand								50%		78%	50%
GDP per capita (\$)	14%	22	[%] 17%	20%		11%		30%	20%		30%
4.5 thousand		0%			0%	1170	0%				
4. Armenia										2	5.97
Population 3.0 million	Policy	Threats Educa	ation Global	Digital	Essential	eID & TS		CIRC	Crisis	Police	Militar
Area (km²)						67%	100%			100%	
29.7 thousand											
GDP per capita (\$) 9.1 thousand	0%	0% 09	17%	0%	0%			0%	0%		0%
5. 🅶 Uganda										2	4.6
Population 33.9 million	Policy	Threats Educa	ation Global	Digital	Essential	elD & TS	Personal	CIRC	Crisis	Police	Militar
Area (km²) 241.6 thousand		67	%					F-0.1		78%	
GDP per capita (\$)			17%			4424	25%	50%			
2.4 thousand	0%	0%		0%	0%	11%			0%		0%

Military cyber

operations

Military

Fight against

cvbercrime

Police

76. Côte d'Ivoire 23.38 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 22.7 million Area (km²) 78% 322.5 thousand 50% 22% GDP per capita (\$) 3.8 thousand 0% 0% 0% 0% 77. 🌆 Sri Lanka 23.38 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 21.4 million Area (km2) 67% 65.6 thousand 50% 50% 33% GDP per capita (\$) 20% 20% 13.8 thousand 0% 0% 78. Azerbaijan 23.38 Population Policy Threats Education Global Digital Essential eID & TS Personal CIRC Crisis Police Military 9.9 million Area (km²) 80% 56% 86.6 thousand 50% 33% 25% GDP per capita (\$) 17.9 thousand 79. Saudi Arabia 23.38 **Population** Threats Education Global Digital Essential eID & TS Personal Police Military 32.2 million Area (km2) 56% 2.1 million 50% GDP per capita (\$) 14% 55.2 thousand 80. Ghana 20.78 **Population** Digital Essential eID & TS Personal Threats Education Global Crisis Police Military 27.0 million 100% Area (km2) 239.6 thousand 50% 44% 33% GDP per capita (\$) 4.6 thousand

Cyber incidents

response 24/7

CIRC

Cyber crisis

management

Crisis

F-identification and

trust services

eID & TS

Protection of

nersonal data

Personal

Cyber security policy

Cyber threats analysis

81. Trinidad and Tobago 20.78 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 1.4 million Area (km²) 5.1 thousand 50% 44% 33% GDP per capita (\$) 32.5 thousand 0% 82. Kyrgyzstan 19.48 Population Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 6.0 million Area (km²) 200.0 thousand 44% GDP per capita (\$) 3.7 thousand 0% 83. Indonesia 19.48 Population Threats Education Global Digital Essential eID & TS Personal Police Military 258.7 million Area (km²) 67% 1.9 million 50% GDP per capita (\$) 20% 13.1 thousand Kazakhstan 84. 19.48 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Police Military 18.0 million Area (km2) 67% 2.7 million 50% GDP per capita (\$) 26.9 thousand 0% 85. 🔀 Senegal 16.88 **Population** Policy Threats Education Global Digital Essential eID & TS Personal Crisis Police Military 14.8 million 100% Area (km2) 196.7 thousand 33% 29% GDP per capita (\$) 2.7 thousand

professional development development and informing cyber security digital services **Policy Threats Education** Global Digital Essential

Contribution to global

Protection of

Protection of

essential services

Education and

86.	Lao PDR											1	6.88
	Population 6.5 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
	Area (km²) 236.8 thousand							44%		50%			
§	GDP per capita (\$) 7.4 thousand	0%	20%	22%	17%	0%	0%		0%		20%	11%	0%
87.	Afghanistan											1	5.58
	Population 34.7 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 652.9 thousand							44%		50%		44%	
9	GDP per capita (\$) 1.9 thousand	14%	0%	0%	0%	0%	0%		0%		0%		0%
88.	T ajikistan											1	5.58
i	Population 8.6 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 143.1 thousand			44%				44%					
9	GDP per capita (\$) 3.1 thousand	14%	0%		17%	0%	0%		25%	0%	0%	11%	0%
89.	Algeria											1	4.29
i	Population 40.4 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 2.4 million											44%	
9	GDP per capita (\$) 15.3 thousand	0%	20%	0%	33%	0%	0%	33%	0%	0%	0%	4470	17%
90.	Botswana											1	4.29
	Population 2.1 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 582.0 thousand			44%				44%					
\$	GDP per capita (\$) 18.9 thousand	0%	0%	++70	17%	0%	0%	44%	0%	0%	20%	11%	0%

91.	S Jordan											1	4.29
i	Population 9.5 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
	Area (km²) 89.3 thousand			44%									50%
5	GDP per capita (\$) 11.1 thousand	14%	0%		17%	0%	0%	11%	0%	0%	0%	11%	
92.	Nepal											1	2.99
	Population 29.0 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 147.2 thousand							44%				44%	
5	GDP per capita (\$) 2.6 thousand	0%	0%	22%	0%	0%	0%		0%	0%	0%		0%
93.	🥳 Bhutan											1	2.99
	Population 0.8 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 38.4 thousand									50%		44%	
9	GDP per capita (\$) 9.8 thousand	0%	0%	0%	17%	0%	0%	11%	25%		0%		0%
94.	S udan												6.49
	Population 39.6 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 1.9 million									50%			
\$	GDP per capita (\$) 4.7 thousand	0%	0%	0%	17%	0%	0%	11%	0%		0%	0%	0%
95.	Suriname												6.49
	Population 0.5 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 163.8 thousand							44%					
5	GDP per capita (\$) 13.9 thousand	0%	0%	0%	17%	0%	0%		0%	0%	0%	0%	0%

96.	Samoa												5.19
	Population 0.2 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
	Area (km²) 2.8 thousand												
\$	GDP per capita (\$) 5.4 thousand	14%	0%	0%	17%	0%	0%	11%	0%	0%	0%	11%	0%
97.	Honduras												3.90
iii	Population 8.6 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 112.5 thousand												
9	GDP per capita (\$) 5.5 thousand	0%	0%	0%	0%	0%	0%	11%	0%	0%	20%	0%	17%
98.	Turkmenistan												3.90
	Population 5.7 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 491.2 thousand												
9	GDP per capita (\$) 18.8 thousand	0%	0%	0%	0%	0%	0%	11%	25%	0%	0%	11%	0%
99.	Madagascar												2.60
	Population 22.4 million	Policy	Threats	Education	Global	Digital	Essential	eID & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 587.0 thousand												
9	GDP per capita (\$) 1.6 thousand	0%	0%	0%	0%	0%	0%	0%	25%	0%	0%	11%	0%
100.	Kiribati												1.30
	Population 0.1 million	Policy	Threats	Education	Global	Digital	Essential	elD & TS	Personal	CIRC	Crisis	Police	Military
*	Area (km²) 0.8 thousand												
9	GDP per capita (\$) 5.7 thousand	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	0%

NCSI Core Team



Raul Rikk NCSI Project Manager / Expert

Raul Rikk is the founder of the National Cyber Security Index and contributes to the development of it. He works as the Director of National Cyber Security Programme at the e-Governance Academy and is engaged in strategic cyber security development in many countries and international programmes.

Previously, he was one of the founders of the NATO Cooperative Cyber Defence Centre of Excellence in Tallinn, leading its establishment in 2004-2008. Raul has worked in the field of national defence and security since 1994. He has been part of the Estonian Cyber Security Strategy Working Group since

2007. He has also been working on national cyber security capacity-building in Georgia, Moldova, Albania and other countries for many years.

Raul holds a Master's degree in Military Science from the Finnish National Defence University and a Master's degree in Management of Information Technology from Tallinn University. He is also a graduate of the US Army Command and General Staff College.

He is a member of the Cyber Defence Commission of the Estonian Academy of Science and a member of the Estonian Cyber Defence League.



Agu Kivimägi NCSI Expert

Agu Kivimägi is one of the experts and developers of NCSI.

He has more than 10 years of expertise in cybersecurity and development of national IT systems. He coordinated and managed the development of the national health information system at the Estonian eHealth Foundation. He also managed, coordinated and supervised the activities of the cybersecurity department at the IT and Development Centre of the Estonian Ministry of the Interior. He has also worked as Deputy Director General at the Citizenship and Migration Board of Estonia. He has excellent knowledge and hands on expertise in the development of e-health systems, Estonian ID card (personal identification smart card) project; visa information system (VIS), Schengen information system (SIS), EURODAC and other related information systems. Moreover, he is an experienced lecturer in cybersecurity and IT infrastructure.

He holds a Master's degree in physics from the University of Tartu and has worked as a scientist in the National Institute of Chemical Physics and Biophysics.



Marit Lani NCSI Data Manager / Expert

Marit Lani manages the National Cyber Security Index database and coordinates communication with stakeholders.

In her previous jobs, she gained a comprehensive understanding of European cooperation programmes. Working at the Ministry of the Interior, she was involved in preparing various European territorial cooperation programmes at the national level and was in charge of the related communication activities.

Afterwards, she moved to Germany to work for the INTERREG IVC programme as an information point coordinator, providing advice to applicants on project development, assessing applications and monitoring approved projects. She also coordinated the e-government services project cluster and implemented the programme's communication strategy.

Marit holds a Master's degree in Public Management from the University of Tartu.

e-Governance Academy

The e-Governance Academy (eGA) is a think tank and consultancy organisation founded for the creation and transfer of knowledge and best practice concerning e-governance, e-democracy, national cybersecurity and the development of open information societies.

eGA empowers central and local government decision-makers to lead digital transformation programs to create smart, sustainable and effective e-government, e-democracy and cyber security solutions. eGA actualises its mission through consultancy, training, networking, research and assisting in the implementation of e-government technical solutions.

e-Governance Academy's project management, study training and consulting services are in compliance with the requirements of Quality Management Standard ISO 9001:2015.

Since starting its activities in 2002, eGA has worked with more than 130 organisations, trained more than 4,000 officials and has been involved in e-government policy planning and implementation, organisational setup, legal and technical frameworks and management in over 90 countries.

eGA has mainly worked in transitional societies, especially in Eastern and Central Europe, Asia and Africa. Additional cooperation projects have taken place with EU countries such as Finland, Netherlands, etc.

eGA is an Advisory Observer of the Secure Identity Alliance (SIA), the global identity and secure e-services advisory body, a member of the Estonian Roundtable for Development Cooperation, and a member of the Network of Estonian Non-profit Organizations.



Empowering e-governance around the world



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