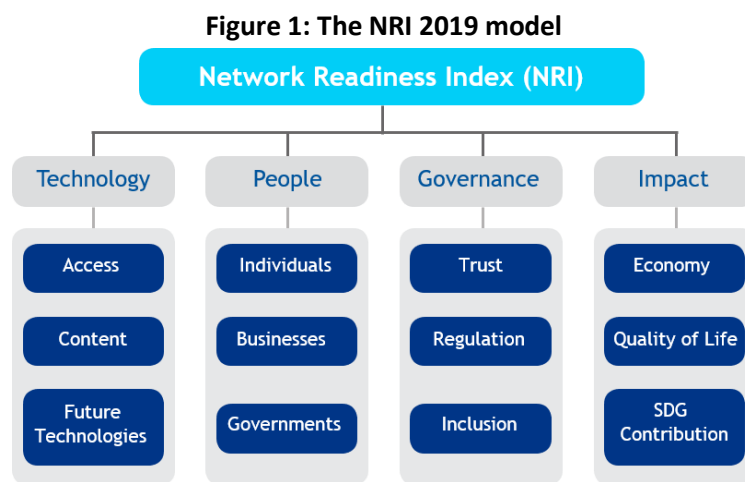


# Network Readiness Index 2019

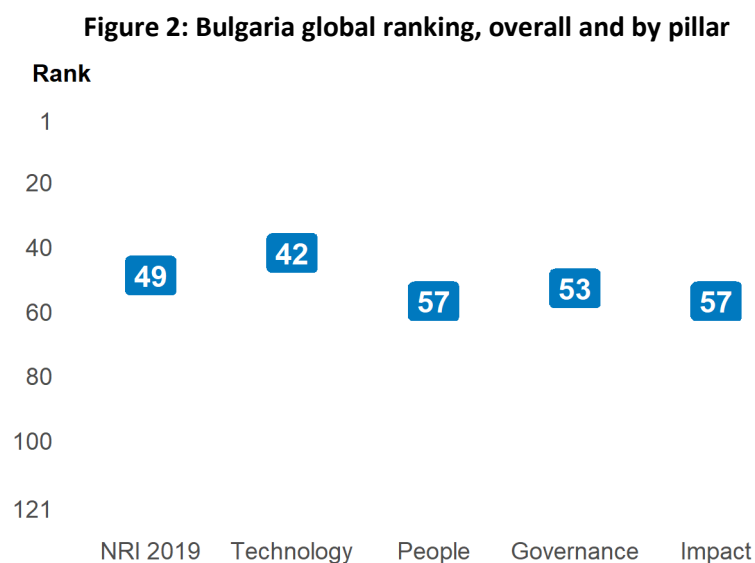
## Bulgaria

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 Bulgaria

Bulgaria ranks 49th out of the 121 economies included in the NRI 2019 (Figure 2). Its main strength relates to Technology. The greatest scope for improvement, meanwhile, concerns People and Impact.



### Performance at sub-pillar level

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

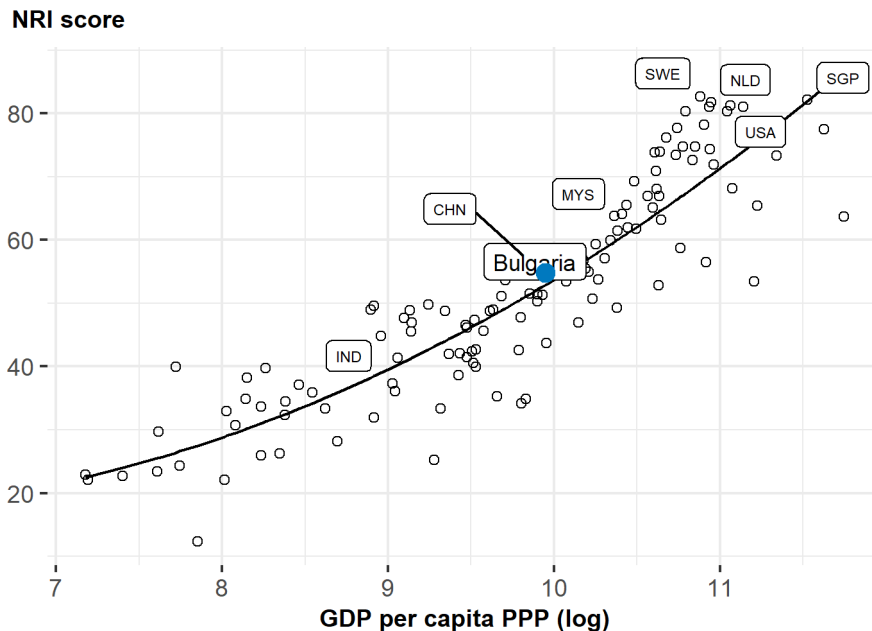
**Table 1: Bulgaria rankings by sub-pillar**

Sub-pillar	Rank	Sub-pillar	Rank
Content	30	Individuals	55
SDG Contribution	42	Governments	62
Trust	47	Economy	62
Access	50	Inclusion	67
Businesses	52	Future Technologies	68
Regulation	53	Quality of Life	84

### NRI score and income

Figure 3 shows the position of Bulgaria 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, Bulgaria is slightly above 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: SWE = Sweden (rank: 1), SGP = Singapore (2), NLD = Netherlands (3), CHN = China (41), IND = India (79). USA is ranked 8th. Bulgaria belongs to the group of upper-middle-income countries, where the best performer is Malaysia (MYS). The top performer of its region—Europe—is Sweden (SWE).

## Performance against its income group and region

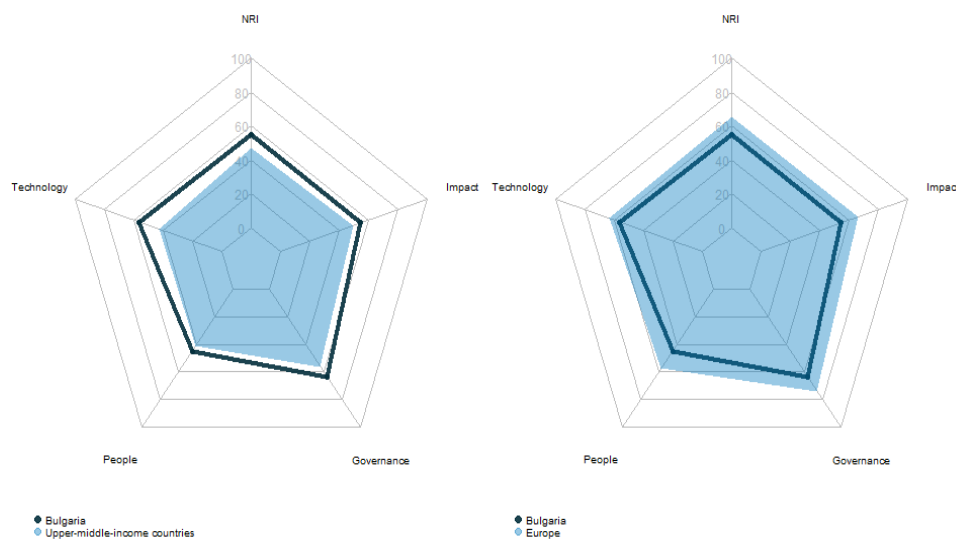
### Upper-middle-income countries

Bulgaria is ranked 5th in the group of upper-middle-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 upper-middle-income countries in eleven of the twelve sub-pillars: Access, Content, Future Technology, Individuals, Businesses, Governments, Trust, Regulation, Inclusion, Economy and SDG Contribution.

### Europe

Bulgaria is ranked 32nd within Europe (Figure 4, right panel). It lags behind its region in each of the four pillars. With regard to sub-pillars, it trails the regional average in each of them.

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



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

Dimension	Bulgaria	Upper-middle-income countries	Europe
NRI	54.77	47.40	65.20
Technology	56.11	42.66	63.08
People	45.06	41.07	57.50
Governance	63.54	56.24	73.99
Impact	54.37	49.62	66.24

### Strongest and weakest indicators

The indicators where Bulgaria performs particularly well include E-commerce legislation, Fixed-broadband subscriptions, and International Internet bandwidth (Table 3). By contrast, the economy's weakest indicators include Extent of staff training, Freedom to make life choices, and Handset prices.

**Table 3: Top-ranked and bottom-ranked indicators of Bulgaria**

<b>Strongest indicators</b>	<b>Rank</b>	<b>Weakest indicators</b>	<b>Rank</b>
E-commerce legislation	1	Internet users	73
Fixed-broadband subscriptions	10	Legal framework's adaptability to digital business models	73
International Internet bandwidth	11	Access to basic services	73
Secure Internet servers	12	Social safety net protection	81
4G mobile network coverage	16	Rural gap in use of digital payments	81
ICT regulatory environment	25	Socioeconomic gap in use of digital payments	86
Tertiary enrolment	26	Happiness	88
Adult literacy rate	26	Handset prices	93
Active mobile-broadband subscriptions	27	Freedom to make life choices	98
Mobile apps development	28	Extent of staff training	107

# NRI 2019 At-A-Glance: Bulgaria

Network Readiness Index

Rank: 49 (out of 121)

Score: 54.77

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
<b>A. Technology pillar</b>	<b>42</b>	<b>56.11</b>	<b>C. Governance pillar</b>	<b>53</b>	<b>63.54</b>
1st sub-pillar: Access	50	74.03	1st sub-pillar: Trust	47	62.38
2nd sub-pillar: Content	30	65.08	2nd sub-pillar: Regulation	53	67.15
3rd sub-pillar: Future Technologies	68	29.21	3rd sub-pillar: Inclusion	67	61.10
<b>B. People pillar</b>	<b>57</b>	<b>45.06</b>	<b>D. Impact pillar</b>	<b>57</b>	<b>54.37</b>
1st sub-pillar: Individuals	55	57.09	1st sub-pillar: Economy	62	21.39
2nd sub-pillar: Businesses	52	32.73	2nd sub-pillar: Quality of Life	84	54.83
3rd sub-pillar: Governments	62	45.36	3rd sub-pillar: SDG Contribution	42	86.88

## The Network Readiness Index in detail

Indicator	Rank	Score	Indicator	Rank	Score
<b>A. Technology pillar</b>			<b>C. Governance pillar</b>		
<i>1st sub-pillar: Access</i>			<i>1st sub-pillar: Trust</i>		
1.1.1 Mobile tariffs	62	64.87	3.1.1 Rule of law	62	52.66
1.1.2 Handset prices	93	33.06	3.1.2 Software piracy rate	52	43.24
1.1.3 Internet access	60	70.27	3.1.3 Secure Internet servers	12	90.02
1.1.4 4G mobile network coverage	16	99.71	3.1.4 Cybersecurity	48	76.97
1.1.5 Fixed-broadband subscriptions	10	97.71	3.1.5 Online trust and safety	66	49.01
1.1.6 International Internet bandwidth	11	78.57	<i>2nd sub-pillar: Regulation</i>		
1.1.7 Internet access in schools	NA	NA	3.2.1 Regulatory quality	42	64.11
<i>2nd sub-pillar: Content</i>			3.2.2 Ease of doing business	57	73.84
1.2.1 Digital participation and content creation	*	*	3.2.3 Legal framework's adaptability to digital business models	73	38.90
1.2.2 Mobile apps development	28	80.12	3.2.4 E-commerce legislation	1	100.00
1.2.3 Intellectual property receipts	42	0.93	3.2.5 Social safety net protection	81	32.80
<i>3rd sub-pillar: Future Technologies</i>			3.2.6 ICT regulatory environment	25	93.25
1.3.1 Availability of latest technologies	66	51.66	<i>3rd sub-pillar: Inclusion</i>		
1.3.2 Company investment in emerging technology	50	42.09	3.3.1 E-Participation	35	85.35
1.3.3 Government procurement of advanced technology products	59	42.07	3.3.2 Socioeconomic gap in use of digital payments	86	50.14
1.3.4 ICT PCT patent applications	48	9.81	3.3.3 Availability of local online content	59	55.19
1.3.5 Computer software spending	30	27.27	3.3.4 Gender gap in internet use	50	59.35
1.3.6 Robot density	45	2.34	3.3.5 Rural gap in use of digital payments	81	55.45
<b>B. People pillar</b>			<b>D. Impact pillar</b>		
<i>1st sub-pillar: Individuals</i>			<i>1st sub-pillar: Economy</i>		
2.1.1 Internet users	73	61.19	4.1.1 Medium and high-tech industry	50	37.85
2.1.2 Active mobile-broadband subscriptions	27	39.47	4.1.2 High-tech exports	45	19.17
2.1.3 Use of virtual social networks	61	53.22	4.1.3 PCT patent applications	46	2.07
2.1.4 Tertiary enrolment	26	51.87	4.1.4 Labour productivity per employee	59	26.48
2.1.5 Adult literacy rate	26	97.49	<i>2nd sub-pillar: Quality of Life</i>		
2.1.6 ICT skills	44	39.28	4.2.1 Happiness	88	42.52
<i>2nd sub-pillar: Businesses</i>			4.2.2 Freedom to make life choices	98	45.32
2.2.1 Firms with website	62	47.38	4.2.3 Income inequality	60	67.37
2.2.2 Internet shopping	48	27.91	4.2.4 Healthy life expectancy at birth	60	64.10
2.2.3 Professionals	37	42.67	<i>3rd sub-pillar: SDG Contribution</i>		
2.2.4 Technicians and associate professionals	53	40.67	4.3.1 Access to basic services	73	90.18
2.2.5 Extent of staff training	107	24.01	4.3.2 Pollution	61	85.23
2.2.6 R&D expenditure by businesses	38	13.74	4.3.3 Road safety	45	76.56
<i>3rd sub-pillar: Governments</i>			4.3.4 Reading proficiency in schools	NA	NA
2.3.1 Government online services	54	73.85	4.3.5 Maths proficiency in schools	NA	NA
2.3.2 Publication and use of open data	41	37.14	4.3.6 Use of clean fuels and technology	70	95.56
2.3.3 ICT use and government efficiency	46	51.15			
2.3.4 R&D expenditure by governments and higher education	71	19.31			

\* Confidential data

## Sources

- 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 Index 2019: Towards a Future-Ready Society. 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>