

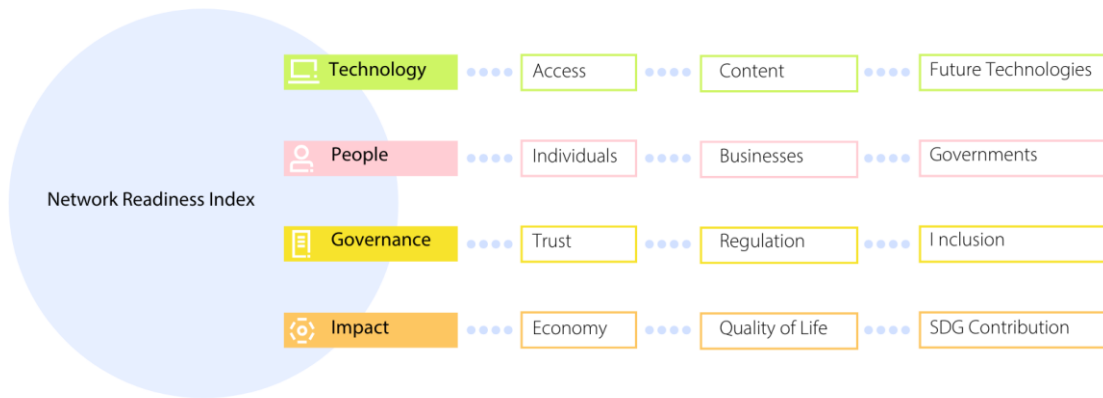
Network Readiness Index 2024



Germany

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 2024 the NRI Report maps the network-based readiness landscape of 133 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 54 variables.

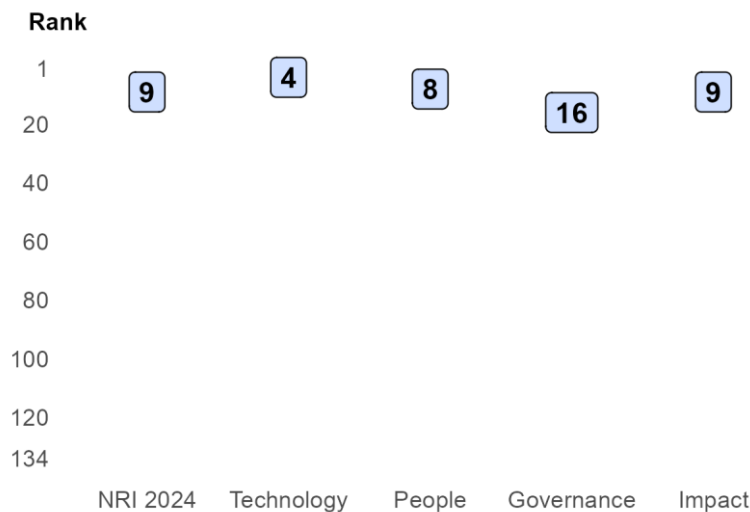
Figure 1: The NRI 2024 model



Global NRI position of Germany

Germany ranks 9th out of the 133 economies included in the NRI 2024 (Figure 2). Its main strength relates to Technology. The greatest scope for improvement, meanwhile, concerns Governance.

Figure 2: Germany global ranking, overall and by pillar



Network Readiness Index 2024



Performance at sub-pillar level

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

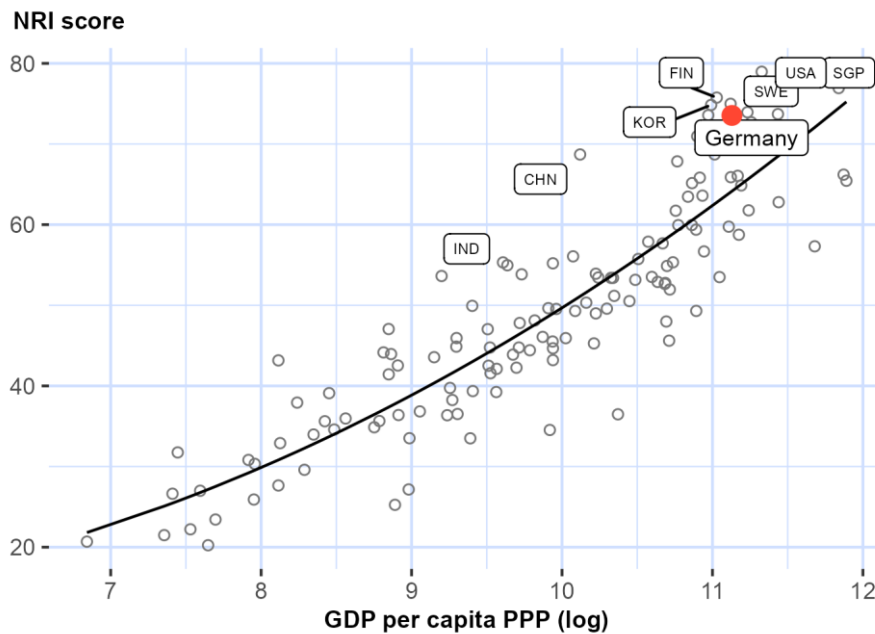
Table 1: Germany rankings by sub-pillar

Sub-pillar	Rank	Sub-pillar	Rank
Content	4	Governments	15
Businesses	6	Individuals	20
Future Technologies	7	Inclusion	20
SDG Contribution	9	Trust	22
Economy	11	Quality of Life	23
Regulation	13	Access	25

NRI score and income

Figure 3 shows the position of Germany 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, Germany 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), SWE = Sweden (4), KOR = Republic of Korea (5), CHN = China (17), and IND = India (49). Germany 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).

Network Readiness Index 2024



Performance against its income group and region

High-income countries

Germany is ranked 9th 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.

Europe

Germany is ranked 6th within Europe (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 Germany against its income group and region, overall and by pillar

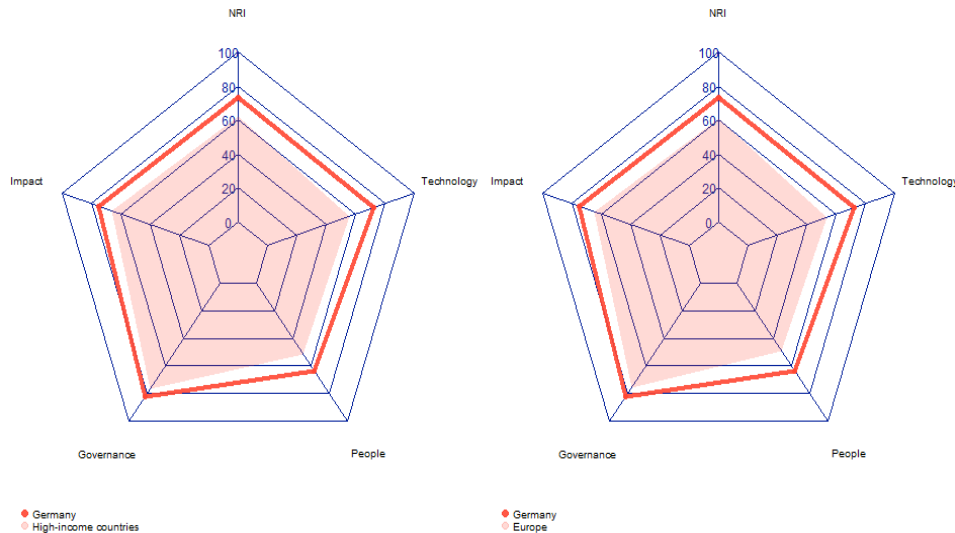


Table 2: Germany scores vs. averages of its income group and region, overall and by pillar

Dimension	Germany	High-income countries	Europe
NRI	73.54	62.50	60.84
Technology	72.54	55.84	53.51
People	63.77	51.81	49.45
Governance	82.52	76.61	75.76
Impact	75.35	65.73	64.63

Network

Readiness Index

2024



Strongest and weakest indicators

The indicators where Germany performs particularly well include 3.2.4 E-commerce legislation, 4.3.3 SDG 5: Women's economic opportunity, and 2.2.1 Firms with website (Table 3). By contrast, the economy's weakest indicators include 3.3.4 Gender gap in Internet use, 4.2.2 Freedom to make life choices, and 4.1.4 ICT services exports.

Table 3: Highlight of Strengths and Opportunities for Germany

Strongest indicators	Rank	Weakest indicators	Rank
3.2.4 E-commerce legislation	1	2.2.2 Number of venture capital deals invested in AI	32
4.3.3 SDG 5: Women's economic opportunity	1	4.2.3 Income inequality	35
2.2.1 Firms with website	2	3.1.3 Online access to financial account	37
3.3.2 Socioeconomic gap in use of digital payments	2	2.1.2 ICT skills in the education system	41
1.3.3 Robot density	4	2.3.1 Government online services	44
2.2.4 Public cloud computing market scale	4	1.2.3 Mobile apps development	48
4.1.2 Domestic market scale	5	4.1.4 ICT services exports	55
4.3.1 SDG 3: Good Health and Well-Being	5	4.2.2 Freedom to make life choices	62
2.2.3 Annual investment in telecommunication services	6	3.3.4 Gender gap in Internet use	64
1.3.2 Investment in emerging technologies	7		
3.1.1 Secure Internet servers	7		
1.2.2 Internet domain registrations	8		

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

Network

Readiness Index

2024



NRI 2024 At-A-Glance: Germany

Network Readiness Index

Rank: 9 (out of 133)

Score: 73.54

Pillar/sub-pillar	Rank	Score	Pillar/sub-pillar	Rank	Score
A. Technology pillar	4	72.54	C. Governance pillar	16	82.52
1st sub-pillar: Access	25	78.06	1st sub-pillar: Trust	22	79.81
2nd sub-pillar: Content	4	70.65	2nd sub-pillar: Regulation	13	88.12
3rd sub-pillar: Future Technologies	7	68.89	3rd sub-pillar: Inclusion	20	79.62
B. People pillar	8	63.77	D. Impact pillar	9	75.35
1st sub-pillar: Individuals	20	59.51	1st sub-pillar: Economy	11	60.26
2nd sub-pillar: Businesses	6	65.36	2nd sub-pillar: Quality of Life	23	80.96
3rd sub-pillar: Governments	15	66.44	3rd sub-pillar: SDG Contribution	9	84.84

The Network Readiness Index in detail

Indicator	Rank	Score	Indicator	Rank	Score
A. Technology pillar	4	72.54	C. Governance pillar	16	82.52
<i>1st sub-pillar: Access</i>	25	78.06	<i>1st sub-pillar: Trust</i>	22	79.81
1.1.1 Mobile tariffs	15	85.92	3.1.1 Secure Internet servers	7	91.67
1.1.2 Handset prices	32	86.83	3.1.2 Cybersecurity	18	97.42
1.1.3 FTTH/building Internet subscriptions	38	39.29	3.1.3 Online access to financial account	37	61.52
1.1.4 Population covered by at least a 3G mobile network	27	99.53	3.1.4 Internet shopping	24	68.62
1.1.5 International Internet bandwidth	27	78.74	<i>2nd sub-pillar: Regulation</i>	13	88.12
1.1.6 Internet access in schools	NA	NA	3.2.1 Regulatory quality	15	83.75
<i>2nd sub-pillar: Content</i>	4	70.65	3.2.2 ICT regulatory environment	21	93.45
1.2.1 GitHub commits	15	62.61	3.2.3 Regulation of emerging technologies	21	76.30
1.2.2 Internet domain registrations	8	70.69	3.2.4 E-commerce legislation	1	100.00
1.2.3 Mobile apps development	48	69.63	3.2.5 Privacy protection by law content	21	87.11
1.2.4 AI scientific publications	9	79.66	<i>3rd sub-pillar: Inclusion</i>	20	79.62
<i>3rd sub-pillar: Future Technologies</i>	7	68.89	3.3.1 E-Participation	32	72.10
1.3.1 Adoption of emerging technologies	25	78.21	3.3.2 Socioeconomic gap in use of digital payments	2	99.90
1.3.2 Investment in emerging technologies	7	86.75	3.3.3 Availability of local online content	26	84.38
1.3.3 Robot density	4	55.73	3.3.4 Gender gap in Internet use	64	66.52

Network

Readiness Index

2024



Indicator	Rank	Score	Indicator	Rank	Score	
1.3.4 Computer software spending	19	54.88	3.3.5 Rural gap in use of digital payments	27	75.20	
B. People pillar	8	63.77	D. Impact pillar	9	75.35	
<i>1st sub-pillar: Individuals</i>	20	59.51	<i>1st sub-pillar: Economy</i>	11	60.26	
2.1.1 Mobile broadband internet traffic within the country	20	40.98	4.1.1 ICT patent applications	10	62.49	
2.1.2 ICT skills in the education system	41	64.32	○ 4.1.2 Domestic market scale	5	82.86	●
2.1.3 Use of virtual social networks	17	71.35	4.1.3 Prevalence of gig economy	12	78.20	
2.1.4 Adult literacy rate	NA	NA	4.1.4 ICT services exports	55	17.49	○
2.1.5 AI talent concentration	5	61.37	<i>2nd sub-pillar: Quality of Life</i>	23	80.96	
<i>2nd sub-pillar: Businesses</i>	6	65.36	4.2.1 Happiness	19	79.91	
2.2.1 Firms with website	2	93.44	● 4.2.2 Freedom to make life choices	62	79.66	○
2.2.2 Number of venture capital deals invested in AI	32	17.35	○ 4.2.3 Income inequality	35	78.66	○
2.2.3 Annual investment in telecommunication services	6	81.65	● 4.2.4 Healthy life expectancy at birth	25	87.96	
2.2.4 Public cloud computing market scale	4	68.99	● <i>3rd sub-pillar: SDG Contribution</i>	9	84.84	
<i>3rd sub-pillar: Governments</i>	15	66.44	4.3.1 SDG 3: Good Health and Well-Being	5	95.16	●
2.3.1 Government online services	44	76.85	○ 4.3.2 SDG 4: Quality Education	23	59.98	
2.3.2 Data Capabilities	9	71.15	4.3.3 SDG 5: Women's economic opportunity	1	100.00	●
2.3.3 Government promotion of investment in emerging technologies	26	61.47	4.3.4 SDG 7: Affordable and Clean Energy	28	88.23	
2.3.4 R&D expenditure by governments and higher education	9	56.31	4.3.5 SDG 11: Sustainable Cities and Communities	26	87.12	

NOTE: ● a strength and ○ a weakness.

Network

Readiness Index

2024



Sources

Dutta, S., & Lanvin, B. (eds.) (2024). *The Network Readiness Index 2024*. Oxford, UK; Washington DC, USA.

Dutta, S., & Lanvin, B. (eds.) (2023). *The Network Readiness Index 2023: Trust in Network Society: A Crisis of the Digital Age*. Oxford, UK; Washington DC, USA.

Dutta, S., & Lanvin, B. (eds.) (2022). *The Network Readiness Index 2022: Benchmarking the Future of the Network Economy*. Washington DC: Portulans Institute.

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 Readiness Index 2019: Towards a Future-Ready Society*. Washington DC: Portulans Institute.

Dutta, S., & Lanvin, B. (eds.) (2020). *The Network Readiness Index 2020: Fostering Digital Transformation in a post-COVID Global Economy*. Washington DC: Portulans Institute.

Dutta, S., & Lanvin, B. (eds.) (2021). *The Network Readiness Index 2021: Shaping the Global Recovery. How digital technologies can make the post-COVID world more equal*. 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>