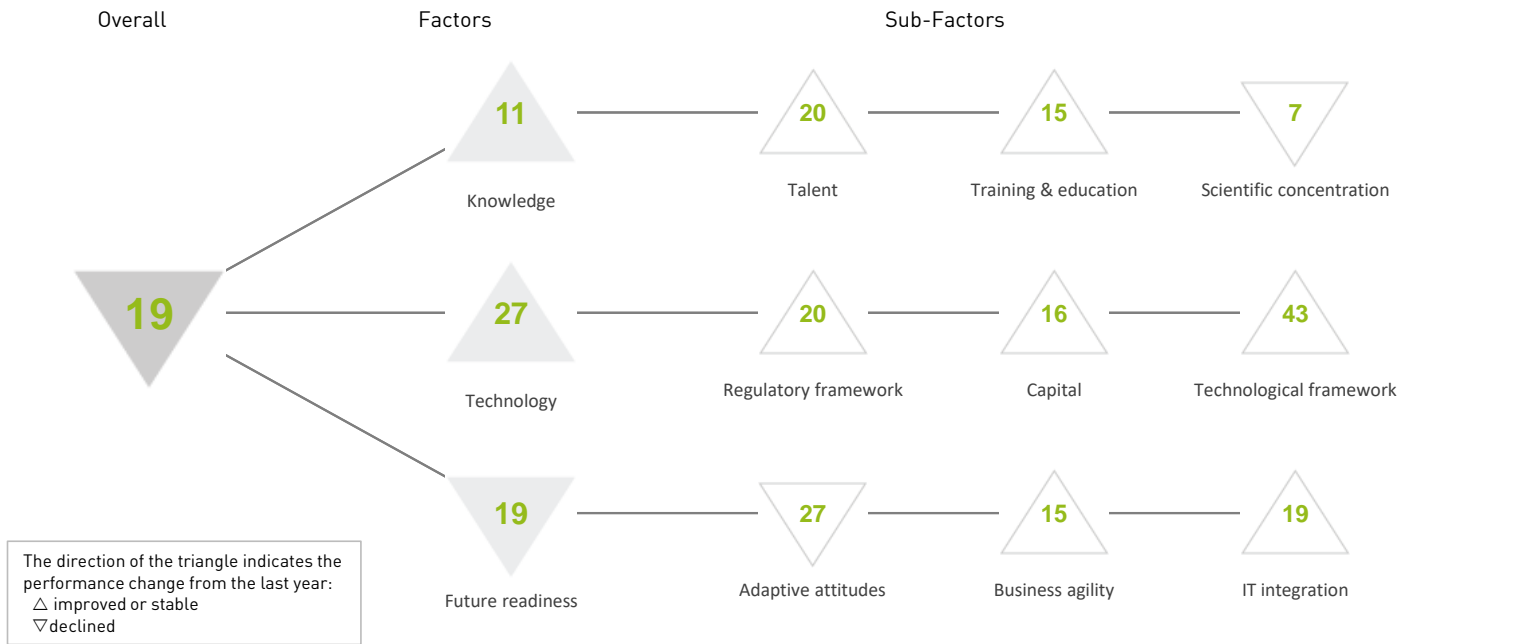


# GERMANY

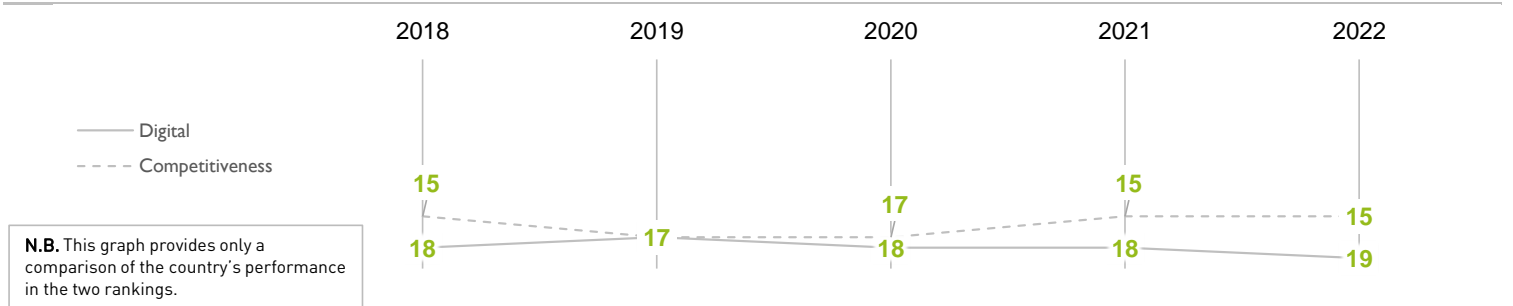
## OVERALL PERFORMANCE (63 countries)



## OVERALL & FACTORS - 5 years

	2018	2019	2020	2021	2022
OVERALL	18	17	18	18	19
Knowledge	14	12	12	14	11
Technology	21	31	31	31	27
Future readiness	20	16	19	18	19

## COMPETITIVENESS & DIGITAL RANKINGS



## PEER GROUPS RANKINGS

### EUROPE - MIDDLE EAST - AFRICA (40 countries)



### POPULATIONS > 20 MILLION (27 countries)



## GERMANY

▶ Overall Top Strengths

▷ Overall Top Weaknesses

## KNOWLEDGE

Sub-Factors	2018	2019	2020	2021	2022
Talent	22	25	22	21	20
Training & education	19	14	17	17	15
Scientific concentration	10	04	05	06	07

Talent	Rank	Training & education	Rank	Scientific concentration	Rank
Educational assessment PISA - Math	19	▶ Employee training	04	Total expenditure on R&D (%)	10
International experience	14	Total public expenditure on education	36	Total R&D personnel per capita	13
Foreign highly-skilled personnel	15	Higher education achievement	44	Female researchers	47
Management of cities	14	▶ Pupil-teacher ratio (tertiary education)	03	R&D productivity by publication	12
▷ Digital/Technological skills	52	▶ Graduates in Sciences	03	Scientific and technical employment	28
Net flow of international students	15	Women with degrees	43	High-tech patent grants	18
				▶ Robots in Education and R&D	02

## TECHNOLOGY

Sub-Factors	2018	2019	2020	2021	2022
Regulatory framework	23	27	28	25	20
Capital	16	17	16	23	16
Technological framework	27	40	45	43	43

Regulatory framework	Rank	Capital	Rank	Technological framework	Rank
▷ Starting a business	50	IT & media stock market capitalization	11	▷ Communications technology	51
Enforcing contracts	12	Funding for technological development	27	▷ Mobile Broadband subscribers	54
Immigration laws	23	Banking and financial services	27	Wireless broadband	45
Development & application of tech.	40	▶ Country credit rating	01	Internet users	16
Scientific research legislation	17	Venture capital	30	Internet bandwidth speed	28
Intellectual property rights	06	Investment in Telecommunications	38	High-tech exports (%)	27

## FUTURE READINESS

Sub-Factors	2018	2019	2020	2021	2022
Adaptive attitudes	22	16	23	23	27
Business agility	20	11	15	15	15
IT integration	18	17	20	20	19

Adaptive attitudes	Rank	Business agility	Rank	IT integration	Rank
E-Participation	44	Opportunities and threats	37	E-Government	24
Internet retailing	14	World robots distribution	05	Public-private partnerships	43
Tablet possession	23	Agility of companies	34	Cyber security	21
Smartphone possession	47	▷ Use of big data and analytics	52	Software piracy	08
Attitudes toward globalization	29	Knowledge transfer	08	Government cyber security capacity	29
		Entrepreneurial fear of failure	13	Privacy protection by law content	18