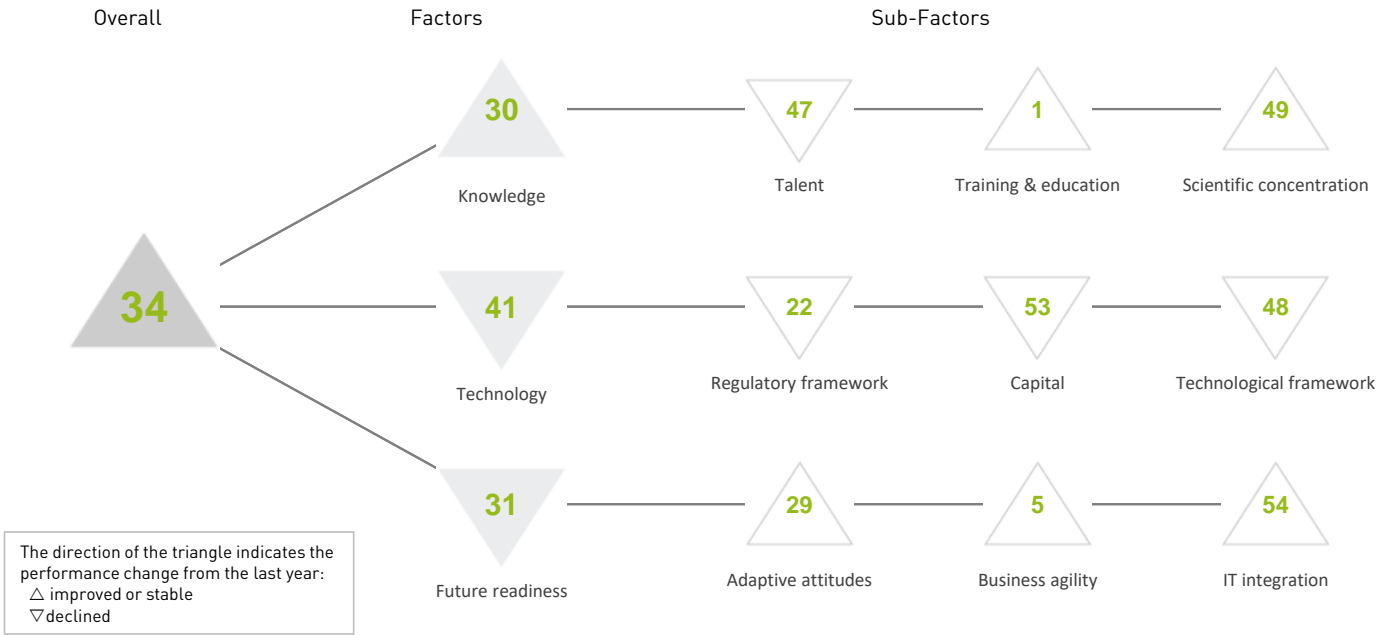


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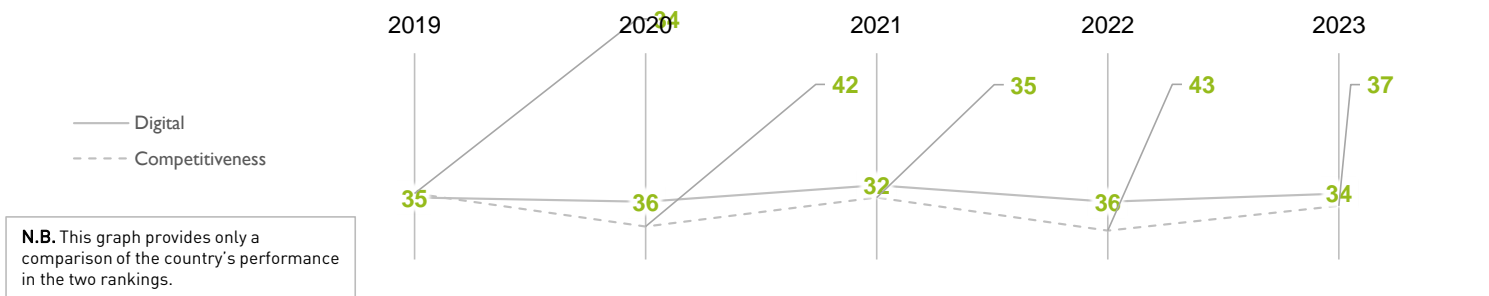
OVERALL PERFORMANCE (64 countries)



OVERALL & FACTORS - 5 years

	2019	2020	2021	2022	2023
OVERALL	35	36	32	36	34
Knowledge	32	34	36	30	30
Technology	39	41	40	40	41
Future readiness	35	33	28	30	31

COMPETITIVENESS & DIGITAL RANKINGS



PEER GROUPS RANKINGS

EUROPE - MIDDLE EAST - AFRICA (41 countries)



POPULATIONS < 20 MILLION (37 countries)



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► Overall Top Strengths

▷ Overall Top Weaknesses

KNOWLEDGE

Sub-Factors	2019	2020	2021	2022	2023
Talent	39	49	45	46	47
Training & education	01	04	14	01	01
Scientific concentration	55	54	54	51	49

Talent	Rank	Training & education	Rank	Scientific concentration	Rank
Educational assessment PISA - Math	45	Employee training	17	▷ Total expenditure on R&D (%)	57
International experience	32	Total public expenditure on education	27	Total R&D personnel per capita	51
Foreign highly skilled personnel	30	► Higher education achievement	01	► Female researchers	05
Management of cities	38	Pupil-teacher ratio (tertiary education)	38	R&D productivity by publication	21
Digital/Technological skills	53	Graduates in Sciences	28	Scientific and technical employment	46
Net flow of international students	56	► Women with degrees	01	High-tech patent grants	51
				Robots in Education and R&D	-

TECHNOLOGY

Sub-Factors	2019	2020	2021	2022	2023
Regulatory framework	16	23	22	21	22
Capital	54	55	51	50	53
Technological framework	43	48	47	47	48

Regulatory framework	Rank	Capital	Rank	Technological framework	Rank
Starting a business	11	IT & media stock market capitalization	-	Communications technology	52
► Enforcing contracts	04	Funding for technological development	31	Mobile broadband subscribers	43
Immigration laws	22	Banking and financial services	35	Wireless broadband	57
Development & application of tech.	33	Country credit rating	51	Internet users	43
Scientific research legislation	35	Venture capital	48	▷ Internet bandwidth speed	60
Intellectual property rights	45	▷ Investment in Telecommunications	62	High-tech exports (%)	08

FUTURE READINESS

Sub-Factors	2019	2020	2021	2022	2023
Adaptive attitudes	39	33	32	34	29
Business agility	15	13	06	06	05
IT integration	46	46	44	56	54

Adaptive attitudes	Rank	Business agility	Rank	IT integration	Rank
E-Participation	15	Opportunities and threats	35	E-Government	26
Internet retailing	52	World robots distribution	-	Public-private partnerships	25
Tablet possession	36	Agility of companies	25	Cyber security	44
Smartphone possession	36	Use of big data and analytics	10	▷ Software piracy	59
Attitudes toward globalization	39	Knowledge transfer	31	Government cyber security capacity	40
		► Entrepreneurial fear of failure	01	▷ Privacy protection by law content	59