



GKI
RANK 48 /141

GKI SCORE	52.6
WORLD AVERAGE	47.8

COUNTRY PERFORMANCE SUMMARY

North Macedonia is a strong performer in terms of its knowledge infrastructure. It ranks 48th out of 141 countries in the Global Knowledge Index 2024 and 2nd out of the 35 countries with high human development.

NORTH MACEDONIA

KEY INDICATORS

GDP (US\$ billions): 42.444
Population: 1,831,802
HDI: 0.765

AREAS OF STRENGTH

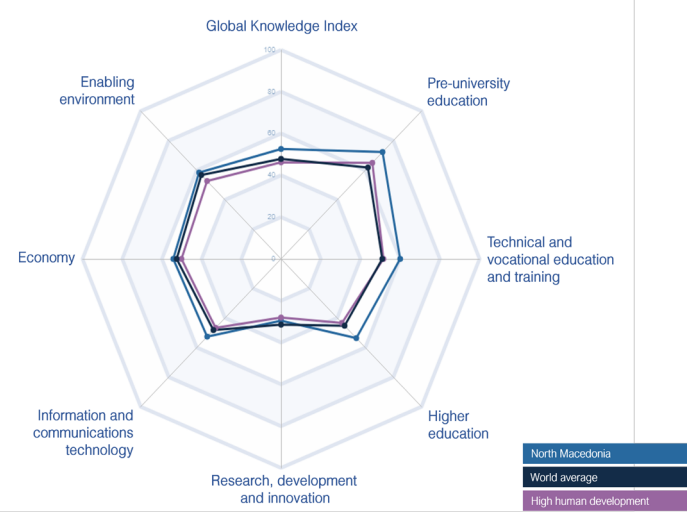
- + MSME financing gap (% GDP)
- + Years of compulsory education in primary and secondary
- + Tax and contribution rate (% profit)
- + Educational attainment rate, doctoral or equivalent
- + ISO 14001 environmental certificates (per billion GDP)

AREAS OF IMPROVEMENT

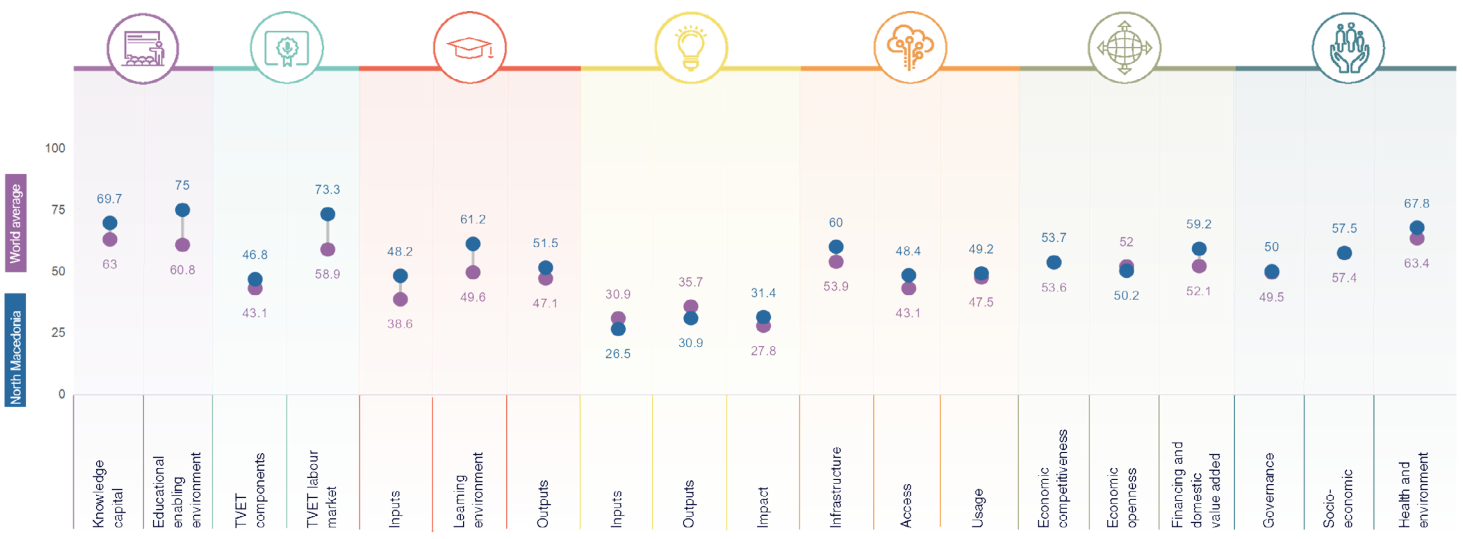
- Quality of vocational training
- Extent of staff training
- Firms constrained with inadequately educated workforce (%)
- Growth of innovative companies
- Labour force participation rate with short-cycle tertiary education

SECTORAL INDICES

	RANK	VALUE
PRE-UNIVERSITY EDUCATION	50	72.3
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING	30	60
HIGHER EDUCATION	36	53.6
RESEARCH, DEVELOPMENT AND INNOVATION	65	29.6
INFORMATION AND COMMUNICATIONS TECHNOLOGY	60	52.6
ECONOMY	56	54.3
ENABLING ENVIRONMENT	59	58.4



GKI PILLARS





NORTH MACEDONIA

	Rank Value	
PRE-UNIVERSITY EDUCATION	50	72.3
Knowledge capital	71	69.7
Enrolment	44	93.9
Net enrolment rate in primary education	67	93.9
Net enrolment rate in lower secondary education	n/a	n/a
Net enrolment rate in upper secondary education	n/a	n/a
Completion	12	83.2
Years of compulsory education in primary and secondary	1	100
Completion rate in upper secondary education	35	84.8
Gross intake ratio to the last grade of lower secondary education	62	64.9
Outcomes	100	31.9
Assessment of 15-year-old students in math, science and reading	71	15.8
Learning-adjusted years of schooling	84	48
Educational enabling environment	31	75
Expenditure	n/a	n/a
Government expenditure on primary education (% GDP)	n/a	n/a
Government expenditure on secondary education (% GDP)	n/a	n/a
Government funding per primary student (% GDP per capita)	n/a	n/a
Government funding per secondary student (% GDP per capita)	n/a	n/a
Resources	54	92.3
Pupil-trained teacher ratio in primary education	n/a	n/a
Pupil-trained teacher ratio in secondary education	n/a	n/a
Schools with access to computers in primary education (%)	53	88.3
Schools with access to computers in secondary education (%)	60	96.4
Early learning	92	50.2
Gross enrolment ratio in early childhood education	91	26.9
Proportion of children who are developmentally on track	20	73.4
Proportion of children with stimulating home learning environments	n/a	n/a
Pupil-trained teacher ratio in pre-primary education	n/a	n/a
Equity and inclusiveness	45	82.5
Completion rate in upper secondary education, gender parity	55	91.4
Completion rate in upper secondary education, wealth parity	26	56.1
Completion rate in upper secondary education, location parity	1	100
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING	30	60
TVET components	44	46.8
Continuous training and skilling	89	38.5
Firms offering formal training (%)	28	53.7
Labour force participation rate with short-cycle tertiary education	87	40.5
Participation rate in formal and non-formal education and training	88	21.3
TVET structure	10	73.2
Government expenditure on vocational education (%)	n/a	n/a
Share of students enrolled in secondary vocational programmes	18	46.3
Share of students enrolled in post-secondary vocational programmes	1	100
TVET quality and qualifications	135	28.6
Extent of staff training	129	40.8
Quality of vocational training	129	33.6
Ratio of high-skill TVET occupations earnings to average wage	77	23.2
Ratio of medium-skill TVET occupations earnings to average wage	108	16.8
TVET labour market	18	73.3
Efficiency of the labour market	94	63.5
Firms constrained with inadequately educated workforce (%)	113	42.1
Employment educational mismatch (%)	60	66.2
Proportion of skilled production workers	23	80.1
Unemployment rate with vocational education	94	65.5
Post-TVET employment	9	69.5
Share of TVET occupations	18	72.2
Manufacturing employment (%)	9	66.8
Equity and inclusiveness	19	86.8
Enrolment in vocational education, gender parity	n/a	n/a
Vulnerable employment rate	39	86.8

	Rank Value	
HIGHER EDUCATION	36	53.6
Inputs	32	48.2
Expenditure	n/a	n/a
Government expenditure per tertiary student	n/a	n/a
Teaching staff compensation (% tertiary expenditure)	n/a	n/a
Enrolment	60	22.7
Enrolment in bachelor's or equivalent level (%)	32	33.7
Enrolment in master's, doctoral or equivalent (%)	72	11.7
Resources	31	73.6
Pupil-teacher ratio in tertiary education	38	84.3
Researchers in higher education (%)	30	63
Learning environment	41	61.2
Diversity and academic freedom	34	65.5
Teachers in tertiary education, gender parity	8	98.3
Inbound mobility rate	41	20.7
Academic freedom	61	77.6
Equity and inclusiveness	17	56.8
Gross attendance ratio for tertiary education, gender parity	30	87.1
Gross attendance ratio for tertiary education, wealth parity	25	18.3
Gross attendance ratio for tertiary education, location parity	11	64.9
Outputs	57	51.5
Attainment	6	59.5
Educational attainment rate, bachelor's or equivalent	51	34.3
Educational attainment rate, master's or equivalent	34	44.3
Educational attainment rate, doctoral or equivalent	1	100
Employment	116	65.9
Labour force participation rate with advanced education	121	61.6
Unemployment rate with advanced education	105	70.2
Impact	106	29.2
University-industry collaboration in R&D	95	39.5
Citable documents per R&D personnel in higher education	55	19
RESEARCH, DEVELOPMENT AND INNOVATION	65	29.6
Inputs	75	26.5
Inputs of R&D institutions	91	21
GERD (% GDP)	68	6.7
GERD per researcher	82	12
Researchers per thousand labour force	58	9.8
Tertiary graduates from STEM programmes (%)	61	55.4
Inputs of RDI in business enterprises	68	23.8
GERD performed by business enterprises (%)	58	2.5
GERD financed by business enterprises (%)	58	37.2
Researchers in business enterprises (%)	47	29.2
Firms that spend on R&D (%)	45	26.5
Inputs of societal innovation	38	40.1
High-skilled employment (%)	37	47.6
Intellectual property payments (% total trade)	26	31.3
State of cluster development	107	41.5
Outputs	97	30.9
Outputs of R&D institutions	81	34.2
Average documents per researcher	40	25.1
Citations per document	91	29.8
Resident patent applications (per 100 billion GDP)	74	47.7
Outputs of RDI in business enterprises	94	22.7
Intellectual property receipts (% total trade)	46	19
Industrial design applications (per 100 billion GDP)	79	50.3
PCT applications (per 100 billion GDP)	58	3.5
Firms producing new products and services (%)	93	18
Outputs of societal innovation	86	32.7
Trademark applications (per 100 billion GDP)	55	16.3
Cultural goods exports (% exports)	81	59.1
Printing and publishing output (% manufactured output)	36	22.9
Impact	52	31.4
Quality	26	36.5
Research institutions prominence	99	3.1
Growth of innovative companies	121	39.5
ISO 9001 quality certificates (per billion GDP)	19	37.8
ISO 14001 environmental certificates (per billion GDP)	6	65.4
Linkages	101	9.1
GERD financed from abroad (%)	72	8.2
Joint ventures per strategic alliance deals (per billion GDP)	n/a	n/a
Computer software spending (% GDP)	89	10.1
Business development	29	48.5
New business density per thousand population	41	18.7
Firms with products and services new to the market (%)	17	78.3



NORTH MACEDONIA

		Rank Value	
INFORMATION AND COMMUNICATIONS TECHNOLOGY		60	52.6
Infrastructure		58	60
Coverage		72	57.8
3G/4G mobile network coverage (% population)		26	99.8
Secure Internet servers per 1 million population		66	55.4
Investment in telecommunication services (% GDP)		93	18.2
Quality		50	35.8
Mobile upload and download speeds		22	35.6
Fixed-broadband upload and download speeds		80	15.5
Fixed-broadband subscriptions by speed per hundred people		44	56.2
Affordability		61	86.6
Fixed broadband basket (% GNI per capita)		76	65
Mobile broadband basket (% GNI per capita)		62	94.6
Internet and telephony competition		1	100
Access		54	48.4
Subscriptions		83	56.8
Active mobile-broadband subscriptions per hundred inhabitants		89	39.4
International Internet bandwidth per user		108	48.8
Households with Internet access at home (%)		69	82.3
Skills and employment		42	39.9
Individuals with standard ICT skills (%)		58	23.2
Tertiary graduates from ICT programmes (%)		22	45.8
ICT employment (%)		30	50.7
Usage		67	49.2
Services		80	48.6
Government online services		78	66.4
Fixed broadband Internet traffic per subscription		57	27.5
Mobile broadband Internet traffic per subscription		68	17.8
Internet users (%)		66	82.5
Outcomes		55	49.9
ICT PCT patent applications (per 100 billion GDP)		46	49.3
E-participation		73	57.5
Internet activities by individuals (%)		51	49.1
Trade in digitally deliverable services (% total trade)		44	43.7
ECONOMY		56	54.3
Economic competitiveness		72	53.7
Infrastructure investment		74	51
Gross fixed capital formation (% GDP)		57	41.2
Logistics performance		53	52.5
Transport productive capacity		111	23.6
Building quality control		24	86.7
Business agility		66	56.4
Ease of starting a business		71	87.9
Insolvency recovery rate		41	52.3
Entrepreneurial employee activity rate		53	13.9
Extent of corporate transparency		51	71.4
Economic openness		72	50.2
Trade and diversification		49	53.3
Trade (% GDP)		13	41.8
High-technology trade (% total trade)		65	18.5
Product concentration		77	72.3
Market concentration		104	80.6
Financial openness		80	47.1
Chinn-Ito financial openness		71	44.7
Foreign direct investment, net inflows (% GDP)		29	48
Debt dynamics		86	48.5
Financing and domestic value added		36	59.2
Financing and taxes		9	76.1
Domestic credit to private sector (% GDP)		56	22.5
MSME financing gap (% GDP)		1	100
Tax and contribution rate (% profit)		4	93.7
Bank non-performing loans (%)		51	88.1
Domestic value added		87	42.3
Medium- and high-tech activities value added		44	35.4
Industry and services value added (% GDP)		97	66
Labour underutilization rate		110	49.5
Output per worker		64	18.4

		Rank Value	
ENABLING ENVIRONMENT		59	58.4
Governance		60	50
Political environment		56	52.3
Peace and stability		59	50.9
Voice and accountability		61	53.6
Quality of institutions		69	47.8
Rule of law		68	50
Control of corruption		74	43.9
Government effectiveness		75	49.5
Socio-economic		74	57.5
Gender equity		41	75.8
Female-to-male ratio in parliament		27	64.5
Female-to-male labour force participation		99	67.9
Female-to-male ratio in Internet usage		80	94.9
Social inclusion		91	55
Social protection coverage (% population)		72	49.2
Adult literacy rate		n/a	n/a
Youth not in employment, education or training (%)		82	60.8
Standard of living		62	41.8
Poverty headcount ratio (% population)		61	66.4
GDP per capita		60	17.2
Health and environment		40	67.8
Health		56	79
Universal health coverage		67	73.5
Healthy life expectancy (years)		68	65.7
Under-five mortality rate		35	97.6
Environmental performance		57	56.6
Renewable energy consumption (%)		85	20.2
Ecological footprint per capita		73	79.6
Natural hazard exposure		36	70

* All values are normalized to a scale from 0 (worst) to 100 (best).