



GKI  
RANK 40 /141

GKI  
SCORE

54.8

WORLD  
AVERAGE

47.8

## COUNTRY PERFORMANCE SUMMARY

Serbia is a strong performer in terms of its knowledge infrastructure. It ranks 40th out of 141 countries in the Global Knowledge Index 2024 and 39th out of the 59 countries with very high human development.

# SERBIA

## KEY INDICATORS

GDP (US\$ billions): 162.213

Population: 6,773,201

HDI: 0.805

## AREAS OF STRENGTH

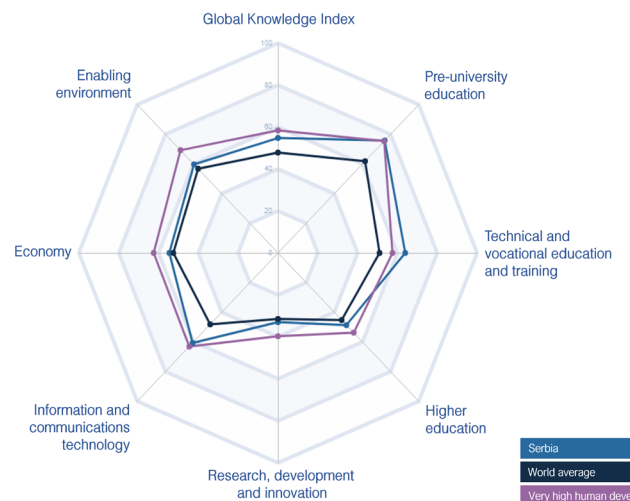
- + Proportion of children who are developmentally on track
- + Proportion of children with stimulating home learning environments
- + ISO 14001 environmental certificates (per billion GDP)
- + ISO 9001 quality certificates (per billion GDP)
- + Government expenditure on vocational education (%)

## AREAS OF IMPROVEMENT

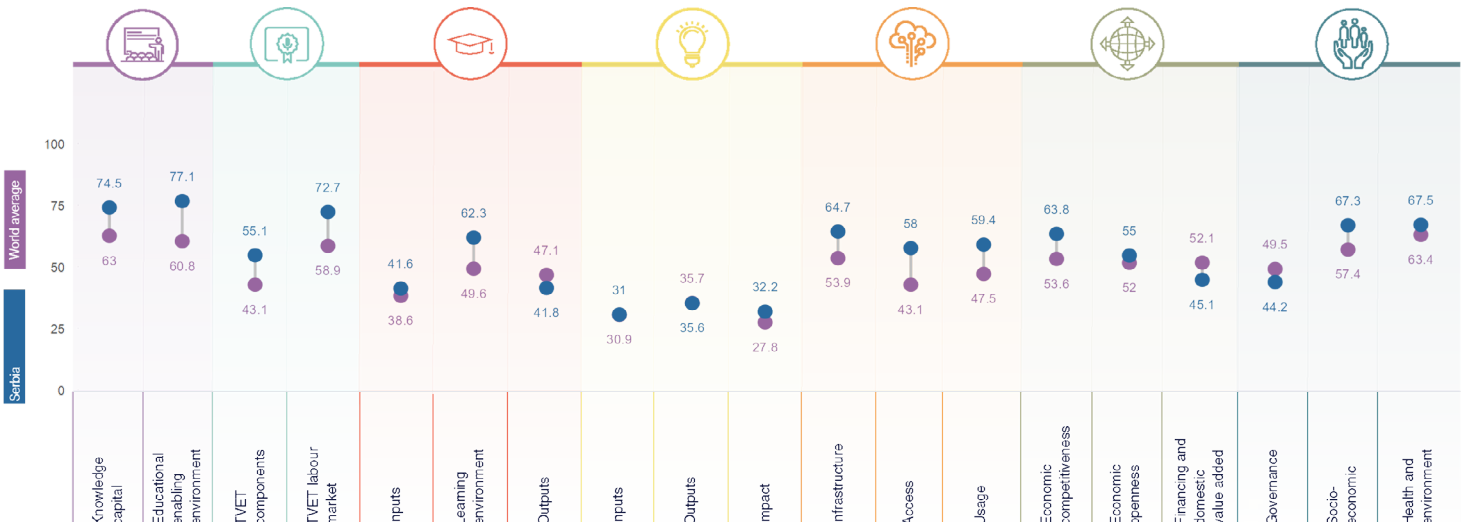
- Firms with products and services new to the market (%)
- MSME financing gap (% GDP)
- Computer software spending (% GDP)
- Labour force participation rate with short-cycle tertiary education
- Years of compulsory education in primary and secondary

## SECTORAL INDICES

	RANK	VALUE
PRE-UNIVERSITY EDUCATION	33	75.8
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING	12	63.9
HIGHER EDUCATION	60	48.6
RESEARCH, DEVELOPMENT AND INNOVATION	48	33
INFORMATION AND COMMUNICATIONS TECHNOLOGY	37	60.7
ECONOMY	54	54.6
ENABLING ENVIRONMENT	56	59.7



## GKI PILLARS





# SERBIA

	Rank Value	
<b>PRE-UNIVERSITY EDUCATION</b>	<b>33</b>	<b>75.8</b>
<b>Knowledge capital</b>	<b>49</b>	<b>74.5</b>
Enrolment	41	94.4
Net enrolment rate in primary education	46	96.5
Net enrolment rate in lower secondary education	8	99.9
Net enrolment rate in upper secondary education	52	86.8
<b>Completion</b>	<b>67</b>	<b>71.7</b>
Years of compulsory education in primary and secondary	106	61.5
Completion rate in upper secondary education	33	85.1
Gross intake ratio to the last grade of lower secondary education	33	68.3
<b>Outcomes</b>	<b>48</b>	<b>57.3</b>
Assessment of 15-year-old students in math, science and reading	41	43.5
Learning-adjusted years of schooling	42	71.1
<b>Educational enabling environment</b>	<b>20</b>	<b>77.1</b>
<b>Expenditure</b>	<b>n/a</b>	<b>n/a</b>
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
<b>Resources</b>	<b>101</b>	<b>65.5</b>
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 (%)	84	42
Schools with access to computers in secondary education (%)	77	89
<b>Early learning</b>	<b>13</b>	<b>82</b>
Gross enrolment ratio in early childhood education	63	46
Proportion of children who are developmentally on track	1	100
Proportion of children with stimulating home learning environments	1	100
Pupil-trained teacher ratio in pre-primary education	n/a	n/a
<b>Equity and inclusiveness</b>	<b>42</b>	<b>83.7</b>
Completion rate in upper secondary education, gender parity	36	94
Completion rate in upper secondary education, wealth parity	18	64.3
Completion rate in upper secondary education, location parity	31	92.7
<b>TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING</b>	<b>12</b>	<b>63.9</b>
<b>TVET components</b>	<b>17</b>	<b>55.1</b>
<b>Continuous training and skilling</b>	<b>66</b>	<b>44.8</b>
Firms offering formal training (%)	42	45.7
Labour force participation rate with short-cycle tertiary education	81	54.2
Participation rate in formal and non-formal education and training	49	34.5
<b>TVET structure</b>	<b>4</b>	<b>79.4</b>
Government expenditure on vocational education (%)	4	82.2
Share of students enrolled in secondary vocational programmes	9	55.9
Share of students enrolled in post-secondary vocational programmes	1	100
<b>TVET quality and qualifications</b>	<b>78</b>	<b>41</b>
Extent of staff training	82	55.1
Quality of vocational training	55	56.6
Ratio of high-skill TVET occupations earnings to average wage	54	27.3
Ratio of medium-skill TVET occupations earnings to average wage	68	25.1
<b>TVET labour market</b>	<b>19</b>	<b>72.7</b>
<b>Efficiency of the labour market</b>	<b>66</b>	<b>69.9</b>
Firms constrained with inadequately educated workforce (%)	72	67.8
Employment educational mismatch (%)	32	76.7
Proportion of skilled production workers	80	57.4
Unemployment rate with vocational education	71	77.5
<b>Post-TVET employment</b>	<b>15</b>	<b>66.2</b>
Share of TVET occupations	23	70.6
Manufacturing employment (%)	17	61.8
<b>Equity and inclusiveness</b>	<b>39</b>	<b>82</b>
Enrolment in vocational education, gender parity	25	89.4
Vulnerable employment rate	59	74.6

	Rank Value	
<b>HIGHER EDUCATION</b>	<b>60</b>	<b>48.6</b>
<b>Inputs</b>	<b>60</b>	<b>41.6</b>
Expenditure	92	10.6
Government expenditure per tertiary student	55	10.6
Teaching staff compensation (% tertiary expenditure)	n/a	n/a
<b>Enrolment</b>	<b>31</b>	<b>43.9</b>
Enrolment in bachelor's or equivalent level (%)	19	36.9
Enrolment in master's, doctoral or equivalent (%)	33	50.8
<b>Resources</b>	<b>44</b>	<b>70.3</b>
Pupil-teacher ratio in tertiary education	80	69
Researchers in higher education (%)	22	71.6
<b>Learning environment</b>	<b>36</b>	<b>62.3</b>
<b>Diversity and academic freedom</b>	<b>44</b>	<b>61.9</b>
Teachers in tertiary education, gender parity	7	98.3
Inbound mobility rate	56	11.3
Academic freedom	64	76.2
<b>Equity and inclusiveness</b>	<b>8</b>	<b>62.7</b>
Gross attendance ratio for tertiary education, gender parity	31	85.6
Gross attendance ratio for tertiary education, wealth parity	5	39.3
Gross attendance ratio for tertiary education, location parity	12	63.3
<b>Outputs</b>	<b>91</b>	<b>41.8</b>
<b>Attainment</b>	<b>71</b>	<b>19</b>
Educational attainment rate, bachelor's or equivalent	61	30.4
Educational attainment rate, master's or equivalent	61	12.3
Educational attainment rate, doctoral or equivalent	56	14.2
<b>Employment</b>	<b>90</b>	<b>75.5</b>
Labour force participation rate with advanced education	89	71.9
Unemployment rate with advanced education	86	79.1
<b>Impact</b>	<b>95</b>	<b>30.8</b>
University-industry collaboration in R&D	62	47.1
Citable documents per R&D personnel in higher education	70	14.6
<b>RESEARCH, DEVELOPMENT AND INNOVATION</b>	<b>48</b>	<b>33</b>
<b>Inputs</b>	<b>58</b>	<b>31</b>
<b>Inputs of R&amp;D institutions</b>	<b>49</b>	<b>34.7</b>
GERD (% GDP)	40	17.3
GERD per researcher	81	12.3
Researchers per thousand labour force	39	27
Tertiary graduates from STEM programmes (%)	10	82.1
<b>Inputs of RDI in business enterprises</b>	<b>101</b>	<b>14.2</b>
GERD performed by business enterprises (%)	44	8.2
GERD financed by business enterprises (%)	74	12.4
Researchers in business enterprises (%)	61	9.7
Firms that spend on R&D (%)	46	26.3
<b>Inputs of societal innovation</b>	<b>35</b>	<b>40.6</b>
High-skilled employment (%)	53	37.8
Intellectual property payments (% total trade)	22	34.4
State of cluster development	58	49.5
<b>Outputs</b>	<b>64</b>	<b>35.6</b>
<b>Outputs of R&amp;D institutions</b>	<b>67</b>	<b>38.2</b>
Average documents per researcher	51	21.3
Citations per document	58	41.2
Resident patent applications (per 100 billion GDP)	62	52
<b>Outputs of RDI in business enterprises</b>	<b>45</b>	<b>33.6</b>
Intellectual property receipts (% total trade)	28	30.2
Industrial design applications (per 100 billion GDP)	82	47.5
PCT applications (per 100 billion GDP)	48	5.5
Firms producing new products and services (%)	43	51.2
<b>Outputs of societal innovation</b>	<b>87</b>	<b>32.4</b>
Trademark applications (per 100 billion GDP)	78	11.7
Cultural goods exports (% exports)	51	71.9
Printing and publishing output (% manufactured output)	65	13.7
<b>Impact</b>	<b>48</b>	<b>32.2</b>
<b>Quality</b>	<b>6</b>	<b>51.9</b>
Research institutions prominence	58	11.3
Growth of innovative companies	64	47.8
ISO 9001 quality certificates (per billion GDP)	5	61.9
ISO 14001 environmental certificates (per billion GDP)	2	86.7
<b>Linkages</b>	<b>66</b>	<b>16</b>
GERD financed from abroad (%)	20	41
Joint ventures per strategic alliance deals (per billion GDP)	77	4.4
Computer software spending (% GDP)	110	2.7
<b>Business development</b>	<b>109</b>	<b>28.8</b>
New business density per thousand population	59	10.3
Firms with products and services new to the market (%)	107	47.2



# SERBIA

		Rank Value	
INFORMATION AND COMMUNICATIONS TECHNOLOGY		37	60.7
Infrastructure		44	64.7
Coverage		17	74.2
3G/4G mobile network coverage (% population)		54	98.7
Secure Internet servers per 1 million population		43	72.5
Investment in telecommunication services (% GDP)		13	51.4
Quality		51	34.5
Mobile upload and download speeds		61	15.3
Fixed-broadband upload and download speeds		59	24.4
Fixed-broadband subscriptions by speed per hundred people		37	63.8
Affordability		67	85.5
Fixed broadband basket (% GNI per capita)		65	68.7
Mobile broadband basket (% GNI per capita)		61	95
Internet and telephony competition		90	92.9
Access		28	58
Subscriptions		38	69
Active mobile-broadband subscriptions per hundred inhabitants		38	55.7
International Internet bandwidth per user		20	66.1
Households with Internet access at home (%)		65	85.4
Skills and employment		22	47
Individuals with standard ICT skills (%)		46	35.3
Tertiary graduates from ICT programmes (%)		9	52.9
ICT employment (%)		24	52.9
Usage		39	59.4
Services		59	54.3
Government online services		34	85.4
Fixed broadband Internet traffic per subscription		71	21.9
Mobile broadband Internet traffic per subscription		46	26.2
Internet users (%)		60	83.7
Outcomes		28	64.5
ICT PCT patent applications (per 100 billion GDP)		50	47.4
E-participation		17	89
Internet activities by individuals (%)		37	66.8
Trade in digitally deliverable services (% total trade)		25	54.6
ECONOMY		54	54.6
Economic competitiveness		33	63.8
Infrastructure investment		45	56.7
Gross fixed capital formation (% GDP)		66	39.8
Logistics performance		72	45
Transport productive capacity		53	48.8
Building quality control		8	93.3
Business agility		31	70.8
Ease of starting a business		62	89.3
Insolvency recovery rate		78	37.5
Entrepreneurial employee activity rate		n/a	n/a
Extent of corporate transparency		12	85.7
Economic openness		62	55
Trade and diversification		31	58.7
Trade (% GDP)		29	31.3
High-technology trade (% total trade)		77	15.9
Product concentration		13	91.6
Market concentration		6	96
Financial openness		71	51.3
Chinn-Ito financial openness		n/a	n/a
Foreign direct investment, net inflows (% GDP)		18	52.6
Debt dynamics		56	50
Financing and domestic value added		104	45.1
Financing and taxes		120	46.9
Domestic credit to private sector (% GDP)		85	14.4
MSME financing gap (% GDP)		86	63.8
Tax and contribution rate (% profit)		65	62.5
Bank non-performing loans (%)		n/a	n/a
Domestic value added		80	43.2
Medium- and high-tech activities value added		59	28.8
Industry and services value added (% GDP)		105	63.2
Labour underutilization rate		90	63.2
Output per worker		68	17.8

		Rank Value	
ENABLING ENVIRONMENT		56	59.7
Governance		74	44.2
Political environment		75	41.3
Peace and stability		77	40.1
Voice and accountability		81	42.5
Quality of institutions		74	47.2
Rule of law		70	49.1
Control of corruption		89	35.4
Government effectiveness		61	57.1
Socio-economic		44	67.3
Gender equity		35	78.1
Female-to-male ratio in parliament		33	61.3
Female-to-male labour force participation		88	75
Female-to-male ratio in Internet usage		62	98.1
Social inclusion		46	80.2
Social protection coverage (% population)		57	64.5
Adult literacy rate		19	98.6
Youth not in employment, education or training (%)		45	77.4
Standard of living		61	43.6
Poverty headcount ratio (% population)		52	69.2
GDP per capita		59	18
Health and environment		45	67.5
Health		58	78.4
Universal health coverage		72	71.7
Healthy life expectancy (years)		64	66.3
Under-five mortality rate		38	97.2
Environmental performance		58	56.5
Renewable energy consumption (%)		69	28.2
Ecological footprint per capita		85	74.3
Natural hazard exposure		51	67

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