



**GKI RANK** 74 /133

**GKI SCORE** 45.6

**WORLD AVERAGE** 47.5

**COUNTRY PERFORMANCE SUMMARY**

Kazakhstan is a moderate performer in terms of its knowledge infrastructure. It ranks 74th out of 133 countries in the Global Knowledge Index 2023 and 60th out of the 61 countries with very high human development.

**KAZAKHSTAN**

**KEY INDICATORS**

**GDP (US\$ billions): 512.002**  
**Population: 19,196,466**  
**HDI: 0.811**

**AREAS OF STRENGTH**

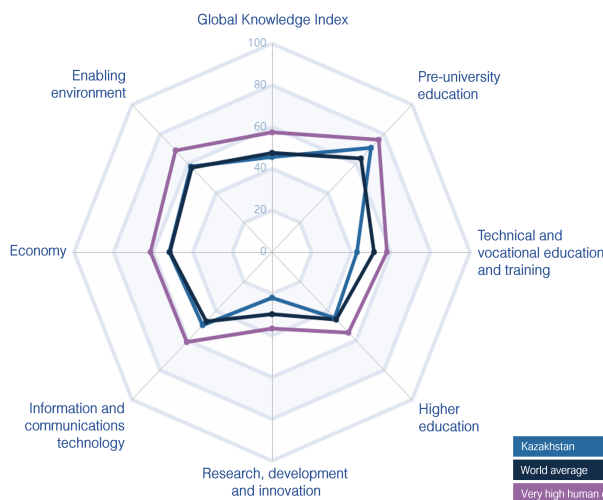
- + Completion rate in upper secondary education
- + Pupil-trained teacher ratio in secondary education
- + Fixed broadband basket (% GNI per capita)
- + Completion rate in upper secondary education, gender parity
- + Poverty headcount ratio (% population)

**AREAS OF IMPROVEMENT**

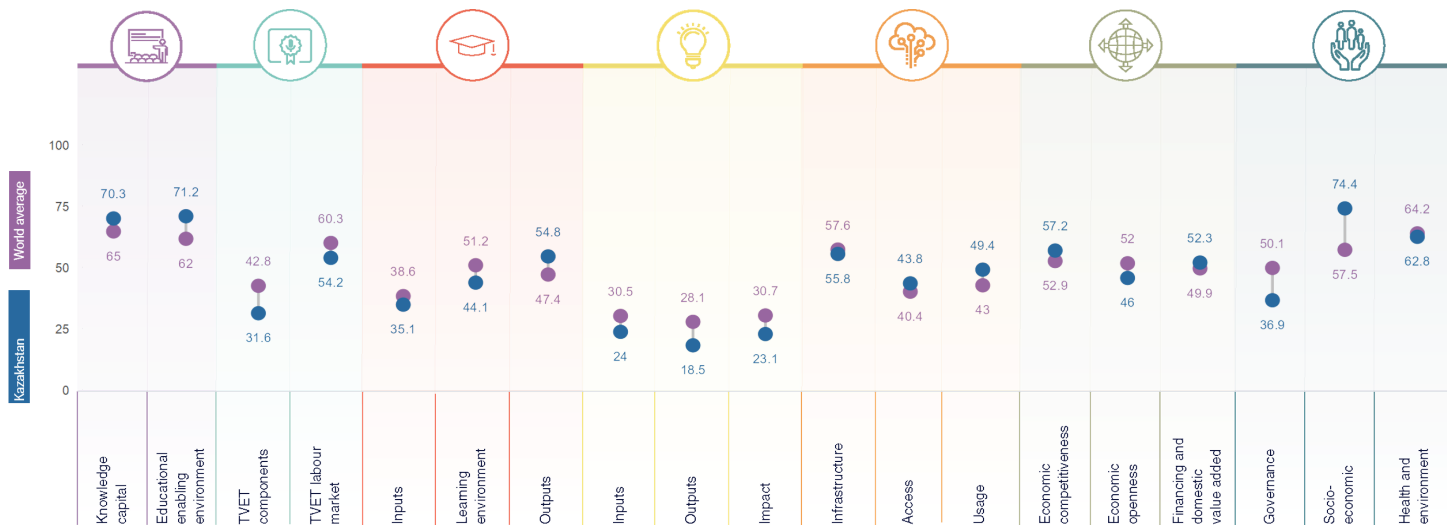
- Government expenditure on primary education (% GDP)
- Government funding per primary student (% GDP per capita)
- Government expenditure on vocational education (%)
- Educational attainment rate, master's or equivalent
- Ratio of high-skill TVET occupations earnings to average wage

**SECTORAL INDICES**

	RANK	VALUE
PRE-UNIVERSITY EDUCATION	59	70.7
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING	105	42.9
HIGHER EDUCATION	73	44.7
RESEARCH, DEVELOPMENT AND INNOVATION	103	21.9
INFORMATION AND COMMUNICATIONS TECHNOLOGY	62	49.6
ECONOMY	62	51.9
ENABLING ENVIRONMENT	58	58



**GKI PILLARS**





# KAZAKHSTAN

	Rank	Value		Rank	Value
<b>PRE-UNIVERSITY EDUCATION</b>	<b>59</b>	<b>70.7</b>	<b>HIGHER EDUCATION</b>	<b>73</b>	<b>44.7</b>
<b>Knowledge capital</b>	<b>65</b>	<b>70.3</b>	<b>Inputs</b>	<b>89</b>	<b>35.1</b>
Enrolment	79	84.6	Expenditure	104	4.7
Net enrolment rate in primary education	78	90	Government expenditure per tertiary student	83	4.7
Net enrolment rate in lower secondary education	46	97.4	Teaching staff compensation (% tertiary expenditure)	n/a	n/a
Net enrolment rate in upper secondary education	87	66.3	<b>Enrolment</b>	<b>55</b>	<b>26.2</b>
Completion	33	78.9	Enrolment in bachelor's or equivalent level (%)	21	40.5
Years of compulsory education in primary and secondary	66	69.2	Enrolment in master's, doctoral or equivalent (%)	73	11.8
Completion rate in upper secondary education	2	99.6	<b>Resources</b>	<b>28</b>	<b>74.6</b>
Gross intake ratio to the last grade of lower secondary education	56	68	Pupil-teacher ratio in tertiary education	61	74.6
<b>Outcomes</b>	<b>73</b>	<b>47.3</b>	Researchers in higher education (%)	n/a	n/a
Assessment of 15-year-old students in math, science and reading	62	30.7	<b>Learning environment</b>	<b>86</b>	<b>44.1</b>
Learning-adjusted years of schooling	52	64	<b>Diversity and academic freedom</b>	<b>117</b>	<b>27.2</b>
<b>Educational enabling environment</b>	<b>50</b>	<b>71.2</b>	Teachers in tertiary education, gender parity	104	12.2
Expenditure	107	18.4	Inbound mobility rate	44	19.3
Government expenditure on primary education (% GDP)	115	0	Academic freedom	91	50.2
Government expenditure on secondary education (% GDP)	35	39	<b>Equity and inclusiveness</b>	<b>11</b>	<b>61</b>
Government funding per primary student (% GDP per capita)	113	0	Gross attendance ratio for tertiary education, gender parity	9	94.9
Government funding per secondary student (% GDP per capita)	46	34.6	Gross attendance ratio for tertiary education, wealth parity	6	38.3
<b>Resources</b>	<b>52</b>	<b>92.4</b>	Gross attendance ratio for tertiary education, location parity	16	49.6
Pupil-trained teacher ratio in primary education	16	92.6	<b>Outputs</b>	<b>42</b>	<b>54.8</b>
Pupil-trained teacher ratio in secondary education	2	99	<b>Attainment</b>	<b>42</b>	<b>35.9</b>
Schools with access to computers in primary education (%)	55	84.2	Educational attainment rate, bachelor's or equivalent	10	71.7
Schools with access to computers in secondary education (%)	65	93.9	Educational attainment rate, master's or equivalent	95	0.2
<b>Early learning</b>	<b>27</b>	<b>78.6</b>	Educational attainment rate, doctoral or equivalent	n/a	n/a
Gross enrolment ratio in early childhood education	59	49.6	<b>Employment</b>	<b>2</b>	<b>93.6</b>
Proportion of children who are developmentally on track	11	79.7	Labour force participation rate with advanced education	n/a	n/a
Proportion of children with stimulating home learning environments	7	87.5	Unemployment rate with advanced education	15	93.6
Pupil-trained teacher ratio in pre-primary education	5	97.7	<b>Impact</b>	<b>74</b>	<b>34.8</b>
<b>Equity and inclusiveness</b>	<b>23</b>	<b>95.2</b>	University-industry collaboration in R&D	107	34.8
Completion rate in upper secondary education, gender parity	5	99.6	Citable documents per R&D personnel in higher education	n/a	n/a
Completion rate in upper secondary education, wealth parity	7	89.7	<b>RESEARCH, DEVELOPMENT AND INNOVATION</b>	<b>103</b>	<b>21.9</b>
Completion rate in upper secondary education, location parity	25	96.2	<b>Inputs</b>	<b>83</b>	<b>24</b>
<b>TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING</b>	<b>105</b>	<b>42.9</b>	Inputs of R&D institutions	100	18.9
<b>TVET components</b>	<b>115</b>	<b>31.6</b>	GERD (% GDP)	103	2.2
Continuous training and skilling	105	25.6	GERD per researcher	94	4.8
Firms offering formal training (%)	75	25.6	Researchers per thousand labour force	62	8.7
Labour force participation rate with short-cycle tertiary education	n/a	n/a	Tertiary graduates from STEM programmes (%)	49	59.8
Participation rate in formal and non-formal education and training	n/a	n/a	<b>Inputs of RDI in business enterprises</b>	<b>71</b>	<b>21.3</b>
<b>TVET structure</b>	<b>79</b>	<b>38.4</b>	GERD performed by business enterprises (%)	70	1.1
Government expenditure on vocational education (%)	78	0	GERD financed by business enterprises (%)	30	58.7
Share of students enrolled in secondary vocational programmes	65	15.3	Researchers in business enterprises (%)	n/a	n/a
Share of students enrolled in post-secondary vocational programmes	1	100	Firms that spend on R&D (%)	93	4.2
<b>TVET quality and qualifications</b>	<b>126</b>	<b>30.8</b>	<b>Inputs of societal innovation</b>	<b>52</b>	<b>37.1</b>
Extent of staff training	110	45.7	High-skilled employment (%)	22	62.6
Quality of vocational training	118	37.9	Intellectual property payments (% total trade)	67	9.9
Ratio of high-skill TVET occupations earnings to average wage	111	3.5	State of cluster development	111	38.7
Ratio of medium-skill TVET occupations earnings to average wage	38	36	<b>Outputs</b>	<b>109</b>	<b>18.5</b>
<b>TVET labour market</b>	<b>97</b>	<b>54.2</b>	Outputs of R&D institutions	88	28.7
Efficiency of the labour market	125	44.1	Average documents per researcher	72	14.5
Firms constrained with inadequately educated workforce (%)	83	34.3	Citations per document	117	15.6
Employment educational mismatch (%)	n/a	n/a	Resident patent applications (per 100 billion GDP)	41	56.1
Proportion of skilled production workers	73	52.8	<b>Outputs of RDI in business enterprises</b>	<b>108</b>	<b>6.7</b>
Unemployment rate with vocational education	123	45.2	Intellectual property receipts (% total trade)	92	0.3
<b>Post-TVET employment</b>	<b>99</b>	<b>36.1</b>	Industrial design applications (per 100 billion GDP)	97	1.4
Share of TVET occupations	78	49.4	PCT applications (per 100 billion GDP)	82	1
Manufacturing employment (%)	104	22.8	Firms producing new products and services (%)	79	24.1
<b>Equity and inclusiveness</b>	<b>40</b>	<b>82.2</b>	<b>Outputs of societal innovation</b>	<b>102</b>	<b>9.9</b>
Enrolment in vocational education, gender parity	38	86.4	Trademark applications (per 100 billion GDP)	72	18.2
Vulnerable employment rate	60	78.1	Cultural goods exports (% exports)	75	3.6
			Printing and publishing output (% manufactured output)	86	7.8
			<b>Impact</b>	<b>99</b>	<b>23.1</b>
			<b>Quality</b>	<b>95</b>	<b>23.6</b>
			Research institutions prominence	67	50
			Growth of innovative companies	112	40.5
			ISO 9001 quality certificates (per billion GDP)	116	1.5
			ISO 14001 environmental certificates (per billion GDP)	104	2.4
			<b>Linkages</b>	<b>120</b>	<b>3</b>
			GERD financed from abroad (%)	80	5.1
			Joint ventures per strategic alliance deals (per billion GDP)	97	2.9
			Computer software spending (% GDP)	117	1.1
			<b>Business development</b>	<b>47</b>	<b>42.7</b>
			New business density per thousand population	40	14.3
			Firms with products and services new to the market (%)	39	71.2



# KAZAKHSTAN

	Rank	Value		Rank	Value
<b>INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>			<b>62 49.6</b>		
<b>Infrastructure</b>			<b>75 55.8</b>		
Coverage	98	54.2			
3G/4G mobile network coverage (% population)	93	89.4			
Secure Internet servers per 1 million population	54	64.7			
Investment in telecommunication services (% GDP)	120	8.5			
<b>Quality</b>			<b>73 18.1</b>		
Mobile upload and download speeds	59	11.2			
Fixed-broadband upload and download speeds	43	20.8			
Fixed-broadband subscriptions by speed per hundred people	76	22.3			
<b>Affordability</b>			<b>36 94.9</b>		
Fixed broadband basket (% GNI per capita)	4	98.2			
Mobile broadband basket (% GNI per capita)	59	93.8			
Internet and telephony competition	86	92.9			
<b>Access</b>			<b>59 43.8</b>		
<b>Subscriptions</b>			<b>39 62.6</b>		
Active mobile-broadband subscriptions per hundred inhabitants	70	38.8			
International Internet bandwidth per user	49	52.9			
Households with Internet access at home (%)	12	96.1			
<b>Skills and employment</b>			<b>73 24.9</b>		
Individuals with standard ICT skills (%)	48	29.5			
Tertiary graduates from ICT programmes (%)	93	20.4			
ICT employment (%)	n/a	n/a			
<b>Usage</b>			<b>43 49.4</b>		
<b>Services</b>			<b>27 66.1</b>		
Government online services	8	93.4			
Fixed broadband Internet traffic per subscription	58	19.6			
Mobile broadband Internet traffic per subscription	7	59.4			
Internet users (%)	28	91.8			
<b>Outcomes</b>			<b>69 32.8</b>		
ICT PCT patent applications (per 100 billion GDP)	96	0.7			
E-participation	13	80.7			
Internet activities by individuals (%)	61	22.7			
Trade in digitally deliverable services (% total trade)	84	27.2			
<b>ECONOMY</b>			<b>62 51.9</b>		
<b>Economic competitiveness</b>			<b>51 57.2</b>		
Infrastructure investment	49	52.4			
Gross fixed capital formation (% GDP)	62	24.4			
Logistics performance	79	42.5			
Transport productive capacity	43	56.2			
Building quality control	21	86.7			
<b>Business agility</b>			<b>52 62.1</b>		
Ease of starting a business	19	94.4			
Insolvency recovery rate	60	43.3			
Entrepreneurial employee activity rate	37	24.8			
Extent of corporate transparency	13	85.7			
<b>Economic openness</b>			<b>81 46</b>		
Trade and diversification	92	45.8			
Trade (% GDP)	101	8.9			
High-technology trade (% total trade)	33	34.7			
Product concentration	121	46.6			
Market concentration	40	92.7			
Financial openness	75	46.2			
Chinn-Ito financial openness	84	22.3			
Foreign direct investment, net inflows (% GDP)	51	36.3			
Debt dynamics	36	80			
<b>Financing and domestic value added</b>			<b>58 52.3</b>		
<b>Financing and taxes</b>			<b>74 58.7</b>		
Domestic credit to private sector (% GDP)	104	7.2			
MSME financing gap (% GDP)	74	70			
Tax and contribution rate (% profit)	33	79.2			
Bank non-performing loans (%)	62	78.5			
<b>Domestic value added</b>			<b>53 46</b>		
Medium- and high-tech activities value added	81	20.4			
Industry and services value added (% GDP)	43	53.6			
Labour underutilization rate	19	87.1			
Output per worker	50	22.7			
			<b>ENABLING ENVIRONMENT</b>		
			<b>58 58</b>		
			<b>Governance</b>		
			<b>87 36.9</b>		
Political environment	105	26.2			
Peace and stability	85	32.5			
Voice and accountability	111	19.8			
Quality of institutions	68	47.6			
Rule of law	66	48.6			
Control of corruption	56	58.5			
Government effectiveness	91	35.8			
			<b>Socio-economic</b>		
			<b>19 74.4</b>		
Gender equity	62	69.5			
Female-to-male ratio in parliament	106	22.5			
Female-to-male labour force participation	28	87			
Female-to-male ratio in Internet usage	40	99.1			
Social inclusion	8	95.3			
Social protection coverage (% population)	1	100			
Adult literacy rate	8	99.7			
Youth not in employment, education or training (%)	21	86.3			
Standard of living	22	58.2			
Poverty headcount ratio (% population)	5	94.3			
GDP per capita	52	22.1			
			<b>Health and environment</b>		
			<b>83 62.8</b>		
			<b>Health</b>		
			<b>60 81.3</b>		
Universal health coverage	37	80.3			
Healthy life expectancy (years)	72	70.8			
Under-five mortality rate	62	92.7			
			<b>Environmental performance</b>		
			<b>109 44.3</b>		
Renewable energy consumption (%)	119	1.9			
Ecological footprint per capita	79	73.2			
Natural hazard exposure	66	58			

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