

**GKI RANK** 117 /133

**GKI SCORE**

32.7

**WORLD AVERAGE**

47.5

**COUNTRY PERFORMANCE SUMMARY**

Pakistan is a weak performer in terms of its knowledge infrastructure. It ranks 117th out of 133 countries in the Global Knowledge Index 2023 and 6th out of the 19 countries with low human development.

**PAKISTAN**

**KEY INDICATORS**

**GDP (US\$ billions): 1,285.651**

**Population: 231,402,117**

**HDI: 0.544**

**AREAS OF STRENGTH**

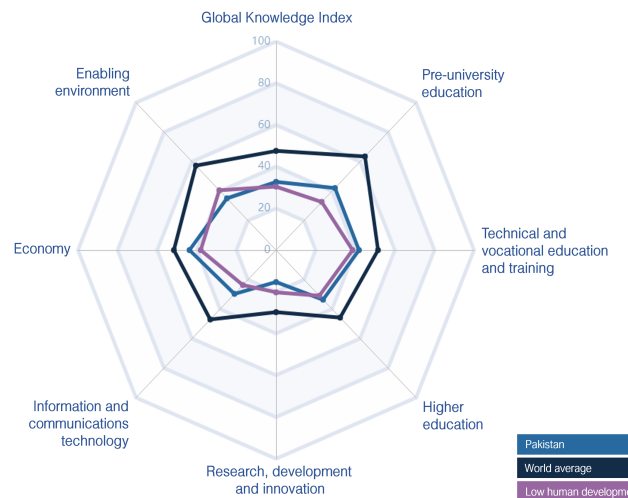
- + Researchers in higher education (%)
- + Ecological footprint per capita
- + Citations per document
- + Unemployment rate with vocational education
- + Ratio of medium-skill TVET occupations earnings to average wage

**AREAS OF IMPROVEMENT**

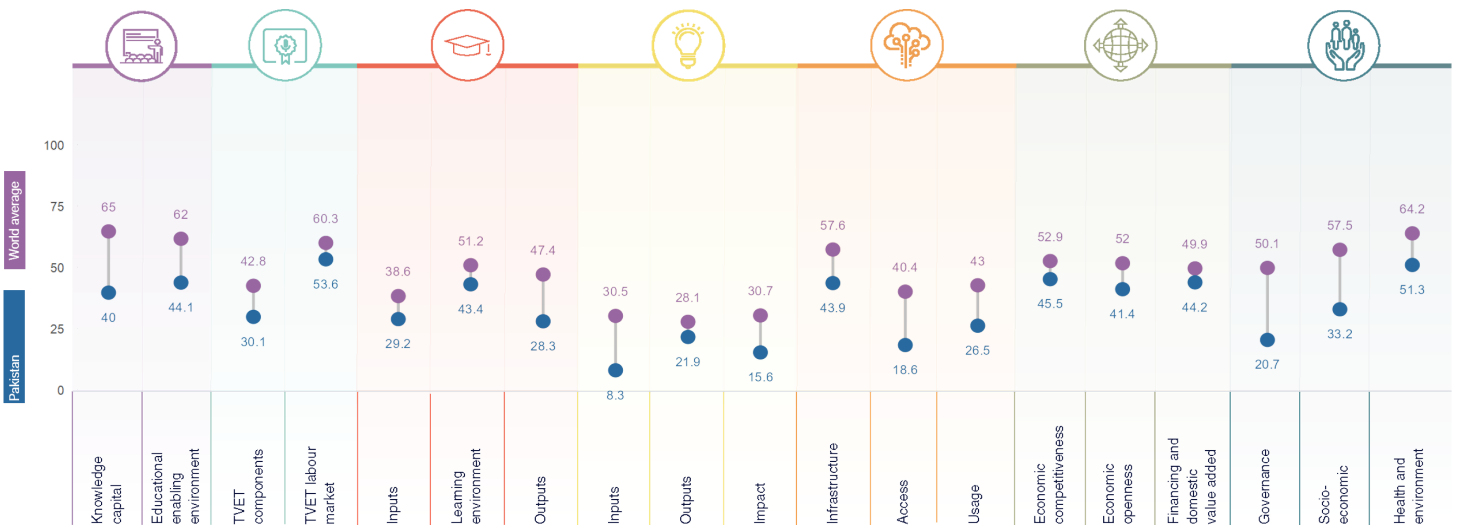
- PCT applications (per 100 billion GDP)
- Firms with products and services new to the market (%)
- Firms offering formal training (%)
- Individuals with standard ICT skills (%)
- ICT PCT patent applications (per 100 billion GDP)

**SECTORAL INDICES**

	RANK	VALUE
PRE-UNIVERSITY EDUCATION	112	42.1
TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING	112	41.9
HIGHER EDUCATION	113	33.6
RESEARCH, DEVELOPMENT AND INNOVATION	132	15.3
INFORMATION AND COMMUNICATIONS TECHNOLOGY	109	29.7
ECONOMY	94	43.7
ENABLING ENVIRONMENT	128	35.1



**GKI PILLARS**





# PAKISTAN

Rank Value

Rank Value

PRE-UNIVERSITY EDUCATION	112	42.1
<b>Knowledge capital</b>	<b>115</b>	<b>40</b>
Enrolment	119	48.1
Net enrolment rate in primary education	126	38.9
Net enrolment rate in lower secondary education	109	61.7
Net enrolment rate in upper secondary education	108	43.7
Completion	102	47.5
Years of compulsory education in primary and secondary	3	92.3
Completion rate in upper secondary education	97	22.9
Gross intake ratio to the last grade of lower secondary education	108	27.4
Outcomes	113	24.4
Assessment of 15-year-old students in math, science and reading	n/a	n/a
Learning-adjusted years of schooling	114	24.4
<b>Educational enabling environment</b>	<b>108</b>	<b>44.1</b>
Expenditure	105	19.1
Government expenditure on primary education (% GDP)	91	22.2
Government expenditure on secondary education (% GDP)	111	6.6
Government funding per primary student (% GDP per capita)	100	22.2
Government funding per secondary student (% GDP per capita)	68	25.5
Resources	105	54.4
Pupil-trained teacher ratio in primary education	88	26.2
Pupil-trained teacher ratio in secondary education	38	90.7
Schools with access to computers in primary education (%)	77	46.2
Schools with access to computers in secondary education (%)	n/a	n/a
Early learning	76	58.3
Gross enrolment ratio in early childhood education	49	58.3
Proportion of children who are developmentally on track	n/a	n/a
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	96	44.6
Completion rate in upper secondary education, gender parity	84	87.6
Completion rate in upper secondary education, wealth parity	68	2.5
Completion rate in upper secondary education, location parity	74	43.8
<b>TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING</b>	<b>112</b>	<b>41.9</b>
<b>TVET components</b>	<b>118</b>	<b>30.1</b>
Continuous training and skilling	128	4.6
Firms offering formal training (%)	101	2.9
Labour force participation rate with short-cycle tertiary education	n/a	n/a
Participation rate in formal and non-formal education and training	110	6.2
TVET structure	78	38.5
Government expenditure on vocational education (%)	67	11.1
Share of students enrolled in secondary vocational programmes	101	4.5
Share of students enrolled in post-secondary vocational programmes	1	100
TVET quality and qualifications	35	47.3
Extent of staff training	58	59.6
Quality of vocational training	65	54.6
Ratio of high-skill TVET occupations earnings to average wage	25	32.9
Ratio of medium-skill TVET occupations earnings to average wage	15	42.2
<b>TVET labour market</b>	<b>99</b>	<b>53.6</b>
Efficiency of the labour market	71	66.6
Firms constrained with inadequately educated workforce (%)	43	69.8
Employment educational mismatch (%)	95	38.5
Proportion of skilled production workers	43	66.9
Unemployment rate with vocational education	15	91.3
Post-TVET employment	67	46.3
Share of TVET occupations	96	37.2
Manufacturing employment (%)	36	55.3
Equity and inclusiveness	112	47.9
Enrolment in vocational education, gender parity	98	53.3
Vulnerable employment rate	103	42.5

HIGHER EDUCATION	113	33.6
<b>Inputs</b>	<b>101</b>	<b>29.2</b>
Expenditure	101	6.3
Government expenditure per tertiary student	72	6.3
Teaching staff compensation (% tertiary expenditure)	n/a	n/a
Enrolment	102	6.5
Enrolment in bachelor's or equivalent level (%)	101	8.9
Enrolment in master's, doctoral or equivalent (%)	105	4.1
Resources	27	74.8
Pupil-teacher ratio in tertiary education	90	55.3
Researchers in higher education (%)	2	94.2
<b>Learning environment</b>	<b>89</b>	<b>43.4</b>
Diversity and academic freedom	86	43.3
Teachers in tertiary education, gender parity	n/a	n/a
Inbound mobility rate	n/a	n/a
Academic freedom	97	43.3
Equity and inclusiveness	37	43.4
Gross attendance ratio for tertiary education, gender parity	22	88.4
Gross attendance ratio for tertiary education, wealth parity	55	2.3
Gross attendance ratio for tertiary education, location parity	30	39.6
<b>Outputs</b>	<b>124</b>	<b>28.3</b>
Attainment	107	4.4
Educational attainment rate, bachelor's or equivalent	98	6.4
Educational attainment rate, master's or equivalent	65	6.1
Educational attainment rate, doctoral or equivalent	83	0.7
Employment	123	52.5
Labour force participation rate with advanced education	114	59.2
Unemployment rate with advanced education	124	45.8
Impact	106	27.9
University-industry collaboration in R&D	47	51.5
Citable documents per R&D personnel in higher education	94	4.4
<b>RESEARCH, DEVELOPMENT AND INNOVATION</b>	<b>132</b>	<b>15.3</b>
<b>Inputs</b>	<b>132</b>	<b>8.3</b>
Inputs of R&D institutions	123	4
GERD (% GDP)	97	2.9
GERD per researcher	100	2.1
Researchers per thousand labour force	66	7
Tertiary graduates from STEM programmes (%)	n/a	n/a
Inputs of RDI in business enterprises	125	1.4
GERD performed by business enterprises (%)	n/a	n/a
GERD financed by business enterprises (%)	n/a	n/a
Researchers in business enterprises (%)	n/a	n/a
Firms that spend on R&D (%)	100	1.4
Inputs of societal innovation	98	23.9
High-skilled employment (%)	98	13.7
Intellectual property payments (% total trade)	80	4.9
State of cluster development	44	53.2
<b>Outputs</b>	<b>91</b>	<b>21.9</b>
Outputs of R&D institutions	53	37.8
Average documents per researcher	88	9.3
Citations per document	6	66.7
Resident patent applications (per 100 billion GDP)	86	37.6
Outputs of RDI in business enterprises	123	1.9
Intellectual property receipts (% total trade)	80	0.8
Industrial design applications (per 100 billion GDP)	89	2.5
PCT applications (per 100 billion GDP)	122	0
Firms producing new products and services (%)	101	4.2
Outputs of societal innovation	101	10
Trademark applications (per 100 billion GDP)	71	18.7
Cultural goods exports (% exports)	88	2.5
Printing and publishing output (% manufactured output)	85	8.8
<b>Impact</b>	<b>128</b>	<b>15.6</b>
Quality	65	32
Research institutions prominence	33	62.9
Growth of innovative companies	39	54.1
ISO 9001 quality certificates (per billion GDP)	87	5.8
ISO 14001 environmental certificates (per billion GDP)	83	5.4
Linkages	75	14.6
GERD financed from abroad (%)	88	2.5
Joint ventures per strategic alliance deals (per billion GDP)	48	9.9
Computer software spending (% GDP)	29	31.3
Business development	130	0.2
New business density per thousand population	116	0.4
Firms with products and services new to the market (%)	102	0



# PAKISTAN

	Rank	Value		Rank	Value
<b>INFORMATION AND COMMUNICATIONS TECHNOLOGY</b>			<b>109 29.7</b>		
<b>Infrastructure</b>			<b>105 43.9</b>		
<b>Coverage</b>			<b>115 41.4</b>		
3G/4G mobile network coverage (% population)	113	72.9			
Secure Internet servers per 1 million population	108	34.1			
Investment in telecommunication services (% GDP)	107	17.3			
<b>Quality</b>			<b>112 3.9</b>		
Mobile upload and download speeds	81	8.1			
Fixed-broadband upload and download speeds	94	2			
Fixed-broadband subscriptions by speed per hundred people	105	1.7			
<b>Affordability</b>			<b>79 86.4</b>		
Fixed broadband basket (% GNI per capita)	109	62.4			
Mobile broadband basket (% GNI per capita)	39	96.8			
Internet and telephony competition	1	100			
<b>Access</b>			<b>117 18.6</b>		
<b>Subscriptions</b>			<b>107 34.6</b>		
Active mobile-broadband subscriptions per hundred inhabitants	115	20.1			
International Internet bandwidth per user	55	51.8			
Households with Internet access at home (%)	106	31.9			
<b>Skills and employment</b>			<b>126 2.6</b>		
Individuals with standard ICT skills (%)		85	0.4		
Tertiary graduates from ICT programmes (%)	n/a	n/a			
ICT employment (%)	89	4.8			
<b>Usage</b>			<b>106 26.5</b>		
<b>Services</b>			<b>110 27.5</b>		
Government online services	87	56.6			
Fixed broadband Internet traffic per subscription	54	21.7			
Mobile broadband Internet traffic per subscription	63	15.5			
Internet users (%)	127	16.2			
<b>Outcomes</b>			<b>88 25.5</b>		
ICT PCT patent applications (per 100 billion GDP)	108	0.1			
E-participation	93	36.4			
Internet activities by individuals (%)	n/a	n/a			
Trade in digitally deliverable services (% total trade)	53	39.9			
<b>ECONOMY</b>			<b>94 43.7</b>		
<b>Economic competitiveness</b>			<b>90 45.5</b>		
Infrastructure investment	110	38.1			
Gross fixed capital formation (% GDP)	124	3.9			
Logistics performance	111	35.5			
Transport productive capacity	102	26.4			
Building quality control	43	86.5			
<b>Business agility</b>			<b>72 52.8</b>		
Ease of starting a business	60	89.3			
Insolvency recovery rate	48	46.6			
Entrepreneurial employee activity rate	78	4			
Extent of corporate transparency	49	71.4			
<b>Economic openness</b>			<b>93 41.4</b>		
<b>Trade and diversification</b>			<b>46 53.8</b>		
Trade (% GDP)	127	1.9			
High-technology trade (% total trade)	26	39.6			
Product concentration	48	80.5			
Market concentration	32	93.4			
<b>Financial openness</b>			<b>119 29</b>		
Chinn-Ito financial openness	86	16.4			
Foreign direct investment, net inflows (% GDP)	107	31.6			
Debt dynamics	110	38.9			
<b>Financing and domestic value added</b>			<b>88 44.2</b>		
<b>Financing and taxes</b>			<b>99 52.1</b>		
Domestic credit to private sector (% GDP)	120	2.9			
MSME financing gap (% GDP)	42	80.3			
Tax and contribution rate (% profit)	51	73.7			
Bank non-performing loans (%)	94	51.4			
<b>Domestic value added</b>			<b>82 36.4</b>		
Medium- and high-tech activities value added	68	27.8			
Industry and services value added (% GDP)	116	26.8			
Labour underutilization rate	24	84.5			
Output per worker	102	6.5			
			<b>ENABLING ENVIRONMENT</b>		
			<b>128 35.1</b>		
			<b>Governance</b>		
			<b>119 20.7</b>		
			Political environment		
			119 15.9		
			Peace and stability		
			128 6.6		
			Voice and accountability		
			104 25.1		
			Quality of institutions		
			109 25.6		
			Rule of law		
			108 22.6		
			Control of corruption		
			103 29.2		
			Government effectiveness		
			109 25		
			<b>Socio-economic</b>		
			<b>122 33.2</b>		
			Gender equity		
			131 37.6		
			Female-to-male ratio in parliament		
			90 25.7		
			Female-to-male labour force participation		
			128 30.4		
			Female-to-male ratio in Internet usage		
			106 56.6		
			Social inclusion		
			124 26.1		
			Social protection coverage (% population)		
			95 17.8		
			Adult literacy rate		
			95 42.2		
			Youth not in employment, education or training (%)		
			122 18.3		
			Standard of living		
			81 36		
			Poverty headcount ratio (% population)		
			59 67.9		
			GDP per capita		
			106 4.1		
			<b>Health and environment</b>		
			<b>129 51.3</b>		
			<b>Health</b>		
			<b>118 44.7</b>		
			Universal health coverage		
			115 45.2		
			Healthy life expectancy (years)		
			113 43.1		
			Under-five mortality rate		
			120 45.8		
			<b>Environmental performance</b>		
			<b>46 57.9</b>		
			Renewable energy consumption (%)		
			36 48.5		
			Ecological footprint per capita		
			3 99.1		
			Natural hazard exposure		
			126 26		

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