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UZBEKISTAN'S INNOVATION JOURNEY: GII RANKINGS AND INSIGHTS (2020-2023)

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Abstract

The paper has analyzed the importance of innovation to the national economy of Uzbekistan, research methodologies used to analyze the innovation indicators within the country, and summarized the Global Innovation Index ranking for Uzbekistan from 2020 to 2023, along with strengths and weaknesses in the innovation landscape of Uzbekistan identified in the GII 2023. Herein, the authors bring several suggestions for those missing indicators of innovations in Uzbekistan that would allow us to expand on a more comprehensive overview of the country and make strategies to develop its system.

Introduction.

The role of innovation in the evaluation and strategic orientations of the national economy of Uzbekistan is growing, necessitating an urgent need to analyse its quantitative indicators logically utilising the primary measurement methods. Because this sector indicates the fundamental direction of the country's development. In this regard, the information of the international standards of evaluation of innovative activities adopted within the framework of the OECD (Organization for Economic Co-operation and Development) and the information of the international ratings of innovations are of particular interest in determining the innovative strategic directions of the country.

Methodology.

The Global Innovation Index was developed in 2007 by INSEAD (a French business school and research institute) as a new research project, and the report measures the ability of countries to use innovative achievements for competitiveness and development, and is the main methodological tool for assessing readiness [1]. OECD standards are the most common in foreign science and practice from the standards. The Oslo Guide has been published sixteen times by the OECD until 2023, and it is dedicated to identifying the innovation potential of 131 countries of the world [2]. We conduct our research and analysis of innovation activity in Uzbekistan based on the data of this source for 2020-2023.

Uzbekistan's position in the international innovation index has been researched using several methodologies, including induction and deduction, analysis and synthesis, logical thinking.

Literature review.

Khurshidovich analyzed possible risks and positive factors affecting the economic prospects of

Uzbekistan for 2023 [3].

Narimanova discusses the role of quality education in the development of human capital and proposes specific strategies to increase its level [4].

Kadirovich studied the role of India and Uzbekistan in the ranking of the world's leading Global Innovation Index, the results of the ranking on indicators [5].

Rakhmatova elaborated on the key directions for developing an innovative economy to achieve the sustainable development goals [6]. Speaking about the International Innovation Index, the country representing the author Rizaev voiced that Uzbekistan's innovation activities are focused on entering the top 50 most leading countries with the most innovative countries in the world by 2030. In 2020, our country was ranked 93, but by 2021, it had improved by 7 points to 86. The 2022 showed a 4 point increase, bringing the ranking to 82. And he concluded that “The dynamics of the past years illustrate that Uzbekistan will only go higher.” [7] However, in 2023, it also took 82 rankings. There is a question of why the country remains in the same place.

Analysis and results

We analyze Uzbekistan's GII ranking indicators from 2020 to 2023, identifying key elements influencing the country's innovative activity.

The table 1 provides Uzbekistan's ranking regarding the Global Innovation Index from 2020 to 2023, including performance in terms of the two main categories: Innovation Inputs and Innovation Outputs.

In the GII column, we put the rank of Uzbekistan according to the Global Innovation Index. It is 93 in 2020, 86 in 2021, 82 in 2022, and 82 in 2023. This clearly shows an improvement overall in the ranking over the four years, with noted jumps from 93 in 2020 to 86 in 2021, and stable years at 82 in the last two years.

In the Innovation Inputs column, they are factors used in determining the potential of the country for innovation. It includes institutions, human capital, and research, infrastructure, market sophistication, and business sophistication. This sub-index improved from 81 in 2020 to 75 in 2021, further to 68 in 2022, and to 72 in 2023. As one may easily observe, this shows slight fluctuations but with an upward trend.

In the Innovation Outputs column represents the results emerging from innovations within the country, such as knowledge and technology outputs and creative outputs. Uzbekistan's placements in these indicators have done nothing but continued to show a positive trend: from 118 in 2020 to 100 in 2021 and further on to 91 in 2022, then finally to 88 in 2023. That is an absolute, unwavering, continuous strong positive change for innovation outputs over four years.

The last row of the table, "2020-2023," sums up the difference in ranks across the reference period, with overall improvement in GII: +11, Innovation Inputs: +9, Innovation Outputs: +30. The synthesis shows the key progress in the development of Uzbekistan in improving the results of innovation and strengthening innovation capacity over the four years.

Table 1 Rankings for Uzbekistan for 2020-2023 years [2]

Years	GII	Innovation inputs	Innovation outputs
2023	82	72	88
2022	82	68	91
2021	86	75	100
2020	93	81	118
2020-2023	+11	+9	+30

The table 2 gives us an overview of the strengths and weaknesses of Uzbekistan in the GII 2023.

Table 2 Strengths and weaknesses for Uzbekistan [2]

Strengths		Weaknesses	
Code and Indicator name	**Rank**	**Code and Indicator name**	**Rank**
1.3.1 Policies for doing business	23	2.3.3 Global corporate R&D investors, top 3, mn USD	40
2.1.5 Pupil–teacher ratio, secondary	28	2.3.4 QS university ranking, top 3	71
2.2.2 Graduates in science and engineering, %	12	5.1.2 Firms offering formal training, %	88
3.2.3 Gross capital formation, % GDP	6	5.2.3 GERD financed by abroad, % GDP	92
5.2.1 University–industry R&D collaboration	32	5.2.5 Patent families/bn PPP$ GDP	95
5.2.2 State of cluster development	29	6.1.4 Scientific and technical articles/bn PPP$ GDP	117
5.3.2 High-tech imports, % total trade	27	6.2.2 Unicorn valuation, % GDP	48
5.3.4 FDI net inflows, % GDP	41	6.3.3 High-tech exports, % total trade	122
6.1.3 Utility models by origin/bn PPP$ GDP	17	7.2.2 National feature films/mn pop. 15–69	73
6.2.1 Labor productivity growth, %	6	7.3.1 Generic top-level domains (TLDs)/th pop. 15–69	132

Table 2 outlines a detailed comparison of the strengths and weaknesses of Uzbekistan in the Global Innovation Index (GII) in the year 2023.

Strengths: Uzbekistan demonstrates robust performance in several key indicators, with the "Gross capital formation" and "Labor productivity growth" being particularly strong, where it ranks at 6th. Another area in which the country ranks at an excellence level is "Graduates in science and engineering" with the rank being 12. The ease of doing business policies is highly favorable and rank 23rd, which shows that the environment of doing commercial business is good. The other strengths in rankings are as follows: 17th in "Utility models by origin" 27th in "High-tech imports" and 32nd in "University–industry R&D collaboration." This together projects the area of a very strong base in innovation.

Weaknesses: On the weakness front, the biggest challenges are observed in the "Generic top-level domains " (ranked 132) and "High-tech exports" (ranked 122) to converge the areas where Uzbekistan has to improve the most in the case of digital and export. It is also facing impediments in increasing the output of scientific and technical publications, as indicated by its rank in "Scientific and technical articles" Other noticeable areas of enhancement include "Firms offering formal training" and "Patent families" which take ranks 88 and 95, respectively indices that evidently reveal the gaps in corporate training and patenting activities.

This is a general perspective that contrasts the areas of innovation strengths and challenges for Uzbekistan. It identifies some critical areas of substantial achievement in some specific areas and points to those weak areas that are critical for improvement to push further innovation and economic growth.

The table 3 tables list data that are either missing or outdated for Uzbekistan.

Table 3 Missing data for Uzbekistan [2]

Code	Indicator name	Missing data
1.3.2	Entrepreneurship policies and culture†	n/a
2.1.4	PISA scales in reading, maths and science	n/a

4.2	Investment	n/a
4.2.1	Market capitalization, % GDP	n/a
4.2.2	Venture capital (VC) investors, deals/bn PPP$ GDP	n/a
4.2.3	VC recipients, deals/bn PPP$ GDP	n/a
4.2.4	VC received, value, % GDP	n/a
5.1.1	Knowledge-intensive employment, %	n/a
7.1.1	Intangible asset intensity, top 15, %	n/a
7.1.3	Global brand value, top 5,000, % GDP	n/a

Conclusion

Uzbekistan has a better performance in input innovation than in output innovation. In terms of input, it was better than output because in the year 2023, it was in the 72nd position in the index of innovation input, which is decreased by -4 compared to last year, whereas in the case of innovation outputs, it was 88th, which is higher compared to the last year.

Uzbekistan takes 72nd place in the world for innovation inputs in 2023, falling by 4 from last year. The country takes position 88 amongst the outputs of innovation—much better than the performance it had posted from last year. In turn, this would mean the input of better innovation performance and noticeable progression that is marked by the outputs of innovation as well. From this analysis, therefore, it would mean that balanced development is indicated by both domains of innovation.

We described the missing data for the series of relevant indicators within the year 2023 of the Global Innovation Index (GII), with respect to Uzbekistan. These need to be filled so that the landscape becomes complete and proper. Advice on how the problem of missing data would be collected and addressed would also be very helpful advice to assist Uzbekistan in having a more representative view of their position in GII and articulating strategies for how to develop their innovation ecosystem.

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