

UZBEKISTAN IS IN A PERIOD OF SUSTAINABLE DEVELOPMENT AND TRANSITION TO AN INNOVATIVE ECONOMY

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Abstract. *In this scientific article, the main directions of the development of the innovative economy in order to realize the goals of sustainable development are researched. As a result of the study, the growing position of Uzbekistan in the Global Innovation Index was also analyzed.*

Keywords: *sustainable development Goals, liberalizing currency exchange, entrepreneurship, R&D, ICT infrastructure, Global Innovation Index.*

It is known that the document adopted by the heads of state and government in the period up to 2030 at the summit of the United Nations General Assembly on Sustainable Development in September 2015 is a new global obligation in principle. The 17 Sustainable Development Goals and associated targets cover a wide range of issues, from health and well-being to climate change, from gender equality to changes in consumption and production patterns.

For the purposes of sustainable development, not only priority directions and new large-scale tasks are being determined in various fields, but also new horizons are being expressed in them. For the first time, an international agreement recognized the crucial role of effective and accountable institutions operating in the context of common interests in the development process.

Goal 16, or the governance objective, reflects the long-standing vision of the Inter-Parliamentary Union and the UNDP. That is, democratic governance is not only an important tool for achieving sustainable development, peace and justice. Parliaments have a direct interest in achieving this goal as important representative bodies with legislative and supervisory powers.

In recent years, Uzbekistan has moved to a new stage of further reform of all spheres of social life. The Strategy of Actions on five priority areas of development of the Republic of Uzbekistan in 2017-2021 [1], approved by the President of Uzbekistan on February 7, 2017, serves as a national "road map" of our country for the implementation of sustainable development goals.

It should be noted that the laws developed and implemented according to the State programs adopted in accordance with the Strategy of Actions, which are in full harmony with the Sustainable Development Goals of the United Nations, serve the development of our country.

After gaining independence in 1991, Uzbekistan – in contrast to many other newly independent States – took a cautious approach to economic transition, retaining high degrees of government control of the economy, high levels of State ownership of assets and strong social policies. This path, known as the Uzbek model [2], helped the country avoid much of the severe economic slumps and rapid deindustrialization that many of its peers went through as Soviet value chains disintegrated and the economy was exposed to international competition.

Natural resource exports have remained the mainstay of the economy since then, and a range of restrictions have confined the private sector to a limited range of activities. In the medium term, innovation and private sector development will be necessary to boost productivity and diversification, especially of exports.

Recognising this challenge, in 2015 President Mirziyoyev set an ambitious reform agenda, putting private sector development, competitiveness, trade and investment front and centre.

In the next years, Uzbekistan reformed swiftly, liberalizing currency exchange, removing price controls, simplifying the tax system, removing a range of restrictions on foreign investment, lowering trade tariffs and reactivating the process of accession to the World Trade Organization.

Steps taken to reduce the regulatory burden on the private sector have also borne fruit – on the World Bank Doing Business index, Uzbekistan ranks 8/190 on Ease of starting a business. The country's overall ranking still stood at 69/190 in 2020, mostly because of three indicators:

Trading across borders (152/190), Dealing with construction permits (132/190) and Resolving insolvency (100/190).

Gross capital formation, which grew from an already high 26 per cent of GDP in 2016 to almost 40 per cent in 2019, has been driven mainly by the rapid, State-led expansion of credit to firms that began in 2017 and also by a surge in foreign direct investment (FDI). FDI reached 4 per cent of GDP in 2019, attracted by opportunities emerging from these radical reforms.

Sustaining this positive momentum requires addressing a range of deeper constraints. Central among them are building governance and institutional capacity with the incentives and skills to design, pilot and roll out effective reforms, especially in areas important to innovation.

According to the World Governance Indicators, public governance in Uzbekistan has improved slightly in recent years but remains relatively weak. These indicators cover elements that are essential to defray the risk involved in innovative initiatives, such as control of corruption (–1.05, on a range from –2.5 to 2.5), rule of law (–1.05), and voice and accountability (–1.61) [3].

Governance reform will be central to improving the business environment and lowering the costs of taking risks and experimenting for innovation.

Innovation will be critical to achieving the country's ambitions to reach the Sustainable Development Goals (SDGs) targets and move towards economic circularity, including efforts to strengthen both skills and environmental sustainability. Uzbekistan has an SDG road map,¹⁵ as well as a Coordination Council and a Parliamentary Commission to oversee progress. It underwent its first Voluntary National Review in 2016 and intends to include such reviews as a recurring feature to measure progress and guide reforms. Out of the 17 SDGs, 16 fall within the five main areas of development addressed in the National Development Strategy. On the SDG dashboard, Uzbekistan ranked 66/193 in 2020 with a score of 71/100,¹⁷ higher than Turkmenistan (63/100) and Tajikistan (69/100) but slightly lower than Kyrgyzstan (73/100) and Kazakhstan (71/100). Achieving targets for reduced inequalities (SDG 10) and industry, innovation and infrastructure (SDG 9) are among the major challenges the country still faces.

Uzbekistan has substantially reduced poverty and gender inequality over the past decades. Poverty fell from 27.5 per cent in 2001 to 11.5 per cent in 2018 [4], although some of this progress was reversed in 2020 by the effects of the pandemic. Uzbek men and women have similar rates of primary and secondary education and literacy [5], and women held 32.7 per cent of parliamentary seats in 2021 [6]. In contrast, enrolment in higher education shows a large gender gap: enrolment of women is consistently lower than that of men, limiting the access of women to high-skilled and high-paid jobs, as well as their potential as innovative entrepreneurs [7]. The labour-force participation rate is substantially lower for women than for men – 66 per cent and 82 per cent respectively in 2018. In 2019, women participated in the ownership of 25.9 per cent of firms, but

only 12.4 per cent of firms had a female top manager – lower than the ECA averages, at 33.8 per cent and 18.3 per cent, respectively [8].

Sustaining growth and ensuring sustainable and inclusive development will require Uzbekistan to capture and further leverage opportunities present in the economy by encouraging innovation, specifically by enabling systematic experimentation across sectors to explore new ways of creating value. Much of the potential will lie in absorbing ideas that work elsewhere into a wider range of contexts in Uzbekistan, through entrepreneurship and foreign investment. This requires a vibrant private sector, with a vanguard of innovative entrepreneurs who can try things out. Sustaining the reform momentum to address more complex issues of governance and market competition, coupled with applying targeted measures to defray the risk of innovation and to build a dynamic innovation system, will be essential to improve lagging productivity, diversify exports and create the foundation for sustainable development overall.

Investment in R&D is one of the main inputs to innovation and is central to raising productivity and creating value within an economy [9], diversifying products and improving access to international value chains. It can generate high rates of return and encourage long-term growth. Yet, gross expenditure on research and development (GERD) in Uzbekistan is relatively low – equal to or less than 0.2 per cent of GDP since 2012, with a decline to 0.13 per cent in 2018, slightly higher than Tajikistan (0.1 per cent) and Kazakhstan (0.12 per cent) but lower than the income-group average in 2017 (0.58 per cent). In recognition of the low levels of investment in R&D, the Strategy of Innovative Development 2019–2021 set out to raise these levels to 0.8 per cent of GDP in 2021, a goal that was not reached.

In Uzbekistan, much like in most other post-Soviet countries, public research organizations are the dominant actors in both fundamental and applied research, with the public sector consistently conducting more R&D activity than the private sector.

In 2019, for example, 304 firms conducted R&D activity, of which 121 were from the private sector (40 per cent), 118 were State-owned enterprises (39 per cent) – specifically research and scientific institutes, a structure retained from the Soviet heritage – and 65 were higher education institutions (HEIs) (21 per cent). For comparison, 35 per cent of Uzbek firms responding to the 2019 Business Environment and Enterprise Performance

Survey invested in R&D, a higher share than both the regional (25.1 per cent) and incomegroup (17.1 per cent) averages but lower than the shares in Tajikistan (36.7 per cent), the Russian Federation (55 per cent) and Turkey (65 per cent). In addition to boosting levels of R&D investment and supporting R&D activity more effectively, the role of the private sector in R&D and innovation needs to be strengthened. This can be addressed, for example, through establishing effective linkages between science and business as well as through ensuring that public R&D support has a more catalytic effect in exploiting commercialization potential throughout the economy

The number of researchers has been relatively stable in recent years. In 2019, of employees engaged in R&D, 85 per cent were researchers and 5 per cent each were technical, support or other staff [9]. More than half of researchers were employed in higher education. The full-time equivalent number of researchers has remained between 470 and 580 per million inhabitants since 2009, reaching just 476 in 2018, lower than in Kazakhstan (667), Turkey (1,379 in 2017) and the Russian Federation (2,784).

Table 1.

Economic performance of Uzbekistan and challenges ahead[10]

Achievements	Challenges ahead
<p>Relatively rapid economic growth and reduction of poverty over the past two decades, with high levels of capital formation;</p> <p>Retention of a substantial portion of the production structure through transition and expansion into complex value chains such as automotive;</p> <p>Strong political commitment to economic reform, sustainable development and, recently, innovation policy;</p> <p>Rapid reform momentum over the past years to open the economy to the private sector, trade and investment;</p> <p>Rapidly growing interest among foreign investors following recent reforms, including the removal of many FDI restrictions;</p> <p>Strong commitment to Agenda 2030; mainstreaming of the SDGs into high level planning instruments.</p>	<p>Sustaining growth in Uzbekistan will require ensuring that capital allocation is more effective, given the high levels of capital formation;</p> <p>The strong reliance on low value added commodities for export revenue creates vulnerability to price fluctuations and shocks and offers little potential for positive spillover effects and diversification;</p> <p>Innovation will be essential to diversify and upgrade the economy while creating good jobs. This requires developing a strong private sector with solid capacities to absorb innovation;</p> <p>Public governance requires strengthening in order to keep up reform momentum and address the remaining substantial constraints on private sector development overall and innovation in particular;</p> <p>The dominance of SOEs holds back market competition and private sector development; further movement to open and facilitate trade is essential to innovation;</p> <p>FDI inflows concentrate on resource-seeking (mining and oil and gas) and market-seeking (manufacturing) investment.</p> <p>Gender-based differences in labour-market participation and, in particular, in innovative entrepreneurship leave substantial potential untapped.</p> <p>Environmental sustainability requires energy reliability and efficiency – and innovation into more sustainable, productive agricultural practices.</p>

A small ICT sector has started to form in Uzbekistan in recent years, ranking the country 65/132 on the GII indicator Information and communication technologies in 2021, compared with 93/141 in 2015. Room for improvement remains in ICT infrastructure and the IT skills capacity of firms. Despite the establishment of ICT support mechanisms, such as the IT Park in Tashkent and a sharper focus by universities on ICT research, the sector still contributes little to GDP. Although the value added of the ICT sector has doubled since 2016, it remained less than 2 per cent of GDP in 2020.

ICT infrastructure mostly lies in the ownership of monopolies, and such services are mostly available only in urban regions. The Telecommunication Infrastructure Index value for

Uzbekistan in 2020 was about 0.47, lower than that of Kyrgyzstan (0.59) and Kazakhstan (0.7) (United Nations, 2020). In the GII, the country ranked 87/132 in ICT service exports – a significant increase from 129/131 in 2020 – with shares of less than 1 per cent of total trade and

4.9 per cent of services exports. Furthermore, in 2019, 77.6 per cent of total exports of IT services occurred in the telecommunication sector while computer software accounted for only 9.4 per cent. This also leaves substantial potential untapped. With its moderate wages, Uzbekistan should be able to follow the path of several Commonwealth of Independent States countries in developing export-oriented ICT-enabled services. Strengthening the use of digital technologies and reinforcing connectivity has a positive impact on productivity as well as on voice and accountability by enhancing the ease of use and the transparency of government services. In line with this, the Government has recently announced plans to invest \$2.5 billion in digital infrastructure,¹⁰ along with other measures for modernizing the ICT sector, such as smart city technologies.

To enable innovation-driven growth effectively, policymakers need to introduce the right mechanisms to defray the risks of experimentation. In Uzbekistan, several direct and indirect policy tools are in place to support innovative development. Most target research commercialization and (digital) start-up creation. However, obstacles to innovative development remain, such as insufficient skills and resources and an innovation infrastructure that is not yet fully developed. The perceived lack of need for innovation and the low demand for new products and services reflect structural features of the economy, which is dominated by resource-based and traditional sectors that are not technologically dynamic.

Difficulties in accessing financing for innovation represent a significant obstacle to innovative activity, especially for pre-seed and seed funding. Most of the funding is public, and the venture capital market is underdeveloped. Direct funding for innovation in Uzbekistan is mainly available through bank loans or competitive grants, awarded by the Fund for Science Financing and Innovation Support under the MoID, through start-up competitions for research and HEIs, and through other fairs organized by the Ministry. SMEs receive some loan support from the State; however, given the high risk of new ventures, loans for innovation usually entail high collateral requirements and interest rate. Furthermore, the Chamber of Commerce and Industry provides loans with low interest rates and without collateral requirements to entrepreneurs to start their own business. Indirect financial support is mostly limited to resident firms in STPs and free economic zones. The Fund for Science Financing and Innovation Support also offers grants for intellectual property registration abroad and for modern equipment for scientific laboratories at HEIs as well as for short-term research internships for young researchers and visits of leading international scientists to Uzbekistan.

Yet, more than half of company expenditures on innovation were covered by their own funds in 2019, while just 31 per cent of small and microfirms and 16 per cent of large and medium enterprises relied on loans from commercial banks [11]. Most start-ups in 2019 were funded by the founders themselves, their friends or their family (87 per cent); only 10 per cent managed to attract seed investment and 3 per cent were funded by grants [12].

To stimulate innovation by incentivizing investment in the creation and acquisition of knowledge, it will be important for Uzbekistan to further diversify financing available for innovation, particularly in the riskier pre-seed and seed phases of growth [13], linking such financing to business support services. Doing so can then further catalyse and crowd in private

equity and support capital market development, for example with ongoing efforts to support the emergence of a venture capital market as well as by supporting the creation and engagement of angel investor networks.

In recent years, the number of higher education institutions in our country has increased by 2.5 times - 198, and the coverage of higher education has increased from 9 to 38%. 41 universities achieved academic and financial independence. In the next year, the funds allocated for preferential educational loans for students of higher educational institutions will double and will amount to 1.7 trillion soums in total.

In 2022, 1.5 trillion soums were allocated for the development of science and innovation. This is almost six times more than in 2017, and the salary of scientists increased by 4.5 times during this time. Thanks to this, 18 new scientific directions were established.

It is noteworthy that the development strategy of Uzbekistan in 2022-2026 based on the principles "For the dignity and worth of man" fully corresponds to the BRM. This is reflected in the concept of comprehensive socio-economic development of the Republic of Uzbekistan until 2030 and the strategy for reducing poverty. The United Nations Sustainable Development Goals set the agenda for inclusive growth in Uzbekistan.

Out of the 17 SDGs, fall within the five main areas of development addressed in the National Development Strategy. On the SDG dashboard, Uzbekistan ranked 66/193 in 2020 with a score of 71/100, higher than Turkmenistan (63/100) and Tajikistan (69/100) but slightly lower than Kyrgyzstan (73/100) and Kazakhstan (71/100). Achieving targets for reduced inequalities (SDG 10) and industry, innovation and infrastructure (SDG 9) are among the major challenges the country still faces. Uzbekistan has substantially reduced poverty and gender inequality over the past decades. Poverty fell from 27.5 per cent in 2001 to 11.5 per cent in 2018, although some of this progress was reversed in 2020 by the effects of the pandemic. Uzbek men and women have similar rates of primary and secondary education and literacy, and women held 32.7 per cent of parliamentary seats in 2021. In contrast, enrolment in higher education shows a large gender gap: enrolment of women is consistently lower than that of men, limiting the access of women to high-skilled and high-paid jobs, as well as their potential as innovative entrepreneurs. The labour-force participation rate is substantially lower for women than for men – 66 per cent and 82 per cent respectively in 2018. In 2019, women participated in the ownership of 25.9 per cent of firms, but only 12.4 per cent of firms had a female top manager – lower than the ECA averages, at 33.8 per cent and 18.3 per cent, respectively.

Uzbekistan ranked 122nd out of 141 countries in the Global Innovation Index in 2015, and in 2022 it ranked 82nd out of 131 countries, rising by 40 positions and becoming the leader of Central Asia. Among the countries of Central and South Asia, it ranked third after India and Iran. Representatives of the World Intellectual Property Organization (WIPO), who are the honorary guests of the forum, participated online and offline. At the forum, the head of economics and statistics of WIPO, co-chairman of GII, Professor Sascha Wunsch-Vincent (Switzerland) made a presentation on the results of GII 2022 in Uzbekistan, noting that Uzbekistan has achieved high results in many areas of science and innovation, as well as rising in the global ranking four positions higher than last year - a policy of openness in the country, support for science is also the result of work aimed at improving innovation capacity (Table 2).

Table 2.

Rankings for Uzbekistan (2020–2022) [13]

	GII	Innovation inputs	Innovation outputs
2020	86	75	118
2021	93	81	100
2022	82	75	100

Russia ranks 45th, Belarus 62nd, Kazakhstan 79th and Uzbekistan 86th in the 2021 Global Innovation Index. Today's main goal is to be among the top 80 countries in the ranking's 2022 report. Based on the results achieved by these countries, it is necessary to work to improve the performance of Uzbekistan.

Among these countries, Uzbekistan ranks 24th in the "Market Development" category. However, due to the low results in the "Business Development", it is ranked 123rd (Table 3).

Also, foreign experts praised the Uzbek government's attention to creating an innovation ecosystem at a time when the demand for innovation on a global scale has increased sharply [14].

Table 3

Comparison table for Russia, Belarus, Kazakhstan and Uzbekistan (GII-2021) [15]

	Russia	Belarus	Kazakhstan	Uzbekistan
	Ranking	Ranking	Ranking	Ranking
Innovation Input Sub-index	43	68	61	75
Innovation Output Sub-index	52	62	101	100
Global Innovation Index	45	62	79	86
Quality of management institutions	67	85	45	94
Human capital and research activities	29	38	66	72
Infrastructure	63	59	58	72
Development of markets	61	101	80	24
Business development	44	69	78	123
Knowledge and technology	48	37	86	77
Creative products	56	93	110	113

According to the rating data, Uzbekistan ranks 6th in "Number of graduates in the field of science and engineering", 6th in "Gross accumulation of capital", "Labor productivity" 7th place in terms of "growth", 22nd place in terms of "Entrepreneurship support policy", 27th place in terms of "Development of clusters".

Also, our country was ranked 56th for the first time according to the indicator "Employment of women with higher education".

The global innovation index consists of 81 indicators and describes the innovative development of countries at different levels of economic development. This index is calculated based on the average value of the indicators of two groups. The first group includes the available resources and conditions for the introduction of innovations (Innovation Input) - institutions, human capital and research, infrastructure, domestic market and level of business development. The second group includes the practical results achieved during the introduction of innovations (Innovation Output) - the development of technologies and knowledge economy, as well as the results of creative activity.

In 2022, Uzbekistan ranked 75th in terms of Innovation Input and 100th in terms of Innovation Output. So, there are enough problems in the country regarding the development of technologies and knowledge economy.

Table 4.

Strengths and weaknesses for Uzbekistan

Strengths	Weaknesses
Ease of starting a business Expenditure on education, % GDP Pupil-teacher ratio, secondary Graduates in science and engineering Government's online service General infrastructure Gross capital formation Ease of protecting minority investors Domestic industry diversification Utility models by origin Knowledge impact Labor productivity growth	Regulatory quality Tertiary inbound mobility Global corporate R&D investors QS university ranking Microfinance gross loans GERD financed by abroad PCT patents by origin Scientific and technical articles Generic top-level domains Mobile app creation

In particular, in accordance with table 4, it is necessary to encourage investments in R&D, develop scientific research works in each university according to the QS university ranking, increase the number of scientific publications and citations to them, increase the number of scientific development and patents. To do all this, it is necessary to develop crowdsourcing without deviating from the goals of sustainable development. We will talk about this in the next chapter of the work.

REFERENCES

1. Uzbekistan's Development Strategy for 2017-2021. <http://tashkenttimes.uz/national/541-uzbekistan-s-development-strategy-for-2017-2021-has-been-adopted-following-discussion>
2. Jalilov, A., and N. Hatasa. (2019). "Analysis of Uzbekistan's economic development after independence". *Economic and Business Review*, vol. 26, No. 2.
3. Kaufmann, D., and A. Kraay. (2021). *World Bank World Governance Indicators (database)*. <http://info.worldbank.org/governance/wgi/>.
4. World Bank, (2019). *Uzbekistan: Toward a New Economy. Country Economic Update, Summer 2019*. Washington, D.C.

- <http://documents1.worldbank.org/curated/en/866501562572675697/pdf/Uzbekistan-Toward-a-New-Economy-CountryEconomic-Update.pdf>.
5. UNESCO (United Nations Educational, Scientific and Cultural Organization) (2021). Data for the Sustainable Development Goals for Uzbekistan (database). http://uis.unesco.org/en/home#tabs-0-uis_home_top_menus-3.
 6. United Nations Women (2021). Database. <https://data.unwomen.org/country/uzbekistan>.
 7. Elçi, S. (2020). Mapping Research and Innovation in the Republic of Uzbekistan. GO-SPIN Country Profiles in Science, Technology and Innovation Policy, vol. 10. Paris: UNESCO (United Nations Educational, Scientific and Cultural Organization).
 8. World Bank, EIB (European Investment Bank) and EBRD (European Bank for Reconstruction and Development) (2019). Enterprise Surveys. What Businesses Experience. Uzbekistan 2019 Country Profile. Washington, D.C.: World Bank Group
 9. Vergara, S. (2019). “The role of productive and technological capabilities on export dynamics in developing countries”. DESA Working Paper No. 161. New York: UNDESA (United Nations Department of Economic and Social Affairs).
 10. State Statistics Committee of Uzbekistan (2021). Statistical database. Republic of Uzbekistan. <https://stat.uz/en/official-statistics/metadata>
 11. https://unece.org/sites/default/files/2022-06/9789211172966_I4SDR_UZBEKISTAN_2022_web_full%2Bcover.pdf
 12. State Statistics Committee of Uzbekistan (2020). Статистический бюллетень «Основные показатели развития научнотехнического потенциала и инноваций Республики Узбекистан в 2019 году» [Statistical bulletin „Key indicators of the development of scientific-technological potential and innovation of the Republic of Uzbekistan in 2019”]. Tashkent.
 13. <https://www.mininnovation.uz/en/info/global-innovatsion-indeks#!>
 14. <https://brightuzbekistan.uz/en/uzbekistan-ranked-82nd-in-the-global-innovation-index/>
 15. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021/uz.pdf