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GLOBAL INNOVATION INDEX REPORT HIGHLIGHTS

2021

WHERE DOES INDIA STAND ON GII 2021?

GII 2020: COVID19 PANDEMIC'S EXPECTED IMPACT ON GLOBAL INNOVATION

The theme of this year's Global Innovation Index, prepared by the World Intellectual Property Organization (WIPO), is "Tracking innovation through the COVID-19 crises". The questions regarding the impact and the repercussions of the pandemic on the global economies have been resolved in this report. The report reiterates its ultimate objective i.e. to discover what works best in producing an ecosystem where people can achieve their highest potential, innovating and creating to improve lives everywhere.

WIPO Director General Daren Tang says, "scientific output, expenditures in research and development, intellectual property filings and venture capital deals continued to grow in 2020, building on strong peak pre-crisis performance. But much more effort will be needed to vanquish the pandemic – and the GII can help. The GII's overall formula for measuring an economy's innovative capacity and output provides clarity for decision-makers in government, business and elsewhere as they look forward to creating policies that enable their people to invent and create more efficiently. That's key to overcoming the pandemic and building back better."

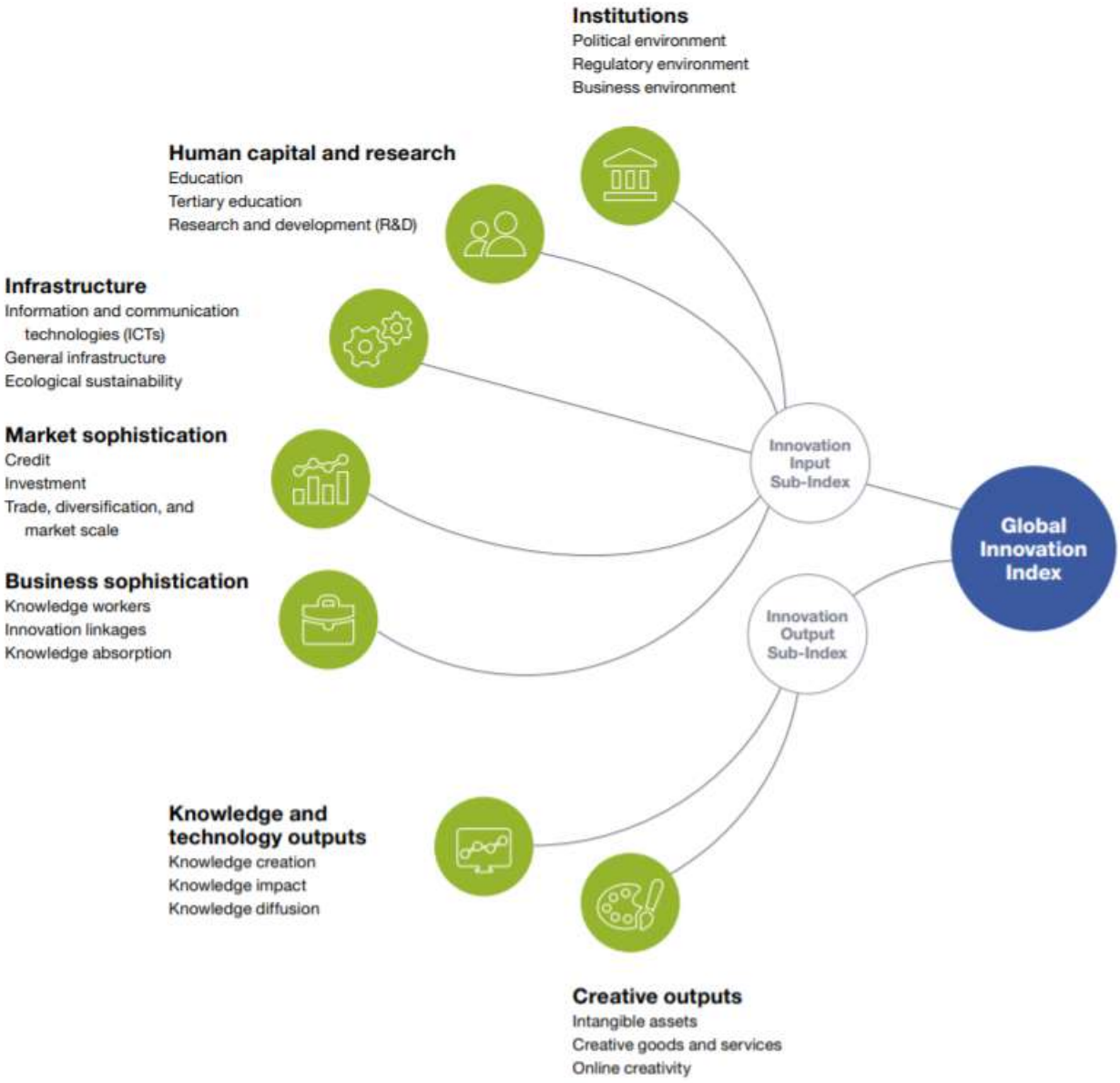
As per the report, Switzerland for another consecutive year dominated the Index followed by Sweden, U.S.A., U.K., Republic of Korea and Netherlands with Republic of Korea entering the club of top-5 for the first time. India's performance has been quite commendable with a surge of 2 positions, it has secured 46th rank in the overall category and 1st in Central South Asia. Hence, maintained its position in the top-50 economies 2nd time in a row. Meanwhile, the top-10 economies were all from the category of High-income countries.

ABOUT THE GLOBAL INNOVATION INDEX

The Global Innovation Index 2021 (GII), in its 14th edition this year is published by WIPO in partnership with the Portulans Institute, with the support of corporate network partners including the Confederation of Indian Industry (CII), Brazilian National Confederation of Industry (CNI), Ecopetrol Group (Colombia) and the Turkish Exporters Assembly (TIM).An important new element of the GII ecosystem this year is the creation of an Academic Network comprising nine important global academic institutions: American University in Cairo (Egypt), Cornell University (United States of America), EGADE Business School (Mexico), Higher School of Economics (Russian Federation), INSEAD (France/ Singapore), Lagos Business School (Nigeria), Peking University (China), Universidad de Los Andes (Colombia) and University of São Paulo (Brazil). The GII Academic Network will play a key role in creating new innovative programs for faculties and students globally.

The Global Innovation Index 2021 captures the innovation ecosystem performance of 132 economies and tracks the most recent global innovation trends. The GII provides factual evidence and reliable data to inform the many essential debates around innovation. Indeed, the 2021 edition of the GII proposes the use of a novel GII Global Innovation Tracker to monitor some of the issues mentioned above. This new effort is fully in line with the GII's goal of advancing a data-based understanding of innovation.

Published annually since 2007, the GII is now a leading benchmarking tool for business executives, policymakers and others seeking insight into the state of innovation around the world. The core of the GII Report consists of a ranking of world economies' innovation capabilities and results. Recognizing the key role of innovation as a driver of economic growth and prosperity, and the need for a broad vision of innovation applicable to developed and emerging economies, the GII includes indicators that go beyond the traditional measures of innovation, such as the level of research and development. The GII 2020 is calculated as the average of two sub-indices. The Innovation Input SubIndex gauges elements of the national economy which embody innovative activities grouped in five pillars: (1) Institutions, (2) Human capital and research, (3) Infrastructure, (4) Market sophistication, and (5) Business sophistication. The Innovation Output SubIndex captures actual evidence of innovation results, divided in two pillars: (6) Knowledge and technology outputs and (7) Creative outputs.



KEY TAKEAWAYS

- The GII 2021 finds that governments and enterprises in many parts of the world have scaled up their investments in innovation during the COVID-19 pandemic. Meantime, scientific output, expenditures in research and development, intellectual property filings and venture capital deals continued to grow in 2020, building on strong peak pre-crisis performance.

- COVID-19 continued to spread its wrath this year as well, however innovation throughout the crisis showed a silver lining. GII 2021 submitted that investment in innovation has shown massive resilience, despite economic shock resulting from the crisis. R&D expenditure increased by around 10 percent in 2020, with 60 percent of R&D-intensive firms reporting an increase. International patent filings via WIPO reached a new all-time high in 2020. An increase of 3.5 percent was driven by medical technology, pharmaceuticals and biotechnology. Venture capital grew by 5.8 percent in 2020 which is factually more than the average growth rate of the last 10 years.

- R&D expenditures:- The top five R&D spending economies in 2019 were the United States (+10.9 percent), followed by China (+11.1 percent), Japan (−0.4 percent), Germany (+2.3 percent) and the Republic of Korea (+4.8 percent). These five economies have consistently been the world's major R&D spenders since 2011. Business R&D expenditure – the largest component of total global R&D – grew by 7.2 percent in 2019, up from 4.6 percent in 2018.

- In the pharmaceuticals and biotechnology industry, around 62 percent of companies reported an increase in R&D spending. The industries with a majority of companies reporting R&D investment declines include the automobile as well as the travel, leisure and personal goods industries, with shares of 68 percent and 65 percent, respectively.

- International patent fillings:- Notwithstanding the decline in global output, international patent filings reached a new all-time high in 2020. They increased by 3.5 percent, fueled by particularly fast growth from China (16 percent). The Republic of Korea and the United States also saw solid growth, whereas Japan and most European economies registered declines. The most dynamic technology fields in 2020 were medical technology, pharmaceuticals and biotechnology.

- Technological Progress:- with the objectives of raising living standards and providing a safe and healthy habitat, technological progress continued in varied fields. For instance, fulfilling the demand of COVID vaccines highlights the promising nature of scientific advancement. As of July 2021 – within 16 months of the pandemic's onset – more than 3.5 billion people worldwide had already received at least one jab, which further tells the progressive nature of technology.

- Dominating Countries in GII:- Top 5 ranks are secured by Switzerland, Sweden, the U.S., U.K and the Republic of Korea respectively. While the Republic of Korea entered the top-5 for the first time, the majority of top-25 countries hail from Europe.

- Performance of the middle income countries:- only China manages to secure itself a place in the top-30 most innovative economies. Turkey (41st), Thailand (43rd), Viet Nam (44th), the Russia Federation (45th), India (46th), Ukraine (49th) and Montenegro (50th) make it into the GII top 50 this year. As per the research, India, Viet Nam, Turkey and Philippines have the potential to change global innovation landscape for good.

- Performance of the developing countries:- India, Kenya, the Republic of Moldova, and Viet Nam for the 11th year in a row have overperformed in the index. However, it's the first time that Brazil and The Islamic Republic of Iran and Peru earned the title of overperformance. The largest no. of overperforming economies were from Sub-Saharan Africa.

- The geography of global innovation is changing unevenly:- Northern America and Europe continue to lead far in front of other regions for innovation. The innovation performance of South East Asia, East Asia, and Oceania (SEAO) has been the most dynamic in the past decade, and is the only region closing the gap. Despite strong performances by the Islamic Republic of Iran, Chile, the United Arab Emirates and South Africa – they remain stubbornly a long distance behind. In Latin America and the Caribbean, only Chile, Mexico, Costa Rica and Brazil rank among the top 60. Except for Mexico, few economies in this region have managed consistently to up their ranking over the past 10 years.

- Impact of Pandemic on science and innovation investments: Global output declined by 3.3 percent in 2020, as containment measures to tackle the pandemic caused overall demand to decline and supply chains to fail (IMF, 2021). Financial market uncertainty soared. The key indicators of global science and innovation investments – scientific publications, research and development (R&D) expenditures, international patent filings and venture capital deals – reflect this mixed impact of the pandemic.

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Table 3
GII 2021 rankings in Asia (excluding Western Asia)

Rank	Top 15	Rank	Top 50	Rank	Top 60	Rank	Top 100	Rank	Top 130
5	Republic of Korea	36	Malaysia	51	Philippines	79	Kazakhstan	103	Tajikistan
8	Singapore	43	Thailand	58	Mongolia	82	Brunei Darussalam	109	Cambodia
12	China	44	Viet Nam	60	Iran (Islamic Republic of)	86	Uzbekistan	111	Nepal
13	Japan	46	India			87	Indonesia	116	Bangladesh
14	Hong Kong, China					95	Sri Lanka	117	Lao People's Democratic Republic
						98	Kyrgyzstan		
						99	Pakistan	127	Myanmar

Source: Global Innovation Index Database, WIPO, 2021

INDIA'S OUTLOOK

India

GII 2021 rank
46

Output rank	Input rank	Income	Region	Population (mn)	GDP, PPP$ (bn)	GDP per capita, PPP$	GII 2020 rank
45	57	Lower middle	CSA	1,380.0	8,681.3	6,284	48

		Score/ Value	Rank	
Institutions		**64.4**	**62**	◆
1.1	**Political environment**	**57.7**	**66**	◆
1.1.1	Political and operational stability*	64.3	80	
1.1.2	Government effectiveness*	54.5	60	◆
1.2	**Regulatory environment**	**63.6**	**71**	◆
1.2.1	Regulatory quality*	39.3	81	
1.2.2	Rule of law*	45.9	65	◆
1.2.3	Cost of redundancy dismissal	15.8	61	
1.3	**Business environment**	**71.8**	**62**	◆
1.3.1	Ease of starting a business*	81.6	105	
1.3.2	Ease of resolving insolvency*	62.0	47	◆
Human capital and research		**34.1**	**54**	◆
2.1	**Education**	**35.9**	**102**	
2.1.1	Expenditure on education, % GDP	3.8	74	
2.1.2	Government funding/pupil, secondary, % GDP/cap	16.9	66	
2.1.3	School life expectancy, years	11.5	95 ○	
2.1.4	PISA scales in reading, maths and science	n/a	n/a	
2.1.5	Pupil-teacher ratio, secondary	21.5	99 ○	
2.2	**Tertiary education**	**33.8**	**64**	◆
2.2.1	Tertiary enrolment, % gross	28.6	88	
2.2.2	Graduates in science and engineering, %	32.2	12 ● ◆	
2.2.3	Tertiary inbound mobility, %	0.1	108 ○	
2.3	**Research and development (R&D)**	**32.5**	**35**	◆
2.3.1	Researchers, FTE/mn pop.	252.7	78	
2.3.2	Gross expenditure on R&D, % GDP	0.7	52	◆
2.3.3	Global corporate R&D investors, top 3, mn US$	69.2	15 ● ◆	
2.3.4	QS university ranking, top 3*	44.9	23 ● ◆	
Infrastructure		**36.8**	**81**	◆
3.1	**Information and communication technologies (ICTs)**	**58.1**	**86**	
3.1.1	ICT access*	38.2	111 ○	
3.1.2	ICT use*	23.2	110 ○	
3.1.3	Government's online service*	85.3	24	◆
3.1.4	E-participation*	85.7	29	◆
3.2	**General infrastructure**	**32.1**	**52**	
3.2.1	Electricity output, GWh/mn pop.	1,198.1	94	
3.2.2	Logistics performance*	52.4	43	◆
3.2.3	Gross capital formation, % GDP	27.8	28	
3.3	**Ecological sustainability**	**20.3**	**98**	
3.3.1	GDP/unit of energy use	10.8	63	
3.3.2	Environmental performance*	27.6	125 ○ ◇	
3.3.3	ISO 14001 environmental certificates/bn PPP$ GDP	0.9	69	
Market sophistication		**55.5**	**28**	◆
4.1	**Credit**	**43.1**	**56**	
4.1.1	Ease of getting credit*	80.0	23	
4.1.2	Domestic credit to private sector, % GDP	50.2	69	
4.1.3	Microfinance gross loans, % GDP	0.9	25	
4.2	**Investment**	**35.9**	**45**	
4.2.1	Ease of protecting minority investors*	80.0	13 ● ◆	
4.2.2	Market capitalization, % GDP	80.2	19	◆
4.2.3	Venture capital investors, deals/bn PPP$ GDP	0.1	38	◆
4.2.4	Venture capital recipients, deals/bn PPP$ GDP	0.1	22	◆
4.3	**Trade, diversification, and market scale**	**87.7**	**7** ● ◆	
4.3.1	Applied tariff rate, weighted avg., %	6.6	97	
4.3.2	Domestic industry diversification	97.8	12 ● ◆	
4.3.3	Domestic market scale, bn PPP$	8,681.3	3 ● ◆	

		Score/ Value	Rank	
Business sophistication		**29.2**	**52**	◆
5.1	**Knowledge workers**	**26.4**	**83**	
5.1.1	Knowledge-intensive employment, %	17.0	90	
5.1.2	Firms offering formal training, %	35.9	38	
5.1.3	GERD performed by business, % GDP	0.2	51	◆
5.1.4	GERD financed by business, %	36.8	51	
5.1.5	Females employed w/advanced degrees, %	2.3	103 ○	
5.2	**Innovation linkages**	**24.1**	**50**	◆
5.2.1	University-industry R&D collaboration†	42.7	65	
5.2.2	State of cluster development and depth†	45.6	72	
5.2.3	GERD financed by abroad, % GDP	n/a	n/a	
5.2.4	Joint venture/strategic alliance deals/bn PPP$ GDP	0.1	35	◆
5.2.5	Patent families/bn PPP$ GDP	0.2	49	◆
5.3	**Knowledge absorption**	**37.1**	**34**	◆
5.3.1	Intellectual property payments, % total trade	1.4	27	◆
5.3.2	High-tech imports, % total trade	10.6	26	
5.3.3	ICT services imports, % total trade	1.7	43	
5.3.4	FDI net inflows, % GDP	1.6	88	
5.3.5	Research talent, % in businesses	34.0	38	◆
Knowledge and technology outputs		**34.5**	**29**	◆
6.1	**Knowledge creation**	**21.0**	**51**	◆
6.1.1	Patents by origin/bn PPP$ GDP	2.0	36	◆
6.1.2	PCT patents by origin/bn PPP$ GDP	0.2	48	◆
6.1.3	Utility models by origin/bn PPP$ GDP	n/a	n/a	
6.1.4	Scientific and technical articles/bn PPP$ GDP	10.3	84	
6.1.5	Citable documents H-index	40.8	21 ● ◆	
6.2	**Knowledge impact**	**33.3**	**51**	◆
6.2.1	Labor productivity growth, %	2.8	17 ●	
6.2.2	New businesses/th pop. 15–64	0.1	115 ○	
6.2.3	Software spending, % GDP	0.3	51	
6.2.4	ISO 9001 quality certificates/bn PPP$ GDP	3.6	68	
6.2.5	High-tech manufacturing, %	34.1	36	◆
6.3	**Knowledge diffusion**	**49.1**	**13** ● ◆	
6.3.1	Intellectual property receipts, % total trade	0.1	46	
6.3.2	Production and export complexity	56.3	42	◆
6.3.3	High-tech exports, % total trade	4.0	39	
6.3.4	ICT services exports, % total trade	11.7	1 ● ◆	
Creative outputs		**23.1**	**68**	
7.1	**Intangible assets**	**31.9**	**61**	
7.1.1	Trademarks by origin/bn PPP$ GDP	33.8	68	
7.1.2	Global brand value, top 5,000, % GDP	70.3	28	◆
7.1.3	Industrial designs by origin/bn PPP$ GDP	1.0	72	
7.1.4	ICTs and organizational model creation†	59.6	47	◆
7.2	**Creative goods and services**	**19.8**	**55**	◆
7.2.1	Cultural and creative services exports, % total trade	1.5	18 ● ◆	
7.2.2	National feature films/mn pop. 15–69	2.2	63	
7.2.3	Entertainment and media market/th pop. 15–69	0.9	59 ○	
7.2.4	Printing and other media, % manufacturing	0.5	83 ○	
7.2.5	Creative goods exports, % total trade	2.7	24	◆
7.3	**Online creativity**	**8.6**	**105**	
7.3.1	Generic top-level domains (TLDs)/th pop. 15–69	0.9	97	
7.3.2	Country-code TLDs/th pop. 15–69	0.7	95	
7.3.3	Wikipedia edits/mn pop. 15–69	23.4	117 ○	
7.3.4	Mobile app creation/bn PPP$ GDP	13.3	42	

INDIA'S OUTLOOK

- The country's rank has been consistently rising in the last few years. From securing 81st position in 2015 to achieving 46th position in 2021, it has evidently made significant leaps in the Global Innovation Index(GII). "The consistent improvement in the GII ranking is owing to the immense knowledge capital, the vibrant start-up ecosystem, and the amazing work done by the public and the private research organizations," Niti Aayog, the government's think tank, said in a statement.

  Moving up two positions since last year (48th in 2020 GII), it has achieved 2nd place among 34 lower middle-income countries topped by Viet Nam , improving its earlier position of being 3rd in the tally. India has also been portrayed as successful in developing sophisticated services that are technologically dynamic and can be traded internationally
  The Innovation index also categorizes different countries on the basis of geographical regions. It is highly commendable that India topped the index, showing performance of 10 economies, of Central and Southern Asia followed by Islamic Republic of Iran and Kazakhstan.

- Global Leaders in Innovation in 2021:- GII is topped by Switzerland followed by Sweden and the United States of America. The countries capturing top-10 positions in the index belong to the category of High-income economies. The middle-income category has been topped by China securing 12th rank in the overall performance, the lower-middle-income group has been topped by Vietnam and lastly, the low-income group has been topped by Rwanda. After entering the threshold of the top 50 economies last year, India further progresses to improve two positions in the overall performance and secured 2nd position in the Lower-middle income group.

- For the 11th consecutive year India is an Innovation achiever. It has made impactful leaps broadly in 4 pillars namely, Business Sophistication (52nd) Market Sophistication (28th) Knowledge and Technology Outputs (29th) Human Capital and Research (54th). Political and Operational Stability (80th), Government Effectiveness (60th). Under Business Sophistication, India has performed well in Intellectual Property (IP) payments, % total trade, securing 27th rank. Under Market Sophistication, the core improvement can be seen in Trade Diversification and Market trade, securing 7th rank. Under Knowledge and Technology Outputs, India has topped in ICT services exports and ranked 17th in labour productivity growth %.

For the full WIPO GII Report, click here:

https://www.wipo.int/edocs/pubdocs/en/wipo_pub_gii_2021.pdf

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ABOUT THE IP PRESS

The IP Press is a team of IP-Holics, who started this blog to ensure access to the latest intellectual property (IP) issues for all the IP hopefuls. Our focus would be to address IP concerns of stakeholders, students, academicians, researchers, start-ups, etc. and guide them to attain and enforce their IP rights.

We, not only hold expertise in law and IP, but our team of technically-skilled professionals, IP specialists and patent agents gives us a better understanding to deal with technical issues in IP. To focus on national and international issues, we are supported with international IP experts as well.

Below is an insight into the objectives of starting this initiative:

- **Spread awareness on the latest IP issues;**
- **Conduct workshops for the IP professionals;**
- **Seminars and video lectures for the IP aspirants;**
- **Review and comment on the IP policies;**
- **Encourage and foster the IP culture;**
- **Career counselling for students who are interested in building their career in IP;**
- **A team of academicians and practitioners to research and advice on the IP disputes.**

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