



INDIA INNOVATION INDEX 2021

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MESSAGE

India is among the fastest-growing economies globally and innovation has played a critical role in achieving this status. India has rightly identified innovation as a key priority and is committed to further influencing its innovative footprint across the globe. Through Atal Innovation Mission's Atal Tinkering Labs and Atal Incubation Centres, the government aims to promote innovation from school to industry. Similarly, the Make in India initiative focuses on the creation of additional employment opportunities by encouraging innovation and investments in the country's manufacturing sector.

Covid-19 accelerated the adoption of new technologies; in India too, the pandemic led to the emergence of several path breaking ideas. Never before has the need to adapt and adopt new technologies and innovations felt more urgently. The India Innovation Index 2021 is one such step towards fostering and furthering the ongoing wave of innovation in the country. Through its rankings, the third edition of the index aims to comprehend the opportunities and potential of innovation in each Indian state and union territory. It will provide valuable insights to different stakeholders and guide them in the formulation of policies that will help improve their performance. Moreover, the third edition will be a catalyst in promoting competitive federalism.

I want to congratulate NITI Aayog's Science and Technology Vertical for the completion of the third edition. Our knowledge partner, Institute for Competitiveness, played a vital role in the preparation of this index. We hope that the third edition of the India Innovation Index 2021 encourages the innovation ecosystem and provides better strategies for promoting the same at the regional level.

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MESSAGE

From pioneering several innovations in the ancient times to making incomparable contributions to modern science and technology, India has rightfully earned its name as one of the world's most innovative nations. Currently, India is on the road to further promoting research and development (R&D) by establishing several centres of excellence, supporting mega facilities for basic research, launching new fellowships, etc.

With the onset of the Covid-19 pandemic, the role of innovation has grown bigger, be it in the older innovations like ventilators or newer innovations like drugs and vaccines. It has been established that even a pandemic can be dealt with the development of newer drugs and vaccines, of which innovation is a pivotal part.

The India Innovation Index 2021 is a deep dive into the innovation landscape of India; it provides a holistic picture of the innovative capacities of our states/UTs by highlighting their strengths and weaknesses. The index provides a module to the states and UTs build upon their strengths and work on their weaknesses. This is especially important in the current context, where multiple start-ups and unicorns have started carving their space in the Indian market.

I thank all stakeholders involved in the preparation of this report, especially our knowledge partner, Institute for Competitiveness. I hope the third edition further instils a competitive spirit among the states/UTs and enables them to boost the innovation ecosystem of the country.

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MESSAGE

The year 2021 will be remembered for the indefatigable human spirit. India's achievements and challenges during the second wave of the Covid pandemic must be duly analysed. But what will go down in history is that even in the face of great crisis and uncertainty, we did not give up hope. The Government of India was able to create a robust platform for incentivising innovative solutions to address the crisis. The states and union territories played a critical role in strategizing and strengthening the innovative ecosystem at a sub-national level.

India's performance has been consistently improving in fostering innovation, as attested by our ranking in the Global Innovation Index (GII) 2021, where India moved up two positions since 2020. India has been on track with nurturing an innovation ecosystem with government initiatives such as 'Start-up India', 'Digital India' and 'Aatmanirbhar Bharat'. To foster innovation and entrepreneurship in schools, colleges, and the society at large, NITI Aayog established the Atal Innovation Mission (AIM) in 2016.

In the spirit of competitive federalism, the states and union territories need to promote environmentally and socially sustainable economic development through innovation-induced policy interventions. The current edition of the India Innovation Index has matched the GI framework to bring out a more comprehensive and nuanced index to measure the innovation performance of the country. The index will act as a benchmark to compare and contrast the performance of states and union territories against their peers to develop appropriate policy mechanisms to promote innovation-driven growth at the sub-national level.

I extend my regards to the Science and Technology team at NITI Aayog, various Central ministries, state governments and other departments, as well as the team at World Intellectual Property Organization (WIPO) for their inputs towards the preparation of this report. I thank our knowledge partner, Institute for Competitiveness, especially the institute's chairman, Dr Amit Kapoor, and his team for their invaluable contribution in developing the India Innovation Index 2021.

(Amitabh Kant)

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MESSAGE

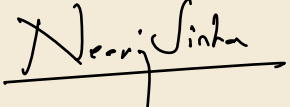
As the world changes, the need to constantly push toward innovative ideas to meet the challenges ahead also increases. At the same time, innovation needs to be guided by the future demand for goods and services. This has been highlighted in recent years by the tremendous increase in technologies developed such as Artificial Intelligence (AI), quantum computing, 3D printing etc. Though India still has a long way to go to become a leader in developing cutting-edge, path-breaking and innovative technologies, the groundwork has been done.

Innovation and creativity are vital to achieving progress in socio-economic, education-, healthcare- and agriculture-related fields. R&D will lead to increased productivity, expand the markets, and create employment and wealth. As the world grows more competitive and we confront a number of difficulties—including climate change, new technologies that are reshaping business models, and, most recently, the Covid-19 pandemic—innovation is more important than ever.

India has begun to carve a path towards an enabling environment by establishing an ecosystem that fosters innovation. As emphasized by the Prime Minister in his appeal for an Aatmanirbhar Bharat, innovation is critical in promoting the country's resilience and self-reliance. The index points to the decentralisation of innovation across all Indian states.

The third edition of index highlights a comprehensive tool towards the country's innovation ecosystem by ranking the states and UTs based on various paradigms and building competition amongst each other for better growth and development of states and UTs.

The index is a diligently prepared and well-articulated document for which I want to thank my team at NITI Aayog as well as our knowledge partner, Institute for Competitiveness, for its valuable time, research and insights for the preparation of this report.


(Neeraj Sinha)

Dr. Amit Kapoor |
Honorary Chairman

As the world continues to grapple with the pernicious Covid-19 pandemic, the role of innovation has regained importance. The world has shown that such pandemics can be resolved through with continuous and comprehensive innovative practices. This pandemic was dealt with rigorous research and development in the health domain. Likewise, the world has been able to develop innovative solutions in other catastrophes relating to agriculture, war, climate, and others.

Against this backdrop, the India Innovation Index 2021 brings out the innovative landscape within the country at the national and sub-national levels. The index is a rigorous document that highlights the potential of states/UTs. It also highlights the lacuna in this regard and chalks out ways to fill the gaps. Thus, the index compares the states/UTs with each other to maintain the country's competitive spirit and provides a framework that the states/UTs can refer to. Moreover, it also draws some international parallels, which will add to the learning of India and how we can be on a par with our counterparts.

I am grateful to NITI Aayog for giving the Institute for Competitiveness the opportunity to take this important body of work forward. I am thankful to all the stakeholders for the preparation of this third edition. I would like to thank Dr Rajiv Kumar, Dr V.K. Saraswat, Shri Amitabh Kant and Shri Neeraj Sinha for their guidance and feedback. Finally, I would like to acknowledge the support of my team at the Institute for Competitiveness, including Sheen Zutshi, Rishi Jain and Teesta Bose, in the preparation of this report.

I am certain that this edition will enhance the innovative vision of the country and pave the way for future innovative practices.



(Amit Kapoor)

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Abbreviations

| | |
|-----------|--|
| ACRI | International Advanced Research Centre for Powder Metallurgy and New Materials |
| AIM | Atal Innovation Mission |
| AI | Artificial Intelligence |
| AR | Augmented Reality |
| ASEAN | Association of South-East Asian Nations |
| AT | Appropriate Technology |
| ATL | Atal Tinkering Labs |
| BRICS | Brazil, Russia, India, China, and South Africa |
| CAGR | Compound Annual Growth |
| CAP | Control, Aware and Prepare |
| CSIR | Centre for Scientific & Industrial Research |
| CSIR-CCMB | Centre for Cellular & Molecular Biology |
| DoP | Department of Pharmaceuticals |
| DPIIT | Department for Promotion of Industry and Internal Trade |
| DRDO | Defence Research and Development Organization |
| DST | Department of Science and Technology |
| ER&D | Engineering, Research and Development |
| FDI | Foreign Direct Investment |
| 4IR | Fourth Industrial Revolution |
| GDP | Gross Domestic Product |
| GII | Global Innovation Index |
| GoI | Government of India |
| GREED | Gross Expenditure on R&D |
| GSVA | Gross Value Added |
| HC | Human Capital |
| ICT | Information and Communication Technology |
| ICAR | Indian Council of Agricultural Research (ICAR) |
| III | India Innovation Index |
| IoT | Internet of things (IoT) |
| IT | Information Technology |
| ILO | International Labour Organization |
| KMO | Kaiser-Meyer-Olkin (KMO) |

| | |
|----------------|--|
| MNCs | Multinational Companies |
| MoE | Ministry of Education |
| MoHFW | Ministry of Health and Family Welfare |
| MoT | Ministry of Textiles |
| MSME | Micro, Small and Medium Enterprise |
| MUDRA | Micro Units Development and Refinance Agency |
| NAAC | National Assessment and Accreditation Council |
| NCERT | National Council of Educational Research and Training (NCERT) |
| NCRB | National Crime Records Bureau |
| NE | North Eastern States |
| NIC | National Informatics Centre |
| NITI | National Institution for Transforming India |
| NIDHI | National Initiative for Developing and Harnessing Innovations |
| NIF | National Innovation Foundation (NIF) |
| NIRF | National Institutional Ranking Framework |
| NMEICT | National Mission on Education through Information and Communication |
| PCA | Principal Component Analysis |
| PLFS | Periodic Labour Force Survey |
| PPE | Personal protective equipment |
| PPP | Purchasing Power Parity |
| R&D | Research and Development |
| RICH | Research and Innovation Circle of Hyderabad |
| SMILE | Social Media Interface for Learning Engagement |
| STIP | Science, Technology and Innovation Policy |
| STEM | Science, Technology, Engineering and Mathematics |
| TRIPS | Trade-Related Aspects of Intellectual Property Rights |
| U.S | United States |
| UNESCO | The United Nations Educational, Scientific and Cultural Organization |
| VR | Virtual Reality |
| WEF | World Economic Forum |
| WIPO | World Intellectual Property Organization |

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Executive Summary

The third edition of the India Innovation Index 2021 too is set against the backdrop of the Covid-19 pandemic, which has disrupted the global socio-economic landscape. But human resilience and crisis-driven innovation have kept India and the world afloat in these difficult times. The third edition solidifies the scope of innovation analysis in the country by adopting the framework of the Global Innovation Index (GII) and expanding the number of indicators from 36 to 66 across seven key pillars. Building on the foundation of the last two editions, the current report presents an in-depth analysis of the state of innovation in the Indian economy.

The India Innovation Index has been prepared on the basis of extensive research and critical analysis of the states and union territories. The report presents an evaluation of the innovation readiness of states and UTs and highlights potential challenges that deter the government, businesses and individuals from fully realizing their potential.

The index has been broadly categorized into four sections.

The first section begins with an introduction to the current innovation landscape in the country and goes on to present the significant innovation drivers during the pandemic. Further, a detailed analysis of innovation in India is provided by evaluating the country's opportunities and challenges. The first section concludes with a comparative study of India with other countries on various parameters.

The second section depicts the new framework mapped from the GI to measure innovation and calculate the index, which is followed by key findings and then the individual state profiles. Karnataka has topped the Major States' category in the current edition, followed by Telangana and Haryana. Among the North-Eastern

and Hilly States, Manipur is the best performer, followed by Uttarakhand and Meghalaya. For the Union Territories and City-States, Chandigarh is the top performer, followed by Delhi. The key findings provide a detailed analysis of the various factors that drive innovation in the country. These analyses will be critical for policymakers to identify the drivers and bottlenecks for each state to promote innovation in the region.

The third section presents the learnings and recommendations derived from a detailed study of the innovation ecosystem at the state and national levels. This section includes the profiles of all the states and union territories and provides a comprehensive picture of every region's current innovation environment. The last section of the report contains the appendix, which consists of detailed data tables for all the framework indicators and sources and definitions for reference.

The study is a detailed guidebook for relevant stakeholders to track regional progress on innovation-driven endeavours and inform policy recommendations through context-specific strategies derived from state-level analysis.



COVAXIN
Covid 19 Vaccine



Introduction

Innovation has been steering human progress globally. It is not merely technological progress; in fact, the most prominent feature of an innovation-driven society is the dynamic attitude of its people.

Countries with high innovation capabilities have invested heavily in human capital development at all levels. The aim has been to develop specific skills beyond technical knowledge, like imaginative thinking, devising methods to tackle complex issues and keeping pace with the times. Thus, human capital is the source of innovative ideas, knowledge, and practices.

With a growing knowledge-based economy the reliance on physical inputs and natural resources reduces where more



attention on a skilled workforce for advancing technical and scientific innovation is required.¹ India is home to 1.3 billion people, and the country accounts for a fifth of the world's youth population. We can utilize our demographic dividend to foster innovation and drive the nation towards becoming a knowledge economy. India has been on the right path towards achieving the same while battling the Covid-19 pandemic. The crisis has had a significant impact on the world, thereby stimulating a crisis-driven innovative growth model.

¹ World, Bank (2007). Building Knowledge Economies: Advanced Strategies for Development. 1818 H Street, NW, Washington, DC 20433: World Bank Publications. pp. 4–12. ISBN 9780821369579.

During the pandemic, India operated on a war footing by establishing an open innovation ecosystem to promote public private partnerships to address the crisis effectively.



This led to the development of Covishield and Covaxin within an 18-month period. By January 2022—in what was the world’s biggest inoculation drive

more than
960 million people

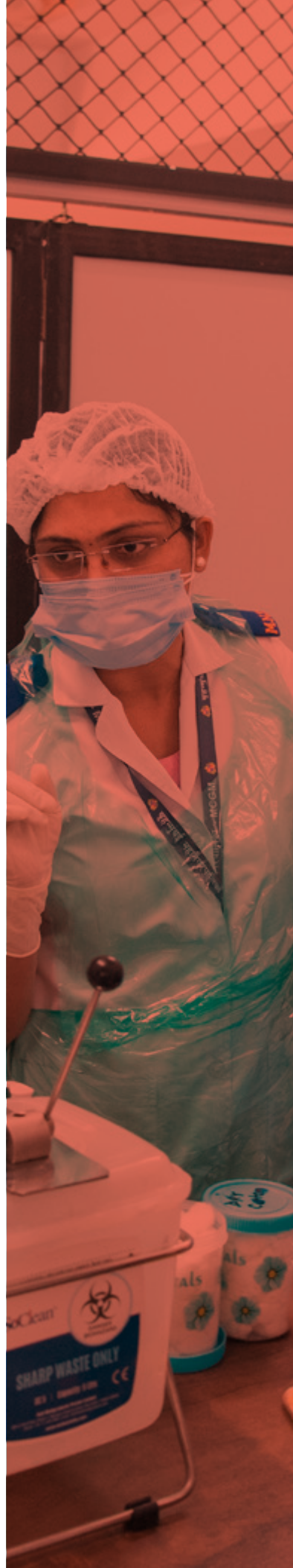


in India had received their first vaccination.

India was also able to extend its knowledge and expertise to over 150 countries in terms of Covid-related medical and other assistance. The Government of India launched the ‘Vaccine Maitri’ programme in January 2021 as part of its international effort to combat the virus and was able to supply 723.435 lakh doses of vaccines to 94 countries and two United Nations entities till 29 November 2021.² India was also able to successfully step up the indigenous manufacturing of PPE kits since the pandemic started. These accomplishments can be attributed to the Indian spirit of striving to find the most practical, innovative solutions to a nationwide crisis.

The India Innovation Index 2021 presents state-wise rankings based on the innovation landscape and performance of the country’s states and union territories. The latest framework of the index has been mapped from the Global Innovation Index, published annually by WIPO (World Intellectual Property Organization). The new framework presents a more nuanced and comprehensible outlook for measuring innovation performance in India, with the introduction of 66 unique indicators as against the 36 indicators used in the previous index. Thus, the index provides a report card of every state and union territory’s performance; it identifies its strengths and weaknesses that will help policymakers to include and frame relevant measures to foster innovation-led growth at the sub-national level.

² Export of Covid-19 Vaccines. PIB. Retrieved from <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1778837#:~:text=Since%20the%20start%20of%20Vaccine,till%2029th%20November%2C%202021.>





Why do we need innovation?

The evolution of human existence can be traced back to simple yet innovative endeavours such as invention of the wheel, to modern techniques such as rearranging of DNA.

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In this backdrop, innovation can be in the form of new goods or services or an improved version of the existing goods or services. Baregheh, Rowley, and Sambrook (2009)³ define innovation as a “multi-stage process whereby organization’s transform ideas into new/improved products, services or pro advance, compete, and differentiate themselves successfully in their marketplace”.



Innovation has become intrinsic to economic development, but it took a long time for economists and policymakers to realise that. Adam Smith, the father of modern economics, was one of the first people to consider the role of an innovator in implementing technological improvements in factories and society. He writes in his treatise, ‘An enquiry into the nature and causes of the wealth of nations’. But he failed to include innovation (or factors of innovation) in calculating the output. Instead, he put forth a simplistic understanding of generating wealth as output (O) as a function of capital (K) and labour (L).

$$O = f(K, L)$$

³ Baregheh, A., Rowley, J., & Sambrook, S. (2009). Towards a multidisciplinary definition of innovation. Management decision.

It was economist Joseph Schumpeter (1939)⁴ who had early on claimed the centrality of innovation in promoting economic growth and industrial transformation. Schumpeter interprets innovation as “the introduction of new or significantly improved products, processes, organization methods, and marketing methods in internal business practices or the marketplace”. He differentiates between innovation and invention, whereupon he characterises entrepreneurship as innovation of inventions. Schumpeter conceptualised the new wave of an (innovation-based) endogenous growth model, which stated that innovation is the result of investment in research and development (R&D) and human capital and that long-term growth relies on innovation. According to his analysis, the competitive advantage achieved through investment in innovation and education played a significant role in economic development.⁵

Robert Solow (1956)⁶ pointed out that the bulk of economic growth cannot be explained by the growth in labour and capital alone. Solow argued that ‘technological progress’ enhanced the efficiency and productivity of the factors of production such as labour and capital. So, residual A (technical progress) accounted for the bulk of economic growth, according to Solow’s neoclassical growth model.

$$O = A f(K, L)$$

Solow’s growth model was based on standard neoclassical assumptions, such as perfect competition, no externalities, maximising behaviour and constant returns to scale. At the same time, technological progress was taken as an exogenous term. However, economies in the era of globalization do not operate under conditions of perfect competition, so the residual A (technical progress) should also capture unmeasurable inputs of human capital and R&D. Paul Romer (1986)⁷ suggested that technological change resulted from progress in R&D and human capital (HC). Romer observed that R&D and human capital investment would lead to a natural externality that the firm could utilise to create new products, upgrade old versions, or improve production efficiency.

$$A = f(R\&D, HC)$$

⁴ Schumpeter, J. A. (1939). Business cycles (Vol. 1, pp. 161-174). New York: McGraw-hill.

⁵ Uppenberg, Kristian (2009) : Innovation and economic growth, EIB Papers, ISSN 0257-7755, European Investment Bank (EIB), Luxembourg, Vol. 14, Iss. 1, pp. 10-35

⁶ Solow, R. M. (1956). A contribution to the theory of economic growth. The quarterly journal of economics, 70(1), 65-94.

⁷ Romer, P. M. (1986). Increasing returns and long-run growth. Journal of political economy, 94(5), 1002-1037.

So, the relevance of investment in R&D and human capital for overall economic growth was apparent. Innovation further promotes the growth process by fostering positive knowledge spillovers, encouraging future technological change and other innovation activities. Cohen and Levinthal (1989)⁸ first suggested that R&D is not just about the generation of new information, but also about enhancing the firm's ability to assimilate and exploit existing information distinctly. They showed that it was only through investment in R&D that firms could exploit the knowledge developed by their competitors.

Essentially, knowledge spillovers can be categorised into external and internal forms of spillovers. Internal knowledge spillover is the knowledge generated through engagement with individuals. And external knowledge spillover is gaining new knowledge through spillovers from other firms engaged in R&D. But in the private sector, it is difficult to fully internalise the benefits of knowledge spillovers leading to underinvestment in R&D and other innovation activities. So, it becomes necessary for the public sector to participate in the knowledge economy and promote private sector participation through investment in R&D in the form of tax incentives and direct funding.⁹

Innovation in the form of knowledge accumulation and better human capital promotes economic growth. In the same manner, increasing economic growth fosters higher levels of knowledge capacity and an improved quality of human capital. Thus, there is a bi-directional causality relationship between economic growth and innovation, but the direction and the strength of the relation depends on the development status of the nation.¹⁰ In India, the IT sector has seen considerable growth, and various major cities have been transformed into global IT hubs through substantial R&D investment in the industry. Bengaluru spearheaded the IT revolution in the country, and today, the city is a global technology innovation hub and the country's start-up capital. In recent years, through public sector investment, academic collaborations and Foreign Direct Investment, India is emerging as an R&D centre in the pharmaceuticals and telecommunications sectors. These sectors have been driving economic growth in the country. Further investment in these sectors and promoting R&D activities in other sectors can enable the bi-directional cycle of fostering innovation and economic development.

⁸ Cohen, W. M., & Levin, R. C. (1989). Empirical studies of innovation and market structure. *Handbook of industrial organization*, 2, 1059-1107.

⁹ Guellec, D., & van Pottelsberghe, B. (2000). THE IMPACT OF PUBLIC R&D EXPENDITURE ON BUSINESS R&D .

¹⁰ Chang, T., Gupta, R., & Lotz, G. (2013, September). Causality between research output and economic growth in BRICS. In *ESSA Conference* (pp. 25-27).

In the developing countries, innovation is not only associated with economic growth but also with poverty alleviation, reduction in inequality, and increase in social mobility.

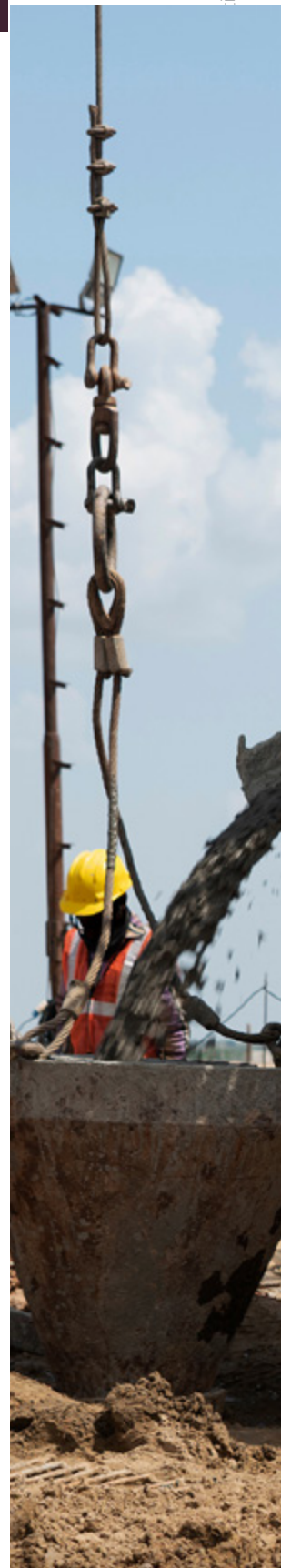
Schumacher (1977) emphasised promoting low-cost, labour-intensive, and small-scale technology to help producers access middle and low-income customer bases. These ideas led to the Appropriate Technology (AT) movement in the 1970s, which was developed as an anti-thesis to the industrial model that relied on highly capital-intensive technology and was large in scale with adverse results on the environment. But the AT movement did not generate much momentum as its ideas were to follow a top-down approach. It failed to capture and utilise the innovative approaches and technology developed at the grassroots and fell short in involving local communities in the movement.

Innovation at the grassroots can be categorised into scarcity-induced innovation, which is effectively using indigenous resources to cater to the needs of the regional population. So, the practice of promoting innovation at the grassroots is necessary to fully utilise the potential of the indigenous knowledge bases by engaging the local communities in the process.¹¹ The exercise is of greater significance in a country like India where a considerable share of the population is engaged in the informal sectors. To monitor and promote grassroots innovation, the Government of India in 2000 established the National Innovation Foundation (NIF) as an autonomous body of the Department of Science and Technology. The foundation aims to drive innovation at the grassroots through documentation, protection of Intellectual Property Rights (IPR) and commercialising innovation and innovative techniques devised by unaided small-scale innovators. The institution was able to file 114 patents in the year 2019-20.

Among them were innovators like Rajendra Jadhav from Satana village in Nashik, Maharashtra, who produced a tractor-mounted sanitization sprayer that is now being used across the country to sanitize public spaces.¹²

¹¹ Sharma, G., & Kumar, H. (2019). Commercialising innovations from the informal economy: The grassroots innovation ecosystem in India. *South Asian Journal of Business Studies*.

¹² National Innovation Foundation Annual Report (2019-2020)



Further, the Science, Technology and Innovation Policy (STIP) 2020 emphasises on the significance of the traditional knowledge systems and seeks to integrate them with grassroots innovators to promote the development of indigenous technologies.



It is evident that the impact of innovation is not merely restricted to the market; it permeates further into the society and the state. And so, it becomes necessary to ensure that the innovation cycle also enhances socio-economic development in an environmentally sustainable manner. Porter (2008)¹³ suggests that promoting positive-sum competition in the areas such as protection of the environment and marginalised communities, and healthcare will foster innovation that tackles socio-economic issues effectively. Aghion et al. (2016)¹⁴ has shown that an active policy intervention can redirect innovation to environmentally sustainable technology. For example, levying a carbon tax on technology that uses non-renewable energy sources will lead to the development of clean innovation technology like electric cars. Aghion¹⁵ further finds a positive correlation between innovation and social mobility. Investment in schools, research institutes and universities to promote innovation leads to social mobility and increases economic growth.

A post-covid world requires a new development strategy. A conducive ecosystem that enables innovation and technological advancement needs to be built to achieve the same. Therefore, through policies that are inclusive and sensitive to the aspirations and needs of the country, an innovation-driven economy needs to be developed.

¹³ Porter, M. E. (2008). On competition. Harvard Business Press.

¹⁴ Aghion, P., Dechezleprêtre, A., Hemous, D., Martin, R., & Van Reenen, J. (2016). Carbon taxes, path dependency, and directed technical change: Evidence from the auto industry. *Journal of Political Economy*, 124(1), 1-51.

¹⁵ Aghion, P., Akcigit, U., Bergeaud, A., Blundell, R., & Hémous, D. (2019). Innovation and top income inequality. *The Review of Economic Studies*, 86(1), 1-45.



Innovation in the Time of Crises

The world needed extraordinary and innovative solutions to combat the Covid-19 pandemic.

Bessant et al. (2015)¹⁶ have said that crisis-driven innovation is a critical way of addressing socio-economic upheavals caused by a global crises. The government, entrepreneurs, innovators and civil society organizations came together to combat the impact of the pandemic on lives and livelihoods.

Chesbrough (2020)¹⁷ advocates the significance of a collective form of an open innovation ecosystem. He defined it as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. This paradigm assumes that firms can and should use external ideas



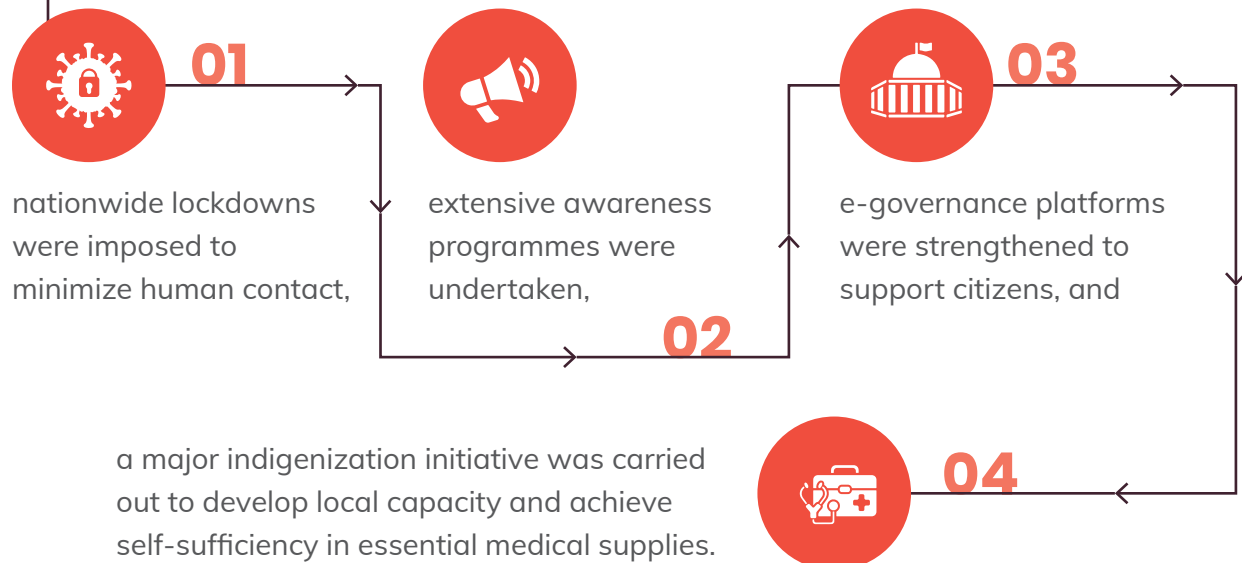
as well as internal ideas, and internal and external paths to market, as they look to advance their technology”.

In an open innovation paradigm, firms exchange ideas and knowledge internally and externally, to promote innovation in the creation of new products, services and business models. For the current crisis, the open innovation ecosystem can be reimagined as a national platform for innovators, corporates, government agencies, pharmaceutical companies, research institutions, and communities to collaborate for the creation of innovative solutions to tackle the Covid-19 pandemic.

¹⁶ Bessant, J., Rush, H., & Trifilova, A. (2015). Crisis-driven innovation: The case of humanitarian innovation. *International journal of innovation management*, 19(06), 1540014.

¹⁷ Chesbrough, H. (2020). To recover faster from Covid-19, open up: Managerial implications from an open innovation perspective. *Industrial Marketing Management*, 88, 410-413.

The Government of India tackled the crisis through a number of steps. For example, it followed the 'Control, Aware and Prepare' (CAP) approach, under which



The Ministry of Health and Family Welfare (MoHFW), in collaboration with the Ministry of Textiles (MoT), was able to ramp up the indigenous supply of PPE kits and N-95 masks. The government and the private sector also came together to develop technological solutions for effectively addressing the Covid crisis. Noteworthy are the contact-tracing app Aarogya Setu and vaccine-monitoring app CoWIN, among others. During this time, to fund eligible start-ups, the Department of Science and Technology launched 'NIDHI4COVID2.0', under the NIDHI (National Initiative for Developing and Harnessing Innovations) programme.

Through collective effort, an effective innovation value chain was established to address the Covid crisis. We discuss below some sectors that made an invaluable contribution during this time of need.

DIGITAL LEARNING

The education sector was badly hit by the pandemic. With the lockdowns, educational institutions were closed overnight, impacting 311 million students.¹⁸ In the absence of physical schooling, remote learning was actively introduced across the country. Online platforms were the most effective and easiest way to ensure continuity of learning.

The number of internet users in the country subsequently rose to

83.37 crore in June 2021!¹⁹

Other mediums such as TV, radio and feature phones were also utilized by the government and educational institutions to reach out to the low-income groups.

To ensure undeterred learning during the lockdowns, the Ministry of Education (MoE) and the National Council of Educational Research and Training (NCERT) provided standard books for classes I and II through the e-Pathshala (e-school) app, an online interface developed in 2015 under the 'Digital India' campaign. The online national teachers' platform, Diksha, was also utilised for training teachers and providing them with resources, such as worksheets and plans for their curricula.²⁰

The last two years have also seen the rise of edtech. The Indian edtech sector saw an exponential growth—in 2020 the industry was valued at USD 700 million; by 2025, it is projected to grow to USD 4 billion.²¹ The Indian edtech industry is the most funded industry in the country—with four companies (Unacademy, UpGrad, Vedantu, Eruditus) turning unicorns (valued at over USD 1 billion) and Byjus, a decacorn (valued at over USD 10 billion). This remarkable growth can be attributed to the implementation of various innovative methods in teaching and learning in the wake of pandemic, aided by the digital revolution in India.

The National Education Policy 2020 also emphasizes the prominent role of technology in devising educational solutions. The policy mentions the establishment

¹⁸ UNESCO. (2020). Global monitoring of school closures caused by COVID-19.

¹⁹ YEAR END REVIEW-2021: DEPARTMENT OF TELECOMMUNICATIONS

²⁰ NCERT, 2020. Alternative Academic Calendar for Primary School Students. Retrieved from. <https://ciet.nic.in/upload/AACprimary-eng.pdf>.

²¹ IBEF, 2021. INDIA TO BECOME THE EDTECH CAPITAL OF THE WORLD. Retrieved from. <https://www.ibef.org/blogs/india-to-become-the-edtech-capital-of-the-world#:~:text=The%20Indian%20EdTech%20industry%20was,personalisation%20in%20the%20EdTech%20space>.

of a world-class digital university that would focus on providing quality education in different Indian languages. The government also plans to expand the PM eVidya ‘one-class one-TV channel’ programme for classes I–XII from 12 to 200 TV channels in various vernacular languages.²² State governments have also introduced several innovative digital learning programmes. For example, the e-scholar portal and free online courses for teachers in Meghalaya; the SMILE (Social Media Interface for Learning Engagement) initiative in Rajasthan; Padhai Tunhar Duvaar (education at your doorstep) programme in Chhattisgarh; the Unnayan initiative in Bihar; Mission Buniyaad in the National Capital Territory; an educational TV channel in Kerala; Project Home Classes in Jammu; and online certification programmes for teachers on ‘management of mental well-being during Covid’ in Telangana, among others.²³



A digital innovation ecosystem in India has helped reimagine the field of education by expanding access to quality learning experience and boosting student engagement. The government is committed to universalising digital education for learners—from primary to higher secondary—and promoting growth of the Indian edtech industry.

²² <https://pib.gov.in/PressReleasePage.aspx?PRID=1794132>

²³ Press Bureau of India, 2020. Retrieved from <https://pib.gov.in/PressReleaseDetailm.aspx?PRID=1641850>

PHARMACEUTICALS

The Indian pharmaceuticals industry contributes 1.72% to India's GDP and makes up for 6.6% of the total merchandise exports. In August 2021, the pharmaceuticals' market registered an annual growth of 17.77%, up from 13.7% in July 2020.²⁴ According to the 2021 Economic Survey, the Indian pharmaceuticals market is projected to reach USD 120–30 billion by 2030, from USD 42 billion in 2021. In the global market, India is the largest supplier of generic medicines, accounting for 20% of the worldwide supply. India also caters to 60% of the global vaccine demand. The Department of Pharmaceuticals 'Pharma Vision 2020' aims to promote end-to-end drug discovery and transform India into a pharmaceutical innovation hub.

The covid-induced economic slowdown resulted in a decline in demand for commodities across online and offline retail channels. However, the demand for retail medicines saw a significant surge, to the extent that customers were stockpiling medicines for emergencies, which resulted in a shortage of supply. The most effective protection against Covid is immunization, and so it became a matter of utmost importance to develop vaccines at the earliest.

The development of the Covishield and Covaxin vaccines can be attributed to a collaborative effort by the private and public research organizations. India's experience in vaccine development and a robust vaccine manufacturing ecosystem proved to be of significant advantage in the development and mass production of these vaccines. Covaxin has been developed domestically by the Indian

²⁴ IBEF, 2021. Indian Pharmaceutical Industry. Retrieved from [https://www.ibef.org/industry/pharmaceutical-india.aspx#:~:text=The%20country's%20pharmaceutical%20sector%20contributes,lakh\)%2C%20to%2071%20countries.](https://www.ibef.org/industry/pharmaceutical-india.aspx#:~:text=The%20country's%20pharmaceutical%20sector%20contributes,lakh)%2C%20to%2071%20countries.)



pharmaceutical firm Bharat Biotech. On the other hand, the Covishield vaccine, which was developed by the Oxford University and pharmaceutical giant AstraZeneca, was manufactured in India by the Serum Institute of India, the largest manufacturer of vaccines in the world.

Next was the overcoming the challenge of administering the vaccines to India's vast population. Subsequently, the Indian government undertook a mammoth drive—the world's largest—to inoculate the citizens. Along with the government, the pharmaceuticals industry has been at the forefront of the battle against Covid—which includes R&D for vaccine development, and plans to strengthen the medicine supply chain. The pharmaceuticals sector was able to rise up to the challenges posed by Covid due to its solid footing in the generic drugs industry. The industry is now committed to moving up the value chain by expanding its innovation and R&D capabilities to offer affordable and cutting-edge medicinal products.

While inaugurating the first 'Global Innovation Summit of the Pharmaceuticals sector',

the Hon'ble Prime Minister said the promotion of an innovation ecosystem will make India a leader in drug discovery and innovative medical devices. He said India's large talent pool must tapped into to foster innovation-driven growth in the pharma industry.²⁵



For example, the scientists at ACRI (International Advanced Research Centre for Powder Metallurgy and New Materials), in collaboration with the Centre for Cellular and Molecular Biology (CSIR-CCMB) and Resil Chemicals, a Bengaluru-based company, were able to indigenously develop a self-disinfecting biodegradable facemask to combat the pandemic.²⁶

²⁵ Press Bureau of India, 2021. Retrieved from <https://pib.gov.in/PressReleasePage.aspx?PRID=1772949>

²⁶ Press Bureau of India, 2022. Retrieved from <https://pib.gov.in/PressReleasePage.aspx?PRID=1795413>

During the pandemic it also became necessary to prioritise the needs of the disadvantaged to register an effective recovery. Previously developed unique healthcare initiatives played a crucial role in ensuring the same. For example, the Electronic Urban Health Centre model in Andhra Pradesh, which ensured specialist care in urban areas, and Assam's mobile health clinics, were set up in boats that provided healthcare services to people living on remote islands across the state. These models came in handy while reaching out to the vulnerable populations across the country during the vaccination drive.

GIG ECONOMY

The gig economy is a rapidly growing work network that facilitates employers to connect with independent workers for on-demand work. The gig economy comprises both freelance works conducted online and services like physical delivery offered through mobile apps conducted offline. As per International Labour Organization (ILO), gig economy consists of tasks that can be assigned and performed online (crowd work) through web-based platforms such as freelancing, and tasks that can be assigned online but performed in a specific geographical location like delivery services, repair and maintenance, among others.

With the digital revolution gaining momentum in the country and the rise of e-commerce and online retailing platforms like Zomato (food delivery), Ola (cab services), Urban Company (home services)²⁷ in the last decade, the gig economy grew rapidly.

The pandemic provided an additional thrust to the online retail business and consequently to the gig economy. As people stayed at home during the lockdowns, and demanded home delivery of goods and services, the dependence on gig workers grew to deliver everything, from groceries to medical products, to services like insurance, personal hygiene, among others at the doorstep.

The gig economy is estimated to provide 90 million jobs in the non-farm sector alone, potentially contributing 1.25% to the country's GDP.²⁸

²⁷ Joo, B. A., & Shawl, S. (2021). COVID-19 Pandemic and the Rising Gig Economy: An Emerging Perspective. *Global Economics Science*, 16-23.

²⁸ Augustinraj, R., & Bajaj, S. (2021). *Unlocking the potential of the gig economy in India*. Boston Consulting Group.

With the rapid growth of competitive platforms such as Amazon, Flipkart, Zomato, Uber, Ola, Urban Company, India turned overnight into the biggest hub of gig workers/freelance workers globally.²⁹

Despite the phenomenal expansion of the gig economy in a matter of a few years, most gig workers get devoid of the labour rights guaranteed under the labour laws of the country. To resolve this, the Economic Survey of India 2021 recommended including gig workers in the category of unorganized workers, which would bring them under the ambit of the newly introduced Code on Social Security 2020. This would ensure that they receive social security benefits.

The gig economy has been able to foster innovation to sustain and enhance its growth cycle even during the pandemic. Innovation is the reason behind the gig economy's extraordinary growth. For instance, with the onset of the pandemic, the food delivery companies quickly introduced various covid-related safety measures such as contactless delivery, strict hygiene practices, and free medical care for their delivery partners.

The other positive feature of the gig economy is the increased participation of women. Due to decent pay, choice of work and flexible working hours, more women are joining the gig workforce than in other traditional sectors. The sector is keen on further promoting women's participation with various programmes such as skill training and safer digital work environment policies.

²⁹ Ministry of Finance, "Social Infrastructure, Employment and Human Development," in Economic Survey 2020-2021 Volume II, Government of India, 2020, 325-368



START-UPS AND UNICORNS

Government of India had launched the 'Start-Up India' initiative in 2016 to promote a robust start-up ecosystem and for driving employment generation and economic growth.

According to the Department for Promotion of Industry and Internal Trade (DPIIT) has recognized over

61,400 start-ups, with over 14,000 registered in the fiscal year 2021–22, up from a mere 733 reported in 2016–17.



The start-up ecosystem in India has seen tremendous growth in the last decade. Start-up India managed to expand and take the ecosystem to tier 2 and tier 3 cities as well—while tier 1 cities accounts for 55% of the recognized start-ups, tier 2 and tier 3 cities contributes about 45%. It has also been found that the Indian start-up ecosystem has a healthy representation of women, as percentage of female led start-up stood at about 45%.³⁰

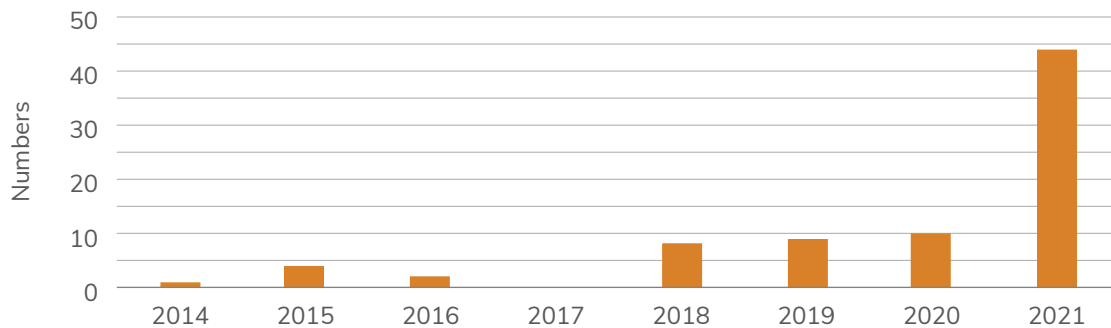
India start-ups were able to successfully withstand the onslaught of the pandemic and even thrived during the crisis. India witnessed a record 44 start-ups turning unicorns (over USD 1 billion valuations) in 2021—the highest ever for a single year, having a combined strength of 83 unicorns in the whole country with a total valuation of USD 277 billion, according to the Economic Survey of India 2021-22, making India the third largest start-up ecosystem globally, overtaking the United Kingdom and just behind the United States and China. Technology start-ups were the highest contributors to India's unicorn list. This was achieved through high smartphone penetration, flourishing digital payments' platforms and digital-focused business models. Furthermore, China's crackdown on its technology companies positively impacted the Indian market by presenting it as an alternative. Moreover, the pandemic accelerated the process of the digitization of commerce, and led to the rise of e-commerce, fintech and SaaS (Software as a service) start-ups across the country.³¹

³⁰ Press Information Bureau. Retrieved from <https://pib.gov.in/PressReleaseDetail.aspx?PRID=1786148>

³¹ 'The Indian Unicorn Landscape'. Invest India. Retrieved from <https://www.investindia.gov.in/indian-unicorn-landscape>

Figure 1 Number of Unicorns in India (Yearly)

Number of Unicorns



As represented in the above graph, the number of unicorns added every year has registered a progressive growth in the last five years in India. The year 2021—with the addition of 44 new unicorns—saw the highest number of additions ever for a single year. The highest number of unicorns are headquartered in Bengaluru, the country’s high-tech hub, followed by Delhi-NCR and Mumbai, respectively. Delhi also took over Bengaluru, with over 5,000 registered start-ups as against Bengaluru’s 4,514 between April 2019 and December 2021. The year 2021 also saw health-tech companies making it to the unicorn list for the first time. The composition of start-up unicorns in India comprises a diverse list of sectors such as data management and analytics, healthcare, e-commerce, content creation, gaming, fintech, and supply chain and logistics. These start-ups recognised changing consumer behaviours due to the ongoing pandemic and accordingly customized their services.

The tremendous growth of Indian start-ups can be attributed to the resilience of our entrepreneurs and their drive to turn every challenge into an opportunity and come up with smart solutions.

Technology start-ups have also played a key role in the growth of the start-up ecosystem in the country. Their success lies in the introduction of innovative solutions that can serve a large number of people in a cost-effective manner. India has seen exponential growth in the digital consumer market with increased availability of low-cost tech products. Improved digital connectivity across the country, along with government initiatives such as ‘Digital Saksharta Abhiyan’ to encourage digital literacy, has further promoted the growth of technology start-ups. This enabled to create a space-technology start-up environment, with India registering 47 space-tech start-ups in 2021, a jump from 11 in 2019. Thus, it can be ascertained that India is on the right path with a strong regulatory framework, skilled personnel, and capital to support an environment of entrepreneurship and innovation-driven start-up ecosystem.



CONTRIBUTORS

On the Dynamics of Regional Innovation Systems: Putting Silicon Valley into Context

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Plans for creating or strengthening urban and regional innovation systems often focus too much on building frameworks of organizations that will collectively promote innovation, e.g., accelerators, innovative universities, or venture capital, and not enough on ensuring that processes of innovation in the region will be propelled by the dynamics necessary for the ongoing development and delivery of new ideas to market. Successful innovation involves the flow of people, capital, and knowledge into new combinations that both generate and bring to market innovative visions and ideas. A new combination may be a new startup company or a new project or business line inside an existing firm. A viable regional innovation system must therefore include not only sources of people capital, and knowledge, but also active programs, practices, and norms that promote their flowing together into new projects and startup companies. The dynamics of Silicon Valley innovation reveal norms and processes that other region can adapt in order to energize their own distinctive innovation systems.

In addition to source institutions, policies, and laws, the dynamics that encourage people flow into new combinations for innovation in Silicon Valley include practices and cultural norms that promote career mobility and the assumption of relatively high business risk. The source organizations of Silicon Valley innovation include an intensive infrastructure of corporate R&D and product development groups, universities, and national labs that may not be present in other regions, but the Silicon Valley knowledge infrastructure is matched by a multitude of opportunities for people from different institutions and backgrounds to network with each other and by a culture that one could say is obsessed with continually searching for ways of finding and providing value from new “things.” Forums and occasions for open networking include very frequent events (from large conferences to small meetups) around technology, business, and investing themes; other public programs produced by universities, law offices, government organizations, nonprofits, professional associations, and others; and many informal gatherings of neighbors and friends. The diversity of networking at such events is critically important: persons with different backgrounds can be expected to see the practical potential of a new idea from different vantage points; they also provide the complementary expertise necessary for its development and deployment.

Consequently, a region aiming to strengthen its flow of people into new combinations for innovation must not only build up organizations that conduct innovative activities but also aim at a culture of extramural networking. The development of such a culture may require features such as incentives to overcome the natural hesitance that discourages people of different expertise and backgrounds from interacting socially with each other, especially if different backgrounds or occupations typically comprise different rungs of a social hierarchy. Moreover, regions whose economies rely more on manufacturing or agriculture may need to place effort into developing a basic awareness among the workforce that the potential for innovation always exists. Programs and activities in schools that encourage innovative thinking and problem solving, e.g., via design thinking or project-based learning, will certainly have long-term benefits. In the shorter term, idea competitions by companies for their employees or by local governments for their residents to improve local conditions may yield valuable innovation ideas. Such competitions, however, typically generate incremental improvements within an existing business or industry; only rarely do they generate the kind of major innovation that can transform an industry and create massive new value. Even in such a context, bringing in new voices from other backgrounds is often a key to seeing problems in a new light and finding fundamentally new ways to solve them.

A further dynamic necessary to support people-flow in general is mobility of the labor force, especially among knowledge workers. Labor force mobility in Silicon Valley reflects ongoing high demand for workers with the most up-to-date knowledge and skills, which in turn reflects the large number of new ideas that appear every year. If an idea does not succeed, usually there are other work opportunities for the team that has failed. This situation is related to the myth that Silicon Valley is soft on failure. In fact, failure in Silicon Valley has negative consequences, as it does everywhere. A more accurate description of the norm in Silicon Valley is that learning from failure carries value that is higher than the cost of failure. An innovator or entrepreneur in the Valley must always be able to provide a thorough and candid self-analysis of their prior performance that includes lessons learned so as to do better the next time. In the Valley, someone who can demonstrate learning from prior failure is likely to be regarded as lower risk than someone who has not yet experienced setbacks. A region that intends to focus on innovation accordingly needs to develop re-training and career assistance resources that will reward self-learning with greater opportunities for mid-career workers.

Mobility in the labor force is of course also related to the availability of capital for new projects. Venture investing, both by individuals (angel investors) and by venture capital firms in Silicon Valley, which currently accounts for about 38% of all U.S. venture investing, has grown along with the evolution of a shared culture among investors and entrepreneur innovators that aims at extremely rapid startup growth and the maximization of exit possibilities. Highly successful Silicon Valley startups typically

sustain growth rates of around 100%/year for their first 5 - 7 years; opportunities with more modest growth potential usually have difficulty attracting funding in Silicon Valley. Over the last twenty years, venture investors in the Valley have also improved their overall portfolio return by expanding the number of exits through M&A by large firms; at present there are about nine successful exits (that return capital gains to investors) by M&A for every exit via IPO. The focus of Silicon Valley investors and entrepreneur innovators on rapid growth plus rapid exit at high value actually opens up possibilities for innovation systems that can nurture somewhat slower, longer-term incubation and growth. Such systems may need also to develop stronger secondary markets for trading in startup equity prior to exit, so that venture investors can return capital to their sponsors in a timely way.

The flow of knowledge into new combinations for innovation in Silicon Valley is supported not only by laws and regulations about IP ownership and protection, but also by sophisticated and largely unwritten shared norms that distinguish between previously acquired know-how which can be taken by a former employee into a new company, IP that must be licensed from the previous employer or university, and confidential knowledge that should not be transferred or shared. The boundaries of these knowledge categories in Silicon Valley receive occasional clarification through litigation and court decisions, but appropriate knowledge sharing is essential to the daily functioning of extramural networking as an element of the innovation system. The tendency in regions with less experience in startup creation is toward requirements of excessive confidentiality by source organizations (companies and even universities) and general reticence among individuals to explore new ideas in extramural settings. Education and training about best practices in knowledge and IP management will be helpful in the long term, while active public programs for discussing new areas of opportunity, especially to address current local and regional needs, may encourage networking around topics that have relatively little overlap with the competitive concerns of source organizations.

In summary, although there are ongoing needs in every region to build up organizations that can serve as sources of innovation, each region must also focus on dynamics that promote the flow of people, capital, and knowledge into new combinations for innovation. Distinctive dynamics promoting innovation in Silicon Valley include a highly mobile labor force, which in turn reflects many opportunities for employment and startup participation among mid-career workers, a robust flow of capital that focuses on reward at exit as well as opportunity creation, and social norms that give individuals and organizations confidence in regard to what knowledge can be shared in exploring new opportunities. The principles behind these dynamics apply to other innovation systems as well.

India's Vision for Developing the Fourth Industrial Revolution and Innovation Ecosystem

Mark Esposito

In the last decade, the pace of disruptive technology has pushed businesses, industries, and consumers to innovate and tap into the full potential of their resources. We have been catapulted to the “Fourth Industrial Revolution”, or 4IR, coined by the founder and Executive Chairman of the World Economic Forum, Klaus Schwab. The 4IR brings the opportunity to move toward advanced digital production technologies that will bring efficient changes in the manufacturing sector and help industrial development. India holds a massive chance to boost its manufacturing sector and accelerate its economic growth in its hands.

The 4IR is bringing in a change that blurs the tangible and intangible lines. It has changed the way we work and earn, connect and communicate, educate and learn, think and share at the same speed worldwide. A country can grab opportunities depending on its approach toward innovation and development during these dynamic times.

Innovation is an input as well as an outcome of inventions. Patents, a property right granted to the original inventor, help incentivize and maintain competition in the market to find new ideas for ways to best use the resources at your disposal. Hence, to scale the extent of innovation in a country is through the number of patents it gets every year.

The number of patents granted in India in 2021-22 was 30,074, and patents filed for the grant was 66,440. From the efforts to make patent filing a hassle-free method to reducing the examination duration to 5-23 months results in growth in innovation for India. Innovation is the fuel for the 4IR, and to drive towards the amalgamation of software and automation systems; we require more customized solutions to be more efficient in every nature of work.

India's focus on innovation reflects the number of start-ups founded every year, the unicorns emerging from that lot, and its relative capacity for innovation. There were over 14,000 new start-ups recognized in India during FY 2021-22, and 83 unicorns exist in the country. The Global Innovation Index ranks 132 countries as per their innovation capacity and success, and India stands at the 46th position on the list. Under the index's pillars, it stands the 39th position in knowledge absorption, 9th position in government terms of Government online service, and 1st in terms of ICT services exports.

Several unicorns that got shaped in India include EdTech companies transforming the way education has usually been perceived, in a four-walled room and a chalk and board culture. This change in the channel of imparting knowledge has been helpful for India to reach its millions of students, especially girls, during the pandemic and keep up with their education rather than dropping out in their foundational years.

The 4IR has brought in a surge of breakthroughs in artificial intelligence, machine learning, robotics, the Internet of Things, 3D printing, nanotechnology, metaverse, etc. With more jobs requiring such technologically advanced skills, the gap between the low-skilled and high-skilled workforce widens. The potential of the youth, which is 27.5% of the total share of India, needs to be tapped into, and the mechanizations of the manufacturing processes need to use more digitally-intensive technologies. A skilled labour force and advanced industrial capabilities are the way to benefit from the 4IR.

India holds great potential in its population, but it also means the economy is very labour intensive and needs constant upskilling to match the job demanded in the country to sustain a reasonable employment rate. The technologies brought in by the industrial revolution need to be introduced at a considerably faster pace. The booming electric vehicle industry is expanding its production capacity and seeping into the global markets and households quickly. With regulations imposed and resources spent quickly, India can enjoy the benefits, of such technological advancements globally, boosting the employment rate and becoming a manufacturing hotspot. Along with that, job security for those whose jobs might get replaced by a robot is also necessary.

To tap into the country's technological potential, the first group to be identified and supported should be the grassroots innovators. The grassroots innovators are the people who have put to use traditional knowledge and developed indigenous technology. The traditional methods and systems of land are best in bringing efficiency to their production mechanism and the infrastructure. A farmer in Rajasthan would know the terrain of his land better to find innovative irrigation methods rather than using the same irrigation systems as the rest of the country. The necessity for maximizing profits for survival and efficient systems drives one to innovate. Supporting such innovations spreads knowledge and provides a competitive edge in the economy.

The Science, Technology and Innovation Policy (STIP) has focused on taking necessary steps to move India towards a knowledge-focused economy. STIP 2020 has taken a step towards integrating economic development, social inclusion, and environmental sustainability for policy evaluation and dynamic policymaking. But the extent of its work isn't restricted to the research and development centres of the state. The

government of India has since tread towards achieving development with a holistic approach that includes social, economic and scientific planning and consultancy. The talent pool of a country is formed by its people performing arts, playing sports, practising law, running businesses, and giving scientific breakthroughs. These knowledgeable, experienced and skilled people need the right opportunities to bring their potential to use in the world. While the 4IR pushes competition for the best of the talent to shine in the economy, it also creates an inequality where people who are not equipped with the latest knowledge and skills for the labour market demands lag. Initiatives like “Make in India” and “Go Local” encourage the citizens to support the locally produced goods and services and help the economy become self-reliant. The goal of becoming “Aatmanirbhar Bharat” or “A Self-Reliant India” unites every Indian to give their contribution to achieve this feat. However, a challenge is how India integrates its large share of the low-skilled labour force to cater to the domestic and international demand from formal and informal sectors into the digitized and automated world of 4IR.

The National Digital Literacy Scheme, under the Digital India initiative, is a project to impart digital knowledge to rural households as well as train government employees to help them become technologically sound. The pace to keep up with the changing industry and globalization needs such a scheme that includes the socially vulnerable and entry-level workers from every nook and corner of India to function with its full potential.

The 4IR will bring prosperity as well as some damage to the world. However, being aware of its capacity to transform our societies and use this knowledge to innovate a sustainable and efficient economy will be a great feat for humanity. As Karl Schwab has said, “With these fundamental transformations underway today, we have the opportunity to proactively shape the Fourth Industrial Revolution to be both inclusive and human-centred.”



Innovation in India: Opportunities and Challenges

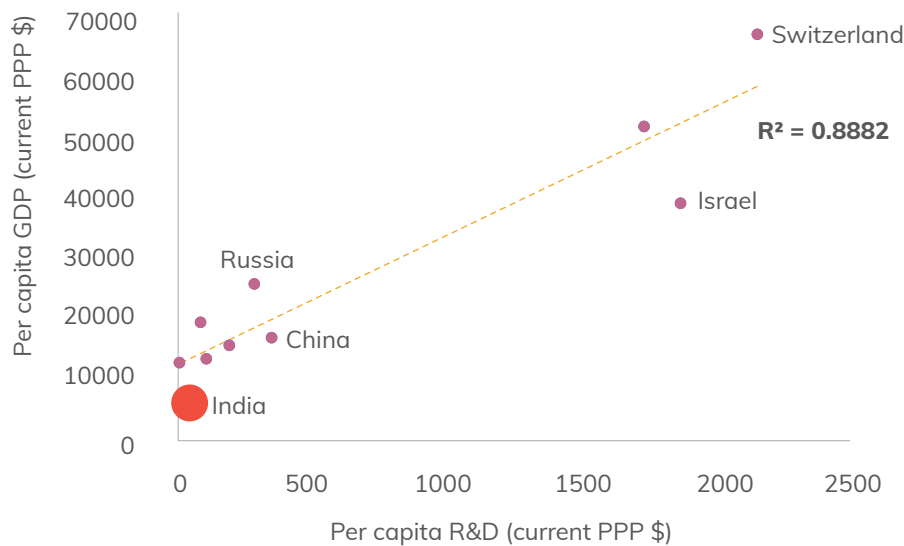
Innovation cannot be fully understood without comprehending the opportunities and challenges that it entails. Thus, it becomes imperative to deep dive into innovation with reference to Indian context and identify where our opportunities and challenges lie. In this section, we look broadly at factors that affect innovation—from R&D, firm size, labour market, demographic dividend to market demand and try to understand where our opportunities and challenges lie.



RESEARCH AND DEVELOPMENT

The global experiences of development have presented unique lessons in the importance of strengthening R&D to gain strategic advantages. R&D has played a significant role in the growth of the developed countries as shown in Figure 2, which captures the relationship between R&D and GDP of a country.

Figure 2 Correlation between Per Capita R&D Expenditure and Per Capita GDP across Countries



Source: UNESCO & World Bank website accessed March 2020; India-R&D Statistics 2019-20, DST, Gol.

Figure 2 depicts a positive relationship between per capita R&D and per capita GDP, whereby countries that have high per capita R&D expenditure tend to have higher per capita GDP as well. Although the reported R² is high, the relationship between the two cannot be negated. For example, Evenson and Singh (1997),³² by analysing data for 11 Asian countries for the period 1970–93, found that a country's R&D exert a positive influence on the output of that country. Kaur and Singh (2016)³³ analysed the impact of R&D expenditure on the GDP of 23 developing economies (including India) for the time period 1991–2010 using panel data and showed that a 1% increase in R&D expenditure increases the economic growth by 0.30%.

However, in India, R&D investment has been relatively low. In the past few years, R&D investment in the country has declined from 0.8% of the GDP in 2008–09 to 0.7% in 2017–18. This is lower than the other BRICS nations—Brazil spends about 1.2%, Russia about 1.1%, China just above 2%, and South Africa around 0.8%, with the world average being about 1.8%. On the other hand, developed countries like the United States, Sweden, and Switzerland spend about 2.9%, 3.2% and 3.4%, respectively. Among all nations, Israel spends the most, 4.5%, of its GDP on R&D (Reddy & Subash, 2020).³⁴

³² Evenson, R. E., & Singh, L., (1997). Economic Growth, International Technological Spillovers and Public Policy: Theory and Empirical Evidence from Asia. Centre Discussion Paper, No. 777, Yale University, Economic Growth Centre, New Haven, CT.

³³ Kaur, M. & Singh, L. (2016). R&D Expenditure and Economic Growth: An Empirical Analysis. International Journal of Technology Management & Sustainable Development, 15(3), 195-213.

³⁴ Reddy, K. & Subash, S. (2020). Will COVID-19 Change the Landscape of Financing Innovation in India? Economic & Political Weekly, 55(47), 22-24.

One reason for the low spending on R&D in developing countries like India is that investments in R&D take time to produce results. In a country like India where there are bigger issues—such as hunger, disease control, and raising the quality of life—to contend with, resources are often diverted towards tackling them. However, it can be argued that these pressing concerns shouldn't be viewed as a hindrance, rather an opportunity to widen the ambit of R&D. Research has been able to come up with solutions to such issues in the past such as the drip-irrigation system (Postel, et al., 2001),³⁵ X-ray imaging, CT scanner, and others.

Although inventions take time, nonetheless innovative thinking can be applied in dealing with such issues as well. The example of Grameen Bank is one such example where a small idea turned into a huge success both financially and helping poor communities. Thus, it becomes important to bring 'research' into these issues and not to restrain to spend in R&D, be it idea or product (Acharya & Pathak, 2019)³⁶. This would not only help in resolving the pressing concerns, but would also serve as a reference point for future in tackling such issues.

COMPOSITION OF R&D

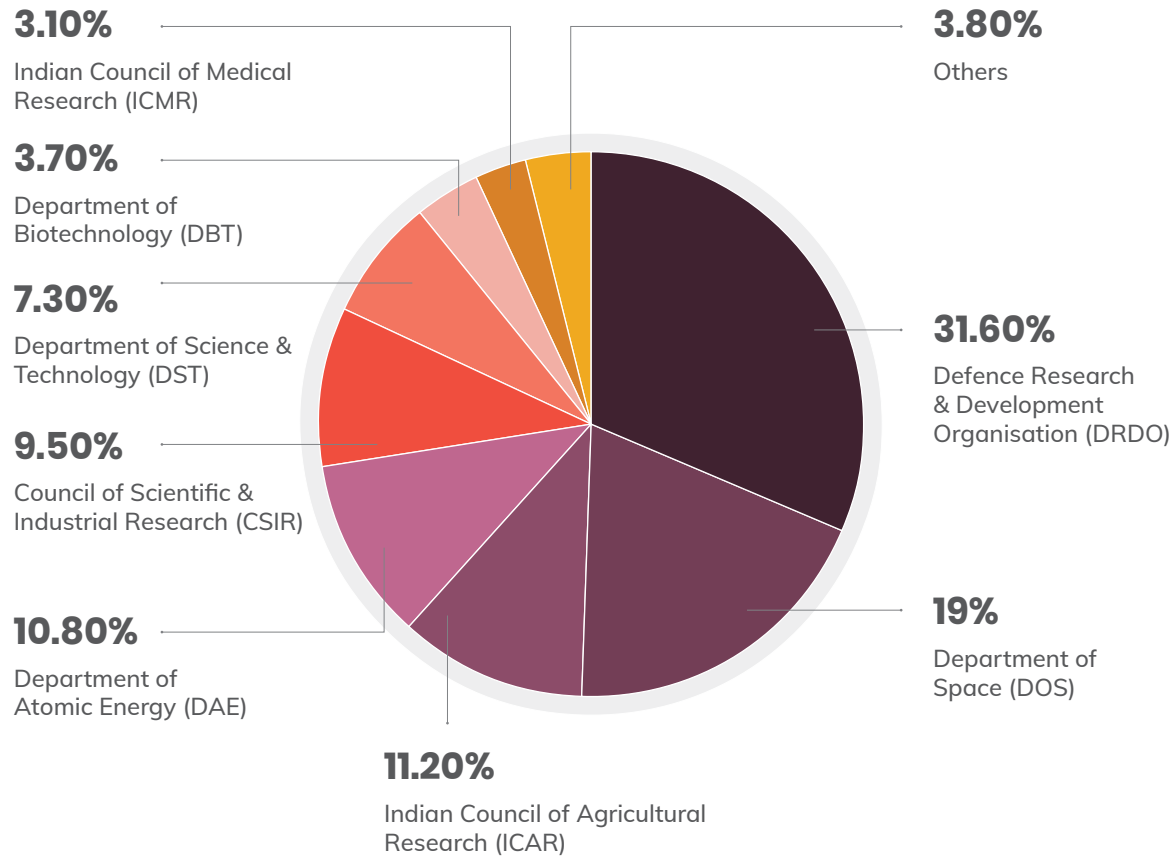
Another source of concern is the composition of the current R&D expenditure. The government spends the most on R&D (over 60%). Low private participation is one of the key hindrances in India's overall low R&D expenditure (Reddy & Subash, 2020; Mani, 2021³⁷). Public expenditure is productive up to some extent, however, once the growth follows a trajectory, it is desirable to shift to R&D driven mainly by the private sector. This has been the case for the developed nations where R&D is undertaken by the private sector (Acharya & Pathak, 2019). Mani (2021) has also shown that a good share (about 45%) of the government expenditure is dedicated to defence and space research, leaving the rest for other sectors to compete. The figure below highlights the same. It is observed that 93% of the R&D expenditure incurred by the Central Government sources was channelled through 12 major scientific agencies, such as the Defence Research and Development Organization (DRDO), Indian Council of Agricultural Research (ICAR), and Centre for Scientific and Industrial Research (CSIR). Of this, a significant portion is spent on defence and space research. While this is important, other sectors must also receive due attention.

³⁵ Postel, S., Polak, P., et al., (2001). Drip Irrigation for Small Farmers: A New Initiative to Alleviate Hunger and Poverty, *Water International*, 26(1), 3-13.

³⁶ Acharya, K.P. & Pathak, S. (2019). Applied Research in Low-Income Countries: Why and How? *Frontiers in Research Metric and Analytics*, 4(3), 1-9.

³⁷ Mani, S. (2021). India. In S. Schneegans, T. Straza, & J. Lewis (Eds), *UNESCO Science Report: The Race Against Time for Smarter Development* (pp. 604-621). UNESCO Publishing: Paris.

Figure 3 Share of R&D Expenditure by Major Scientific Agencies 2017–18



Source: Research & Development Statistics 2019-20, Department of Science and Technology, GoI.



FIRM SIZE

The problem of the ‘missing middle’ is another area that warrants attention. India is a country where the manufacturing sector is peculiarly structured, with either a very small-sized firm (less than 50 employees) or a very large-sized firm (more than 500 employees) and a clear ‘missing middle’. This structure causes a number of problems, one of them being a vast difference in productivity, whereby the large-sized firms are 10 times more productive than the small-sized firms (Raj & Sen, 2020). This difference also shows up in innovation. Sinha, et al. (2019)³⁸, by analysing data from 1992–2017, argued that large-sized firms have a greater tendency to reap the benefits of innovation than their small-sized counterparts. This could be due to economies of scale, higher costs incurred, etc. the exact cause cannot be winnow out. Also, R&D in small-sized firms is not so formal and visible as compared to the large-sized ones; therefore, the small-sized firms rely on finagling around things (Nair, et al., 2015)³⁹. This is important given the relative importance of MSMEs in India. With more than 6.5 crore MSMEs contributing roughly 30% to the GDP (Behera, et al., 2021),⁴⁰ there is no doubt that a transition to a mid-sized or large-sized firm and a shift from informal to formal R&D would further enhance the role of MSMEs and innovation in India.

LABOUR MARKET

Another area of importance is the labour market. It is sometimes believed that adopting new and innovative technologies would displace labour from the market. In India, this belief can cause great concern due to the country’s massive labour force. However, this is not always true as innovation has the capacity to generate new jobs as well (Sinha, et al., 2019). Mehta (2016),⁴¹ by analysing data for pharma, transport, ferrous metals, and textiles for the period 2000–01 to 2013–14, showed that there exists a positive relationship between innovation and employment. In fact, he suggested that innovation is the factor that would drive long-term growth and employment. Moreover, it is not just labour availability and the quality of labour but also labour legislations that affect innovation. A right balance between labour laws that doesn’t compromise on labour standards which also promote an environment that is conducive to nurture innovation is something that should be strived for.

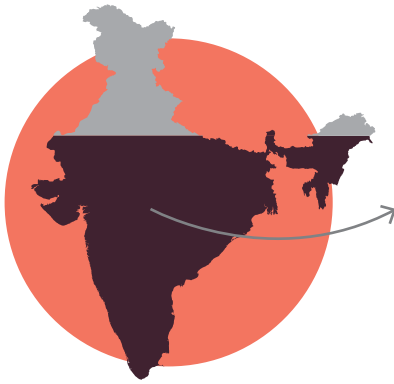
³⁸ Sinha, A.K., Mishra, A.K., & Patel, Y. (2019). Firm Size, R&D Expenditure, and International Orientation: An Empirical Analysis of Performance of Indian Firms. *Int. J. Technological Learning, Innovation and Development*, 11(4), 311–336.

³⁹ Nair, A., Guldiken, O., Fainshmidt, S., et al., (2015). Innovation in India: A review of past research and future directions. *Asia Pacific Journal of Management*, 32, 925–958.

⁴⁰ Behera, et al., (2021). COVID-19 Pandemic and Micro, Small and Medium Enterprises (MSMEs): Policy Response for Revival. *Small Enterprises Development, Management & Extension Journal*, 47(3), 213-228.

⁴¹ Mehta, S., (2016). Innovation and Employment: A Study of Indian Manufacturing Sector. *Millennial Asia*, 7(2), 184-206.

DEMOGRAPHIC DIVIDEND



India's young population is one of its biggest assets.

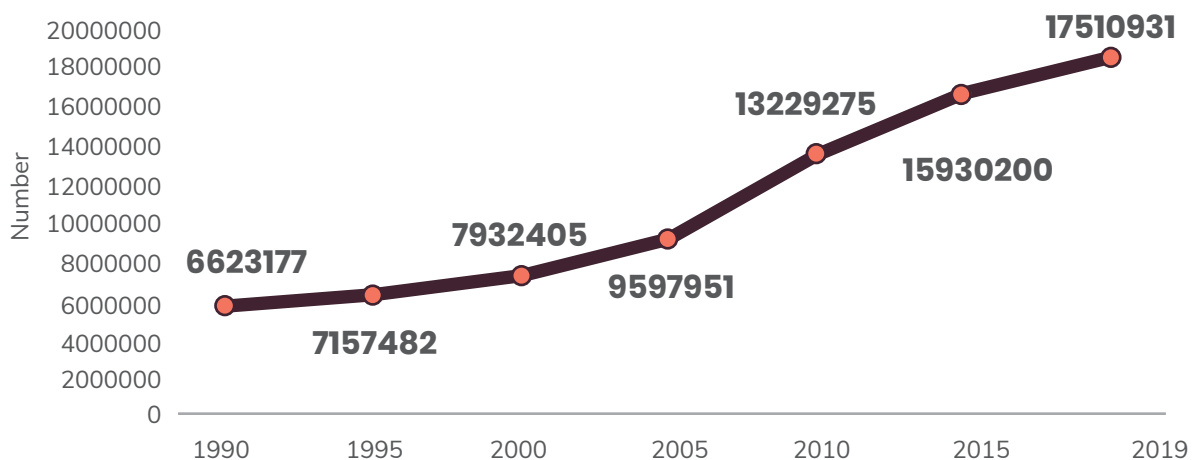
Currently, more than

60% of India's population is in the working age group (15–59).

The energy and potential of this age group can be rightly channelized towards innovation. There is always an element of risk involved in innovation. But most Indians tend to be risk-averse, which is tied to a fear of and intolerance for failure, making it difficult to generate innovative ideas or promote existing ones (Sharma, et al., 2012).⁴² In the absence of adequate support—moral, financial, and other—our youth migrate to other countries (Dodani & LaPorte, 2005).⁴³

The numbers presented below do not decipher them into how many migrated for research purposes, but just shed light on the fact that the number of migrations from India have risen considerably over the years. Therefore, India should prevent the brain drain by providing them the adequate support and channelize their energy which would be salubrious for research and innovation in India.

Figure 4 Persons Migrated from India over the Years



Source: United Nations, Department of Economic and Social Affairs. Population Division (2019). International Migrant Stock 2019 (United Nations database, POP/DB/MIG/Stock/Rev.2019).

⁴² Sharma, P., et al., (2012). India's National and Regional Innovation Systems: Challenges, Opportunities and Recommendations for Policy Makers, Industry and Innovation, 19(6), 517-537.

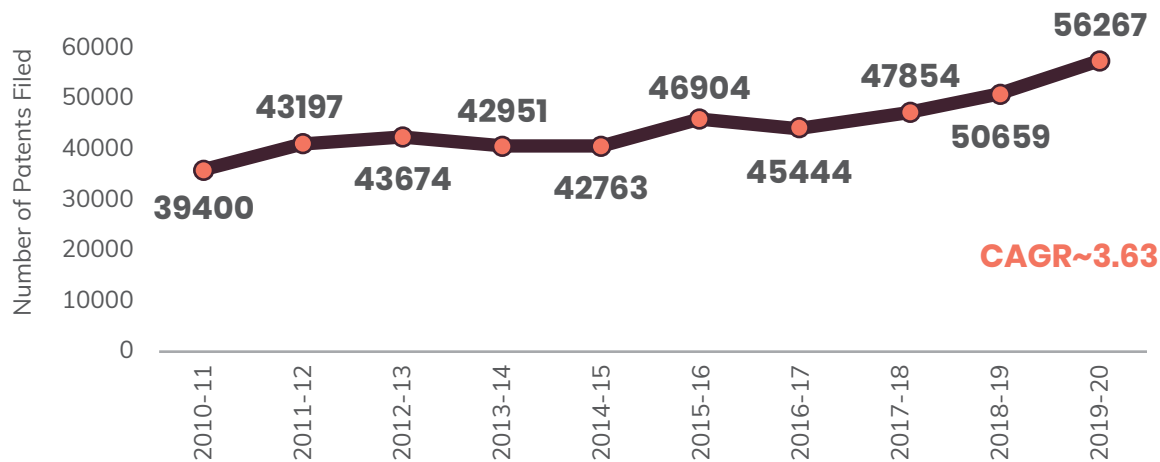
⁴³ Dodani, S., & LaPorte, R.E., (2005). Brain Drain from Developing Countries: How Can Brain Drain be Converted into Wisdom Gain? Journal of the Royal Society of Medicine, 98, 487-491.

MARKET DEMAND

Research should also be aligned to the demands of the industry. It is observed that there is a mismatch between what is taught at the university level and what is required at the industrial level (Radermacher & Walia, 2013).⁴⁴ To resolve this, we need a working model between the two. Working with the academia and research institutions can allow firms to gain early access to research outputs and influence the research agenda of these institutions. Subsequently, industrial firms can reduce their costs by outsourcing their research and collaborating with educational institutions.

To better understand the potential of Indian research one need only look at the number of patents filed in the country over the years. As highlighted in the figure below, the number of patents filed has increased at a compound annual growth of 3.63% in the last decade. Lastly, funding research with a sense of obligation or to meet some targets should not be the purpose. Institutions/stakeholders should believe in its inherent importance.

Figure 5 Patents Filed over the Years in India



Source: United Nations, Department of Economic and Social Affairs. Population Division (2019). International Migrant Stock 2019 (United Nations database, POP/DB/MIG/Stock/Rev.2019).

VENTURE CAPITAL

Venture capital provides not only the funds necessary to run a business but also the required personnel and expertise to utilise the same. It has gained importance since banks show unwillingness to extend credit to newly established enterprises due to

⁴⁴ Radermacher, A., Walia, G., (2013). Gaps Between Industry Expectations and the Abilities of Graduates. Proceeding of the 44th ACM Technical Symposium on Computer Science Education - SIGCSE '13, 525-530.

lack of collaterals and a high risk of default. Although microfinance provides capital for businesses but its limited scope and amount curtail the innovative capacity of an undertaking (Sonne, 2012).⁴⁵ In India, the amount of funding received through venture capital and private equity flow has risen from ₹4 billion to ₹1,327 billion in the last two decades (Nuthalapati & Singh, 2019).⁴⁶

Venture capital has produced market giants such as Unacademy, Byju's, Swiggy, Zomato, Ola, etc. However, some caveats follow. Venture capitalists' investments have moved away from early stages to later stages worldwide. This can be demotivating to a young and aspiring entrepreneur who has the innovative capacity but not the money. This is where the government can step in—it can create an ecosystem that promotes entrepreneurship and innovative thinking. This can be in the form of reducing capital gains tax, higher spending on R&D, expediting administrative processes, providing seed funding, etc.

CONCLUSION

In the conventional production function, the two determinants of output, capital and labour, would be meaningless and unsustainable without technological progress, as there is always a limit to value addition that could be attained at any particular level of technological development. And this technological progress is achieved through innovation, which is an essential element of capitalism as coined by Schumpeter “the process of creative destruction.” To quote⁴⁷ “the fundamental impulse that sets and keeps the capitalist engine in motion comes from the new consumers' goods, the new methods of production or transportation, the new markets, the new forms of industrial organization that capitalist enterprise creates”.

⁴⁵ Sonne, L., (2012). Innovative Initiatives Supporting Inclusive Innovation in India: Social Business Incubation and Micro Venture Capital. *Technological Forecasting & Social Change*, 79, 638-647.

⁴⁶ Nuthalapati, C.S.R., & Singh, K., (2019). Venture Capital, Technology and Innovative Start-ups in India. *Tech-Monitor*, Jan-Mar 2019, 20-27

⁴⁷ Schumpeter, J.A., (1976), *The Process of Creative Destruction*. Capitalism, Socialism, and Democracy (pp. 81-86). George Allen & Unwin: London..



An aerial photograph of a city skyline. In the foreground, there are several modern buildings with glass facades and green roofs. In the background, there are several tall skyscrapers under construction, with cranes visible on top. The sky is blue with some white clouds. A large orange semi-transparent box is overlaid on the right side of the image, containing text.

Innovation in Cities

India's urban population has increased from 222 million (26%) in 1990 to 440 million (32%) in 2014. It is projected to reach 814 million (50%) by 2050.

With growing urbanisation, the number of metropolitan cities (with a population exceeding 1 million) has increased. Currently, they account for 43% of India's urban population (up from 38% in 2001), which is expected to rise to 87% by 2031.⁴⁸ Although in India the pace of urbanization is low, Delhi, Mumbai and Kolkata—with 25 million, 21 million and 15 million people, respectively—are among the most populous cities in the world.

The urban population in India contributes 63% to GDP.⁴⁹ Moreover, the city-states attract most of the FDI inflow. During FY 2021–22,



Karnataka was the top recipient state, with 38% of the total FDI equity inflow, followed by Maharashtra (26%) and Delhi (14%).⁵⁰

In this section, we shed light on the innovation landscape of Indian cities and try to identify the factors that drive innovation in these locales.

Since time immemorial, cities have been evolving in terms of demography, geography, product, and services, and have become the focal point of change which constantly requires a

⁴⁸ WEF_IU_FUDS_Urban_Development_Recommendations_Government_India_Report_2015.pdf (weforum.org)

⁴⁹ Three-fourth of India's GDP to come from urban population if these reforms are made | The Financial Express

⁵⁰ <https://pib.gov.in/PressReleasePage.aspx?PRID=1826946>

simple and efficient solution to the complex and burgeoning problems. To resolve these problems, we need creative thinking which involves a risk-taking attitude and accepting that failure may be an *interim* outcome but not the *only* outcome. It is often observed, especially in the rural context, that failure is neither accepted nor tolerated, which often demotivates people who either give up or switch their product/service in which they wish to innovate. Cities, on the contrary, being known for its quality education becomes the centre where such people are encouraged, since it houses top schools and universities where people inculcate the habit to develop mutual respect for others along with nurturing creative thinking. This is one of the reasons why cities like Bengaluru, Delhi, Mumbai, Hyderabad, among others, have been able to come up with some of the well-established companies and start-ups that India has offered.

Moreover, these cities have also become the hub of some of the most skilled and technically adept human resource destinations that not just work mark their presence nationally, but internationally as well. This is due to the robust education system, right from primary to secondary to tertiary education, present in the cities. Not only this, it is observed that people also move outside India to pursue their higher or technical education and come back after its completion to commercialize their creative ideas. This opportunity of adopting and learning skills at the global level is also something that cities open doors to via university level collaboration or MNCs tie-ups with foreign counterparts. In this way, cities not just offer the environment to encourage existing ideas but also provide a platform to absorb global solutions to native problems.

Second, cities get the financial support necessary for innovation, in the form of angel investors, private equity firms, venture capitalists, etc. This is because cities provide a skilled human resource, industrial clusters, and logistics support, which boost investors' confidence. This gets complemented by dedicated innovation, industrial, and start-up policies that these cities regularly use to incentivise these investors by rebate, subsidies, reimbursement, and cheap interest rates. Moreover, cities get a wider audience due to media campaigns something not readily present in rural areas. Thus, cities provide the support mechanisms that enable an environment where innovation is nurtured, fostering growth in cities.

Third, cities have and will continue to provide a big market for all kinds of goods and services, which creates the necessity to innovate and develop new products and/or improve existing ones. This twin mechanism of creating a new product/service and enhancing/improving an existing product or service forms the two stages of innovation referred by Dan Breznitz.⁵¹ As our cities continue to grow and expand, innovation will play a critical role in fulfilling inhabitants' needs.

⁵¹ Breznitz, Dan (2021). *Innovating in Real Places: Strategies for Prosperity in an Unforgiving World*. Oxford University Press, UK.

The other two being designing/engineering and production & assembly.

Thus, cities offer an ideal ecosystem to nurture innovation, thanks to a skilled workforce, big market and conducive government policies something that rural regions are unable to provide relative to urban conglomerates. Although currently innovation is being driven by the megacities, there is enormous scope for its proliferation in the rest of India. Therefore, we need strategies to scale the current innovation landscape, along with ensuring spill over effects across the country. These strategies may involve skilling a young labour force through programmes such as Skill India or bridging the academia-industry knowledge gap, or providing easy access to seed funding for new start-ups, etc. This will not only expand the current innovation landscape but also instil a competitive spirit among firms, individuals, governments, and regions to enhance their innovation ecosystem. This will also shrink the rural-urban divide with industries and investors looking at rural areas as well. Rural areas should build capacities to provide lucrative avenues to investors. This calls for collective action for establishing institutes, promoting industrial clusters, and educating people.



A satellite night view of Earth from space, showing the curvature of the planet and the glowing lights of cities and infrastructure. The Indian subcontinent is prominently featured in the lower half of the frame, with its coastline and major cities clearly visible. The background is a deep blue, representing the atmosphere and the dark void of space.

India vs The World

For India to compete with the world,
it would be prudent to understand
India's position in a relative context.

This would not only put things in perspective but also shed light on the fact that how far does the country need to traverse. Therefore, this section broadly compares some innovation statistics of India with the rest of the world and tries to highlight the lacuna in the Indian context. The section draws some international comparison and also look at some Indian specific statistics.



INDIA'S PERFORMANCE IN THE GLOBAL INNOVATION INDEX (GII)

To begin with, one must appreciate India's performance in the Global Innovation Index. The table below highlights how India has been performing on the Global Innovation Index (GII). India has shown consistent improvement when it comes to the rankings.

From the 60th position in 2017, India reached the 46th spot in 2021. India was ranked 1st among the Central and South Asian nations and 2nd among the lower-middle-income countries.

The current growth trajectory of India indicates further improvement in the coming years. However, as India starts to climb up the ladder, the competition would get tighter and India would need to perform exceedingly well.

Table 1 India's Performance on the Global Innovation Index

| Year | GII Score | GII Rank | Total Countries |
|------|-----------|----------|-----------------|
| 2017 | 35.50 | 60 | 127 |
| 2018 | 35.20 | 57 | 126 |
| 2019 | 36.58 | 52 | 129 |
| 2020 | 35.60 | 48 | 131 |
| 2021 | 36.40 | 46 | 132 |

Source: GII for various years.

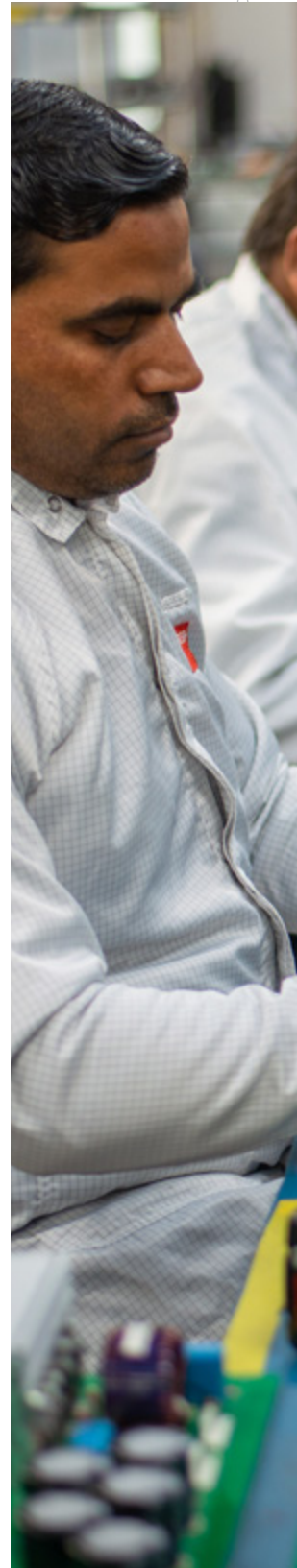
GROSS EXPENDITURE ON R&D (GERD)

One of the most looked at statistics is the GERD. The importance of GERD was explored in the previous chapter. The table below provides the GERD of few select countries to show India's relative position. As can be inferred, India's GERD is one of the lowest in the world, with just USD 43 per capita. This shows that India needs to boost this expenditure and at least be on a par with its BRICS or ASEAN counterparts like Russia (285), Brazil (173), and Malaysia (293).

Table 2 GERD per capita (in current PPP\$) (2018)

| Country | GERD per capita (2018) | Country | GERD per capita (2018) |
|-----------|------------------------|--|------------------------|
| Belgium | 1438.17 | Mexico | 63.82 |
| Brazil | 173.37 | Russian Federation | 284.80 |
| China | 325.82 | South Africa* | 105.69 |
| Germany | 1701.47 | United Kingdom of Great Britain and Northern Ireland | 791.43 |
| India | 43.41 | United States of America | 1777.93 |
| Indonesia | 26.34 | | |
| Israel | 2108.20 | | |
| Italy | 593.90 | | |
| Malaysia | 293.39 | | |

Note: - *Data for South Africa is for 2017.
Source: UNESCO Institute for Statistics.



The table below gives the GERD as a percentage of GDP. India's GERD as a percentage of GDP has been consistent and hovered around 0.7% for about a decade. This is even lower than Brazil (1.16), South Africa (0.83) and others. Only Mexico (0.31) had a lower share of GERD as a percentage of GDP. With such low contribution, R&D performance remains stagnant.

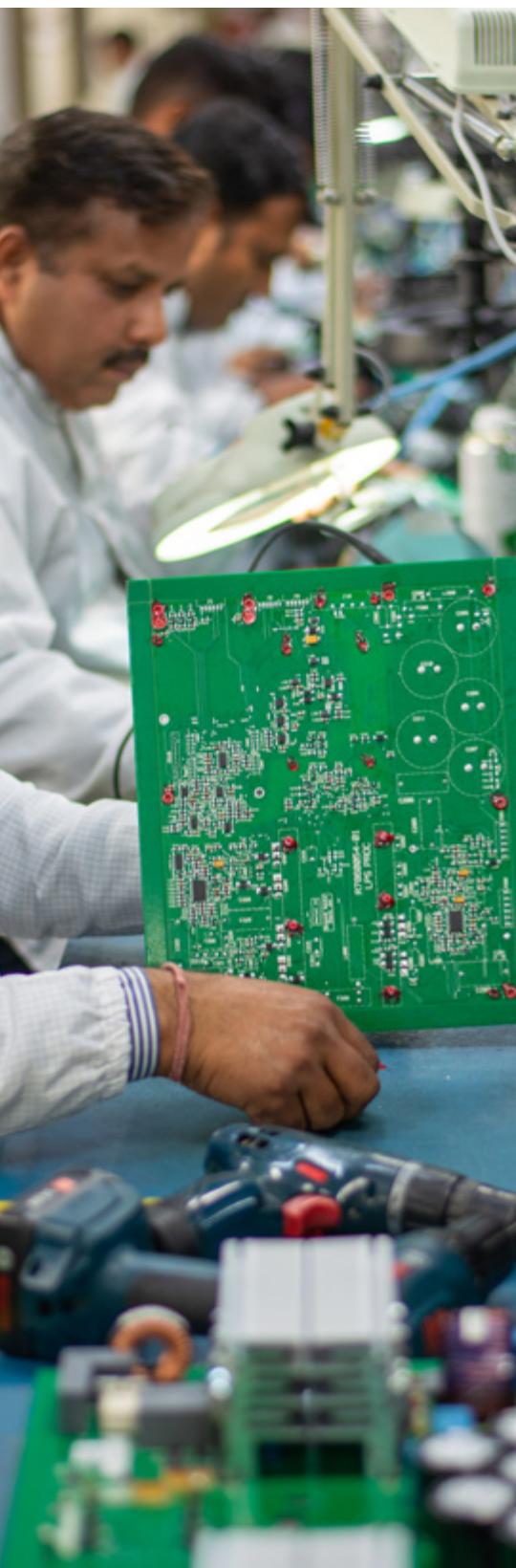


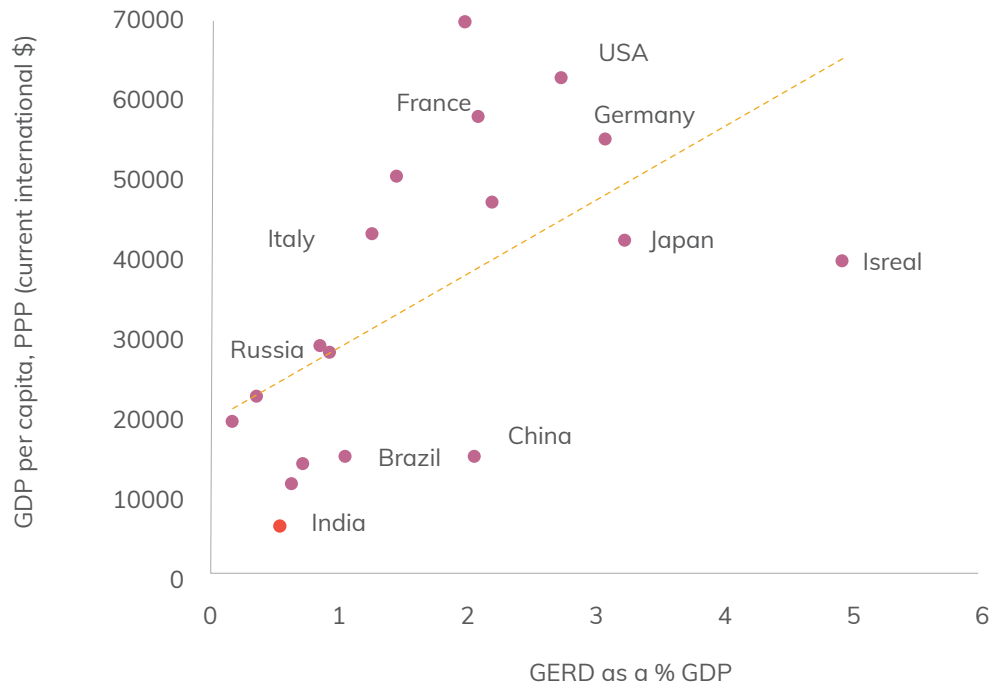
Table 3 GERD as a percentage (%) of GDP (2018)

| Country | R&D as a % GDP | GDP per capita, PPP (current international \$) |
|--------------------------|----------------|--|
| Argentina | 0.49 | 20771 |
| Brazil | 1.16 | 14835 |
| Canada | 1.56 | 46611 |
| China | 2.14 | 17211 |
| Egypt | 0.72 | 12607 |
| France | 2.19 | 46983 |
| Germany | 3.13 | 54792 |
| India | 0.65 | 6504 |
| Israel | 4.94 | 39482 |
| Italy | 1.39 | 41829 |
| Japan | 3.28 | 42390 |
| Malaysia | 1.04 | 27924 |
| Mexico | 0.31 | 18444 |
| Netherlands | 2.16 | 59268 |
| Norway | 2.07 | 62645 |
| Russian Federation | 0.98 | 29812 |
| South Africa | 0.83 | 13361 |
| United States of America | 2.83 | 65593 |

Note: - *Data for South Africa is for 2017.
Source: UNESCO Institute for Statistics.

Countries with higher per capita GDP invest more in R&D. The same is depicted in the figure below—for example, countries like the US, Japan, Germany, spend more on R&D.

Figure 6 Correlation between GDP per capita and GERD as a per cent of GDP (2018)



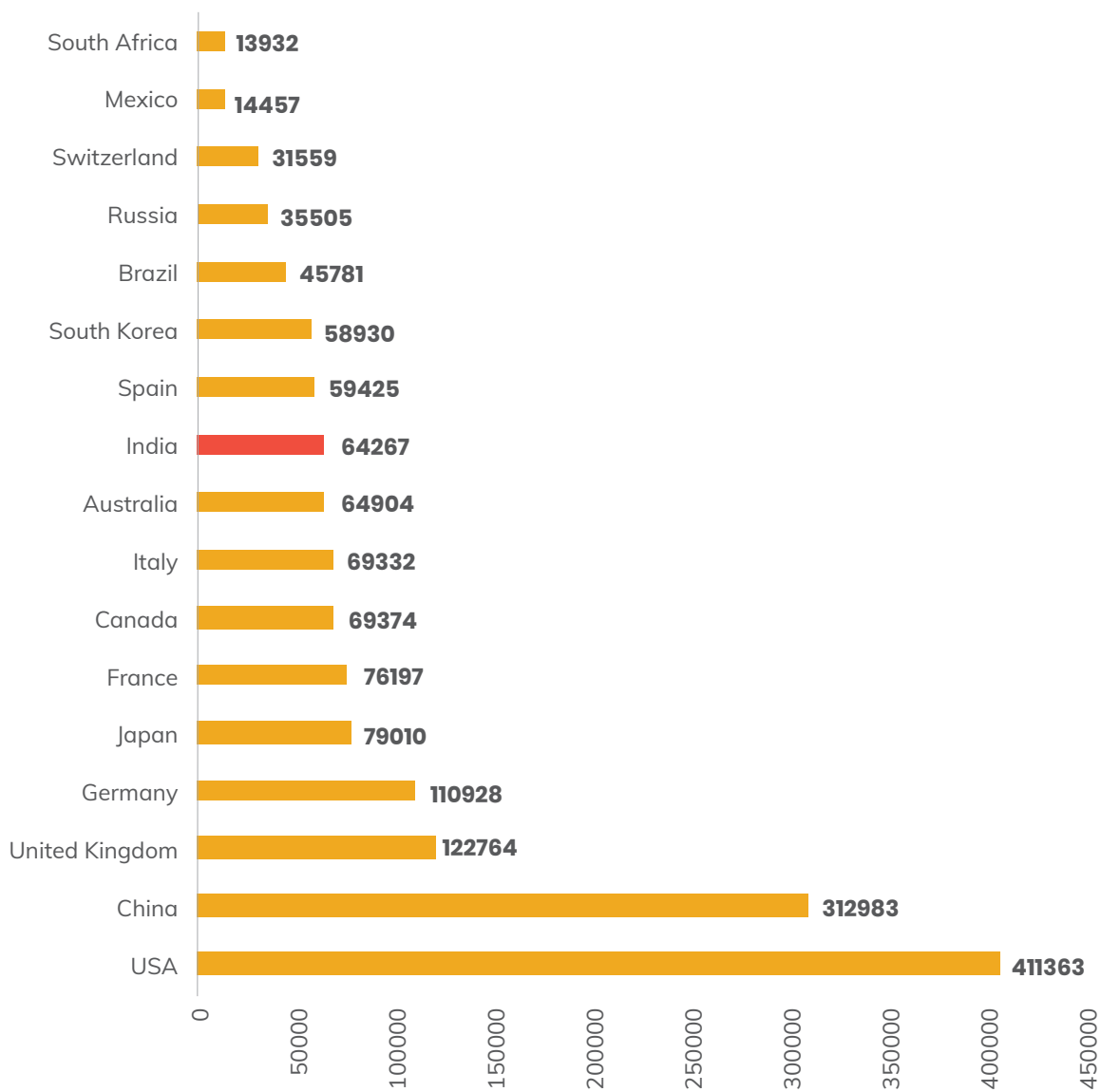
Source: UNESCO Institute for Statistics and World Bank.



RESEARCH PUBLICATIONS

One way to assess the research acumen of a country is the number of publications/citations by its people. The figure below highlights the number of research papers published across some select countries in 2016. Despite a low GERD, India has published more research papers than even countries like Russia, Brazil, and South Korea, among others. Moreover, India accounted for 4.1% of the world's total citations in the year 2016 (DST, 2019–20). This proves that given more opportunities in research, Indians can grow its R&D.

Figure 7 Number of Research Papers Published Across Selected Countries (2016)



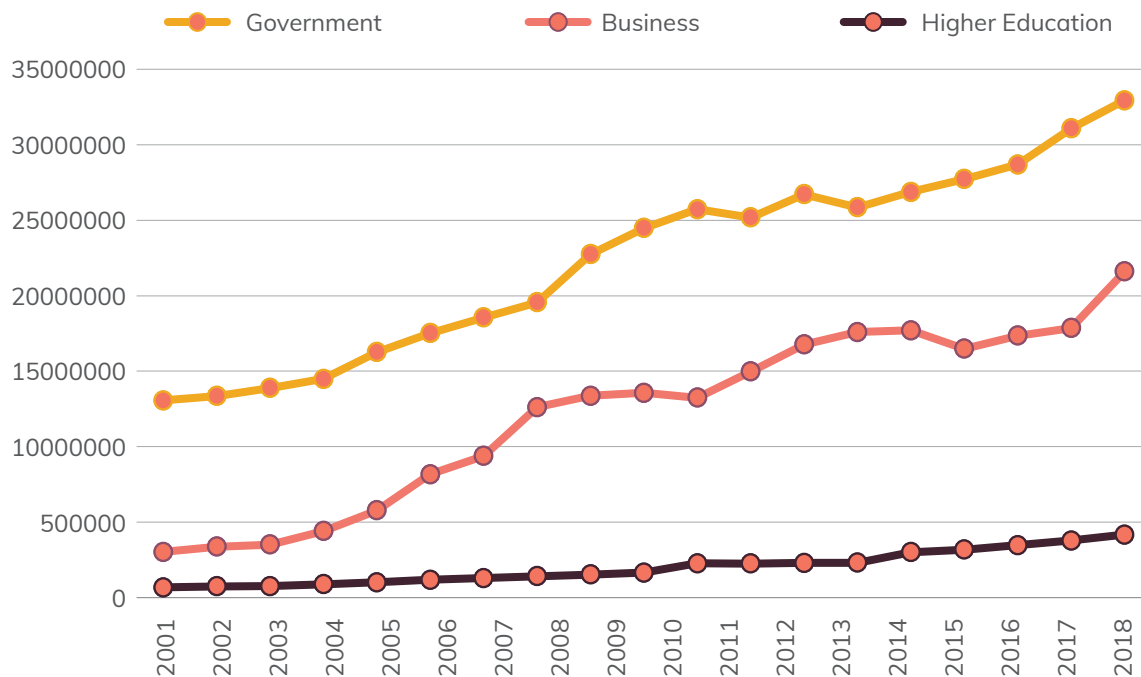
Source: Research and Development Statistics, Department of Science and Technology (DST), Gov.

RESEARCH COMPOSITION

It is not just enough to spend on R&D but also important to look at its sectoral composition. This is highlighted in the figure below where we see that in most countries R&D expenditure is undertaken by business enterprises and the higher education sector. For example, in countries like the US, UK, South Korea, Japan, a preponderant share (more than half or even more) is spent by the business sector.

However, in India, the government spends the most on R&D (more than 55 per cent). As was argued in the previous chapter, this needs to change. India needs to find that inflexion point after which the private sector can take over (see Figure 8 below). Although R&D by businesses rapidly rose from 2005–06 onwards, it wasn't fast enough to overtake R&D by the government. The curve for R&D by businesses needs to intersect the government R&D and rise—only then can India be on a par with the developed countries.

Figure 8 GERD by Performance, India (in '000 current PPP\$)



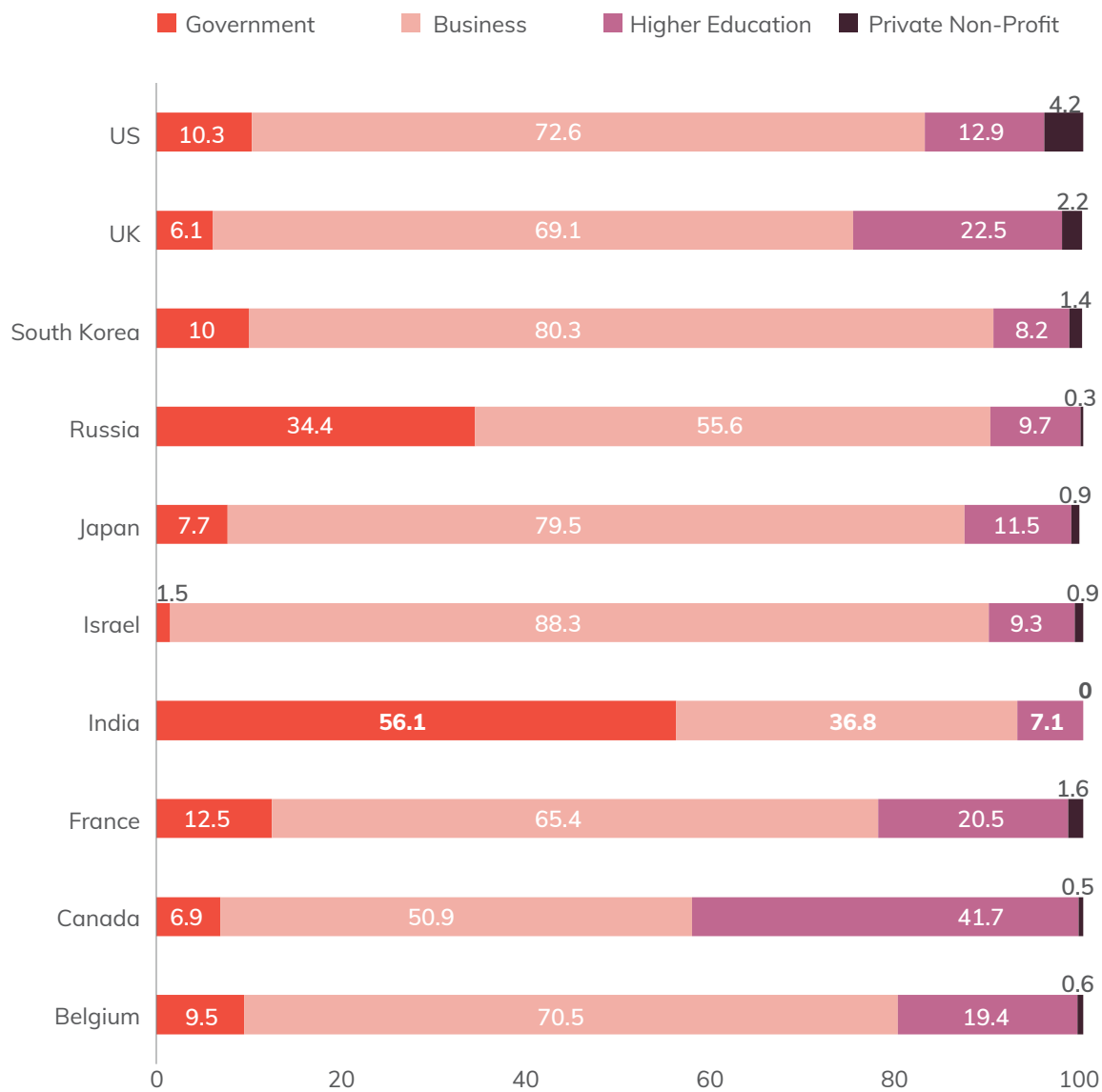
Source: UNESCO Institute for Statistics.

This can be achieved if businesses and higher education institutions work in tandem on R&D. Guelllec & Potterie (2000)⁵² concluded that a \$1 investment in R&D by the government leads to a \$0.7 increase in business R&D. This government expenditure

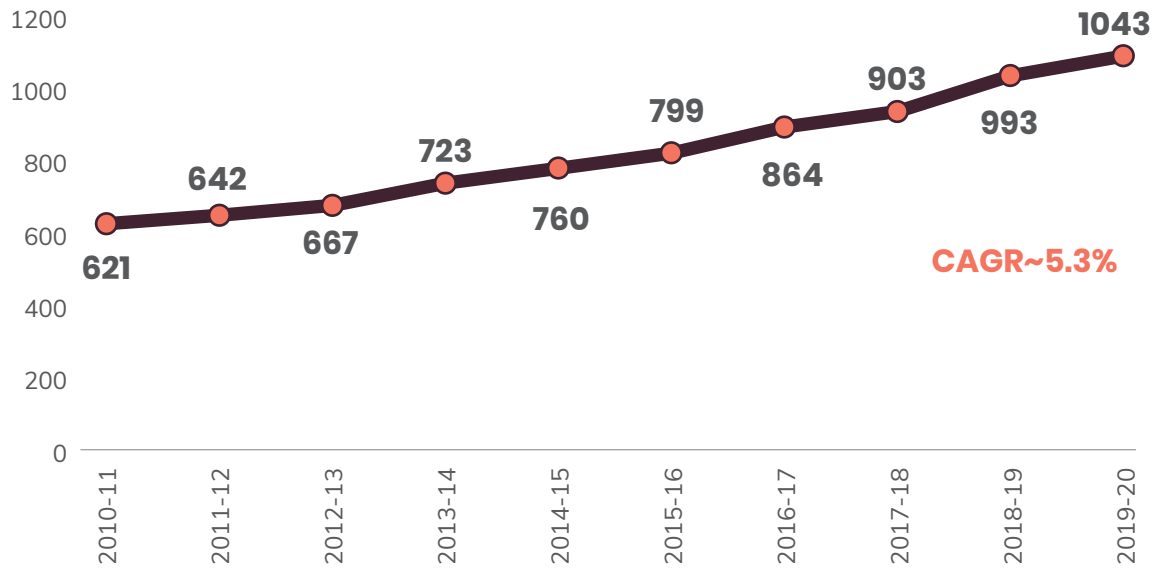
⁵² Guelllec, D., & Potterie, B., (2000). The impact of public R&D expenditure on business R&D. OECD Science, Technology and Industry Working Papers, 2000/4.

can be in the form of grants or through sharing the R&D costs. This will not only lead to an increase in research but also act as a backup for private businesses. Empirical evidence from developed countries has shown that such a module helped these countries reach an inflexion point, post which private R&D took over. Some such examples are given in Figure 9. This module would also increase the share of the higher education sector's R&D. To achieve this inflexion point, India also has a conducive environment where we see that the number of universities has been increasing over the years and has reached four digits with CAGR being about 5.3% over the last decade (Figure 10).

Figure 9 Sectoral Composition of Spending on R&D

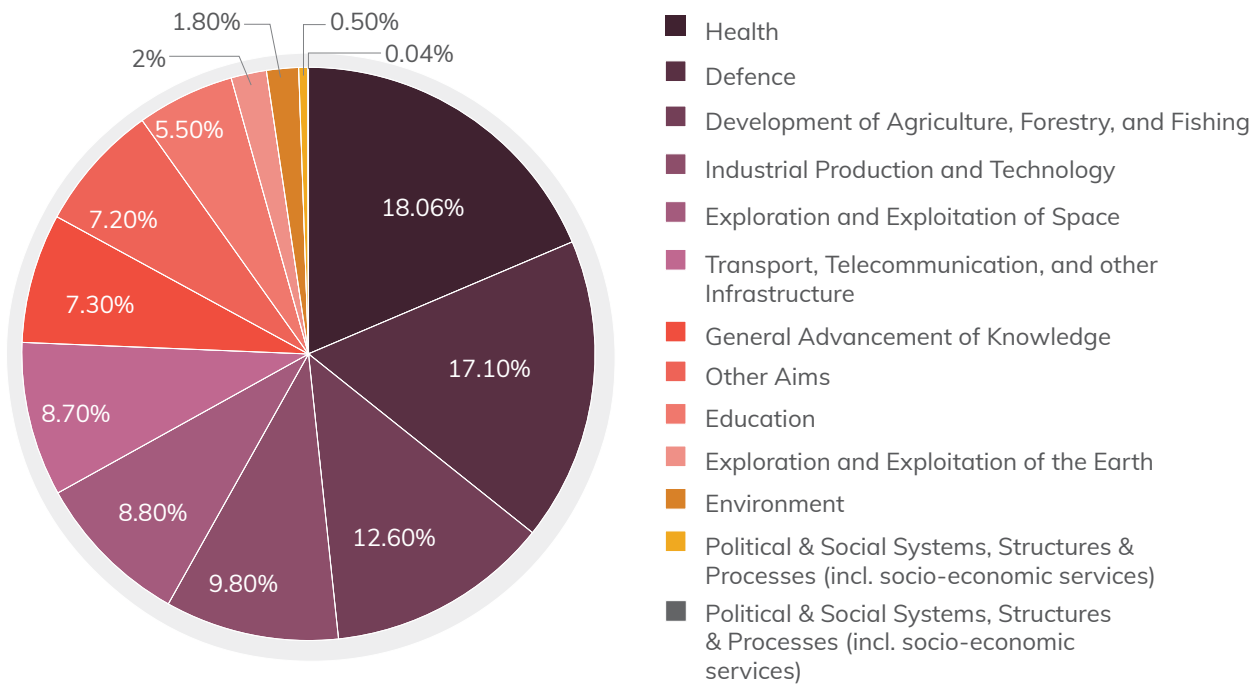


Source: Research and Development Statistics, Department of Science and Technology (DST), Gov.

Figure 10 Number of Universities in India

Source: Higher Education Profiles, AISHE, Ministry of Education, GoI.

The composition story holds a bit further, where one can also look at the expenditure by objectives. As can be seen in the figure below, more than one-third of the total national expenditure on R&D is spent on health and defence. While these two sectors are crucial, India also needs to focus on other sectors for all-encompassing growth.

Figure 11 Percentage Share of National Research and Development Expenditure by Objectives, 2017-18

Source: Research and Development Statistics, Department of Science and Technology (DST), GoI.





Methodology

The India Innovation Index 2021 displays the current scenario and highlights the recent catalysts and caveats for promoting innovation. The index examines innovation capacities and ecosystems at the sub-national level. Through its comprehensive framework, the index evaluates the performance and ranks all the 28 states and 8 union territories on the basis of their index score.

EVOLUTION OF INDIA INNOVATION INDEX (2019–21)

The Global Innovation Index (GII) was first launched in 2007 to broaden the view on innovation—i.e., moving from just analysis based on research and development expenditure and scientific papers published to inspiring generations of innovators and business. To celebrate innovation in the backdrop of the fourth



industrial revolution, the framework for *India Innovation Index 2021* has been mapped with GII indicators. After rigorous discussions with experts, the index was approved. This is against the backdrop of India's aim to break into the top 25 countries in the Global Innovation Index (GII) from its current 46th position. For this, states need to improve their existing innovation outcomes, which requires bolstering efforts to improve factors that enable innovative systems.

Table 4 Framework Composition of India Innovation Index

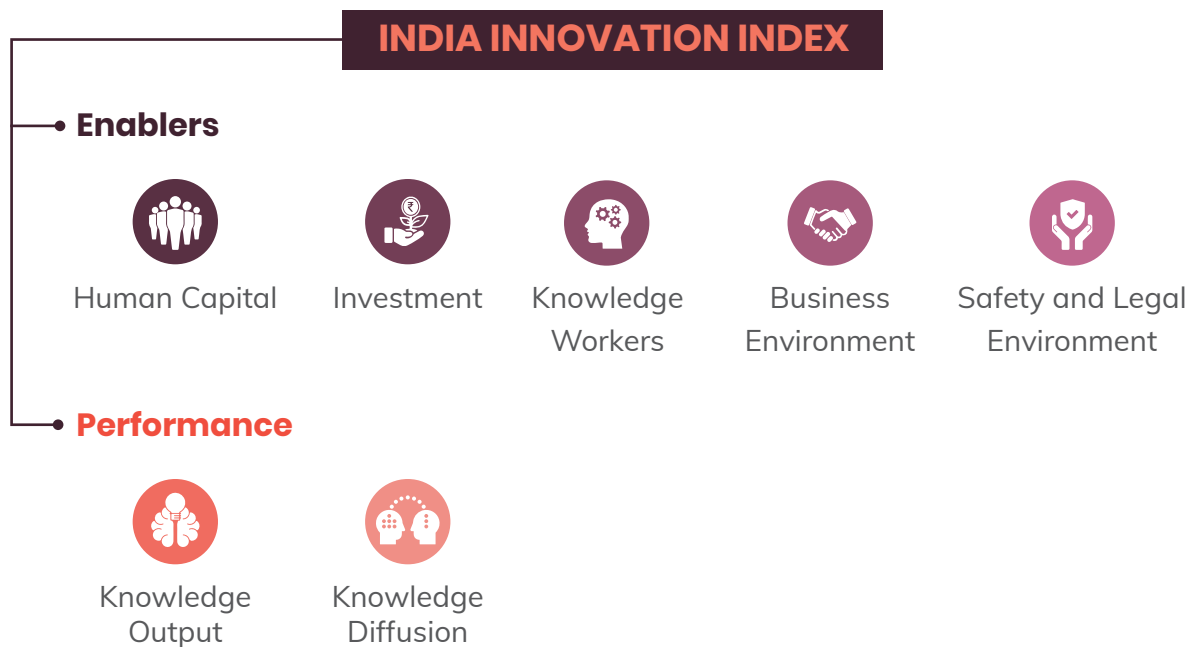
| Dimension | India Innovation Index 2019 | India Innovation Index 2020 | India Innovation Index 2021 |
|------------|-----------------------------|-----------------------------|-----------------------------|
| Enablers | 23 indicators | 25 indicators | 50 indicators |
| Performers | 10 indicators | 11 indicators | 16 indicators |


The dimension of the index remains the same as last year. Just like the previous edition, there are 7 pillars in the index—five ‘Enabler’ pillars measure the inputs and two ‘Performance’ pillars measure the output. However, the consensus was to incorporate new indicators in the framework to further strengthen the index. In last year’s edition, there were 36 indicators, this year there are 66 indicators.

All the indicators in the Enabler pillar covers the features that are crucial for promoting innovation within a state/UT. Indicators in the Performance pillar represent a nation’s benefits in knowledge creation and competitiveness. All the indicators of the index capture both the aspects of the market as well as the state, thereby covering all macroeconomic and microeconomic indicators necessary.



Table 5 India Innovation Index 2021 Framework



|  HUMAN CAPITAL |
|--|
| School Education |
| Schools with ICT labs |
| Assessment in reading, mathematics, and science (Class V NAS Scores, 2015, Cycle 4) |
| Expenditure on school education as a % of GSDP |
| NER in school education |
| Secondary school level completion rate with respect to Primary School level completion rate |
| Pupil-Teacher ratio: Primary & Secondary |
| Accolades in STEM Activities/ 1000 Students in States i.e.: INSPIRE Awards, NTSE Scholarship, Olympiads, Any other State/ national/ international level awards |
| Percentage of schools having Science/ Technology Tinkering/ Innovation labs like Atal Tinkering Labs (ATL's) |

| HUMAN CAPITAL |
|--|
| Tertiary and Higher education |
| Enrolment in engineering and technology (at UG, PG & Diploma level) |
| Enrolment in PhD per lakh of population |
| Higher education institutions with NAAC grade A and above |
| Pupil-Teacher Ratio- Higher Education |
| Colleges connected through NMEICT |
| Enrolment in vocational education or skill development courses/lakh of population |
| Tertiary in-bound mobility (non-state students coming to study in the state) |
| Percentage of schools having Science/ Technology Tinkering/ Innovation labs like Atal Tinkering Labs (ATL's) |



INVESTMENT

Research & Development

Expenditure on higher and technical education

Expenditure on Science, Technology and Environment

Expenditure on R&D

NIRF ranking of top 5 universities

Market Sophistication

Venture capital deals

FDI inflows



KNOWLEDGE WORKERS

Workforce

Knowledge-intensive employment

Private R&D units in the state

NGOs involved in knowledge-intensive areas

R & D Institutions funded by States/ UT's

Skill development training

% of females employed with advanced degrees out of total employed.



BUSINESS ENVIRONMENT

Trade, competition & market scale

Ease of Doing Business

Common Facility Centres

Share of manufacturing & services as a % of GSVA

Gross capital formation as a % of GSDP/ GVA

Incubator centres in the state

Cluster Strength

Credit

Number of bank accounts / 1000 population

Percentage of bank accounts with Aadhar seeding

Domestic credit to the private sector, % SDP

Micro-finance institutions Loan portfolio (MUDRA etc.)

Digital Infrastructure

Internet subscribers

Total number of online services transactions / 1000 population

No. of services offered online by STATE GOVT./ Other Sources

Percentage of villages in the state with internet connectivity

Percentage of subsidies or benefits transferred through the digital platform



SAFETY AND LEGAL ENVIRONMENT

Security/Safety Environment

Information Technology/Intellectual Property related Acts (Rate of offences)

Cybercrime police stations

Rate of Cognizable Crime

Police personnel/lakh of population

Social Media Monitoring Cells

Legal Regulatory Environment

Pendency of court cases

Charge Sheetting Rate

Pendency Percentage- Corruption cases investigation



KNOWLEDGE DIFFUSION

Knowledge Dissemination

High-tech exports as a % of total exports

ICT exports

High and medium-high-tech manufacturing entities

Citations

Creative Goods and Services

GIs registered

Circulation by all newspapers/ State population

Handicraft sales/GSDP



KNOWLEDGE OUTPUT

Knowledge creation

Grassroot innovations

Publications

Knowledge Impact

Startups in the state

New Businesses- No. of companies registered during previous FY

GSDP per capita growth rate

Environment clearance of proposals/ project

Intangible Assets

Patents filed from state

Industrial designs by origin

Trademark application filed

CATEGORIZING INPUTS AND OUTPUTS

To have a comprehensive understanding of innovation in a state, the index measures both the input as well as output variables. While the input variables capture what enables innovation, the output variables capture how innovation has actually occurred. i.e., its performance. Thus, both the enablers and performance are interrelated as one pillar steer the other pillar.



Enablers

The given dimension comprises the pillars that drive innovation in a state. Human Capital, Investment, Knowledge Workers, Business Environment, Safety and Legal Environment are the indicators that show the extent to which a state has created an environment to promote innovation. These pillars will help us understand each state's capacity to improve its innovation potential.



Performance

Performance factors determine the state's outcomes through innovation enablers. It measures how the factors such as investments in human capital have manifested itself in say patents. The two pillars in the given dimension are Knowledge Output and Knowledge Diffusion.

CONCEPTUAL FRAMEWORK

The India Innovation Index, through its pillars and indicators, will help analyze each state's performance in innovation. The index, through its rankings, will guide the states to understand the available opportunities for innovation. It incorporates key indicators under seven pillars that can be used to understand the performance of a state with regard to its innovation capabilities:

Enablers' Score: These input pillars will measure the elements of the state that enable innovative activities with the support of the five pillars.

Performance Score: The performance pillar indicates the output of the innovation activities undertaken by the states. Even though this dimension only has two pillars, it has the same weightage in the calculation of the overall innovation scores as the Enablers' dimension.

The Overall Innovation Score: The overall innovation score is the simple average of the two dimensions.

Innovation Efficiency Ratio: This is the ratio of the two scores. It indicates the state's ability to efficiently leverage its investments and infrastructure to produce successful innovation outputs.



Human Capital

Human capital is a significant factor in the spread of innovative ideas. No state can flourish without investing in skilled human resources, as they are vital for creating and enhancing innovation. Improving the level and quality of education and research are significant elements for boosting the innovation capacity of a region. An environment that encourages people to ask critical questions is one that fosters innovation. Investments in schools, colleges and R&D lead to long-term benefits by improving human capacity and, in turn, the innovation capabilities of a nation. This pillar tries to measure the human capital of the states through 15 key indicators.



Investments

Analyzing the expenditure on education, science and R&D is an important determinant of innovation capacity. Attracting public and private funds helps sustain the capacity to improve the existing knowledge infrastructure. Access to credit and support of the investors for entrepreneurial ventures and business expansion are crucial for encouraging business activities in the state. A robust market ensures ready access to credit for business and a steady flow of FDI. The pillar through its 6 indicators, gauges the financial standing of a state and the amount it spends on R&D.



Knowledge Workers

The employment of skilled labour is essential for strengthening the innovative capacities of businesses. The productivity, competitiveness and innovation potential of any organization depends on the efficiency of its professionals. There are a total of six indicators in the given pillar. Imparting skill, enhancing aptitude, training, and employing highly skilled labour are important to capture the level of business sophistication to gauge how friendly the firms are to innovation activities.



Business Environment

Creating a business ecosystem that enables growth by providing good governance and the correct levels of protection and incentives are also essential to innovation. This pillar aims to examine the business environment in each state/UT by considering factors such as ease of doing business, efficient governance, and digitization. The Business Environment pillar expands on aspects that affect private entrepreneurial endeavours and measures the ability of the state to provide a supportive environment for innovation.



Safety and Legal Environment

The given pillar analyses the safeguards put in place by the state governments to enact and enforce open and fair procedures, regulations of markets, and protection of property rights. Governments with lower regulation burdens are more likely to see higher levels of innovative entrepreneurial activity.



Knowledge Output

Increase in the companies' and individuals' investments in R&D leads to the development of innovative products and services. This enhances the appeal of those products and services across the markets and increases their competitiveness. Factors such as patents and trademarks capture the results of innovation. The number of scientific articles published reflects the scientific and technological output.



Knowledge Diffusion

This pillar reflects the degree to which a state can develop and apply knowledge to increase the value-added components in products and services, as well as a more general move toward an innovation-driven economy. The Knowledge Output pillar would be manifested in hi-tech and manufacturing exports, handicrafts, handlooms, among others in the states. This pillar reflects the extent to which the state's economy has grown from being resource-driven to innovation-driven.

The granularity of the data we captured in this edition has improved from the first two iterations. In addition, 23 new indicators will be added in the next edition mapped to the GII framework in Appendix C.

GEOGRAPHICAL COVERAGE

The India Innovation Index covers all the twenty-eight states and eight union territories, which are further subdivided into districts, cities and towns. The heterogeneity and the vastness that prevails across the states in terms of geographical size, language, culture, and policies create complexities in the index analyses. Every state differs in terms of its innovative capacities and challenges given the demographic, economic, and sociocultural factors that influence it. Thus, it will be unfair to compare the



states without acknowledging the existence of immense spatial segregation in India. Otherwise, it could lead to complexities in assessing states, as policy implications for large states are different from small ones.

The states and union territories have been thus classified into three categories: Major States; North-Eastern and Hill States; and UT and City States.

Goa is included in the UT and City States's category, even though it's a state as per the Indian constitution. Due to their geographical similarities, India's north-eastern and hill states have been clubbed under the same category. Also, as per a gazetted notification, Dadra and Nagar Haveli and Daman and Diu have been formed into one union territory.

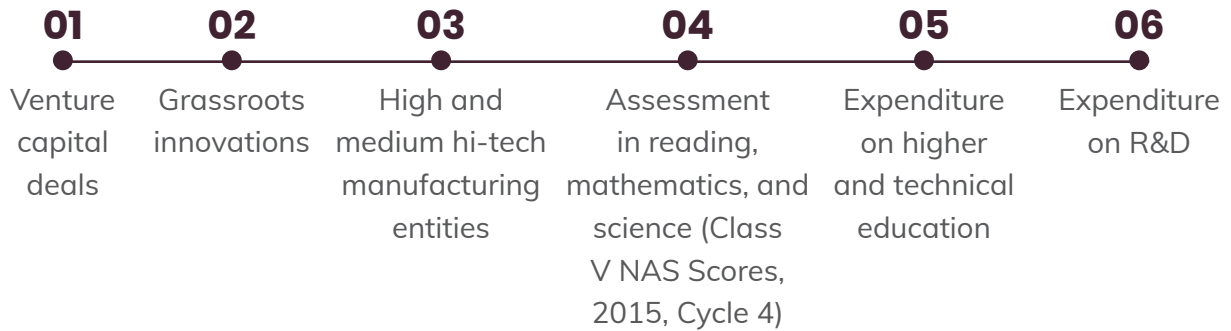
Table 6 Segregation of States/Union Territories/City-States

| Major States | North East and Hill States | UT and city states |
|----------------|----------------------------|--|
| Andhra Pradesh | Arunachal Pradesh | Andaman and Nicobar Islands |
| Bihar | Assam | Chandigarh |
| Chhattisgarh | Himachal Pradesh | Dadra and Nagar Haveli and Daman and Diu |
| Gujarat | Manipur | Delhi |
| Haryana | Meghalaya | Goa |
| Jharkhand | Mizoram | Jammu and Kashmir |
| Karnataka | Nagaland | Ladakh |
| Kerala | Sikkim | Lakshadweep |
| Madhya Pradesh | Tripura | Puducherry |
| Maharashtra | Uttarakhand | |
| Odisha | | |
| Punjab | | |
| Rajasthan | | |
| Tamil Nadu | | |
| Telangana | | |
| Uttar Pradesh | | |
| West Bengal | | |



DEALING WITH MISSING VALUES

There were a few indicators where updated data was not available in the public domain. In such cases, the data was used from the previous edition of the index. The issue was experienced in the following indicators:



Moreover, to address the problem of missing values, the worst possible value was assigned to the indicator for the state in question. This implies that positive indicators were given a value of zero, and negative indicators were awarded the value of the worst-performing state.

Table 7 Missing Value Estimation Under Enablers and Performance Dimensions

| Dimension | Missing value estimation |
|--|--|
| ENABLERS | |
| Assessment in reading, mathematics, and science (Class V NAS Scores, 2015, Cycle 4) | Missing values for Uttar Pradesh, West Bengal, and Ladakh. Zero has been computed |
| Expenditure on school education as a % of GSDP | Missing values for Lakshadweep and Ladakh. Zero has been computed |
| Percentage of schools having Science/ Technology Tinkering/ Innovation labs like Atal Tinkering Labs (ATL's) | Missing values for Andaman and Nicobar, Lakshadweep, and Ladakh. Zero has been computed |
| Enrolment in engineering and technology (at UG, PG & Diploma level) | Missing values for Lakshadweep and Ladakh. Zero has been computed |
| Enrolment in PhD per lakh of population | Missing values for Dadra and Nagar haveli and Daman and Diu, Lakshadweep, and Ladakh. Zero has been computed |
| Higher education institutions with NAAC grade A and above | Missing values for Dadra and Nagar haveli and Daman and Diu, Sikkim, Lakshadweep, and Ladakh. Zero has been computed |

| Dimension | Missing value estimation |
|--|---|
| Tertiary in-bound mobility (non-state students coming to study in the state) | Tripura, Lakshadweep, Arunachal Pradesh, Andaman and Nicobar Islands Goa, Sikkim, Chandigarh, Jammu and Kashmir, Mizoram, Manipur, Nagaland, Haryana, Ladakh, and Dadra & Nagar Haveli data not available. Zero has been computed |
| Expenditure on higher and technical education | Missing values for Ladakh. Zero has been computed |
| Expenditure on Science, Technology and Environment | Missing values for Dadra & Nagar Haveli and Daman & Diu, Lakshadweep, and Ladakh. The national average has been computed |
| Expenditure on R&D | Missing values for Ladakh, Puducherry, Nagaland, Mizoram, Tripura, Delhi, Lakshadweep, Dadra & Nagar Haveli and Daman & Diu, Chandigarh, Goa, Sikkim, Arunachal Pradesh, and Andaman & Nicobar. Zero has been computed |
| FDI inflows | Data not available for Andaman and Nicobar Islands, Mizoram, Sikkim, Manipur, Meghalaya, Tripura, Jammu and Kashmir, Ladakh, Lakshadweep, Dadra & Nagar Haveli and Daman & Diu, and Nagaland. Zero has been computed |
| Share of manufacturing & services as a % of GSVA | Missing values for Dadra & Nagar Haveli and Daman & Diu, Lakshadweep, and Ladakh. Zero has been computed |
| Gross capital formation as a % of GSDP/ GVA | Missing values for Dadra & Nagar Haveli and Daman & Diu, Mizoram, Lakshadweep, and Ladakh. Zero has been computed |
| Social Media Monitoring Cells | Missing value for Goa, zero has been computed |
| Pendency of court cases | Missing value for Andaman & Nicobar Islands and Arunachal Pradesh. The National average has been computed. |
| Pendency Percentage- Corruption cases investigation | Missing value for Chhattisgarh has been computed with national average |

| PERFORMANCE | |
|---|---|
| GSDP per capita growth rate | Missing values for Dadra & Nagar Haveli and Daman & Diu, Lakshadweep, Jammu and Kashmir, and Ladakh. Zero has been computed |
| Patents filed from state | Missing values for Lakshadweep. Zero has been computed |
| Gis registered | Missing values for Andaman and Nicobar Islands, Ladakh, Lakshadweep, Jharkhand, and Chandigarh. Zero has been computed |
| Circulation by all newspapers/ State population | Missing values for Ladakh. Zero has been computed |

DATA TRANSFORMATION

All the indicators in the final set are modified so that a greater value means a higher score for the state. For instance, the pendency of court cases will have an adverse impact on the index. Therefore, transformations are applied to make its impact positive.

As all the indicators are measured in different units, it is important to standardize them so they become comparable. Otherwise, a variable that has relatively less variance but is measured on a larger scale as compared to other variables may appear to have much greater variation than it actually does. Standardization helps to solve this problem by making all the indicators unitless as it rescales using a mean of zero and a standard deviation of one.

Indicators are normalized using either GDP or population to enable relative state comparison. This implies that changes in individual indicators may either be driven by the numerator or normalization factor. Moreover, assessing year-on-year performance relies on consistent data collection over time that is not collected for all indicators. Therefore, a change in definition or old variable data could create movements in the rankings unrelated to performance

EVALUATING THE FIT

The indicator selection process includes those that best describe the concept of the pillars and is conceptually linked to each other. The rigour of the India Innovation Index methodology is strengthened by assessing multiple aspects of fit between those indicators.

First, the exploratory factor analysis is used to test the underlying factors among the set of selected indicators in each pillar. In this process, the indicators that are statistically incompatible are removed. Furthermore, the India Innovation Index methodology involves evaluating the fit between the individual indicators by calculating Cronbach's alpha for each pillar.

Alpha was developed by Lee Cronbach in 1951 to provide a measure of the internal consistency of a test or scale; it is expressed as a number between 0 and 1 (Takako & Dennick 2011). Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the

inter-relatedness of the items within the test. Internal consistency can be employed for research or examination purposes to ensure validity. An applied practitioner's rule of thumb is that the alpha value should be above 0.7 for any logical grouping of variables (Cortina, 1993).

The alpha values are significantly lower i.e., 0.328 for Safety and Legal Environment. We acknowledge this shortcoming, but it is important to keep some indicators in the index due to their importance in the innovation landscape of India.

Table 8 Evaluating the Fit

| Dimension | Pillar | ALPHA |
|-------------|----------------------------|-------|
| Enabler | Human Capital | 0.79 |
| | Investment | 0.70 |
| | Knowledge Workers | 0.79 |
| | Business Environment | 0.88 |
| | Safety & Legal Environment | 0.328 |
| Performance | Knowledge Output | 0.84 |
| | Knowledge Diffusion | 0.75 |

AGGREGATION

After calculating each pillar, the goodness of fit is evaluated using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The KMO index ranges from 0 to 1, as a rule of thumb, KMO scores should be above 0.5 (Williams, Onsman, and Brown 2010). The results of this analysis are shown in the table below. The KMO of all the pillars is above the set standards.

Table 9 Calculation of Pillars by Using Kaiser-Meyer-Olkin (KMO) Measure

| Dimension | Pillar | KMO |
|-------------|----------------------------|------|
| Enabler | Human Capital | 0.58 |
| | Investment | 0.67 |
| | Knowledge Workers | 0.74 |
| | Business Environment | 0.69 |
| | Safety & Legal Environment | 0.64 |
| Performance | Knowledge Output | 0.72 |
| | Knowledge Diffusion | 0.65 |

The India Innovation Index uses the Principal Component Analysis (PCA) for calculating the weights of indicators within a pillar. The pillar values are calculated by summing up the weighted scores using the following formula:

A complete list of indicator weights is available in the Appendix.

The last step of determining the pillar score involves transforming the values to a 0 to 100 scale. This is done by calculating the scores using the best and worst-case scenarios in addition to the regional dataset. The best and worst-case scenarios are the actual best, and worst-case values from the dataset.

$$\text{Pillars} = \sum (w_i * \text{indicator})$$

See Appendix F for the best and worst-case scenario.

This method enhances comparability as well as comprehensiveness across the dataset. The calculation is done using the following formula:

$$\frac{(X_j - \text{Worst Case})}{(\text{Best Case} - \text{Worst Case})}$$

Where X_j represents the raw pillar values.

Dimension Scores

Each dimension score is taken to be a simple average of its pillars. The rationale being the absence of any theoretical or empirical proof to weigh any of the pillars higher than the others.

$$\text{Dimension}_d = 1/i \sum \text{Pillar}_s$$

Index scores

The two dimensions (i.e., Enablers and Performance) are believed to reflect equally important aspects of innovation. Therefore, while calculating the index no priority has been given to any dimension. Equal weights have been assigned to each of them to highlight their roles.

$$\text{India Innovation Index} = 1/2 \sum \text{Dimension}_d$$

RELATIVE PERFORMANCE OF STATES

The India Innovation Index assesses the states' performance based on relative performance rather than absolute scores. A state's strength and weakness are based on relative scores than an absolute one. For this purpose, state level scorecards are developed to portray both absolute and relative performances. In the scorecard, relative strengths and weaknesses are color-coded as red, yellow and green – where red indicates a state's performance below the peer group mean, yellow indicates performance consistent with a peer group, and green depicts that the state has performed above the peer group mean, demonstrating its relative strength.

We first define a state's peer based on GDP to identify a peer group. For every 10 economic peers identified, we calculate average scores across dimension, pillar, and indicator. This peer-level group comparison helps the state identify its relative strengths and weaknesses.





India Innovation Index: Key Findings

CATEGORY WISE RANKINGS

India Innovation Index

| Major States | | |
|----------------|----------|------|
| States | III 2021 | Rank |
| Karnataka | 18.01 | 1 |
| Telangana | 17.66 | 2 |
| Haryana | 16.35 | 3 |
| Maharashtra | 16.06 | 4 |
| Tamil Nadu | 15.69 | 5 |
| Punjab | 15.35 | 6 |
| Uttar Pradesh | 14.22 | 7 |
| Kerala | 13.67 | 8 |
| Andhra Pradesh | 13.32 | 9 |
| Jharkhand | 13.10 | 10 |
| West Bengal | 12.98 | 11 |
| Rajasthan | 12.88 | 12 |
| Madhya Pradesh | 12.74 | 13 |
| Gujarat | 12.41 | 14 |
| Bihar | 11.58 | 15 |
| Odisha | 11.42 | 16 |
| Chhattisgarh | 10.97 | 17 |

| NE and Hill states | | |
|--------------------|----------|------|
| States | III 2021 | Rank |
| Manipur | 19.37 | 1 |
| Uttarakhand | 17.67 | 2 |
| Meghalaya | 16.00 | 3 |
| Arunachal Pradesh | 15.46 | 4 |
| Himachal Pradesh | 14.62 | 5 |
| Sikkim | 13.85 | 6 |
| Mizoram | 13.41 | 7 |
| Tripura | 11.43 | 8 |
| Assam | 11.29 | 9 |
| Nagaland | 11.00 | 10 |

| UT and City states | | |
|--|----------|------|
| States | III 2021 | Rank |
| Chandigarh | 27.88 | 1 |
| Delhi | 27.00 | 2 |
| Andaman and Nicobar Islands | 17.29 | 3 |
| Puducherry | 15.88 | 4 |
| Goa | 14.93 | 5 |
| Jammu and Kashmir | 12.83 | 6 |
| Dadra and Nagar Haveli & Daman and Diu | 12.09 | 7 |
| Lakshadweep | 7.86 | 8 |
| Ladakh | 5.91 | 9 |

Enablers

| Major States | |
|----------------|----------|
| States | Enablers |
| Haryana | 22.68 |
| Karnataka | 22.00 |
| Punjab | 20.41 |
| Telangana | 20.08 |
| Maharashtra | 19.97 |
| Tamil Nadu | 18.93 |
| Rajasthan | 18.68 |
| Andhra Pradesh | 18.66 |
| Kerala | 18.17 |
| Chhattisgarh | 17.72 |
| Uttar Pradesh | 16.54 |
| Jharkhand | 16.38 |
| Madhya Pradesh | 16.20 |
| Gujarat | 16.05 |
| West Bengal | 15.37 |
| Odisha | 15.19 |
| Bihar | 14.21 |

| North-Eastern and Hilly States | |
|--------------------------------|----------|
| States | Enablers |
| Manipur | 28.55 |
| Meghalaya | 22.95 |
| Uttarakhand | 22.09 |
| Arunachal Pradesh | 21.76 |
| Sikkim | 20.83 |
| Mizoram | 20.13 |
| Nagaland | 19.69 |
| Tripura | 19.58 |
| Himachal Pradesh | 19.25 |
| Assam | 15.59 |

| UT and City states | |
|--|----------|
| States | Enablers |
| Chandigarh | 28.10 |
| Delhi | 26.04 |
| Andaman and Nicobar Islands | 25.77 |
| Goa | 20.94 |
| Puducherry | 20.86 |
| Dadra and Nagar Haveli & Daman and Diu | 19.55 |
| Jammu and Kashmir | 17.35 |
| Lakshadweep | 14.40 |
| Ladakh | 11.35 |

Performers

| Major States | |
|----------------|------------|
| States | Performers |
| Telangana | 15.24 |
| Karnataka | 14.02 |
| Tamil Nadu | 12.45 |
| Maharashtra | 12.16 |
| Uttar Pradesh | 11.90 |
| West Bengal | 10.60 |
| Punjab | 10.30 |
| Haryana | 10.02 |
| Jharkhand | 9.81 |
| Madhya Pradesh | 9.29 |
| Kerala | 9.17 |
| Bihar | 8.95 |
| Gujarat | 8.78 |
| Andhra Pradesh | 7.99 |
| Odisha | 7.64 |
| Rajasthan | 7.09 |
| Chhattisgarh | 4.22 |

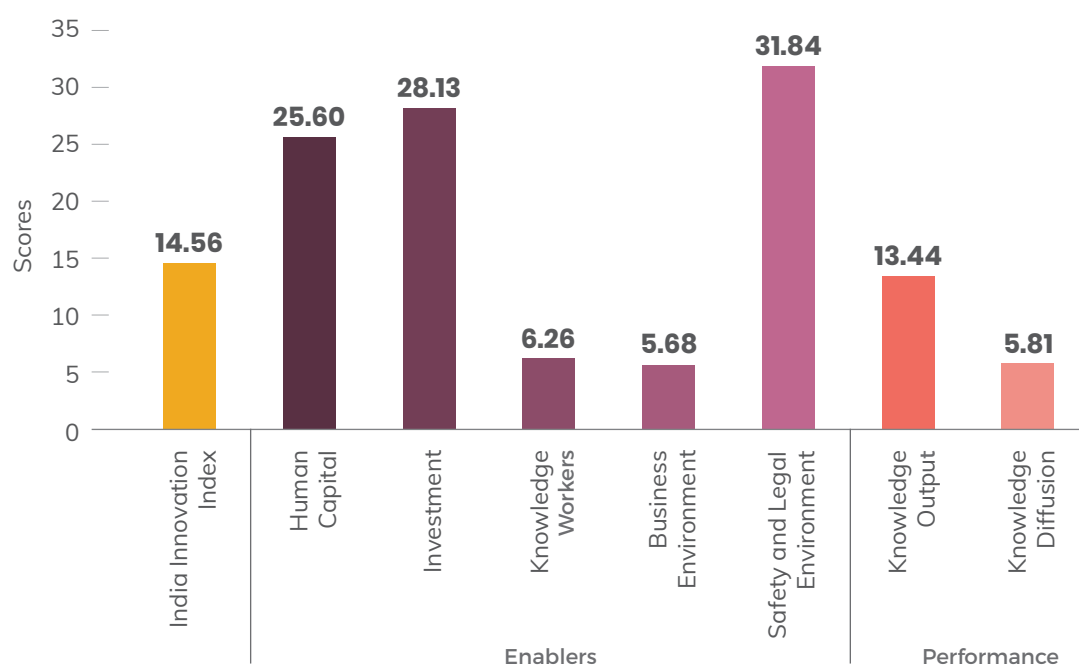
| North-Eastern and Hilly States | |
|--------------------------------|------------|
| States | Performers |
| Uttarakhand | 13.25 |
| Manipur | 10.19 |
| Himachal Pradesh | 10.00 |
| Arunachal Pradesh | 9.16 |
| Meghalaya | 9.05 |
| Assam | 7.00 |
| Sikkim | 6.87 |
| Mizoram | 6.68 |
| Tripura | 3.27 |
| Nagaland | 2.31 |

| UT and City states | |
|--|------------|
| States | Performers |
| Delhi | 27.96 |
| Chandigarh | 27.65 |
| Puducherry | 10.89 |
| Goa | 8.92 |
| Andaman and Nicobar Islands | 8.82 |
| Jammu and Kashmir | 8.30 |
| Dadra and Nagar Haveli & Daman and Diu | 4.64 |
| Lakshadweep | 1.32 |
| Ladakh | 0.47 |

COUNTRY-LEVEL ANALYSIS

The India Innovation index lays down the broad pillars on which the country's innovation landscape is determined. The innovation index is based on 7 pillars: human capital, investment, knowledge workers, business environment, safety and legal environment, knowledge output, and knowledge diffusion. These pillars were divided across 66 indicators to determine the innovation capacity of states/UTs. The figure below gives the average scores across the 7 pillars.

Figure 12 Scores of Different Pillars



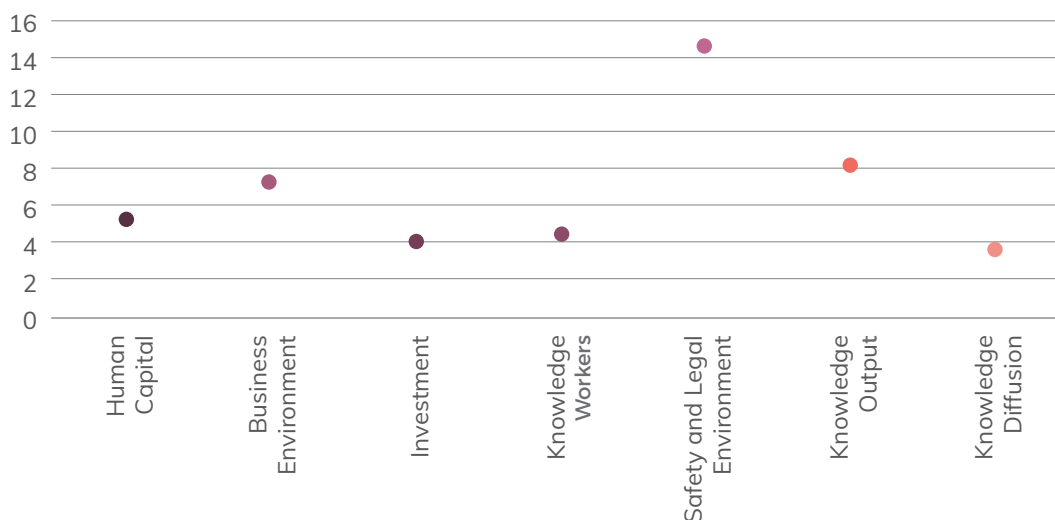
As can be seen, the overall index score is about 14.56. This is arguably low but we are ambitious to enter into the top 25 nations on the Global Innovation Index. Although our performance has improved on the GII over the years, in order to achieve our ambitious targets, we need to traverse the distance. To draw conclusions, one needs to delve deeper into the analysis. Overall, India has performed well on certain pillars like 'human capital', 'safety & legal environment', and 'business environment', the scores of all of which are higher than the national average.

Before delving deeper into pillar-level analysis, it is fair to conclude that not all Indian states have been able to transform 'enablers' into 'performers.' We see pillars like 'investment', 'knowledge workers', 'knowledge output', and 'knowledge diffusion' have performed below the national average. The pillar-level analysis is followed after the state-level analysis in this section.

States have scored fairly high on some of the enablers, the performing pillars have scored low, which means that the effectiveness of enablers (with an average score of 19.50) has not been reflected in the performing pillars (with an average score of 9.62). This implies that the enablers haven't been used optimally. The high performance of human capital in terms of school and tertiary education has not been reflected in the performer pillar's indicators like patents filed per unit GSDP. For instance, in Maharashtra, high enrolment in PhD has not been entirely reflected in the patents filed in that region. Similarly, there is a gap in the performance of knowledge workers and its reflection in high tech exports. Although there is no direct relation between the two, it is expected that they move in the same direction.

Lastly, there is a high variation observed in the state-level analysis. The overall performance is impacted, i.e., the score is susceptible to outliers. This is highlighted in the figure below, where we see deviation across pillars. Thus, there is a need to keep in mind the regional disparities across the country before taking measures to ensure the holistic development of the country's innovation landscape.

Figure 13 Standard Deviation across Pillars



CATEGORY-WISE: STATE-LEVEL ANALYSIS

The India Innovation Index ranks 36 Indian states based on innovation scores calculated by measuring the enabler (Human Capital, Investment, Knowledge Workers, Business Environment, and Safety and Legal Environment) and performer (Knowledge Output and Knowledge Diffusion) dimensions. As noted earlier, to ensure a fair comparison between the states, the states/UTs have been divided into three categories.

Overall, wide variation was observed among the states. This year 16 states have performed above the national average.

Amongst the 9 Union Territories and City-States, the average innovation score is 15.74, higher than the national average.

Chandigarh was the best performer, with a score of 27.88 and topped the overall rankings, followed by Delhi with a score of 27.00. Ladakh was at the bottom with a score of 5.91.

Chandigarh topped the knowledge worker pillar while ensuring investment in school and higher education. Delhi has topped the business environment and investment pillars, with a large number of incubator centres, a skilled labour force and its continuously transforming start-up ecosystem. This has been reflected in their overall performance as well. Both performed higher in the ‘performers’ pillars. Ladakh and Lakshadweep occupy the last positions, with 5.91 and 7.86 scores, respectively. They have consistently performed low on all the pillars due to their geographical shortcomings and economic constraints, which require immediate attention to promote an innovative environment.

Among the 17 Major States, Karnataka, with a score of 18.01, is the top performer, followed by Telangana and Haryana. Chhattisgarh has scored the least, 10.97. And the average score for the Major States’ category is 14.02.

Karnataka’s high score can be attributed to its peak performance in attracting FDI and a large number of venture capital deals. Karnataka also scores high in the ‘Performer’ dimension, with the highest share of ICT exports and GI registrations. Uttar Pradesh and Haryana have registered significant gains in promoting an innovative business environment with a large base of internet subscribers and a safe ecosystem for further investment in the region.

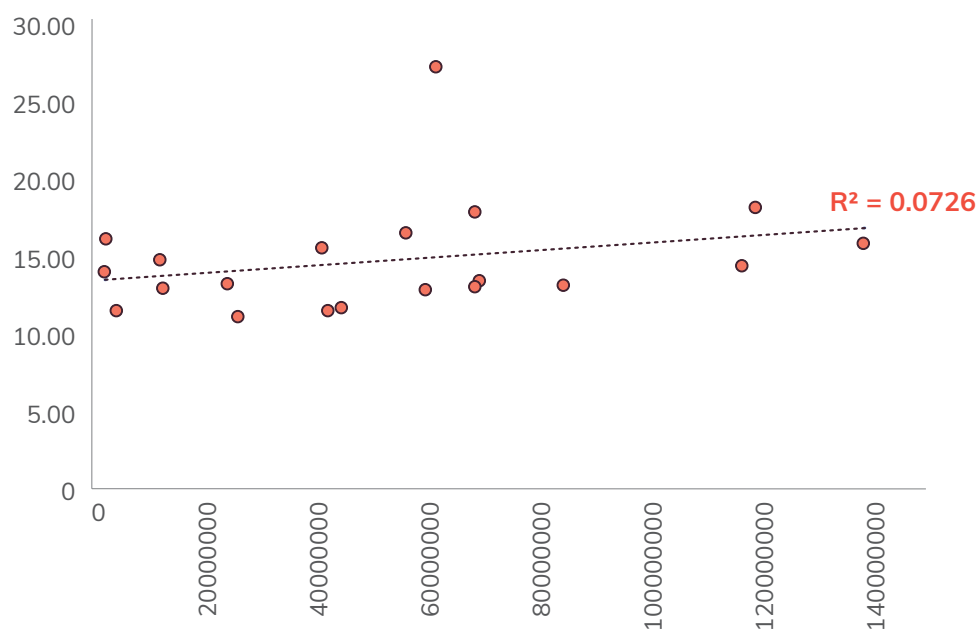
The North-Eastern and Hill States’ category comprises 10 states. The average score of this category is 14.41. Manipur with a score of 19.37 is at the top and Nagaland with a score of 11 is at the bottom.

Manipur scored best in the knowledge workers and safety and legal environment pillars. Uttarakhand has the second highest score due to the state government’s high R&D investment. Uttarakhand also registered the highest expenditure on school education – 20.10% of its GSDP. Nagaland and Tripura scored the lowest due to their unutilised talent as indicated by their low performance in human capital and

business environment, which indicates that their innovation capabilities have not been harnessed to their full potential.

The high-performing states have fared better in the Performer dimension than in the Enabler one. This shows that innovation output surpasses these states' input capabilities. The low-performing states – except for Ladakh and Lakshadweep – on the other hand, have scored more on the Enabler dimension than the Performer one, which indicates that their inputs have not been translated into innovation-induced outcomes.

Figure 14 GSDP and India Innovation Index Scores



The figure plots the GSDP against the India Innovation Index scores. As the data suggests, states with high GSDP tend to have high innovation scores. This might be because states with high GSDP invest more in innovation paradigms. This relationship was also evident at a country level, as explored in Chapter 4. We saw that countries with higher per capita GDP also invested more in R&D.

The figure shows that Tamil Nadu, which has ₹12,96,65,935 (in lakhs) of GDP, has an innovation score of about 15.59. Likewise, Karnataka, which has ₹11,13,81,799 (in lakhs) of GDP, has an innovation score of approximately 18.01. Similarly, Tripura, which has a low GDP of about ₹41,79,948 (in lakhs) has a low innovation score of 11.43. However, a low R2 value also indicates that it is not just the high GDP but its composition that matter, as just maximizing the GDP is not enough, its spending becomes of crucial importance if the fruits of it are to be reaped in the long-run. This, as argued, can be done if the states/UTs spend judiciously on innovation since it's a tool that can enable long-term growth and prosperity.

PILLAR-LEVEL ANALYSIS

Enablers



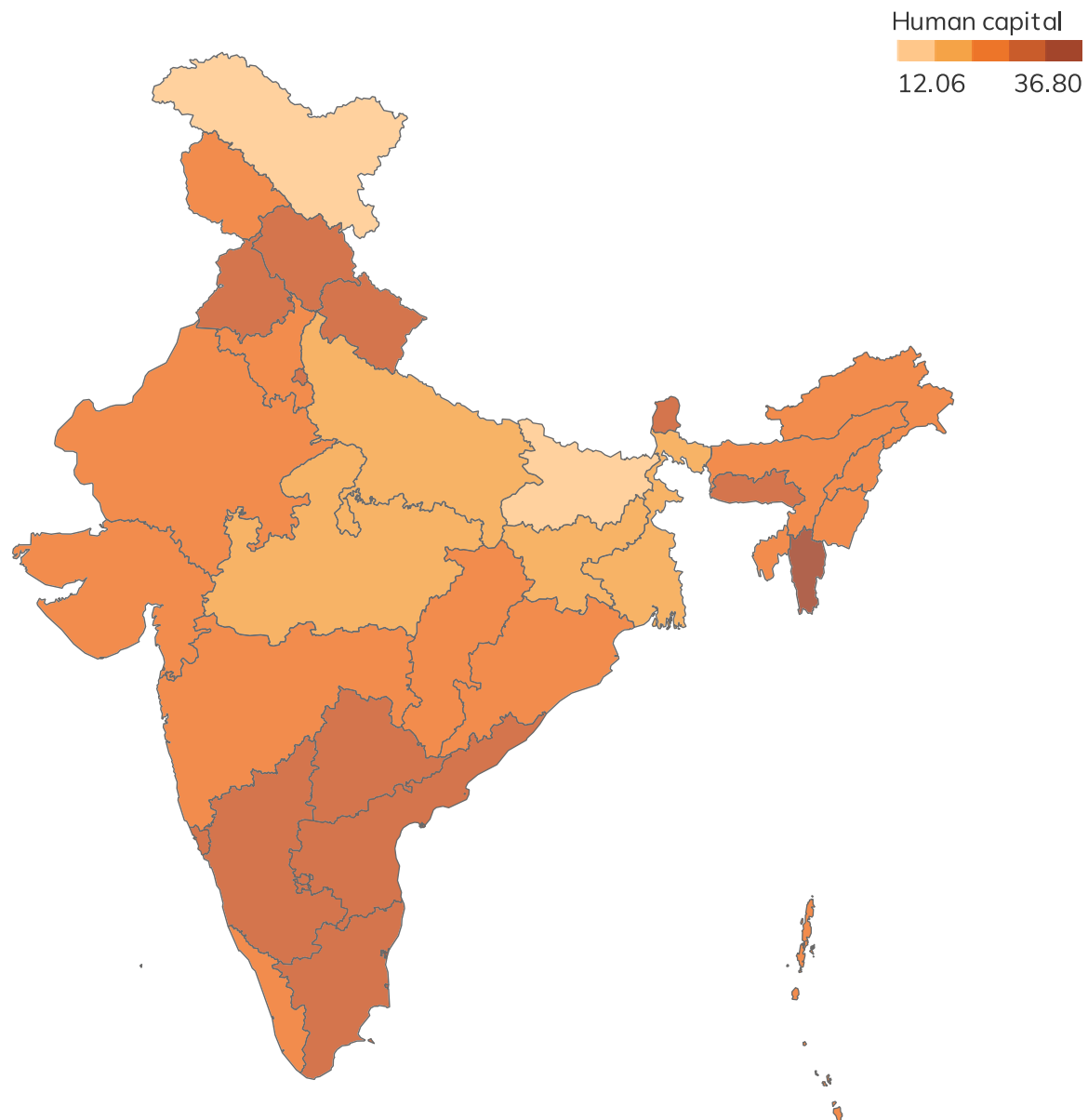
Human Capital

Average pillar score: 25.6

Highest Scoring States: Puducherry, Mizoram, Chandigarh, Tamil Nadu, Himachal Pradesh

Lowest Scoring States: Ladakh, Bihar, Uttar Pradesh, West Bengal, Lakshadweep

Figure 15 Performance of states in Human Capital



Human capital is the source of innovation, knowledge and practices necessary for the socio-economic growth of a region. The level and standard of education become primary determinants of a state's innovative capacity.

In the overall ranking, Human Capital is the highest performing pillar with an average score of 25.60.

Overall, 20 states/UTs have performed above average in this indicator. In the Union Territories and City-States category, Puducherry (36.80), Chandigarh (33.56), and Delhi (29.66) are best performers since they topped the chart – and Ladakh the worst, with a score of 12.06.

Among the Major States, Tamil Nadu has scored the highest, 30.88, and Bihar the lowest, 13.29. While Mizoram has topped the North-Eastern and Hill States' category with a score of 35.23, Assam was at the bottom with a score of 24.44.

This pillar is divided into two sub-pillars: school education, and tertiary and higher education, with 8 and 7 indicators each.



Chandigarh has registered the best performance in the percentage of schools with functional computer facilities (99.14%) and Atal Tinkering Labs (3.54%).

In the case of the higher education indicator, Chandigarh was just below Delhi for the highest PhD enrolments per lakh population. Moreover, it had about 29.72% of higher education institutions with (National Assessment and Accreditation Council) NAAC A and above grade.

The Union Territories and the North-Eastern states, such as Lakshadweep, Ladakh and Puducherry, are the best performers in the pupil-teacher ratio in schools and in higher educational institutions. At the same time, UTs Ladakh and Lakshadweep have consistently underperformed in various indicators on the Human Capital pillar. These regions have a lower population, so, it would be better to invest in human capital development by promoting quality educational institutions, enrolment in engineering and technological universities, and vocational education courses.

States with high enrolment in engineering and technology (UG, PG and diploma level) colleges are still capable of better performance, as observed by the enrolment-intake gap in these states.

For instance, in Tamil Nadu, the enrolment-intake gap percentage is 54.96%, and in Puducherry and Andhra Pradesh, the gap is 58.70% and 40.87%, respectively. Chandigarh has an 11.86% gap, which is lower relative to the other top states.⁵³ So, it is important to improve enrolment in engineering and technology courses by filling available vacant seats across the colleges in these states.

In Major States' category, Tamil Nadu, Karnataka, Punjab, Andhra Pradesh, and Telangana have performed satisfactorily; however, Bihar, Uttar Pradesh, West Bengal, Jharkhand, and Madhya Pradesh require significant improvement. An important indicator of human capital is learning outcomes. NAS scores used in assessing school students' reading, mathematics, and science skills reveal the quality of education in government and government-aided schools. Delhi, Karnataka, and Rajasthan are the top performers.

The overall performance of the human capital pillar can be improved by utilising the demographic advantage of various northern states to their maximum potential. Other UTs and City-States can take lessons from Delhi and Chandigarh by investing more in quality education and improving the educational environment in the region to promote a human capital-induced innovation ecosystem.

It is also important to note that some states fail to retain their human capital. This impedes their innovative growth trajectory since the quality of human capital plays a major role in innovation. Overall, it also reduces a country's absorption capacity of human capital as the best brains move to another state/country for better opportunities.



⁵³ All India Council for Technical Education



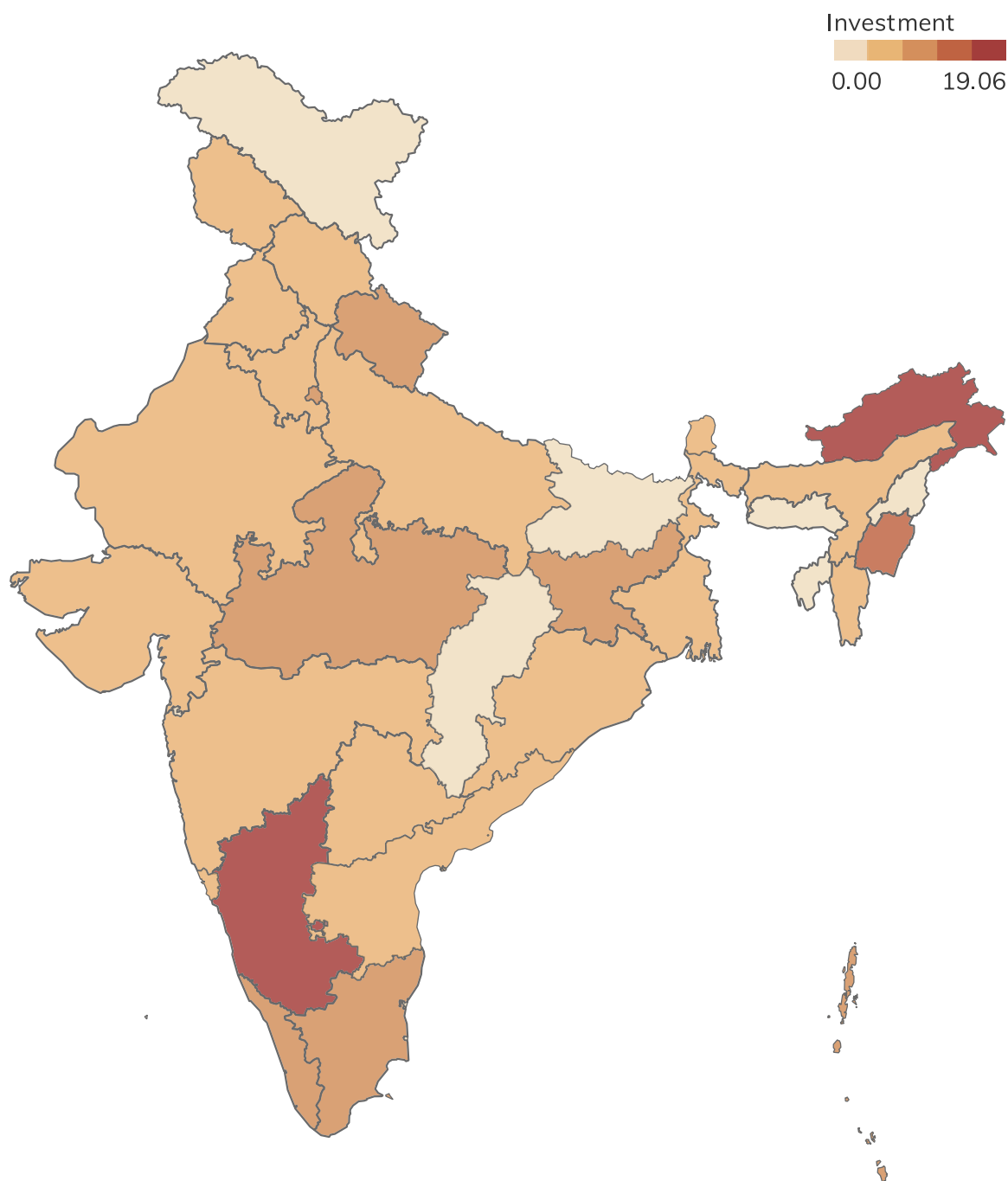
Investment

Average pillar score: 6.26

High Performing States/UTs: Karnataka, Arunachal Pradesh, Manipur, Delhi, Uttarakhand

Low Performing States/UTs: Ladakh, Tripura, Puducherry, Meghalaya, Lakshadweep

Figure 16 Performance of states in Investment



Investment is an important pillar that largely influences innovation in any region. The pillar has 6 indicators, divided across 2 sub-pillars viz. research and development, and market sophistication. Investment, with a score of 6.26, is one of the lowest scoring pillars among all, and therefore needs to be looked into. Also, there are contrasting scores for various states/UTs.

For example, Karnataka, with a score of 19.06, is the top performer in terms of investment. This is largely due to its high performance on various indicators, including FDI inflow and high venture capital deals. Karnataka received the fourth highest FDI inflow in India, with about ₹30,74,617 (in lakhs) which is about 2.7 per cent of its GSDP. It was also able to manage the highest number of venture deals in the country. Its counterparts, like Jharkhand, received FDI inflow of about ₹13,20,771 (in lakhs) which is about 5.5 per cent of its GSDP along with spending high on higher and technical education among its peers.

Arunachal Pradesh with a score of 17.12 and Manipur with a score of 11.44 are among the top performers in the North-Eastern and Hilly States. Manipur scored the highest on indicators like R&D expenditure as a percentage of GSDP whereas Arunachal Pradesh scored the highest on indicators like expenditure on science, technology and environment as a percentage of GSDP. It also received high FDI inflow in North-Eastern and Hilly States category.

It is observed that North-Eastern and Hilly States' performance was relatively poor. Their respective scores were even lower than the average pillar score of 6.26. For example, Nagaland, Tripura and Meghalaya scored 2.15, 1.32 and 1.54, respectively. It must be noted that the performance of these states is greatly affected due to their geographical location. While, geographical disadvantage is a challenge, measures can be roped in to enhance overall performance, with respect to improvement in performance under this pillar.

Delhi has scored high in UTs and city states, with a score of 11.34, given its performance on indicators like NIRF rankings, FDI inflow, and venture capital deals, making it one of the top performers across all categories.

Lastly, needless to say, a particular state/UT can perform good or bad in a particular year, but what is crucial is that it learns from the performance of others and identifies the lacuna in its own state/UT. In this regard, the low-performing states/UTs have much to learn, identify, and consequently work upon. As discussed in earlier chapters, the role of investment in innovation is pivotal. Therefore, the states/UTs need to focus on scaling up the existing investment in the broad paradigms, and thereby induce more investment.





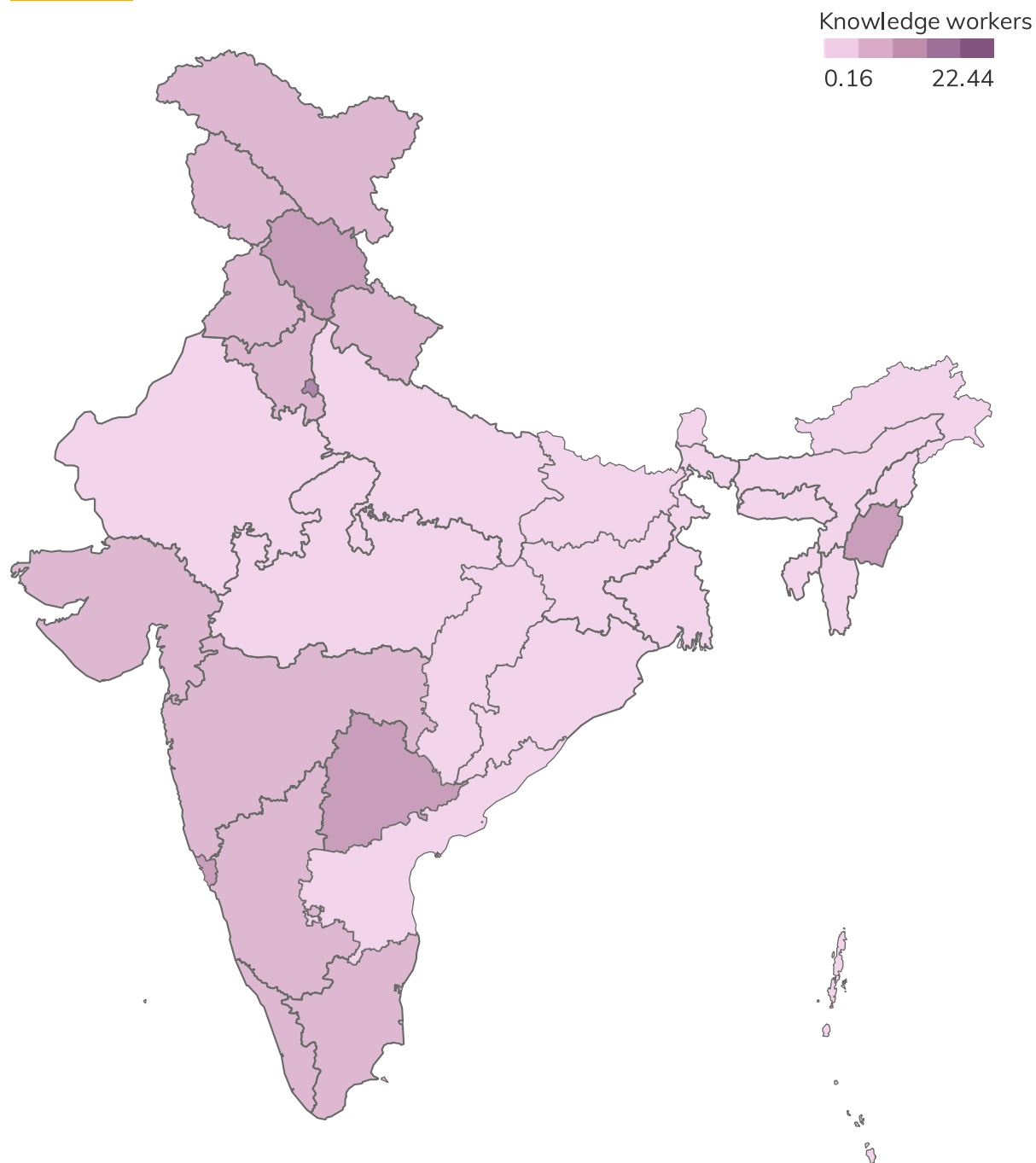
Knowledge Workers

Average pillar score: 5.68

High Performing States/UTs: Chandigarh, Delhi, Manipur, Himachal Pradesh, Goa

Low Performing States/UTs: Lakshadweep, Mizoram, Jharkhand, Andaman & Nicobar Islands, Chhattisgarh

Figure 17 Performance of states in Knowledge Workers



Human capital is a key pillar in a knowledge-based economy. It must be noted that it's not a sufficient condition, but a necessary one. The analysis of human capital has taken on a progressively more central role in discussions regarding the growth and success of nations and regions. This is because advanced societies in the west have increasingly evolved to a knowledge-based economy, whereby tertiary level human capital is seen to be a crucial feature of economic growth.

For India to transition towards a similar path, it is crucial to focus on knowledge workers. Knowledge workers may be employed across all sectors of the economy, and not all workers in knowledge-intensive industries are knowledge workers.

The importance of knowledge workers cannot be negated, given our economy has relied on them for service-driven growth. Despite their low numbers compared to semi-skilled and unskilled manpower, they have put the service sector ahead of manufacturing or agriculture in terms of contribution towards the GDP (about 50 per cent). Thus, their role in promoting innovation is pivotal. In terms of its overall score, it is the 2nd lowest, and is lower than the overall innovation score of 14.56. Digging deeper into the analysis reveals that Chandigarh and Delhi have dominated the knowledge-worker space. For example, Chandigarh with a score of 22.44 has performed well on indicators, including creating knowledge-intensive employment; the number of private R&D units in the state (per lakh population); and the percentage of females employed with advanced degrees out of total employed. Similarly, Delhi with a score of 14.61, has about 2.37 private R&D units in the state (per lakh population), which is the highest in the country. It also has about 2.84 per cent of NGO's that are involved in knowledge-intensive areas. The overall performance in the domain of knowledge workers is also a result of the high performance of these UTs under the 'human capital' pillar.

In the Major States category, Haryana with a score of 8.35 performed well under this pillar. For example, the number of private R&D units in the state (per lakh population) has been about 1.28, close to its competitor Maharashtra, with about 1.22. It also has about 5.36% of women employed with advanced degrees in comparison with the total employed. It is close to its counterparts Andhra Pradesh and Telangana which have 2.25% and 3.28%, respectively.

In North Eastern and Hilly states, Mizoram has scored the lowest i.e. 0.53. For example, it has zero private R&D units in the state (per lakh population). So is the case with Tripura with a score of 2.36. Mizoram also has 1.43% of women employed with advanced degrees, which is low and comparable to its counterparts like Nagaland and Sikkim with 3.22% and 1.99%, respectively.

In the Major States category, Jharkhand with a score of 0.78 and Bihar with a score of 1.77, also have a lower percentage of women employed with advanced degrees. Jharkhand has only about 1.1% of females employed with advanced degrees out of the total employed. Bihar is even lower with about 0.58% of such women employed. This is in line with their counterpart Odisha with a score of 2.12, with 1% women employed with advanced degrees. The number of private R&D units in the state (per lakh population) has also been low in both the states; Bihar has 0.0076, whereas Jharkhand has 0.021. This is close to the number of such units in Chhattisgarh with a score of 1.66, and Madhya Pradesh with a score of 2.64. Their low performance can also be attributed to their low performance in the 'human capital' pillar.

Lastly, it is crucial to understand that better performance in one pillar alone would not be able to elevate the innovation landscape, nor can a single pillar deteriorate its performance. It's a collective mechanism and with respect to knowledge workers, it is important to closely work around the identified indicators and take care of the 'human capital' pillar since it is closely related to this pillar.



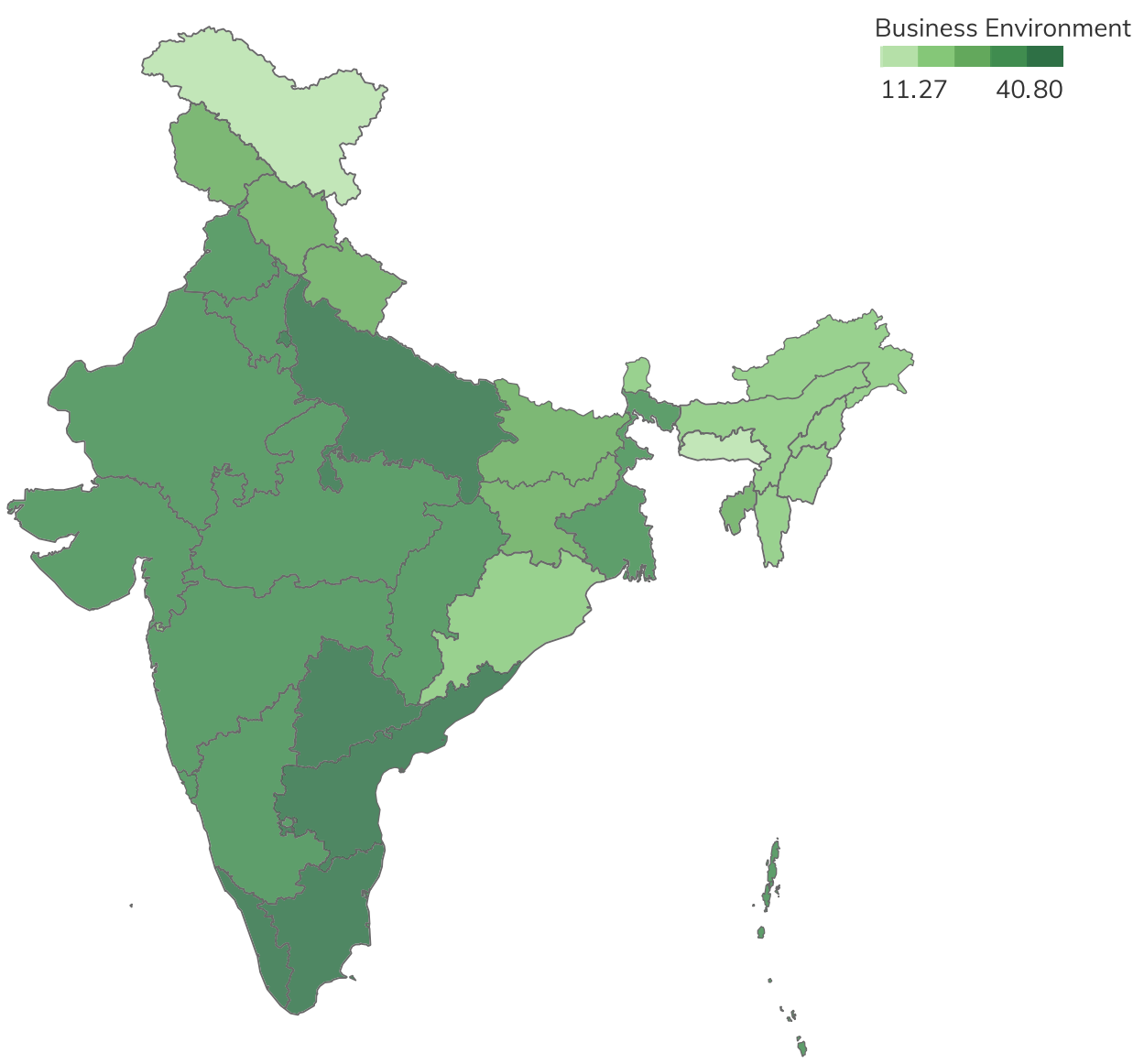


Business Environment

Average pillar score: 28.13

High Performing States/UTs: Uttar Pradesh, Delhi, Andhra Pradesh, Telangana, Tamil Nadu
Low Performing States/UTs: Ladakh, Meghalaya, Lakshadweep, Arunachal Pradesh, Nagaland

Figure 18 Performance of states in Business Environment



Business environment is arguably one of the most critical pillars in the overall segment, which is considered by industrialists and investors before making investment decisions. A robust business environment attracts investment in any region. It truly reflects the internal and external factors that influence a region's business environment.

This pillar contains three sub-pillars namely, Trade, competition and market scale, Credit, and Digital infrastructure. In terms of score, business environment is the second-highest performing pillar with an average score of 28.13.

In Union Territories and City-States category, Delhi has topped the pillar with a score of 39.28, by performing well on indicators like incubators per lakh population, the share of manufacturing and services as a percentage of GSDP, cluster strength, number of bank accounts per lakh population, etc. Its performance can be compared with Chandigarh, which had an overall score of 33.00. For instance, incubators per lakh population were about 0.33 in Delhi, vis-à-vis 0.28 in Chandigarh. The share of manufacturing and services as a percentage of GSDP was about 77 per cent in Delhi vis-à-vis 83 per cent in Chandigarh, scheduled commercial banks gave credit of ₹13,70,412 crore in Delhi vis-à-vis ₹78,002 crores in Chandigarh. as per RBI data, to mention a few.

Uttar Pradesh scored highest in the Major States category i.e., 40.80. It is due to improvement in overall business environment which has reflected in its EODB score, high cluster strength and share of manufacturing and service sector as a percentage of GSDP.

Other states in the Major States category have also performed well. Telangana which scored 36.54, is comparable with Tamil Nadu which has scored 36.06. For example, the incubators per lakh population stood at about 0.13 in Telangana and at 0.99 in Tamil Nadu, gross capital formation as a percentage of GVA stood at about 34.07% in Telangana and at 29.03% in Tamil Nadu. The number of bank accounts per lakh population stood at about 1.38 in Telangana and at 1.31 in Tamil Nadu.

Some of the North-East and Hilly states and union territories have performed low on this pillar. Their scores have been less than the national average of the pillar. For example, there are no incubators in Meghalaya and Arunachal Pradesh. Likewise, while only about 11 per cent of bank accounts were seeded with Aadhar in Meghalaya (lowest in the country), the percentage of villages with internet connectivity was lowest in Arunachal Pradesh (about 57 per cent).

States cannot enable innovative systems without addressing deficiencies in their existing business ecosystem. States urgently need to enhance their outcomes in categories in which they are lagging behind, so as to come at par with the other states. This would uplift their respective performance and improve the country's overall business environment.



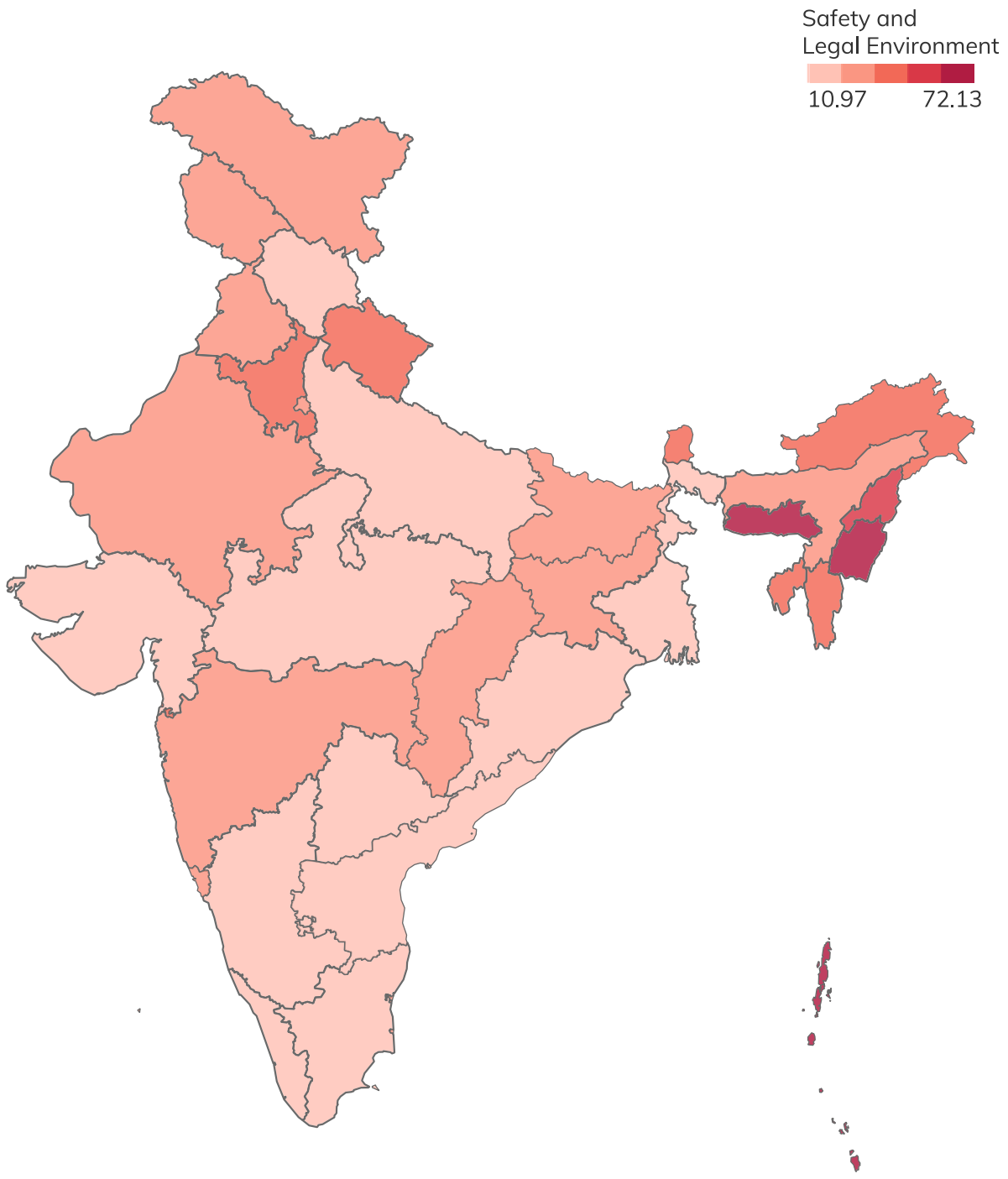


Safety and Legal Environment

Average pillar score: 31.84

Highest Scoring States: Manipur, Meghalaya, Andaman and Nicobar, Nagaland, Chandigarh
Lowest Scoring States: Tamil Nadu, Gujrat, Kerala, West Bengal, Uttar Pradesh

Figure 19 Performance of states in Safety and Legal Environment



Safety and Legal Environment is another important pillar that scored second highest amongst all the pillars. The national average for the pillar was calculated to be 31.84, with 21 states/UTs performing below the national average.

There is a wide disparity in the performance of the states. In this pillar, the top performers are all the Northeast and Hilly States, and Union Territories and City-States. This does not necessarily mean a safer and legally resilient environment in the top-performing states. For example, a lower rate of offences under IT/IP acts' can also be associated with inadequate reporting of such cases. So, it becomes necessary to carefully analyze each indicator to better understand the safety and legal environment in a limited frame.

In the North Eastern and Hilly states category, Manipur was a relatively better performer, with a score of 72.13 as it has consistently performed well in all 5 indicators relating to safety and security environment. The sub-pillar focuses on the safety and security aspects of a state, based on various factors, including crime rate, cyber and social media monitoring, police personnel per lakh population and so on. Manipur has the highest number of cybercrime police stations per lakh population at 0.35, and the third-highest number of police personnel per lakh at 942.93, just below Nagaland, and Andaman and Nicobar Islands. Manipur has also registered a low rate of cognizable crimes per lakh population, just below Dadra and Nagar Haveli and Daman and Diu, and Nagaland as per the NCRB data. In Major States, Tamil Nadu and Gujarat have scored relatively low compared to the rest of the country, with 10.97 and 11.01, respectively. Whereas Haryana has been the best performer with a score of 39.68.

Legal Regulatory Environment sub-pillar has three indicators: Pendency of court cases, Chargesheet rate, and Percentage of pending corruption cases. It is an important measure to analyze the legal regulatory framework in a state, with respect to timely and efficient redressal and low pendency of court cases. The pendency of court cases is lowest for Haryana and highest for Puducherry.

In the case of chargesheet rate, the percentage of the chargesheets filed out of the total number of cases is highest for Gujarat and Kerala with 97.1 per cent and 94.9 per cent respectively, and lowest in Meghalaya and Manipur with 18.1 per cent and 18.5 per cent respectively. The backlog in corruption cases is calculated in the pendency percentage indicator. Tripura, and Lakshadweep states have 0 backlog corruption cases against 100 per cent backlog for Manipur, Sikkim, Dadra and Nagar Haveli and Daman and Diu, Bihar Ladakh and West Bengal. In fact, all

the states except for Puducherry, Tripura and Lakshadweep have over 85 per cent backlog reflecting a grim state of corruption cases pending across the courtrooms in the country.

Many Major States such as Tamil Nadu, Uttar Pradesh, Karnataka, and Telangana have performed low in the concerning pillar from business and private investment. The Union Territories and City-States and the North-east and Hilly States have fared better, indicating a robust legal framework to maintain a safe and secure environment relative to the specific state population.

Irrespective of the state's scores on the pillar, it is necessary to improve a region's safety aspect. This could be achieved by introducing cyber and social media monitoring cells to address cybercrimes. Equally important is a pertinent legal, regulatory environment to clear the backlog of corruption and other court cases, and improve the chargesheet rate. Through a strong safety and legal environment, the state will attract investment and promote growth by efficiently utilizing the innovation landscape in the region.





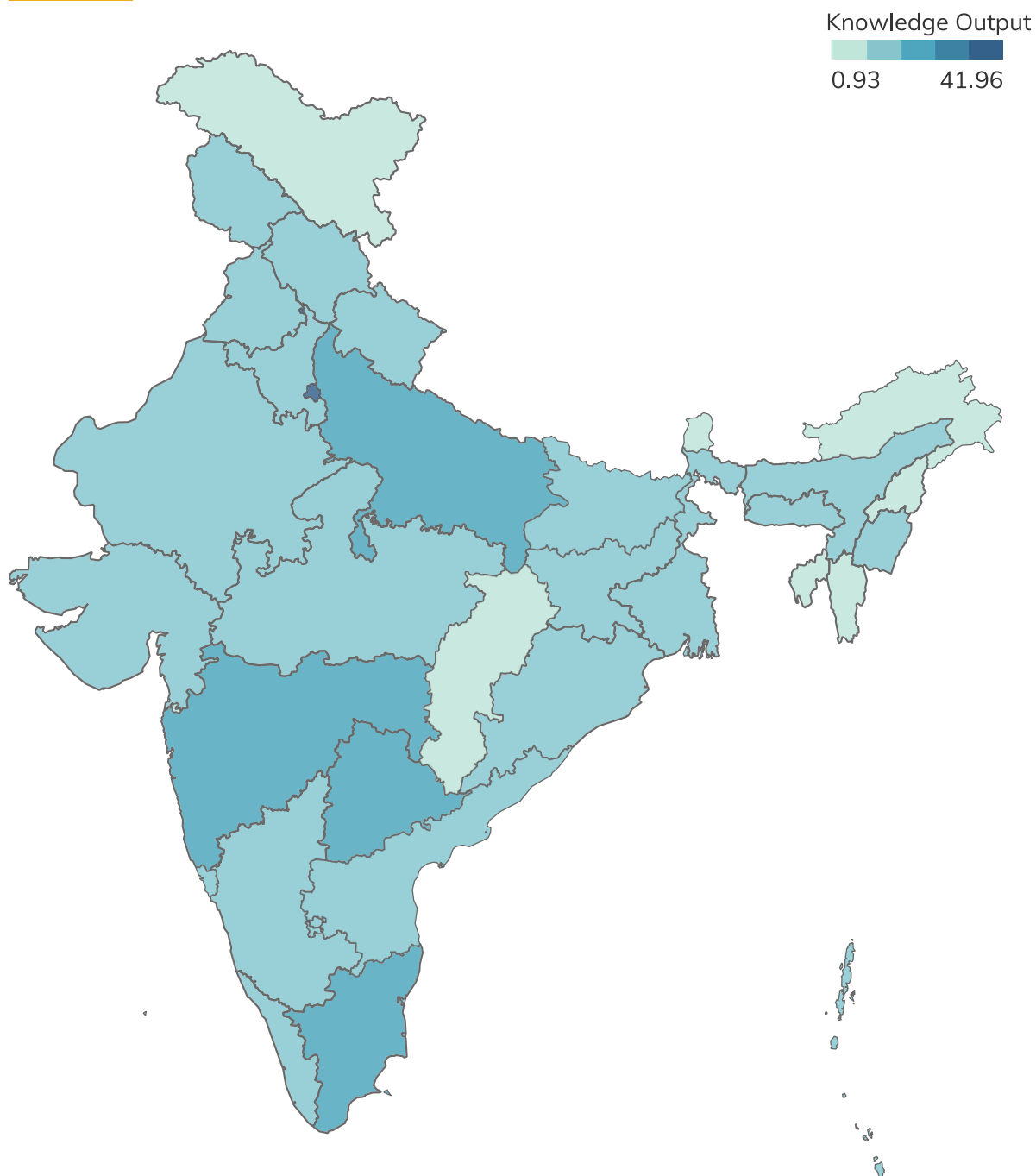
Knowledge Output

Average pillar score: 13.44

Highest Scoring States: Chandigarh, Delhi, Telangana, Tamil Nadu, Uttar Pradesh

Lowest Scoring States: Ladakh, Lakshadweep, Nagaland, Tripura, Dadra & Nagar Haveli and Daman & Diu

Figure 20 Performance of states in Knowledge Output



An increase in startups, patents, industrial designs, publications, and grass-root innovations is an outcome of an improved business environment that encourages people to undertake new business ventures.

Knowledge output is one of the output-based pillars that covers all these variables which contribute to the fruits of innovation. It includes indicators that result from inventive and innovation activities filed by the state: patents, trademarks, industrial designs by origin, etc. This year, the pillar was strengthened with another indicator patent for integrated circuits by the state. It also includes indicators such as GSDP per capita growth rate representing the impact of innovation activities at the macroeconomic level.

It has been observed that the states that scored high on the knowledge-output pillar also have universities in the top 100 NIRF composite scores. This is indicative of the region's research-based activities. However, 23 out of 36 state/UTs have a significantly lower number of patents filed for ICs, low industrial designs applications filed, and low trademark applications filed. This further implies a slow conversion of research expenditure and activities into industrial products and also processes used in practice.

In the Economic Survey 2021-22, it was also noted that low number of patents were filed by states in India, as a result of low R&D expenditure. Other such factors behind the reduction of patents are procedural delays and complexity of the process.

Overall, only 15 out of 36 states/UT have scored above this pillar's national average, i.e., 13.44. The rest of the states/UTs fall below this threshold. This pillar also observes two positive outliers, with union territories such as Chandigarh and Delhi securing the top scores and 41.96 and 39.63 respectively.

A comparatively higher score is observed in the economically prosperous southern and western states such as Maharashtra, Karnataka, Telangana, and Tamil Nadu. Furthermore, it must be noted that these states have shown high performance in 'enablers' scores, which has been reflected in their 'performers' score in terms of knowledge-output. These performances are consistent with the fact that these states are major innovative hubs.

It has been observed that most of the top-performing states create intangible assets and have a substantial knowledge impact compared to the rest of the

country. For instance, Delhi leads in trademarks and patents filed. Moreover, it has also replaced Bengaluru as the startup capital of India, as it added 5,000 startups between April 2019 to December 2021.⁵⁴

On the one hand, Uttar Pradesh (17.62) has emerged in the top 5 states under the knowledge-output pillar. However, it must be noted that the high score is an outcome of a rise in startups and new businesses, but the state still lags behind significantly in the creation of intangible assets like patents, industrial designs, and trademarks that tend to create knowledge spillovers in the region.

Most of the North-Eastern and Hilly States have scored below the national average, except Uttarakhand (16.35). It has scored high on the composite indicator of publications, and has the highest number of patents filed for ICs compared to other states in the North-east and Hilly category.



⁵⁴ Economic Survey of India 2021-22



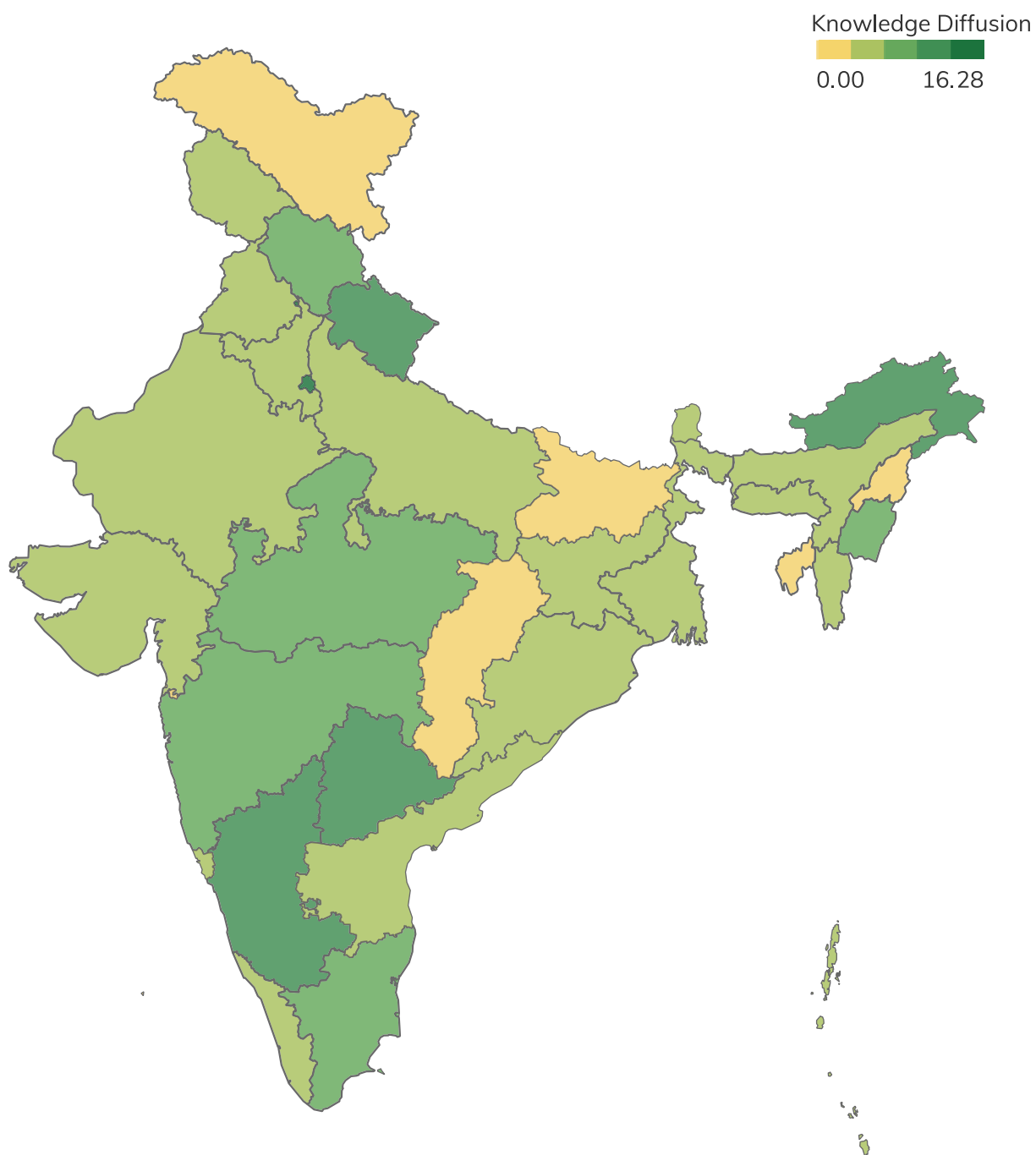
Knowledge Diffusion

Average pillar score: 5.81

Highest Scoring States: Delhi, Chandigarh, Karnataka, Telangana, Arunachal Pradesh

Lowest Scoring States: Ladakh, Tripura, Chhattisgarh, Lakshadweep, Nagaland

Figure 21 Performance of states in Knowledge Diffusion



Knowledge Diffusion reflects a mirror image of the state's knowledge absorption capacity. It has two sub pillars viz. knowledge dissemination, and creative goods and services. The pillar indicates the state's efforts to evolve from being factor-driven to being innovation-driven. Knowledge Dissemination includes indicators all linked to sectors with high-tech content, or that are key to innovation: Software exports, high-tech exports, high and medium-high-tech manufacturing entities, and citations.

The Creative Goods and Services sub-pillar includes proxies to get creative outputs in an economy i.e., geographical indication, number of newspapers and its circulation, and handicraft sales as a percentage of GSDP.

The role of creativity for innovation is underappreciated, mainly in India's innovation landscape. Creative sectors include the commercialization of creative and artistic inputs of a region and are a new addition in knowledge diffusion.

The growth of OTT platforms, audiovisual content, and film production also come under the creative industry. However, these couldn't be captured due to the unavailability of such data. Still, as data granularity improves in the next edition, more indicators will be added.

Most of the Major States, Karnataka, Telangana, Maharashtra, Tamil Nadu, and Uttar Pradesh, have scored above the national average of 5.81. These states have a high share of ICT exports, high-tech exports, and citations. For instance, Karnataka has the highest ICT exports in the country i.e., 14.83 per cent. Moreover, it has the highest number of citations, registered geographical indications. It is followed by Telangana which exported 86 per cent of high-tech exports in its export basket and closely follows Karnataka in ICT exports.

In Northeast and hilly regions, it has been observed that some states have a larger share in the high-tech export basket, in their respective export basket. However, they lag behind in other parameters such as ICT exports, citations, handloom sales and hi-tech manufacturing entities. Therefore, only Uttarakhand (10.16), Himachal Pradesh (7.14) and Manipur (8.66) have scored above the national average.

States need to bolster their efforts in bridging gaps within their export ecosystem, which will result in potential gains, which may lead to spillovers in the region. This is of utmost importance for those regions where ICT exports and hi-tech manufacturing have not permeated uniformly in different regions of the country, i.e., beyond the IT hubs.



DRIVERS OF INNOVATION

India Innovation Index' (III) third edition has 66 indicators. Therefore, it's not directly comparable with the last editions. Yet, it is essential to evaluate the progress of innovation in states to understand how states have evolved over the last two years. Therefore, a special section has been introduced for this edition where we dive deep into the drivers of innovation, by evaluating the improvement in indicators. States can now assess their position i.e. how close/far are they from their respective targets.

We compare the III score 2021 with III score 2020 by calculating their distance from the frontier (DTF). DTF can be understood as the difference between the best and actual performance of a region based on certain paradigm(s). For example, if a state's innovation score is 40 in 2020, its DTF becomes 60. And if its innovation score increases to, say 45, then its DTF becomes 55. The lower the DTF, closer the state comes to the best state. The purpose is to calculate the improvement in DTF from 2020 to 2021, and to analyze the factors that led to improvement in a particular State/UT or a category across indicators. It is important to note that not all indicators in the framework are comparable since the latest data for the same is not available, i.e., the data values for 2020 and 2021 are the same for some indicators since both were taken from the latest year available. Thus, only those are compared where the datasets were different.

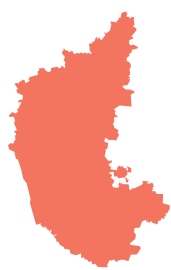
Keeping this in mind, the section tries to gain insights from the available datasets, and tries to comprehend the growth-driving factors. As the analysis proceeds, it would be noticeable that most of the States/UTs witnessed improvement in their human capital pillar, relative to the other pillars discussed. As a corollary, the States/UTs must comprehend that although investment or improvement in human capital is a must, but just focusing on human capital alone would be insufficient for prolonged growth.

Lastly, it is imperative to understand that innovation is not an overnight process, it takes years to reap the fruits of innovation, the seeds of which should be sown timely in order to maintain the competitive spirit. Thus, the purpose is to gain insights on what drives states/UTs, and what can be the way forward.

Major States

| State | DTF 2021 | DTF 2020 | DTF Improvement | Category Rank |
|----------------|----------|----------|-----------------|---------------|
| Karnataka | 45.18 | 84.35 | 39.18 | 1 |
| Telangana | 55.50 | 85.59 | 30.09 | 2 |
| Haryana | 60.93 | 85.67 | 24.74 | 3 |
| Maharashtra | 63.45 | 83.84 | 20.39 | 4 |
| Tamil Nadu | 63.54 | 83.72 | 20.18 | 5 |
| Gujarat | 73.18 | 88.49 | 15.31 | 6 |
| Kerala | 69.14 | 84.19 | 15.05 | 7 |
| West Bengal | 80.31 | 92.77 | 12.47 | 8 |
| Punjab | 76.89 | 87.99 | 11.10 | 9 |
| Jharkhand | 83.01 | 93.16 | 10.15 | 10 |
| Uttar Pradesh | 83.49 | 93.23 | 9.74 | 11 |
| Madhya Pradesh | 82.14 | 90.65 | 8.52 | 12 |
| Odisha | 83.86 | 91.94 | 8.08 | 13 |
| Rajasthan | 82.65 | 90.48 | 7.82 | 14 |
| Andhra Pradesh | 80.64 | 88.13 | 7.49 | 15 |
| Chhattisgarh | 83.79 | 90.92 | 7.13 | 16 |
| Bihar | 88.75 | 94.64 | 5.89 | 17 |

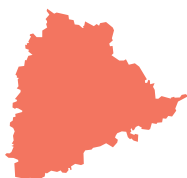
From the above table, one can see states like Karnataka, Telangana, Haryana, Maharashtra, and Tamil Nadu have performed well in their respective category, and have also performed well overall. This is due to the permutation/ combination of various indicators highlighted in the index. Below, we try to analyze the factors that led to improved performance in states belonging to this category.



Karnataka

being known as the IT hub of India, the state has been making sincere efforts to invest in its human capital. This is not just reflective in its premier institutes like IITs, IIIT, IISc, among others at the tertiary level, but also at the secondary level of education. For example, the percentage of schools with ICT labs increased from about 29% to about 46%. At the tertiary level, the pupil-teacher ratio in Karnataka stood at 15:1. It also had a

good Ph.D. enrollment number of about 24 (per lakh population) i.e., an increment of about 3 students (per lakh population) compared to the previous year. Likewise, the state also performed well in the other pillars. For example, the FDI inflow was about 2.7 (as a percentage of GSDP), third highest in the country and second highest in the Major States category. This is because of the robust network of academic institutions, industries, human capital, and the recent boom of startups that the state has been able to produce. All this has been reflective in the state's 'performers' whereby trademarks and industrial design applications increased compared to the previous year, apart from increasing its start-up units from about 11,000 to about 19,000. Moreover, software exports (as a percentage of GSDP) also increased from about 13.5% to 14.5%. Therefore, good performance in 'enablers' got reflected in 'performers'.



Telangana

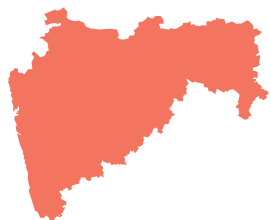
being one of the top IT destinations, and being known for housing big MNCs and startups, the state performed well across indicators. For example, the percentage of schools with ICT labs doubled from about 17% to about 35%. In terms of higher education, the number of enrolments (per lakh population) also increased from about 9.7 to about 15.7. This was complemented with the number of private R&D units (per lakh population), increasing from about 0.3 to about 1.4 depicting the state's potential to create knowledge workers. Consequently, the state performed well in knowledge output pillars, including patents, trademarks and industrial design, which witnessed an increase in the units filed, compared to the last year, apart from increasing its start-ups from about 4,900 to about 9,000. However, the state was not able to improve its performance in the 'knowledge diffusion' pillar. This goes to show that although the state was able to create and apply knowledge, it wasn't able to reflect the same in its products or services. Therefore, the state needs to focus on how the knowledge that it is creating, can be translated to its products and services.



Haryana

the state was one of the top performers improving its DTF gap by about 25 units. The number of ICT labs showed an improvement, increasing by about 4 percentage points. Likewise, it also improved in performance with respect to pupil-teacher ratio reducing from 26:1 to 24:1, and registering higher enrollment of Ph.D. students, compared to the last year, showing an improvement in the higher education segment. The number of private R&D units in

the state (per lakh population) also increased, although marginally, from about 0.86 to about 1.2. The good performance in the 'enablers' was reflected in the 'performers', whereby the number of patents, trademarks, and industrial designs – all saw an improvement in their numbers, along with an improvement in numbers - for high and medium-high-tech manufacturing entities (per crore of GDP) which highlights the growing capacity of a state. The state's ability can also be reckoned by its start-up growth which doubled from about 4,500 to 9,000.



Maharashtra

being one of the biggest states in India, the state performance is crucial for overall development of the country. In this regard, the state improved its DTF by about 20 units. The state improved its percentage of schools with ICT labs by a great extent from about 44% to 71%, a 27-percentage point increase. In higher education, the enrollment in Ph.D. also increased from about 7 (per lakh of population) to about 10. However, the state's performance was more or less same across other pillars on the 'enablers' side with some even showing a downfall which requires concentrated efforts, for example cluster strength. This was reflected in the 'performers' as well, whereby the performance marginally improved in the respective pillars, despite showing improvement in the human capital pillar, along with witnessing a decline in indicators like publication score and citation score. Thus, the state was not able to improve to a great extent; a major change was only witnessed in the human capital pillar. This reflects concentrated growth and not collective growth. Thus, the state needs to devise a mechanism for collective growth so that it gets reflected in the 'performers'. This would enable the state to enhance its ecosystem, something that cannot be sustained only on the premise of human capital.



Tamil Nadu

being the second largest contributor to the Indian GDP after Maharashtra, the state's performance is crucial for the overall well-being of the nation. The state witnessed major improvement with respect to percentage of schools with ICT labs – witnessing an improvement of about 53 percentage points, increasing from about 23% to 76%. Likewise, enrolment in Ph.D. also increased from about 35 to 42 (per lakh of population). As a result, the state's performance only increased marginally in the 'performers' domain. Thus, it is recommended that the state boosts its innovation ecosystem in a manner conducive to nurture the same. In this regard, the state has

come up with its start-up and innovation policy 2018-23, with a vision to make the state a global innovation hub. In this vein the state has been able to increase its number of start-ups from about 5,400 to more than 11,300. However, there's a lot that need to be traversed and it is only with sincere efforts that the fruits of innovation would be harvested.



Gujarat

being one of the focal points for industrial development, the state's performance evaluation shows that the state improved its performance in the human capital pillar. For example, the percentage of schools with ICT labs increased from about 53% to about 74%. Enrolment in Ph.D. also increased from about 9.5 to 12.5 (per lakh of population). In this regard, the state has also recently launched its student start-up and innovation policy 2022-27, in order to motivate young talent and harness their capabilities. The state has also showed signs of improvement, although marginally, in the knowledge worker's pillar. Rest of the pillars either showed marginal improvement or were stagnant in their performance, needless to mention that some deteriorated. For example, the cluster strength decreased along with plummeting number of patents filed. The publications' score also decreased from about 27 to 11. Thus, a more holistic approach will definitely show up results in the near future.



Kerala

being known for its quality education and health sector, the state unsurprisingly performed well in the human capital pillar. Along with having a pupil-teacher ratio of 18:1, the percentage of schools with ICT labs also increased from about 68% to 92%. However, with more or less stagnant performance among other pillars, the state wasn't able to go the distance. This was reflected in 'performers' whereby only marginal improvement was witnessed in the knowledge output pillar and a reduced performance in indicators like publications and citations. It is suggested that the state should focus on other paradigms as well, just like its focus on social segments. For industries to flourish and start-ups to grow, it becomes necessary that the state provides ample number of opportunities and salubrious environment for the same. Since the state's qualified (skilled) workforce is relatively high, therefore providing a channel for its absorption will go a long way in making the innovation ecosystem robust.



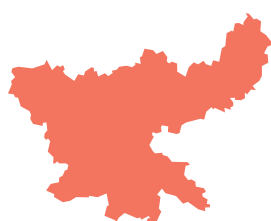
West Bengal

being home to some of the brightest minds and top scholars in the country, the state holds importance for its innovation landscape. However, the state's performance didn't reveal stark contrast, compared to the previous year. In both the 'enablers' and 'performers' its performance was relatively stable. This calls for policy change from the state's end, be it in the form of formation or implementation. Although the state has more than doubled its start-ups from about 3,300 to 7,900, the state needs to evaluate its innovation ecosystem and how it can go about enhancing the same. It is after the overhaul of its policies, with on-ground implementation, that it would act as a beacon for industrialists to invest and innovate in. Although newer initiatives at the state level are being considered, their impact will only be seen in the near future.



Punjab

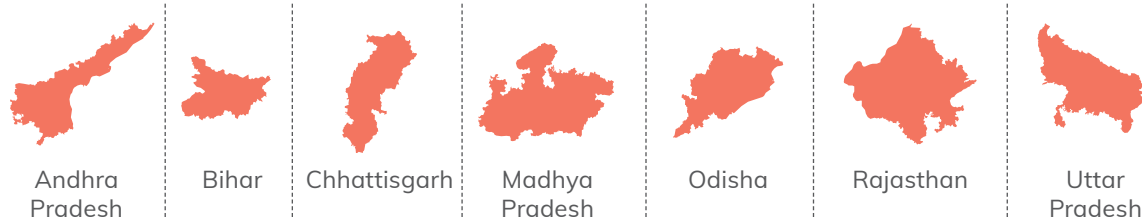
the state tried to improve its performance but was only able to do so by reducing its DTF gap by about 11 units. The percentage of schools with ICT labs increased by about 4 percentage points, along with improvement in private R&D units in the state (per lakh of the population), which increased marginally. The state's cluster strength also improved, showing its native capacities. This was somewhat reflected in the 'performers' whereby the state's patents filed (per unit of GSDP) almost doubled from about 1.65 to about 3.45, along with marginal improvement in software exports. Other indicators, however, remained constant including publication; and the citation score witnessed a downfall.



Jharkhand

being one of the important states with respect to industries, the state's enhancement in innovation can boost its performance. With regards to human capital, the state was able to register an impressive improvement of about 50 percentage points, in percentage of schools with ICT labs rising from about 23% to about 73%. Enrolment in Ph.D. also witnessed a slight improvement, contrary to pupil-teacher ratio which remained poor at 60:1. The state's FDI inflow as a percentage of GSDP also decreased from about 8% to 5.5%. An average performance in 'enablers' was bound to bring relatively constant performance in 'performers'. Since Jharkhand is poor state, efforts concentrated around nurturing innovation can change the game for Jharkhand which would enable it to climb the ladder.

Others



this comprises of Andhra Pradesh, Bihar, Chhattisgarh, Madhya Pradesh, Odisha, Rajasthan, and Uttar Pradesh. These states managed to close the DTF gap by less than 10 units signifying their relatively stagnant performance. Even in the percentage of schools with ICT labs, where their counterparts were able to witness a jump, they showed marginal improvement except Chhattisgarh which was able to rise the same from about 33% to 83%. Madhya Pradesh, on the other hand, witnessed higher enrolment in Ph.D. (per lakh of population) compared to the previous year (from about 5.7 to 11.7). On the negative side, cluster strength decreased for all states except Chhattisgarh. The relatively stagnant performance in the 'enablers' of these states was visible in the 'performers', showing stagnancy or marginal improvement in knowledge output. These states by and large have unutilized capacities and a relatively unsound education system which makes their overall ranking unimpressive. It is required that investment is made in human capital where innovative ideas are promoted in the form of seed funding, trademarks, patents, etc. whereby the idea should be to support and commercialize innovative thinking. This is also one of the reasons why all these states have a relatively lower number of start-ups, except Uttar Pradesh. Thus, investment in human capital along with creating an enabling ecosystem - with innovation parks, industrial tie-ups, providing incentives, among others, are the measures that need to be taken care of. Only when innovative thinking and an enabling ecosystem would be nurtured, can these states find their way out of the relatively poorer states category.

NE and Hill States

| State | DTF 2021 | DTF 2020 | DTF Improvement | Category Rank |
|-------------------|----------|----------|-----------------|---------------|
| Manipur | 63.27 | 86.35 | 23.09 | 1 |
| Uttarakhand | 69.27 | 88.01 | 18.74 | 2 |
| Arunachal Pradesh | 73.68 | 90.34 | 16.66 | 3 |
| Meghalaya | 78.83 | 93.61 | 14.78 | 4 |
| Himachal Pradesh | 72.76 | 85.89 | 13.12 | 5 |
| Mizoram | 82.77 | 89.23 | 6.46 | 6 |
| Sikkim | 79.48 | 85.64 | 6.16 | 7 |
| Nagaland | 85.20 | 90.98 | 5.78 | 8 |
| Tripura | 86.34 | 91.70 | 5.36 | 9 |
| Assam | 87.98 | 93.24 | 5.26 | 10 |

From the above table, it is evident that the states like Manipur, Uttarakhand, Arunachal Pradesh, and Meghalaya, have not only performed well in their respective category, but have also performed well overall. The reasons are discussed below.



Manipur

being known for its cultural diversity, the state has been putting concentrated efforts to foster innovation. For example, the state has recently launched a Centre for Invention, Innovation, Incubation and Training (CIIT) to boost the IT sector. Besides this, the state's percentage of schools with ICT labs increased from about 26% to about 29%. With a fairly decent pupil-teacher ratio of 22, the state also witnessed a rise in the number of Ph.D. enrolments. The state has also showcased positive signs in terms of cluster strength. This somewhat got reflected in the knowledge output domain whereby trademarks, patents, and industrial design – all saw an improvement. However, no change was visible in the knowledge diffusion pillar, with poor performance. The state's policy calls for taking small steps towards creating an innovation landscape, and setting an example for the north-eastern territory.



Uttarakhand

the state was able to close its DTF gap by about 19 points. This was possible due to its improved performance in the human capital pillar, among others. For example, schools with ICT labs increased from about 15% to about 35%. The enrolment in Ph.D. (per lakh population) also rose from about 46 to 54. This was accompanied by marginal improvement in the knowledge-worker pillar. This was reflected in 'performers', which was an improvement in the knowledge output pillar. However, the state also slumped in some indicators like cluster-strength, and publication and citation score. Nonetheless, the state has showed positive signs to foster innovation. The state has its own start-up policy (2018), and is home to premier institutes like IIT-Roorkee, IIM-Kashipur, Defence Institute of Bio-Energy Research, among others, thereby producing bright minds. This, along with its proximity to Delhi, and relatively cheap raw materials compared to tier-1 cities, makes the overall future bright for the state.



Arunachal Pradesh

being one of the geographical difficult terrains, the state has made a huge leap in human capital. For example, in higher education, the state performance was impressive with the number of enrolments in Ph.D. (per lakh population) rising from about 49 to 77, the second highest rise in the country, after Delhi. Another improvement that complemented it, is the pupil-teacher ratio from 31:1 to 28:1. Schools with ICT labs also increased from about 19.5% to about 23.5%, although in absolute terms this is low. Finally, the state also saw formation of new clusters. However, despite improvement in the human capital pillar and others, the state was not able to reflect the same in its 'performers', whereby the indicators pertaining to it remained more or less constant. Therefore, the state needs to devise mechanisms to reflect its 'enablers' in its 'performers'. Currently, there seems to be unutilized capacities that can be reaped by channelizing innovation towards industry.

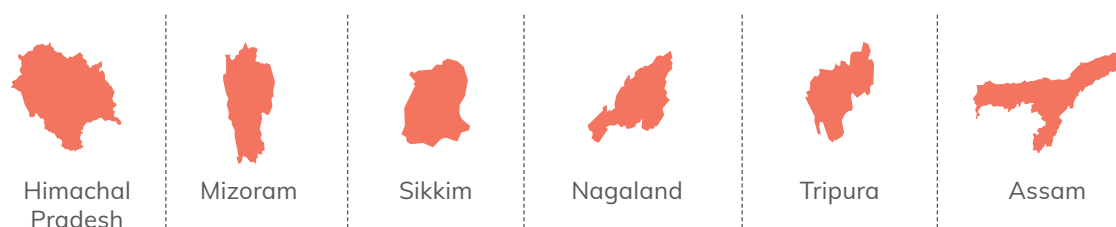


Meghalaya

famous for its rich biodiversity, the state performance was just about average, with improvement in only the human capital pillar. Although the percentage of schools with ICT labs increased by about 6 percentage points, in absolute terms it was very low – at only about 13%. Though it improved its pupil-

teacher ratio from 26:1 to 24:1, it saw a decline in the number of enrolments in Ph.D. (per lakh population). As for the other pillars, the performance was stagnant, as evident in 'performers'. The state needs to evaluate its strategy to enable innovation to open new avenues for investment and research.

Himachal Pradesh, Mizoram, Sikkim, Nagaland, Tripura, and Assam



These states didn't show drastic improvement over the previous year, and therefore they could not close their DTF gap to a large extent. With Mizoram, Nagaland, and Sikkim improving their percentage of schools with ICT labs handsomely, the remaining states in this category weren't able to do so. A moderate improvement was seen for all states with respect to the number of enrolments in Ph.D. (per lakh population). Apart from this, no other indicator showed improvement. This was reflective in its 'performers', where only slight improvement was observed in some of the indicators belonging to the knowledge-output pillar. The need of the hour for these states is to build a robust mechanism to foster innovation, be it in the form of incentives, financial support, building specialized institutions, among others. These states indeed have some unique challenges, such as its geographical location, that gives states with better connectivity and infrastructure, an edge over them. However, this by no means implies that these states cannot innovate. States like Manipur and Uttarakhand have shown that they can nurture innovation by creating a conducive and sustainable environment for innovation. It is a known fact that all the North-Eastern and Hilly States have very few start-ups and they all need measures for entrepreneurs to invest and innovate in these states. Therefore, reflective learning along with a holistic approach is a way forward for these states.

UT and City States

| State | DTF 2021 | DTF 2020 | DTF Improvement | Category Rank |
|-----------------------------|----------|----------|-----------------|---------------|
| Chandigarh | 44.77 | 78.00 | 33.23 | 1 |
| Delhi | 46.10 | 78.11 | 32.01 | 2 |
| Andaman and Nicobar Islands | 64.41 | 87.27 | 22.86 | 3 |
| Goa | 64.81 | 84.16 | 19.35 | 4 |
| Puducherry | 73.36 | 85.23 | 11.87 | 5 |
| Jammu and Kashmir | 81.24 | 90.08 | 8.84 | 6 |
| Lakshadweep | 89.61 | 93.30 | 3.70 | 7 |

From the above table, it is evident that states like Chandigarh, Delhi, Andaman and Nicobar Islands, and Goa have performed well in their respective category and have also performed well overall. We try to comprehend the factors behind the same.



Chandigarh

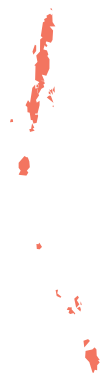
known as one of the most planned cities of India, the UT has been one of the top performers in the country. For example, in terms of human capital, the percentage of schools with ICT labs has increased substantially from about 59% to almost 100 percent. In terms of higher education, with a pupil-teacher ratio of 28:1, the state also improved its enrolment in Ph.D. (per lakh population) from about 81 to 94. The UT was also able to improve its business environment by improving its cluster strength. All this was visible in its 'performers', wherein the knowledge-output pillar showed improvement in terms of filings of patents, trademarks, and industrial designs. Although, the UT witnessed a dip in its software exports (as a percentage of GSDP), the state's overall performance was impressive. It was also able to manifest its performance of 'enablers' in its 'performers'.



Delhi

known as the heart of the country, the UT has also shown signs to be the heart of innovation. The UT showed how to lead by example, as

it witnessed improvement virtually across all pillars. For example, schools with ICT labs have increased from about 46% to 94%. In higher education, the UT-city state witnessed a massive improvement in its enrolment in Ph.D. (per lakh of population) from about 56 to 97, the highest in the country. The UT also slightly improved the number of private R&D units (per lakh of population), apart from improving its cluster strength. Good performance in the 'enablers' was visible in its 'performers', where an improvement was witnessed in both knowledge output and knowledge diffusion pillars, be it through patents, trademarks, software exports, or number of high and medium-high-tech manufacturing entities. The city also registered high growth in startups, increasing its number from about 13,800 to about 22,900. A good amount of this can be credited to Delhi's robust education system with premier higher education institutes and transformation in schools. This is a clear indication - when a region continuously invests in human capital, it reaps the fruits of innovation in the long-run.



Andaman and Nicobar Islands

the UT has been one of the top performers in its respective category, closing its DTF gap by about 23 points. The UT's percentage of schools with ICT labs increased by about 39 percentage points from about 21 to about 60. The UT also had a good pupil-teacher ratio of 22:1, an improvement over the previous year, where it stood at 25:1. However, it witnessed a noticeable fall in Ph.D. enrolments (per lakh population) from about 18 to 4, which calls for improvement in the coming years. Being at the nascent stage of development, the administration has shown sincere efforts in creating an ecosystem of innovation. The UT enacted its Innovation and Start-up Policy 2018 with a vision to create a conducive ecosystem. In the same vein, the administration went to each gram panchayat, to create awareness about the same and how it provides support under the policy. This enabled it to witness a rise in the number of its start-ups. Therefore, the state should focus on how to make use of its native capacities.



Goa

being one of the country's coastal regions, the state has shown positive signs in the higher education domain. With an impressive pupil-teacher ratio of 15:1, the state also registered an increase in Ph.D. enrolments from about 20 to 30 (per lakh population). With moderate improvement in the pillars of investment and knowledge workers, the state also witnessed an increase in its cluster strength. This improved performance in the 'enablers' was partially visible

in its 'performers', where the trademarks filed (per lakh of population) increased from about 320 to 362. In terms of knowledge diffusion, the state saw a small increase in software exports (as a percentage of GSDP) and also in the number of high and medium-high-tech manufacturing entities (per crore of GSDP). Currently, the state has growth potential in areas not just related to tourism, hospitality, or IT, but also food processing, green technology, solid waste management, among other non-conventional businesses and ideas; something Goa is not known for and therefore can tap into.

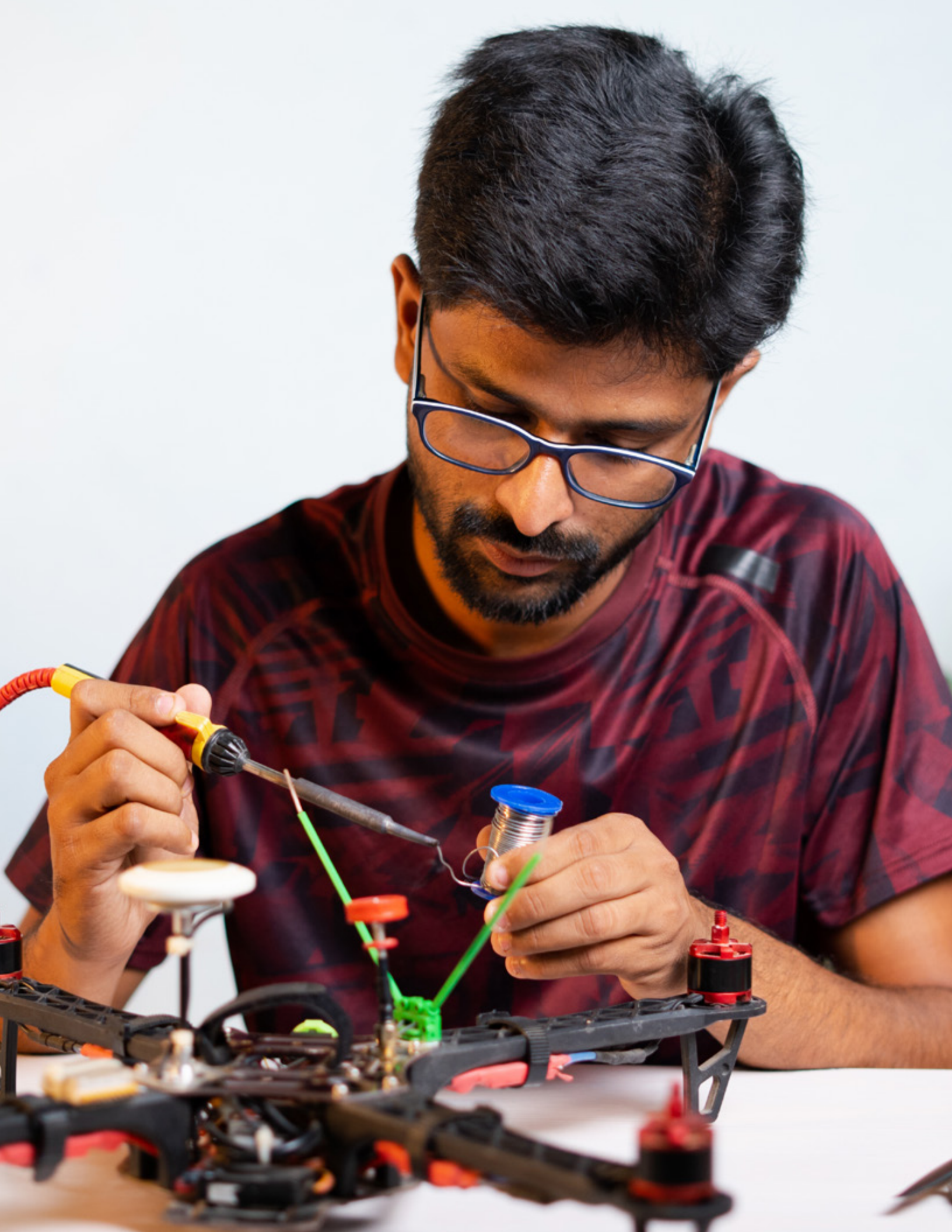
Puducherry, Jammu and Kashmir, and Lakshadweep



These UTs could not push the bar upwards since their performance increased marginally over the previous year and was largely restricted to the human capital pillar. Other pillars like investment, knowledge workers, business environment were either stagnant or witnessed moderate rise or fall in certain indicators which also got reflected in its 'performers', which were either steady or their performance deteriorated. These UTs need to work on holistic development, not just in their output pillars but also on their input pillars. They need to ensure a nurturing environment for investments to thrive, businesses to scale, and workers to innovate. Although these UTs have their own start-up and innovation policies like Aspiring Puducherry-Innovation & Start-up Policy 2019, J&K Start-up Policy 2018, these UTs need to pedal faster to match the growth of other UTs and not let their climatic or geographical factors hamper their growth.

To conclude, it is asserted again, that the scores and rankings are not directly comparable from one year to another. Several factors affect the scores each year. A missing value for one state affects the index score of other states/UTs. It's affected by missing values, reference year, normalization factor and consistent data collection. However, with every year, missing values decrease, this problem reduces over time.

Moreover, the index does not refer to a single year but several years, depending on the latest data available for the indicator. This is another attempt to limit missing data points. In this backdrop, distance to frontier becomes a useful tool to assess improvement in states over the next iterations of the report.







State Profiles

UT and city states

Andaman and Nicobar Islands

Category Rank

3



Efficiency Ratio

0.428

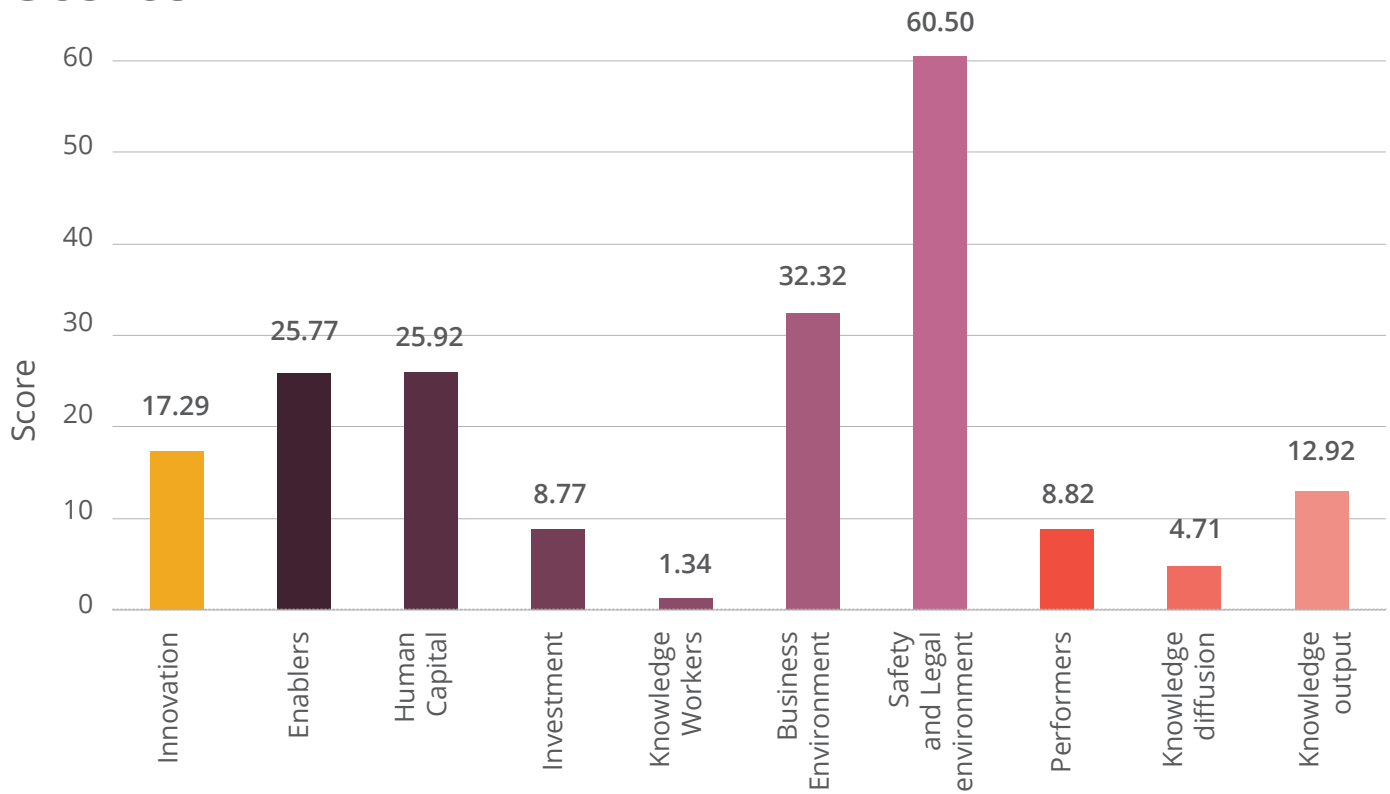


GSDP per Capita
(2019-20)

₹ 180865

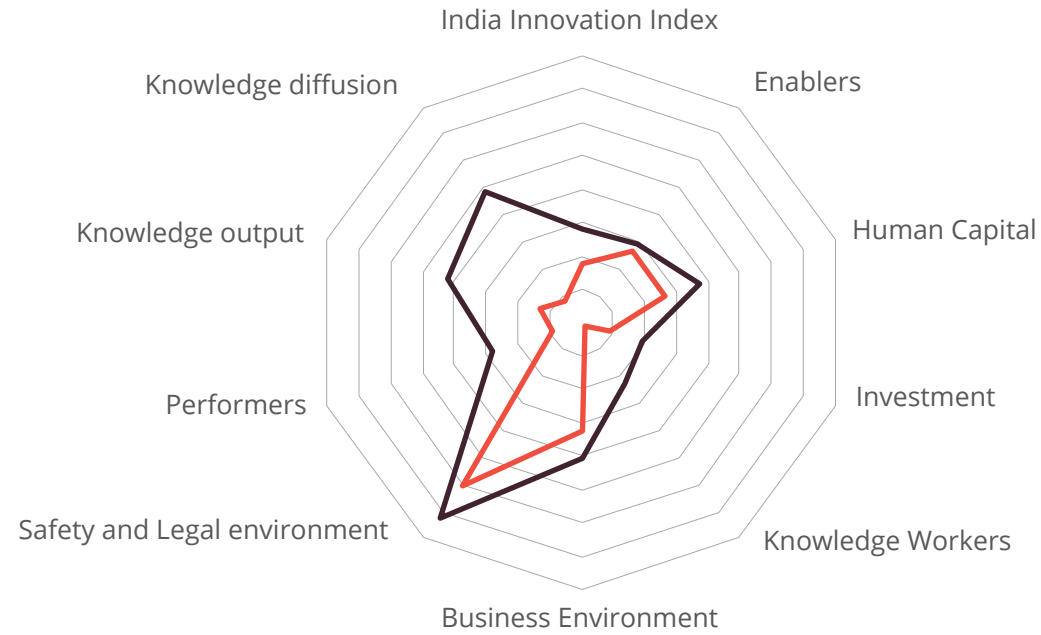


Scores

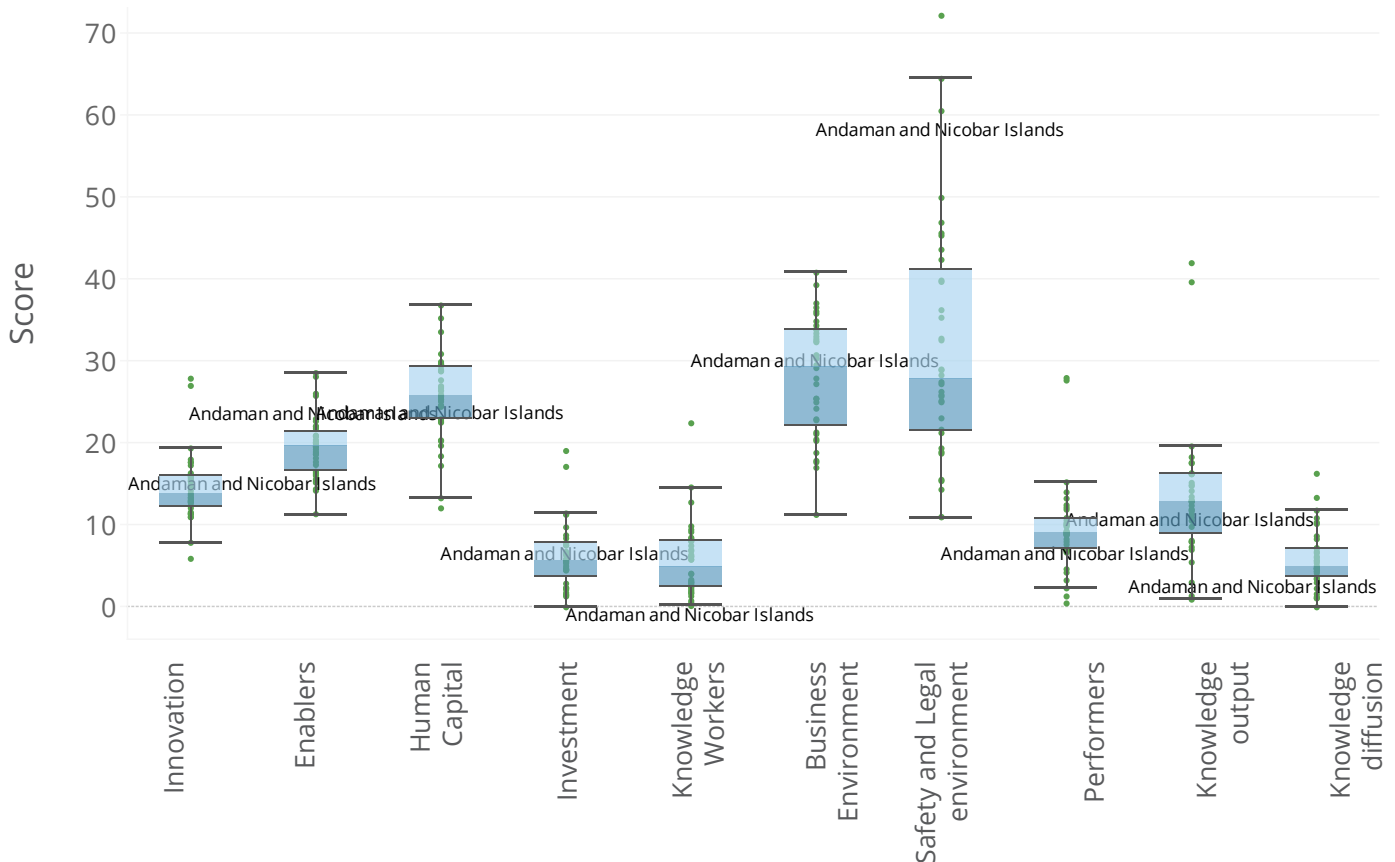


Country Comparison

— Best Performing State — Andaman and Nicobar Islands



Relative Performance



India Innovation Index **17.29** ●Performers **8.82** ●Enablers **25.77** ●**Human Capital** ● **25.92**

| | |
|---|----------|
| Schools with functional computer facility | ● 60.05 |
| NAS scores | ● 68.40 |
| Expenditure on school education as a (% of GSDP) | ● 32.33 |
| NER in school education | ● 10.31 |
| Accolades in STEM Activities | ● 25.61 |
| Pupil-Teacher ratio: Primary & Secondary | ● 85.04 |
| Percentage of schools having (ATL) labs | ● 0.00 |
| Secondary school level completion rate | ● 100.00 |
| Enrolment in PhD | ● 2.53 |
| Enrolment in engineering and technology | ● 15.29 |
| Percentage of Colleges connected through NMEICT | ● 25.63 |
| Higher education institutions- NAAC grade A and above | ● 12.68 |
| Enrolment in vocational education | ● 2.56 |
| Pupil Teacher Ratio- Higher education | ● 68.37 |
| Tertiary mobility | ● 0.00 |

Business Environment ● **32.32**

| | |
|--|---------|
| Ease of Doing Business score | ● 5.35 |
| Cluster strength | ● 30.01 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of GDP) | ● 12.72 |
| Bank accounts | ● 0.42 |
| Gross capital formation as a (% of GVA) | ● 34.45 |
| Incubators | ● 66.67 |
| Micro finance institutions (MUDRA) | ● 96.68 |
| Bank accounts with Aadhar seeding | ● 93.26 |
| Share of manufacturing and services as a (% of GSDP) | ● 66.26 |
| Internet subscribers | ● 4.53 |
| Online services transaction | ● 21.14 |
| Villages with internet connectivity | ● 61.87 |
| Services offered online by state government | ● 22.01 |
| Subsidies or benefits transferred through DBT | ● 42.25 |

Investment ● **8.77**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 66.67 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.00 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Safety and Legal Environment ● **60.50**

| | |
|---|---------|
| IT/IP related Acts | ● 93.87 |
| Cyber cells | ● 66.67 |
| Social Media Monitoring Cells | ● 66.67 |
| Pendency rate | ● 75.92 |
| Charge sheeting Rate | ● 7.21 |
| Pendency Percentage- Corruption cases investigation | ● 2.90 |
| Rate of Cognizable Crime | ● 64.78 |
| Police personnel | ● 65.0 |

Knowledge Worker ● **1.34**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.00 |
| Females employed with advanced degrees | ● 4.96 |
| NGOs involved in knowledge intensive areas | ● 3.07 |
| No. of private R&D units | ● 0.00 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 0.00 |

Knowledge Diffusion ● **4.71**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 30.08 |
| GIs registered | ● 0.00 |
| Handlooms sales as a (% of GSDP) | ● 0.00 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 34.61 |
| Software exports | ● 0.00 |

Knowledge Output ● **12.92**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 66.67 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 54.95 |
| New Businesses | ● 13.13 |
| Startups | ● 22.64 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 6.77 |
| Trade mark filed | ● 2.14 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 states of similar GSDP: Arunachal Pradesh, Mizoram, Nagaland, Sikkim, Manipur, Puducherry, Meghalaya, Chandigarh, Tripura, Goa.

Major states

Andhra Pradesh

Category Rank

9



Efficiency Ratio

0.428

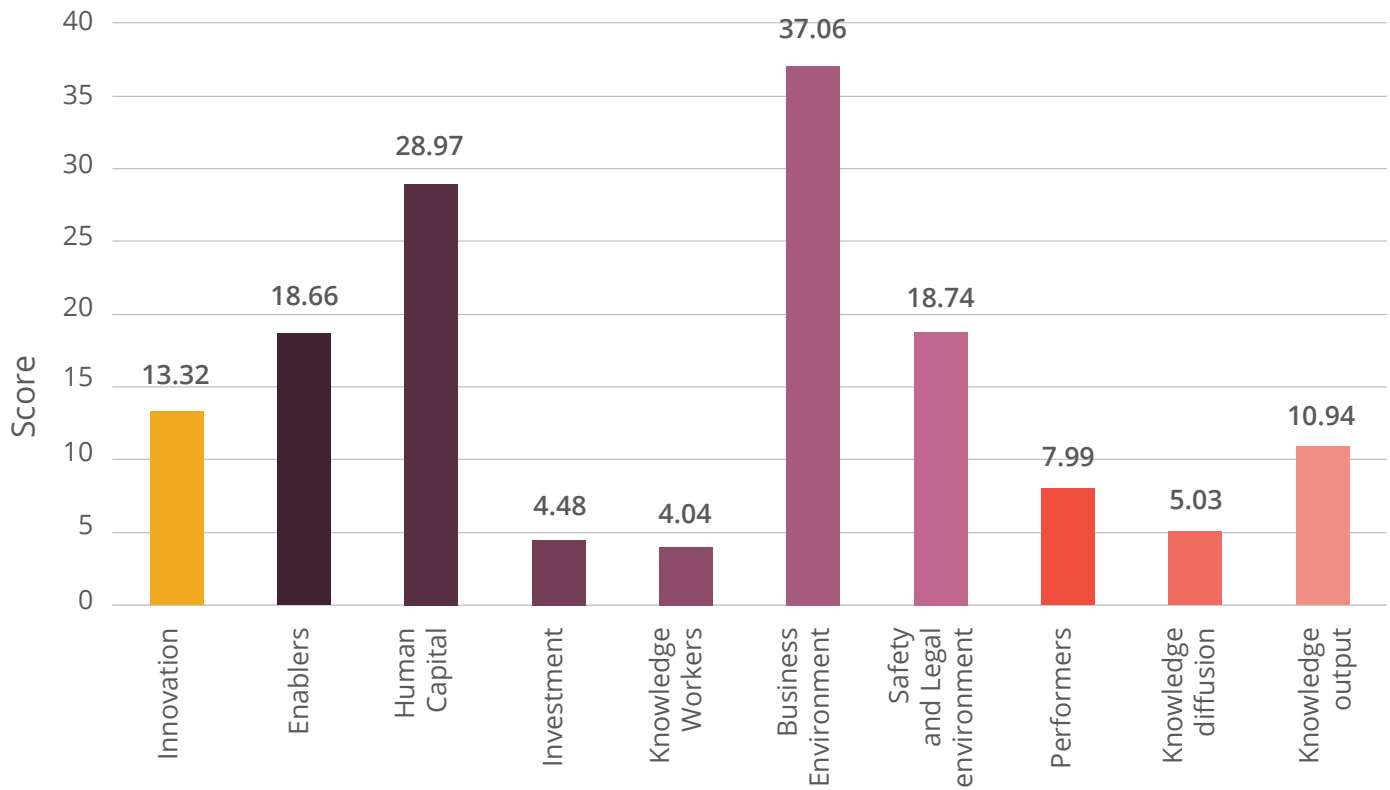


GSDP per Capita
(2019-20)

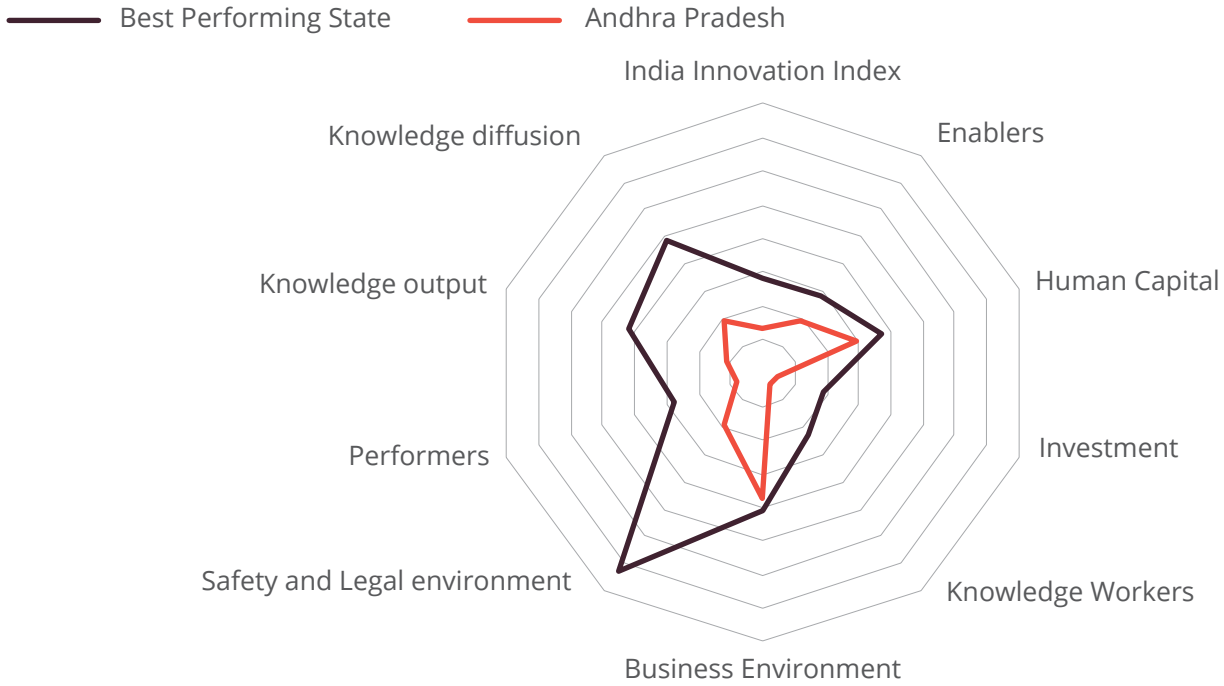
₹ 129516



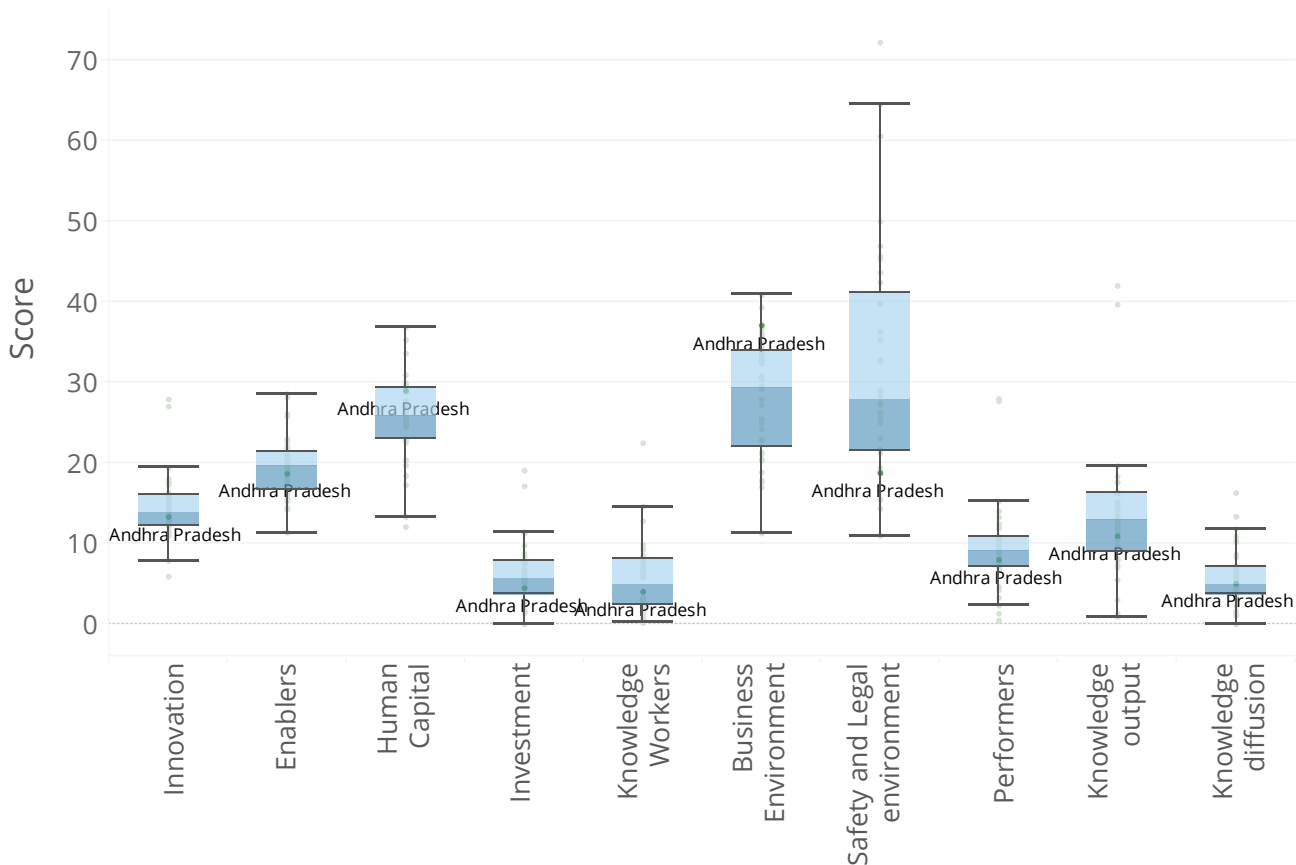
Scores



Country Comparison



Relative Performance



India Innovation Index **13.32** ●Performers **7.99** ●Enablers **18.66** ●**Human Capital** ● **28.97**

| | |
|---|---------|
| Schools with functional computer facility | ● 35.07 |
| NAS scores | ● 72.40 |
| Expenditure on school education as a (% of GSDP) | ● 21.77 |
| NER in school education | ● 60.31 |
| Accolades in STEM Activities | ● 62.93 |
| Pupil-Teacher ratio: Primary & Secondary | ● 72.45 |
| Percentage of schools having (ATL) labs | ● 0.74 |
| Secondary school level completion rate | ● 98.59 |
| Enrolment in PhD | ● 9.30 |
| Enrolment in engineering and technology | ● 49.69 |
| Percentage of Colleges connected through NMEICT | ● 4.85 |
| Higher education institutions- NAAC grade A and above | ● 9.49 |
| Enrolment in vocational education | ● 0.23 |
| Pupil Teacher Ratio- Higher Education | ● 73.77 |
| Tertiary mobility | ● 0.99 |

Investment ● **4.48**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 4.05 |
| Expenditure on R&D | ● 2.03 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.34 |
| NIRF ranking of top 5 universities | ● 48.25 |
| FDI inflow as a percentage of state GDP | ● 0.65 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **4.04**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.50 |
| Females employed with advanced degrees | ● 2.59 |
| NGOs involved in knowledge intensive areas | ● 3.79 |
| No. of private R&D units | ● 4.30 |
| No. of R&D Institutions funded | ● 20.97 |
| Skill development training | ● 0.82 |

Knowledge Output ● **10.94**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 1.69 |
| Publication | ● 25.13 |
| Environment clearance approved | ● 93.72 |
| GSDP per capita growth rate | ● 49.45 |
| New Businesses | ● 10.97 |
| Startups | ● 4.97 |
| Industrial design filed | ● 0.50 |
| Patent filed (per unit of GSDP) | ● 8.81 |
| Trade mark filed | ● 2.33 |

Business Environment ● **37.06**

| | |
|--|---------|
| Ease of Doing Business score | ● 60.37 |
| Cluster strength | ● 19.21 |
| Common facility centre | ● 2.76 |
| Domestic credit to private sector as a (% of GDP) | ● 22.93 |
| Bank accounts | ● 0.62 |
| Gross capital formation as a (% of GVA) | ● 66.67 |
| Incubators | ● 0.85 |
| Micro finance institutions (MUDRA) | ● 96.65 |
| Bank accounts with Aadhar seeding | ● 93.70 |
| Share of manufacturing and services as a (% of GSDP) | ● 51.66 |
| Internet subscribers | ● 3.97 |
| Online services transaction | ● 36.92 |
| Villages in state with internet connectivity | ● 88.94 |
| Services offered online by state government | ● 58.37 |
| Subsidies or benefits transferred through DBT | ● 28.88 |

Safety and Legal Environment ● **18.74**

| | |
|---|---------|
| IT/IP related Acts | ● 95.71 |
| Cyber cells | ● 0.51 |
| Social Media Monitoring Cells | ● 1.02 |
| Pendency rate | ● 95.06 |
| Charge sheeting Rate | ● 8.24 |
| Pendency Percentage- Corruption cases investigation | ● 2.70 |
| Rate of Cognizable Crime | ● 74.97 |
| Police personnel | ● 2.43 |

Knowledge Diffusion ● **5.03**

| | |
|--|---------|
| Citation Score | ● 41.35 |
| Circulation | ● 11.80 |
| GIs registered | ● 0.25 |
| Handlooms sales as a (% of GSDP) | ● 2.48 |
| High and medium high tech manufacturing entities | ● 0.37 |
| High-tech exports | ● 33.13 |
| Software exports | ● 0.19 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Rajasthan, Telangana, Delhi, Madhya Pradesh, Kerala, Haryana, West Bengal, Punjab, Odisha, Bihar

NE and Hill states

Arunachal Pradesh

Category Rank

4



Efficiency Ratio

0.421

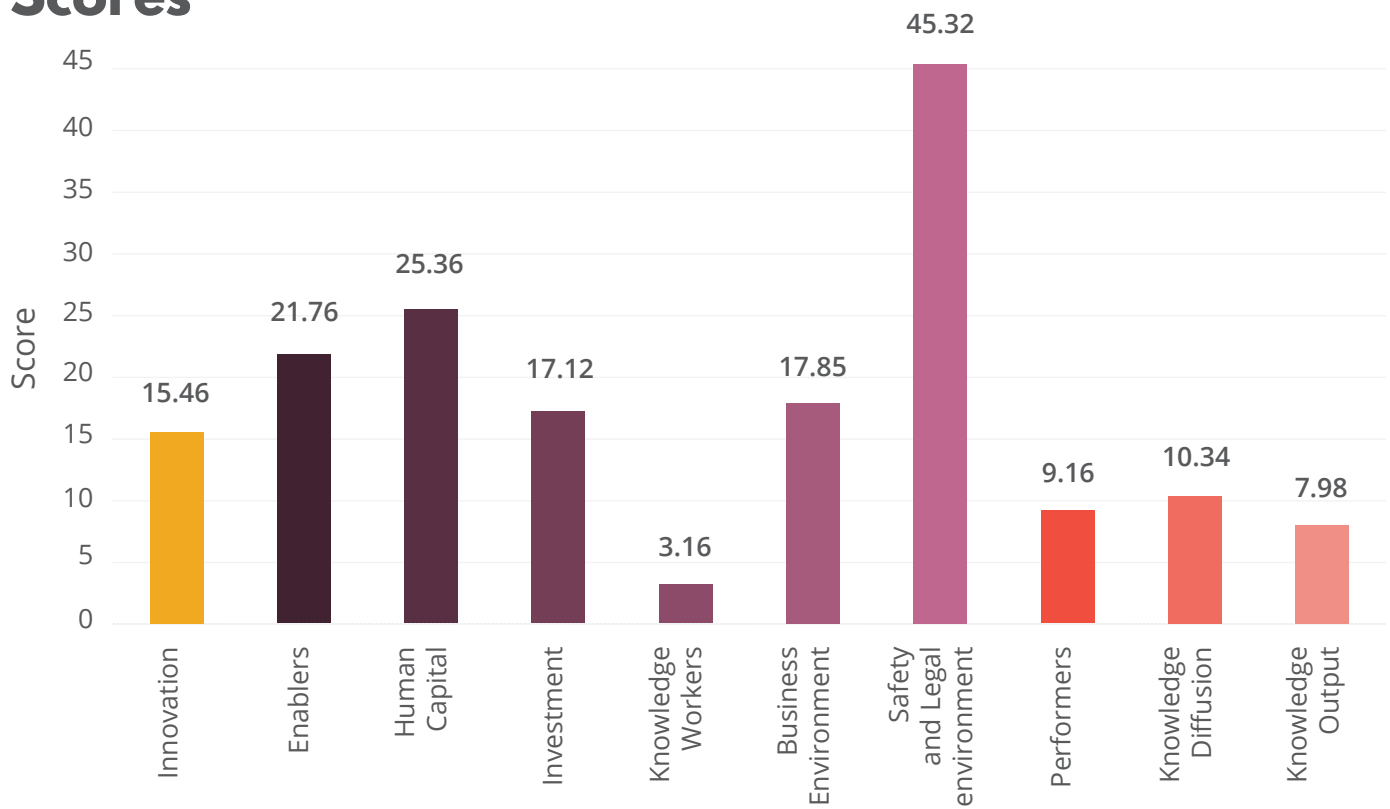


GSDP per Capita
(2019-20)

₹ 118573



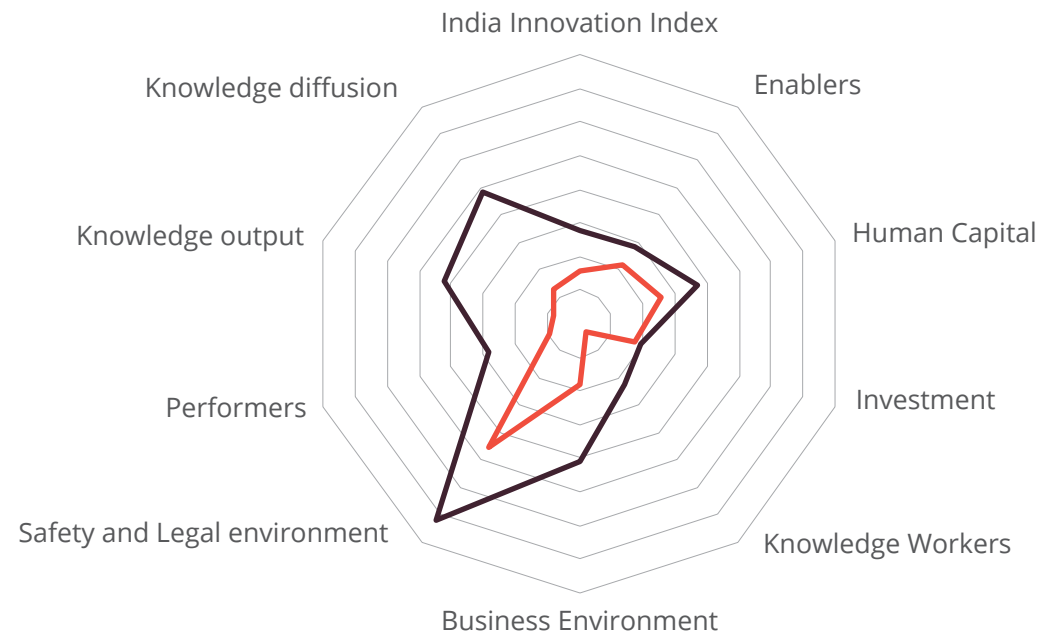
Scores



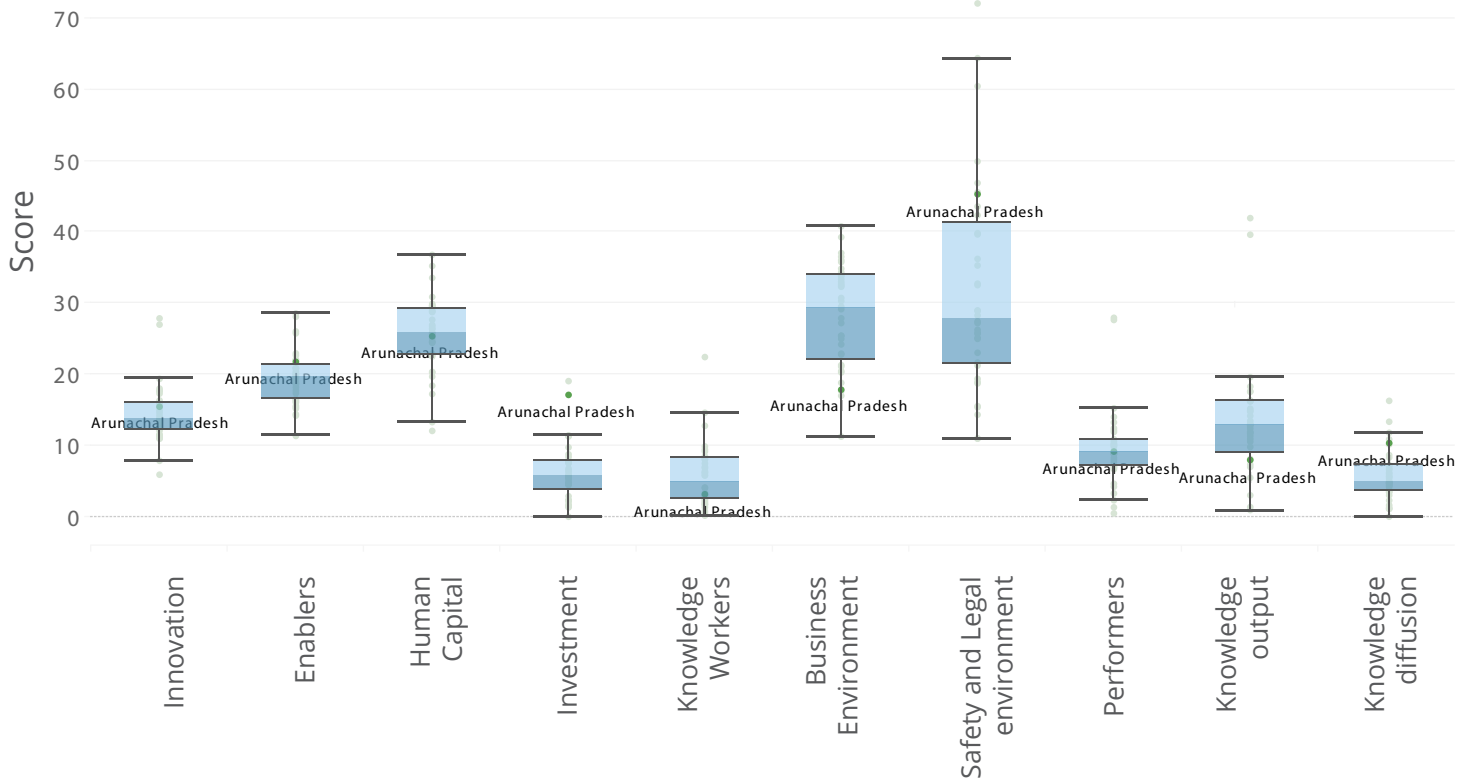
Country Comparison

— Best Performing State

— Arunachal Pradesh



Relative Performance



India Innovation Index **15.46**Performers **9.16**Enablers **21.76****Human Capital****25.36**

| | |
|---|-------|
| Schools with functional computer facility | 23.65 |
| NAS scores | 63.44 |
| Expenditure on school education as a (% of GSDP) | 25.75 |
| NER in school education | 79.69 |
| Accolades in STEM Activities | 5.28 |
| Pupil-Teacher ratio: Primary & Secondary | 84.22 |
| Percentage of schools having (ATL) labs | 0.22 |
| Secondary school level completion rate | 87.00 |
| Enrolment in PhD | 52.99 |
| Enrolment in engineering and technology | 7.34 |
| Percentage of Colleges connected through NMEICT | 21.47 |
| Higher education institutions- NAAC grade A and above | 2.11 |
| Enrolment in vocational education | 11.89 |
| Pupil Teacher Ratio- Higher Education | 57.57 |
| Tertiary mobility | 0.00 |

Investment**17.12**

| | |
|---|-------|
| Expenditure on higher and technical education | 48.10 |
| Expenditure on R&D | 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | 66.67 |
| NIRF ranking of top 5 universities | 0.00 |
| FDI inflow as a percentage of state GDP | 0.07 |
| Venture capital deals | 0.00 |

Knowledge Worker**3.16**

| | |
|--|-------|
| Knowledge intensive employment | 0.04 |
| Females employed with advanced degrees | 0.78 |
| NGOs involved in knowledge intensive areas | 20.26 |
| No. of private R&D units | 0.00 |
| No. of R&D Institutions funded | 0.00 |
| Skill development training | 0.00 |

Knowledge Output**7.98**

| | |
|---------------------------------|-------|
| Grassroot innovations | 60.87 |
| Publication | 0.00 |
| Environment clearance approved | 0.00 |
| GSDP per capita growth rate | 54.95 |
| New Businesses | 6.03 |
| Startups | 3.93 |
| Industrial design filed | 0.00 |
| Patent filed (per unit of GSDP) | 6.12 |
| Trade mark filed | 0.49 |

Business Environment**32.32**

| | |
|--|-------|
| Ease of Doing Business score | 0.00 |
| Cluster strength | 26.41 |
| Common facility centre | 0.00 |
| Domestic credit to private sector as a (% of SDP) | 8.42 |
| Bank accounts | 0.36 |
| Gross capital formation as a (% of GVA) | 16.10 |
| Incubators | 0.00 |
| Micro finance institutions (MUDRA) | 96.48 |
| Bank accounts with Aadhar seeding | 64.89 |
| Share of manufacturing and services as a (% of GSDP) | 43.57 |
| Internet subscribers | 4.11 |
| Online services transaction | 3.43 |
| Villages in state with internet connectivity | 57.72 |
| Services offered online by state government | 16.91 |
| Subsidies or benefits transferred through DBT | 0.3 |

Safety and Legal Environment**45.32**

| | |
|---|-------|
| IT/IP related Acts | 87.12 |
| Cyber cells | 18.34 |
| Social Media Monitoring Cells | 18.34 |
| Pendency rate | 75.92 |
| Charge sheeting Rate | 46.14 |
| Pendency Percentage- Corruption cases investigation | 8.60 |
| Rate of Cognizable Crime | 90.91 |
| Police personnel | 48.80 |

Knowledge Diffusion**10.34**

| | |
|--|-------|
| Citation Score | 0.00 |
| Circulation | 2.36 |
| GIs registered | 0.03 |
| Handlooms sales as a (% of GSDP) | 66.67 |
| High and medium high tech manufacturing entities | 0.00 |
| High-tech exports | 0.38 |
| Software exports | 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Mizoram, Nagaland, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa

NE and Hill states

Assam

Category Rank

9



Efficiency Ratio

0.449

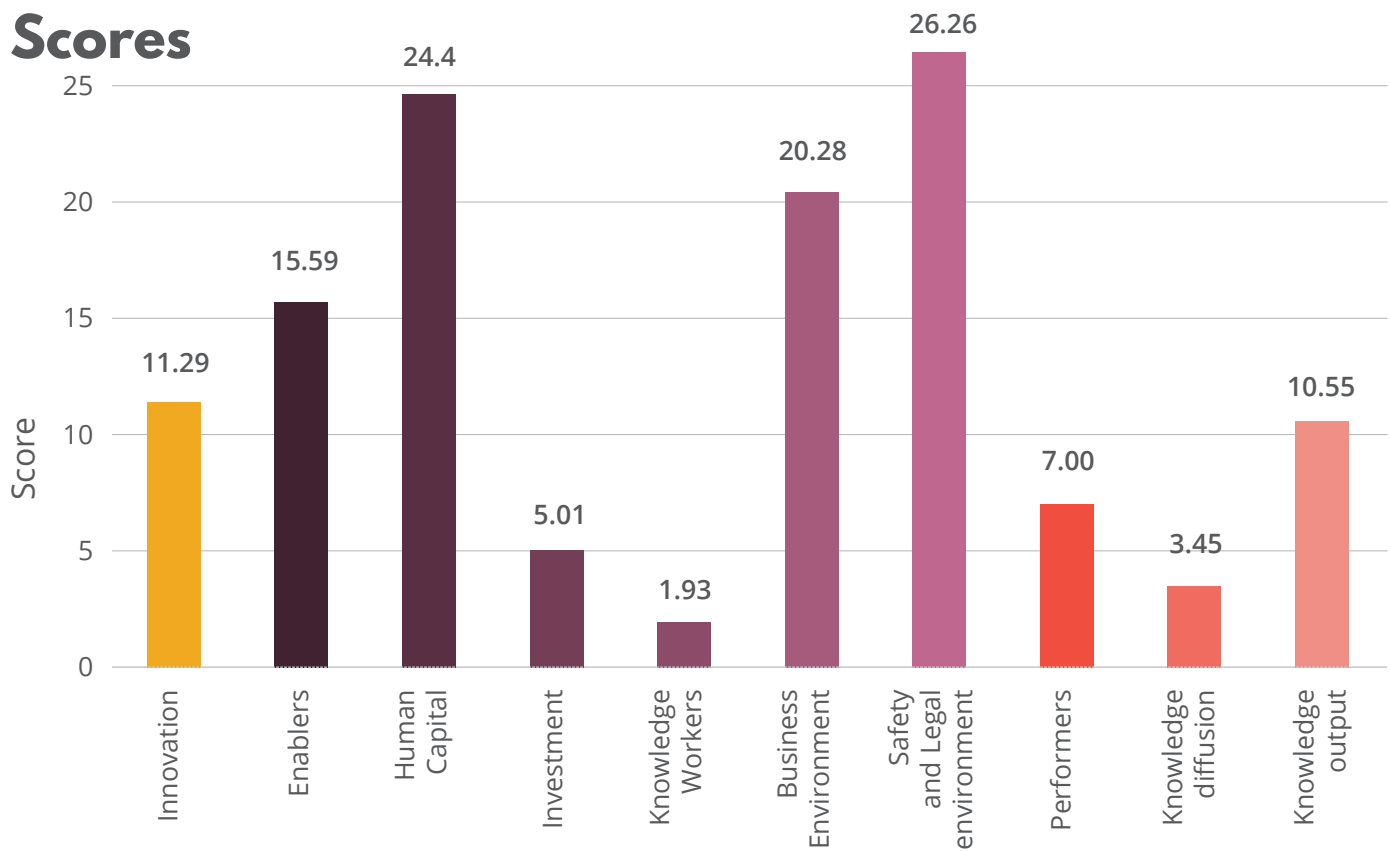


GSDP per Capita
(2019-20)

₹ 68916

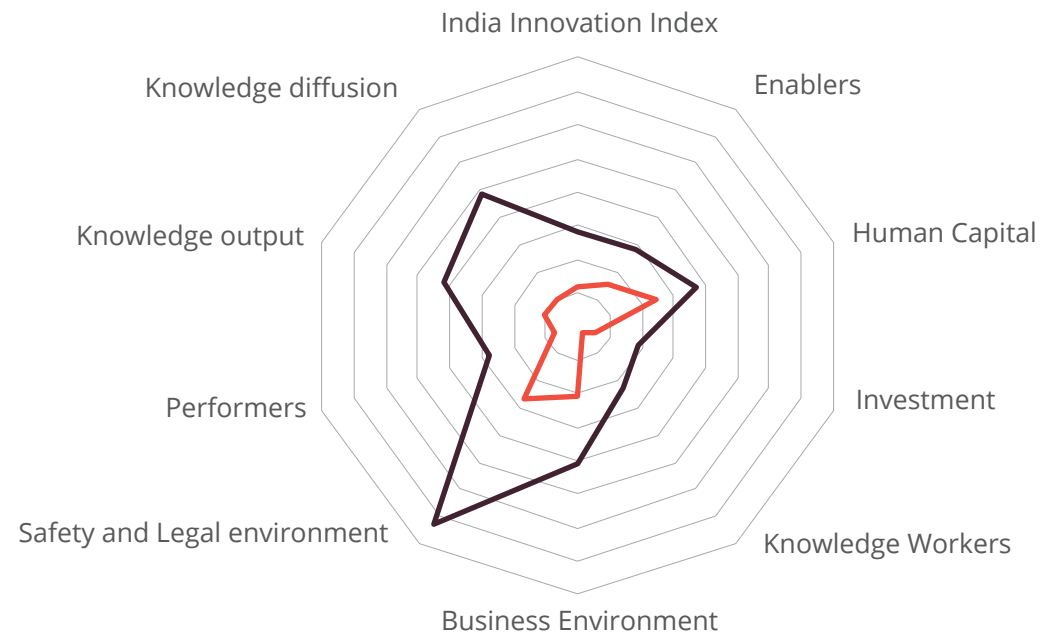


Scores

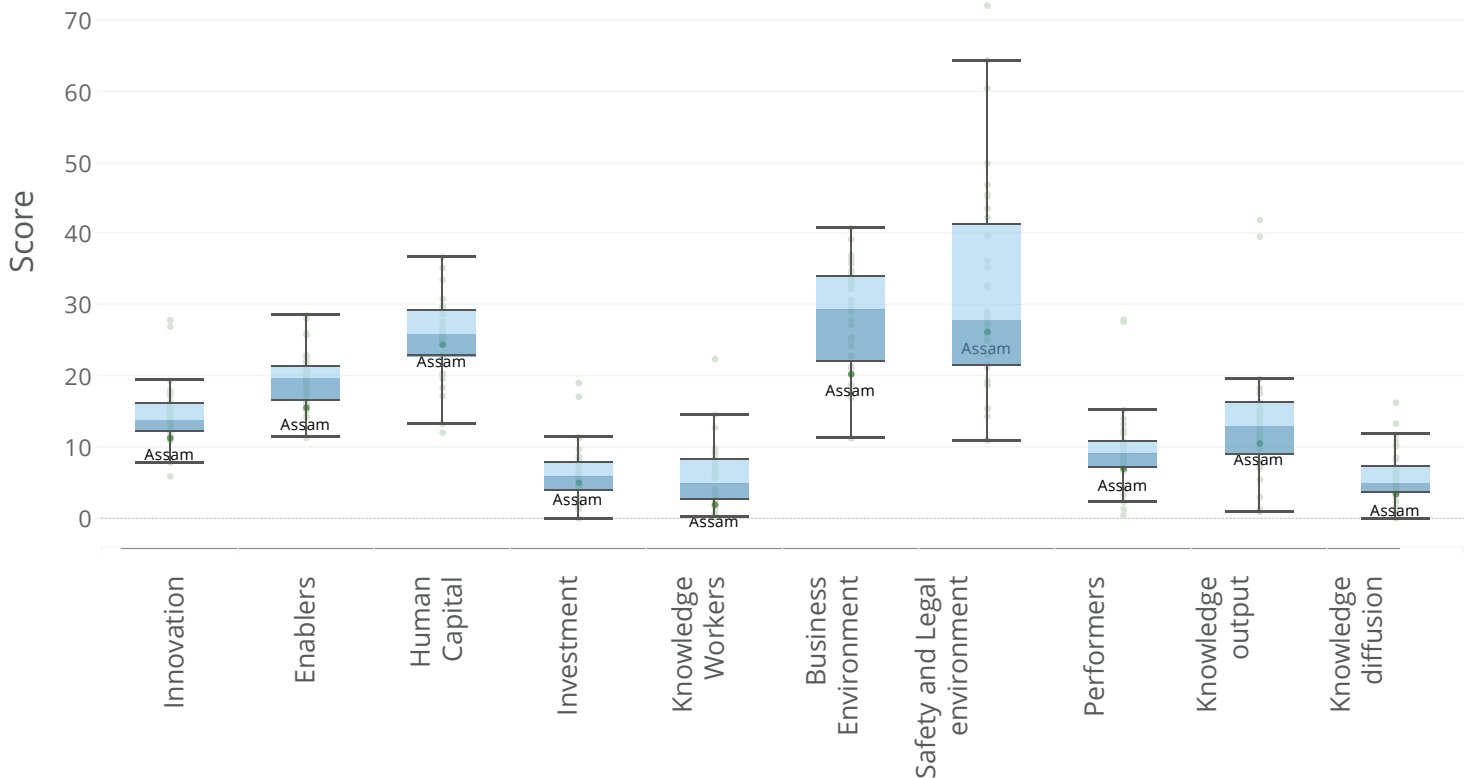


Country Comparison

— Best Performing State — Assam



Relative Performance



India Innovation Index **11.29** ●Performers **7.00** ●Enablers **15.59** ●**Human Capital** ● **24.44**

| | |
|---|----------|
| Schools with functional computer facility | ● 12.70 |
| NAS scores | ● 72.75 |
| Expenditure on school education as a (% of GSDP) | ● 26.04 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 4.81 |
| Pupil-Teacher ratio: Primary & Secondary | ● 77.71 |
| Percentage of schools having (ATL) labs | ● 0.27 |
| Secondary school level completion rate | ● 93.34 |
| Enrolment in PhD | ● 12.40 |
| Enrolment in engineering and technology | ● 4.08 |
| Percentage of Colleges connected through NMEICT | ● 30.48 |
| Higher education institutions- NAAC grade A and above | ● 3.60 |
| Enrolment in vocational education | ● 4.09 |
| Pupil Teacher Ratio- Higher Education | ● 57.57 |
| Tertiary mobility | ● 22.44 |

Investment ● **5.01**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 1.01 |
| Expenditure on R&D | ● 3.47 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 2.44 |
| NIRF ranking of top 5 universities | ● 54.25 |
| FDI inflow as a percentage of state GDP | ● 0.03 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **1.93**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.11 |
| Females employed with advanced degrees | ● 1.19 |
| NGOs involved in knowledge intensive areas | ● 4.10 |
| No. of private R&D units | ● 1.44 |
| No. of R&D Institutions funded | ● 9.61 |
| Skill development training | ● 0.00 |

Knowledge Output ● **10.55**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 7.49 |
| Publication | ● 35.89 |
| Environment clearance approved | ● 60.81 |
| GSDP per capita growth rate | ● 43.96 |
| New Businesses | ● 8.54 |
| Startups | ● 7.52 |
| Industrial design filed | ● 0.03 |
| Patent filed (per unit of GSDP) | ● 5.22 |
| Trade mark filed | ● 1.1 |

Business Environment ● **20.28**

| | |
|--|---------|
| Ease of Doing Business score | ● 6.83 |
| Cluster strength | ● 15.61 |
| Common facility centre | ● 3.84 |
| Domestic credit to private sector as a (% of SDP) | ● 10.86 |
| Bank accounts | ● 0.38 |
| Gross capital formation as a (% of GVA) | ● 23.34 |
| Incubators | ● 0.45 |
| Micro finance institutions (MUDRA) | ● 97.21 |
| Bank accounts with Aadhar seeding | ● 11.94 |
| Share of manufacturing and services as a (% of GSDP) | ● 52.84 |
| Internet subscribers | ● 3.32 |
| Online services transaction | ● 4.29 |
| Villages in state with internet connectivity | ● 97.57 |
| Services offered online by state government | ● 28.71 |
| Subsidies or benefits transferred through DBT | ● 9.10 |

Safety and Legal Environment ● **26.26**

| | |
|---|---------|
| IT/IP related Acts | ● 48.47 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 0.81 |
| Pendency rate | ● 94.15 |
| Charge sheeting Rate | ● 51.49 |
| Pendency Percentage- Corruption cases investigation | ● 4.20 |
| Rate of Cognizable Crime | ● 80.68 |
| Police personnel | ● 8.50 |

Knowledge Diffusion ● **3.45**

| | |
|--|---------|
| Citation Score | ● 56.88 |
| Circulation | ● 2.90 |
| GIs registered | ● 0.12 |
| Handlooms sales as a (% of GSDP) | ● 1.92 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 3.97 |
| Software exports | ● 0.02 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Jharkhand, Chhattisgarh, Uttarakhand, Dadra and Nagar Haveli, Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Bihar, Odisha

Major states

Bihar

Category Rank

15



Efficiency Ratio

0.630

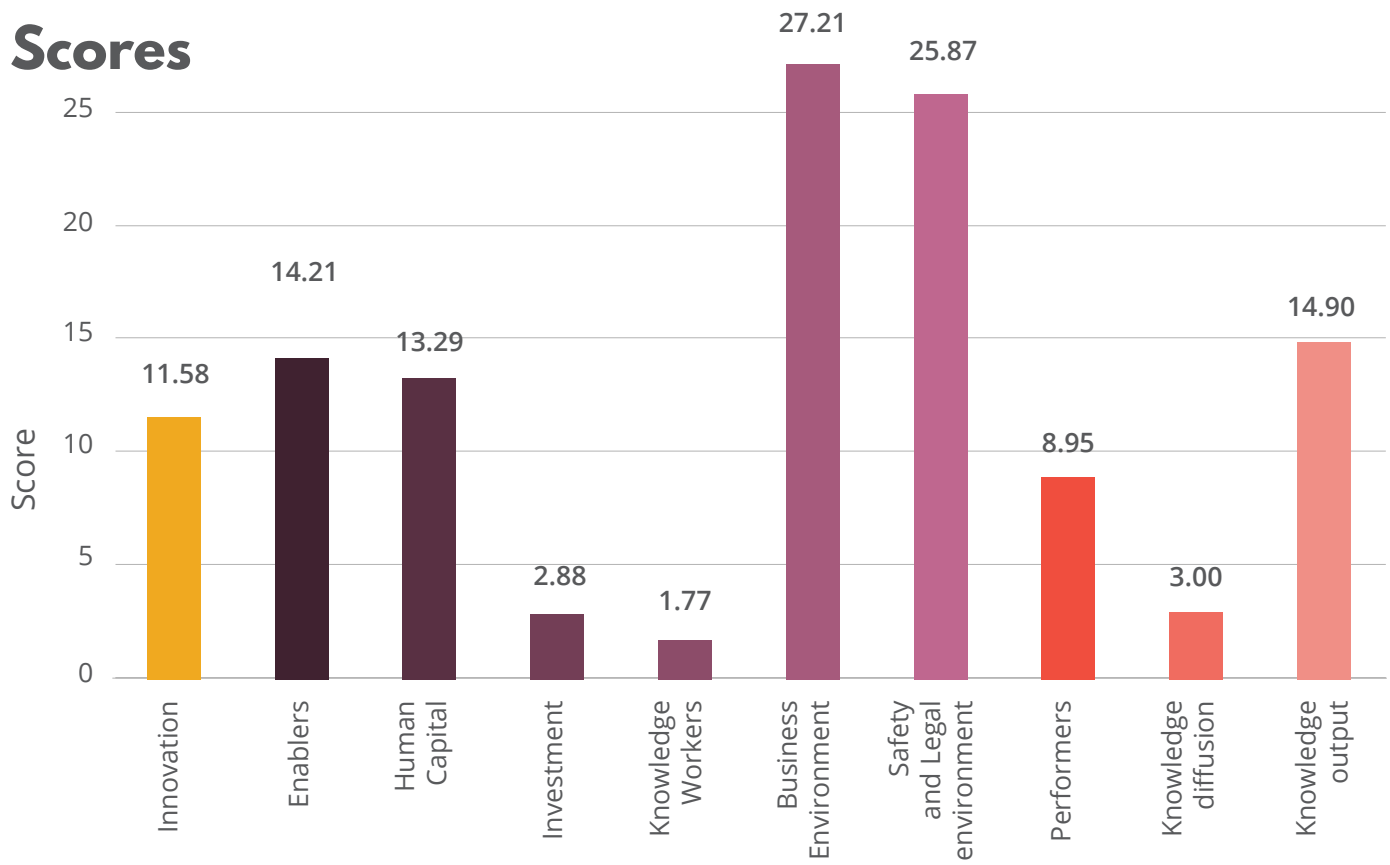


GSDP per Capita
(2019-20)

₹ 33979

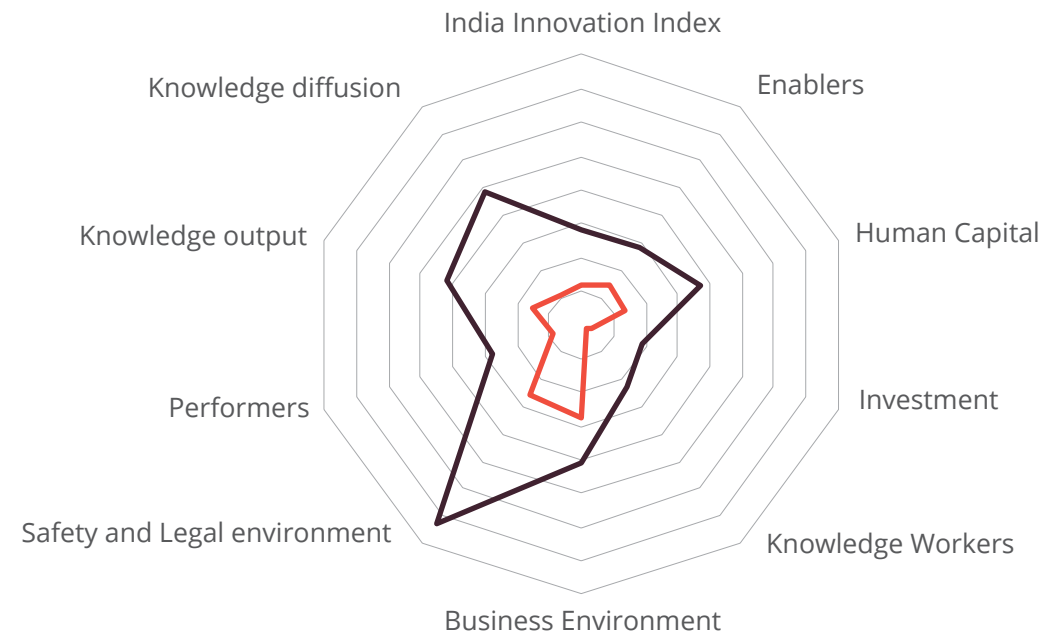


Scores

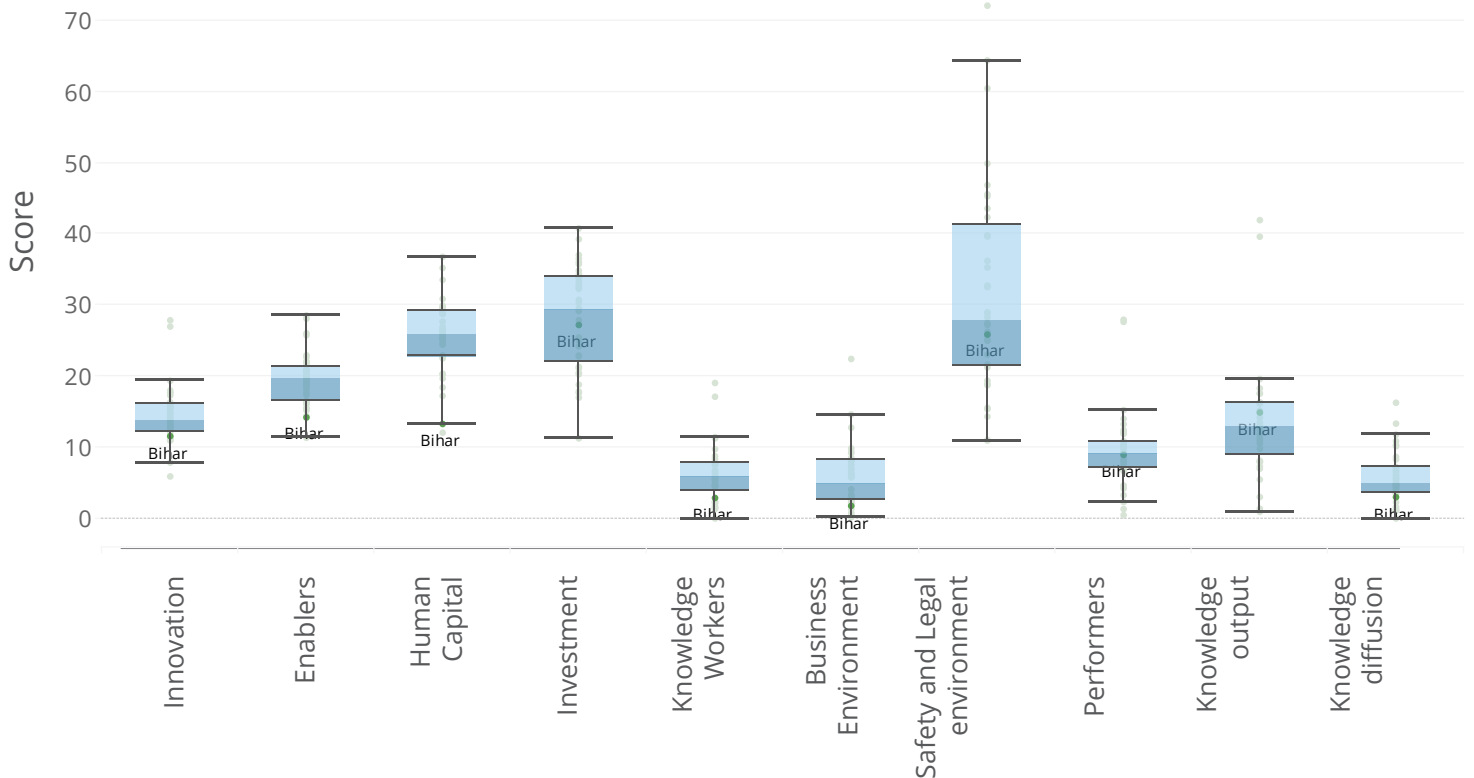


Country Comparison

— Best Performing State — Bihar



Relative Performance



India Innovation Index **11.58** ●Performers **8.95** ●Enablers **14.21** ●**Human Capital** ● **13.29**

| | |
|---|---------|
| Schools with functional computer facility | ● 13.83 |
| NAS scores | ● 60.60 |
| Expenditure on school education as a (% of GSDP) | ● 17.16 |
| NER in school education | ● 63.13 |
| Accolades in STEM Activities | ● 9.59 |
| Pupil-Teacher ratio: Primary & Secondary | ● 38.92 |
| Percentage of schools having (ATL) labs | ● 0.04 |
| Secondary school level completion rate | ● 75.20 |
| Enrolment in PhD | ● 1.78 |
| Enrolment in engineering and technology | ● 4.37 |
| Percentage of Colleges connected through NMEICT | ● 31.52 |
| Higher education institutions- NAAC grade A and above | ● 1.21 |
| Enrolment in vocational education | ● 0.26 |
| Pupil Teacher Ratio- Higher Education | ● 1.80 |
| Tertiary mobility | ● 0.99 |

Investment ● **2.88**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 7.01 |
| Expenditure on R&D | ● 0.70 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 4.29 |
| NIRF ranking of top 5 universities | ● 16.20 |
| FDI inflow as a percentage of state GDP | ● 0.03 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **1.77**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.21 |
| Females employed with advanced degrees | ● 0.67 |
| NGOs involved in knowledge intensive areas | ● 3.02 |
| No. of private R&D units | ● 0.22 |
| No. of R&D Institutions funded | ● 6.22 |
| Skill development training | ● 3.67 |

Knowledge Output ● **14.90**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 8.94 |
| Publication | ● 41.76 |
| Environment clearance approved | ● 81.80 |
| GSDP per capita growth rate | ● 60.44 |
| New Businesses | ● 28.32 |
| Startups | ● 8.37 |
| Industrial design filed | ● 0.01 |
| Patent filed (per unit of GSDP) | ● 1.49 |
| Trade mark filed | ● 0.90 |

Business Environment ● **27.21**

| | |
|--|---------|
| Ease of Doing Business score | ● 3.20 |
| Cluster strength | ● 9.60 |
| Common facility centre | ● 1.35 |
| Domestic credit to private sector as a (% of GDP) | ● 12.15 |
| Bank accounts | ● 0.39 |
| Gross capital formation as a (% of GVA) | ● 52.21 |
| Incubators | ● 0.22 |
| Micro finance institutions (MUDRA) | ● 96.01 |
| Bank accounts with Aadhar seeding | ● 89.99 |
| Share of manufacturing and services as a (% of GSDP) | ● 69.73 |
| Internet subscribers | ● 2.60 |
| Online services transaction | ● 3.18 |
| Villages in state with internet connectivity | ● 99.37 |
| Services offered online by state government | ● 26.16 |
| Subsidies or benefits transferred through DBT | ● 31.46 |

Safety and Legal Environment ● **25.87**

| | |
|---|---------|
| IT/IP related Acts | ● 99.39 |
| Cyber cells | ● 18.28 |
| Social Media Monitoring Cells | ● 18.52 |
| Pendency rate | ● 18.55 |
| Charge sheeting Rate | ● 24.20 |
| Pendency Percentage- Corruption cases investigation | ● 0.00 |
| Rate of Cognizable Crime | ● 88.32 |
| Police personnel | ● 0.00 |

Knowledge Diffusion ● **3.00**

| | |
|--|---------|
| Citation Score | ● 59.20 |
| Circulation | ● 0.01 |
| GIs registered | ● 0.18 |
| Handlooms sales as a (% of GSDP) | ● 0.26 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 4.42 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Odisha, Punjab, Haryana, Kerala, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Delhi, Uttarakhand

UT and city states

Chandigarh

Category Rank

1



Efficiency Ratio

0.984

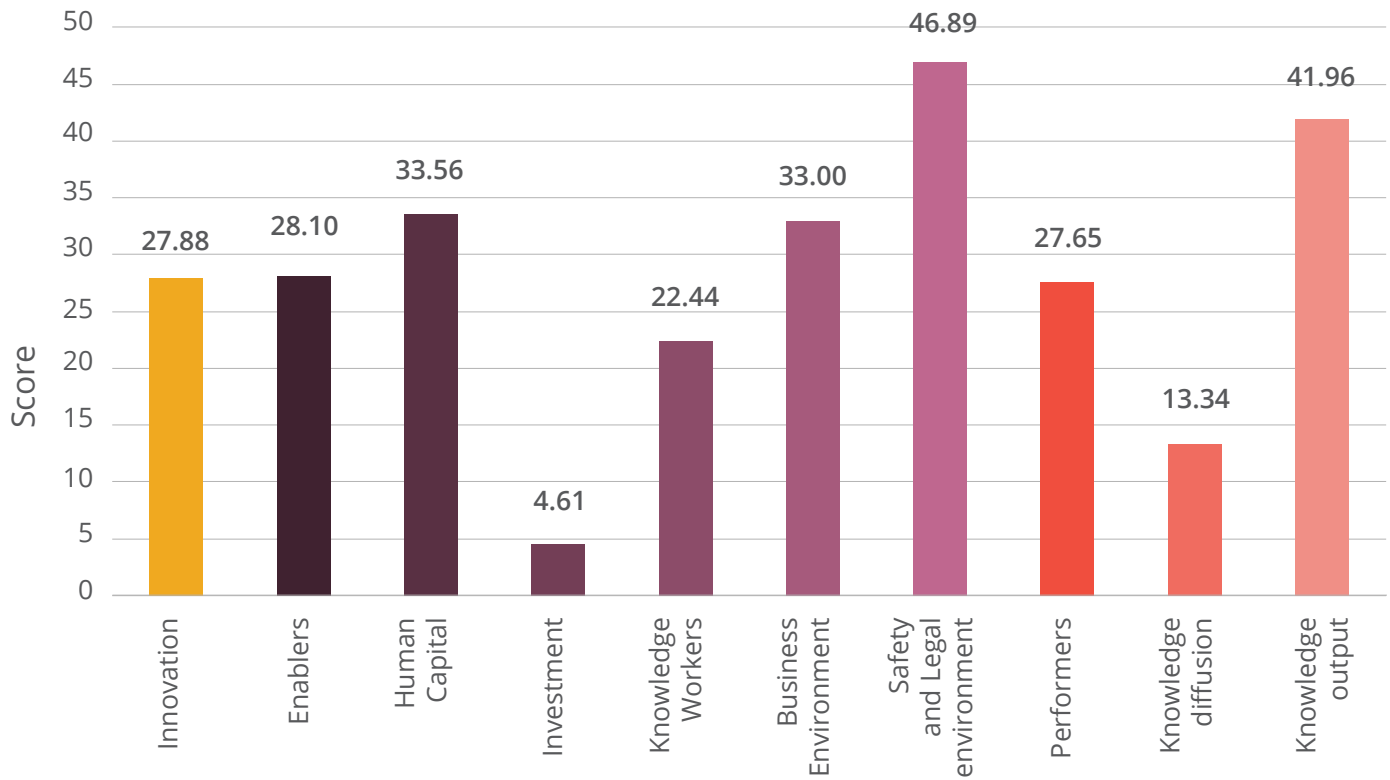


GSDP per Capita
(2019-20)

₹ 263138

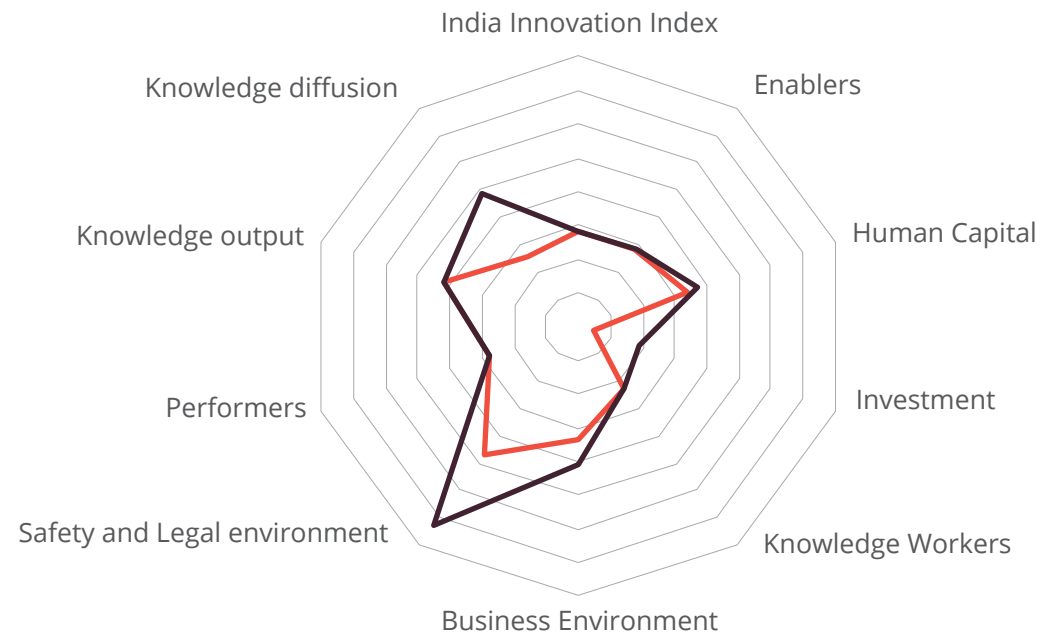


Scores

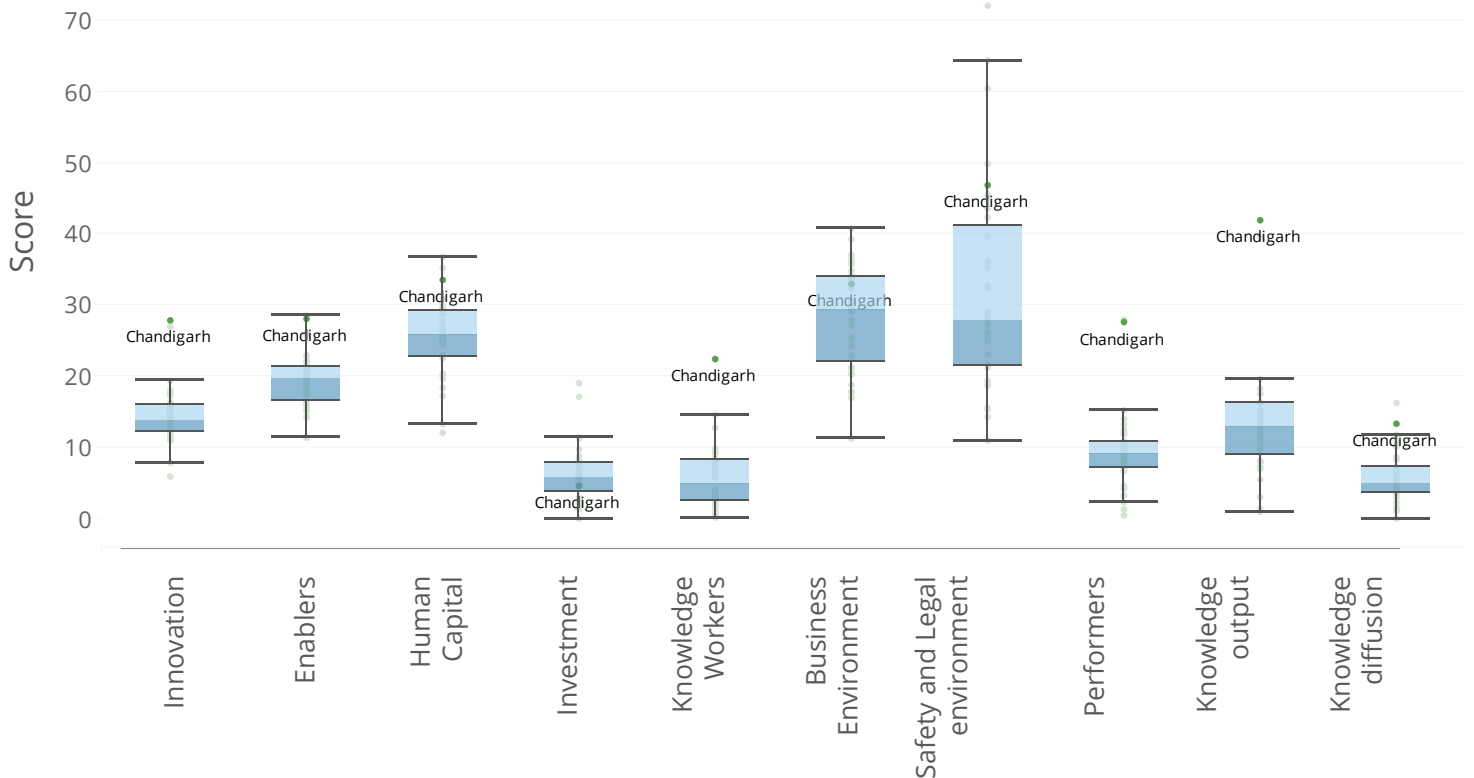


Country Comparison

— Best Performing State — Chandigarh



Relative Performance



India Innovation Index **27.88** ●Performers **27.65** ●Enablers **28.10** ●**Human Capital** ● **33.56**

| | |
|---|---------|
| Schools with functional computer facility | ● 99.14 |
| NAS scores | ● 73.70 |
| Expenditure on school education as a (% of GSDP) | ● 11.51 |
| NER in school education | ● 29.06 |
| Accolades in STEM Activities | ● 13.56 |
| Pupil-Teacher ratio: Primary & Secondary | ● 75.59 |
| Percentage of schools having (ATL) labs | ● 3.93 |
| Secondary school level completion rate | ● 99.51 |
| Enrolment in PhD | ● 65.11 |
| Enrolment in engineering and technology | ● 37.68 |
| Percentage of Colleges connected through NMEICT | ● 28.23 |
| Higher education institutions- NAAC grade A and above | ● 33.94 |
| Enrolment in vocational education | ● 5.57 |
| Pupil Teacher Ratio- Higher Education | ● 57.57 |
| Tertiary mobility | ● 0.00 |

Business Environment ● **33.00**

| | |
|--|----------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 38.42 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of GDP) | ● 93.62 |
| Bank accounts | ● 1.25 |
| Gross capital formation as a (% of GVA) | ● 14.65 |
| Incubators | ● 8.01 |
| Micro finance institutions (MUDRA) | ● 96.51 |
| Bank accounts with Aadhar seeding | ● 83.17 |
| Share of manufacturing and services as a (% of GSDP) | ● 86.96 |
| Internet subscribers | ● 6.25 |
| Online services transaction | ● 15.54 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 23.92 |
| Subsidies or benefits transferred through DBT | ● 10.45 |

Investment ● **4.61**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 25.91 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.00 |
| NIRF ranking of top 5 universities | ● 16.91 |
| FDI inflow as a percentage of state GDP | ● 0.24 |
| Venture capital deals | ● 0.00 |

Safety and Legal Environment ● **46.89**

| | |
|---|---------|
| IT/IP related Acts | ● 96.93 |
| Cyber cells | ● 24.04 |
| Social Media Monitoring Cells | ● 24.04 |
| Pendency rate | ● 98.94 |
| Charge sheeting Rate | ● 42.33 |
| Pendency Percentage- Corruption cases investigation | ● 14.30 |
| Rate of Cognizable Crime | ● 84.98 |
| Police personnel | ● 37.11 |

Knowledge Worker ● **22.44**

| | |
|--|---------|
| Knowledge intensive employment | ● 4.08 |
| Females employed with advanced degrees | ● 15.06 |
| NGOs involved in knowledge intensive areas | ● 1.11 |
| No. of private R&D units | ● 58.61 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 66.67 |

Knowledge Diffusion ● **13.34**

| | |
|--|---------|
| Citation Score | ● 80.48 |
| Circulation | ● 63.93 |
| GIs registered | ● 0.00 |
| Handlooms sales as a (% of GSDP) | ● 0.00 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 45.43 |
| Software exports | ● 2.76 |

Knowledge Output ● **41.96**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 8.70 |
| Publication | ● 34.5 |
| Environment clearance approved | ● 78.33 |
| GSDP per capita growth rate | ● 5.49 |
| New Businesses | ● 45.38 |
| Startups | ● 58.82 |
| Industrial design filed | ● 10.12 |
| Patent filed (per unit of GSDP) | ● 66.67 |
| Trade mark filed | ● 54.26 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Mizoram, Nagaland, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa

Major states

Chhattisgarh

Category Rank

17



Efficiency Ratio

0.238

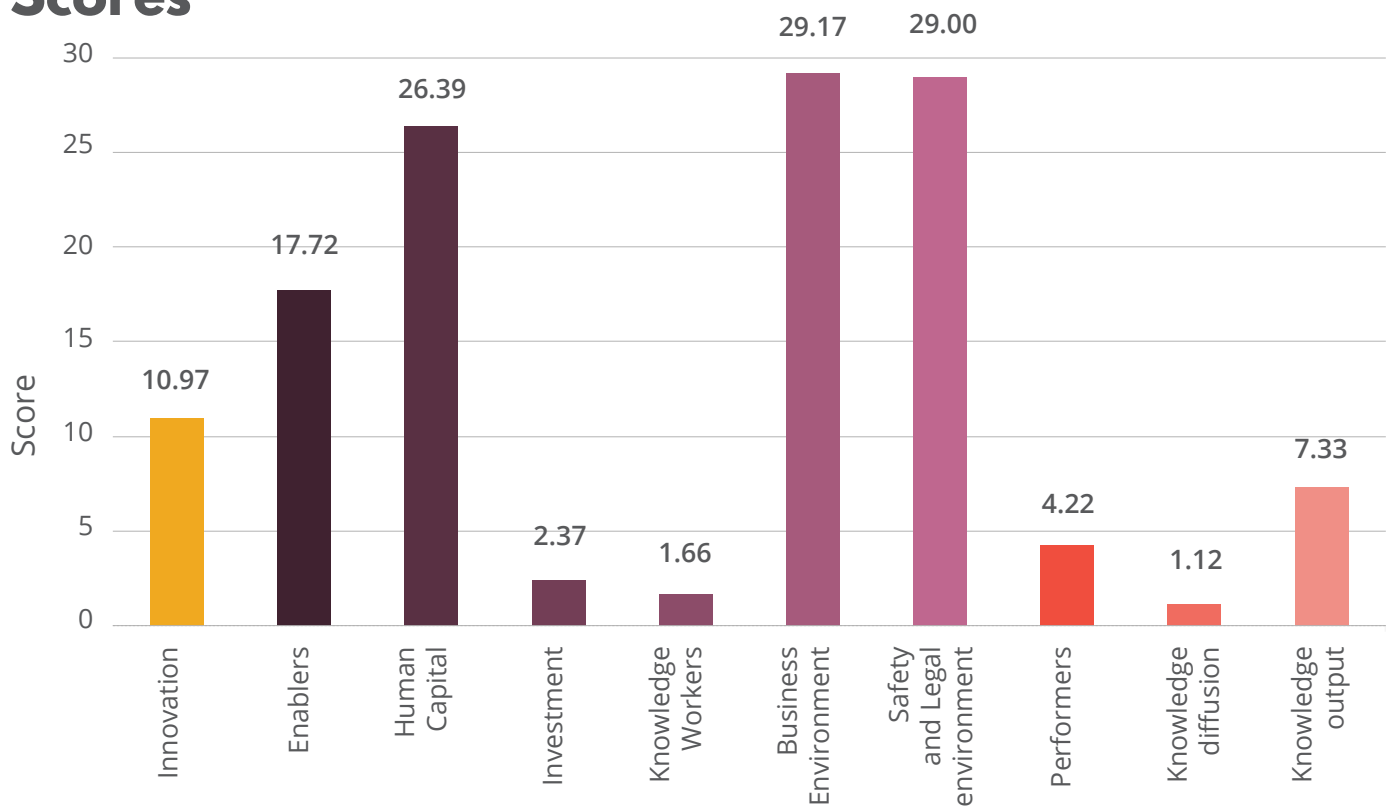


GSDP per Capita
(2019-20)

₹ 85258



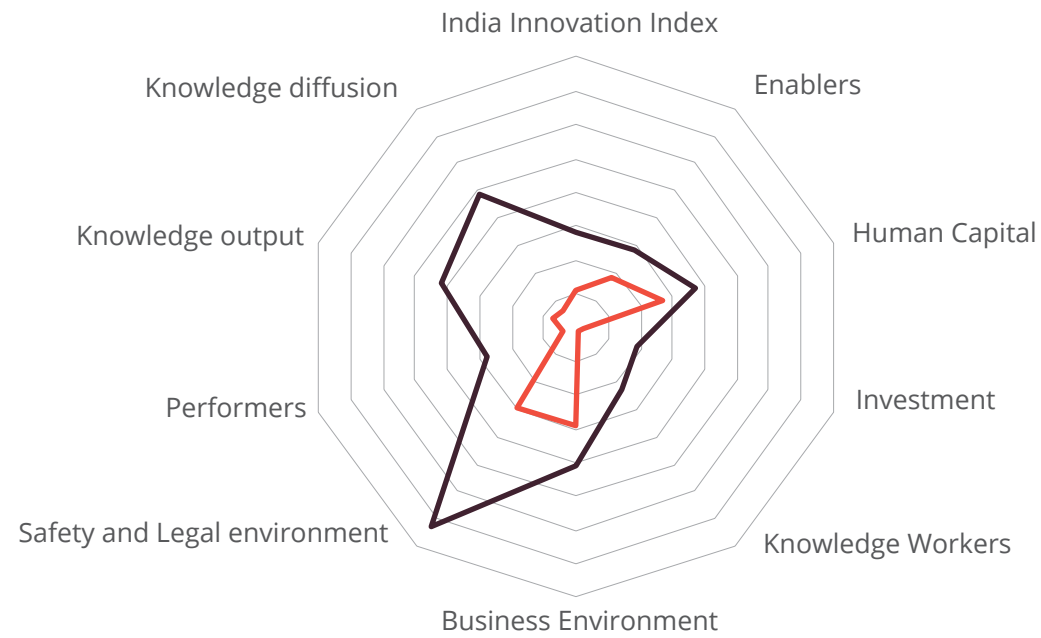
Scores



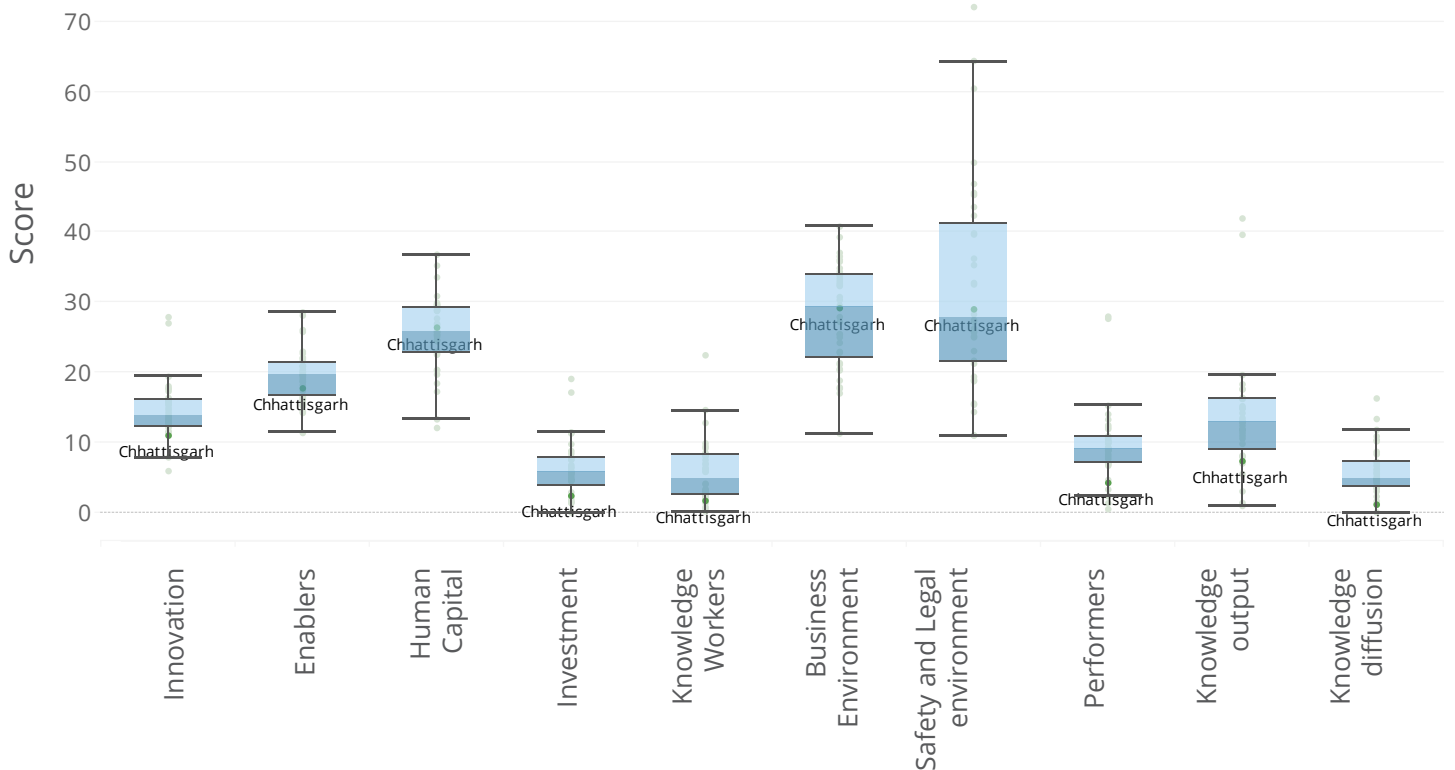
Country Comparison

— Best Performing State

— Chhattisgarh



Relative Performance



India Innovation Index **10.97** ●Performers **4.22** ●Enablers **17.72** ●**Human Capital** ● **26.39**

| | |
|---|---------|
| Schools with functional computer facility | ● 83.00 |
| NAS scores | ● 62.19 |
| Expenditure on school education as a (% of GSDP) | ● 23.04 |
| NER in school education | ● 67.19 |
| Accolades in STEM Activities | ● 55.36 |
| Pupil-Teacher ratio: Primary & Secondary | ● 73.80 |
| Percentage of schools having (ATL) labs | ● 0.20 |
| Secondary school level completion rate | ● 90.40 |
| Enrolment in PhD | ● 4.09 |
| Enrolment in engineering and technology | ● 8.60 |
| Percentage of Colleges connected through NMEICT | ● 15.24 |
| Higher education institutions- NAAC grade A and above | ● 1.14 |
| Enrolment in vocational education | ● 0.51 |
| Pupil Teacher Ratio- Higher Education | ● 61.17 |
| Tertiary mobility | ● 18.26 |

Investment ● **2.37**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 12.50 |
| Expenditure on R&D | ● 2.17 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 1.36 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **1.66**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.44 |
| Females employed with advanced degrees | ● 2.40 |
| NGOs involved in knowledge intensive areas | ● 2.47 |
| No. of private R&D units | ● 2.31 |
| No. of R&D Institutions funded | ● 5.56 |
| Skill development training | ● 0.00 |

Knowledge Output ● **7.33**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 9.18 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 65.61 |
| GSDP per capita growth rate | ● 38.46 |
| New Businesses | ● 10.43 |
| Startups | ● 7.36 |
| Industrial design filed | ● 0.48 |
| Patent filed (per unit of GSDP) | ● 3.75 |
| Trade mark filed | ● 2.46 |

Business Environment ● **29.17**

| | |
|--|---------|
| Ease of Doing Business score | ● 33.08 |
| Cluster strength | ● 3.60 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 15.10 |
| Bank accounts | ● 0.53 |
| Gross capital formation as a (% of GVA) | ● 54.75 |
| Incubators | ● 0.88 |
| Micro finance institutions (MUDRA) | ● 96.16 |
| Bank accounts with Aadhar seeding | ● 87.22 |
| Share of manufacturing and services as a (% of GSDP) | ● 49.23 |
| Internet subscribers | ● 3.45 |
| Online services transaction | ● 21.47 |
| Villages in state with internet connectivity | ● 90.56 |
| Services offered online by state government | ● 33.17 |
| Subsidies or benefits transferred through DBT | ● 27.98 |

Safety and Legal Environment ● **29.00**

| | |
|---|---------|
| IT/IP related Acts | ● 96.93 |
| Cyber cells | ● 28.80 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 97.18 |
| Charge sheeting Rate | ● 15.76 |
| Pendency Percentage- Corruption cases investigation | ● 12.22 |
| Rate of Cognizable Crime | ● 80.49 |
| Police personnel | ● 9.34 |

Knowledge Diffusion ● **1.12**

| | |
|--|--------|
| Citation Score | ● 0.00 |
| Circulation | ● 7.17 |
| GIs registered | ● 0.08 |
| Handlooms sales as a (% of GSDP) | ● 1.02 |
| High and medium high tech manufacturing entities | ● 0.30 |
| High-tech exports | ● 1.24 |
| Software exports | ● 0.04 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Jharkhand, Assam, Uttarakhand, Dadra and Nagar Haveli, Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Bihar, Odisha

UT and city states

Dadra and Nagar Haveli & Daman and Diu

Category Rank

7



Efficiency Ratio

0.237

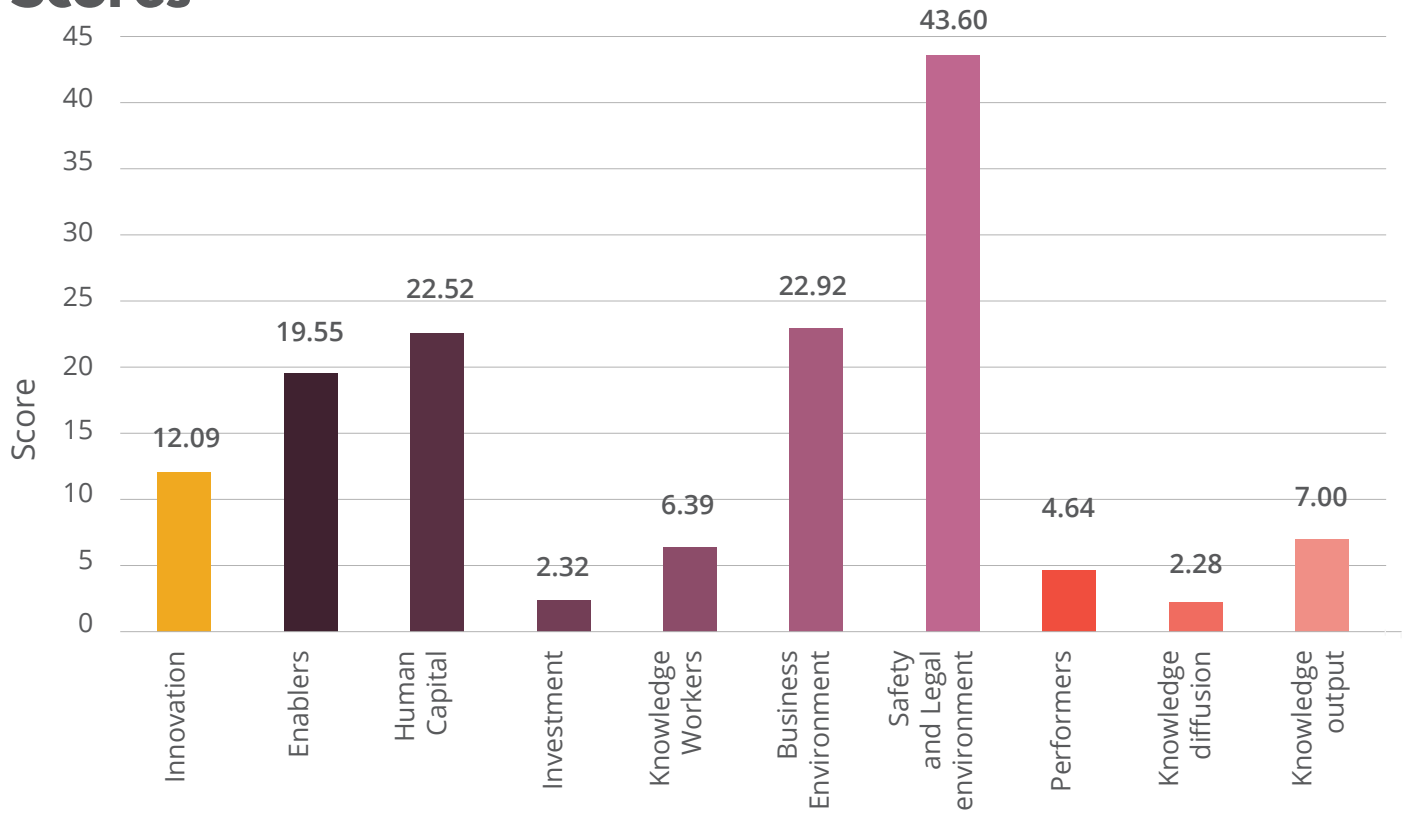


GSDP per Capita
(2019-20)

N.A

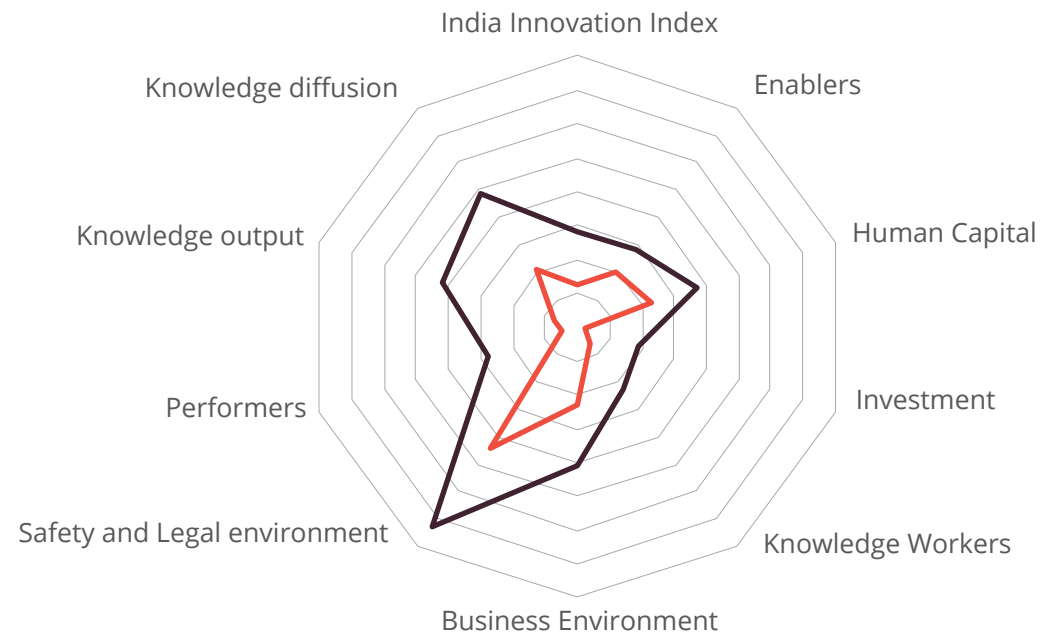


Scores

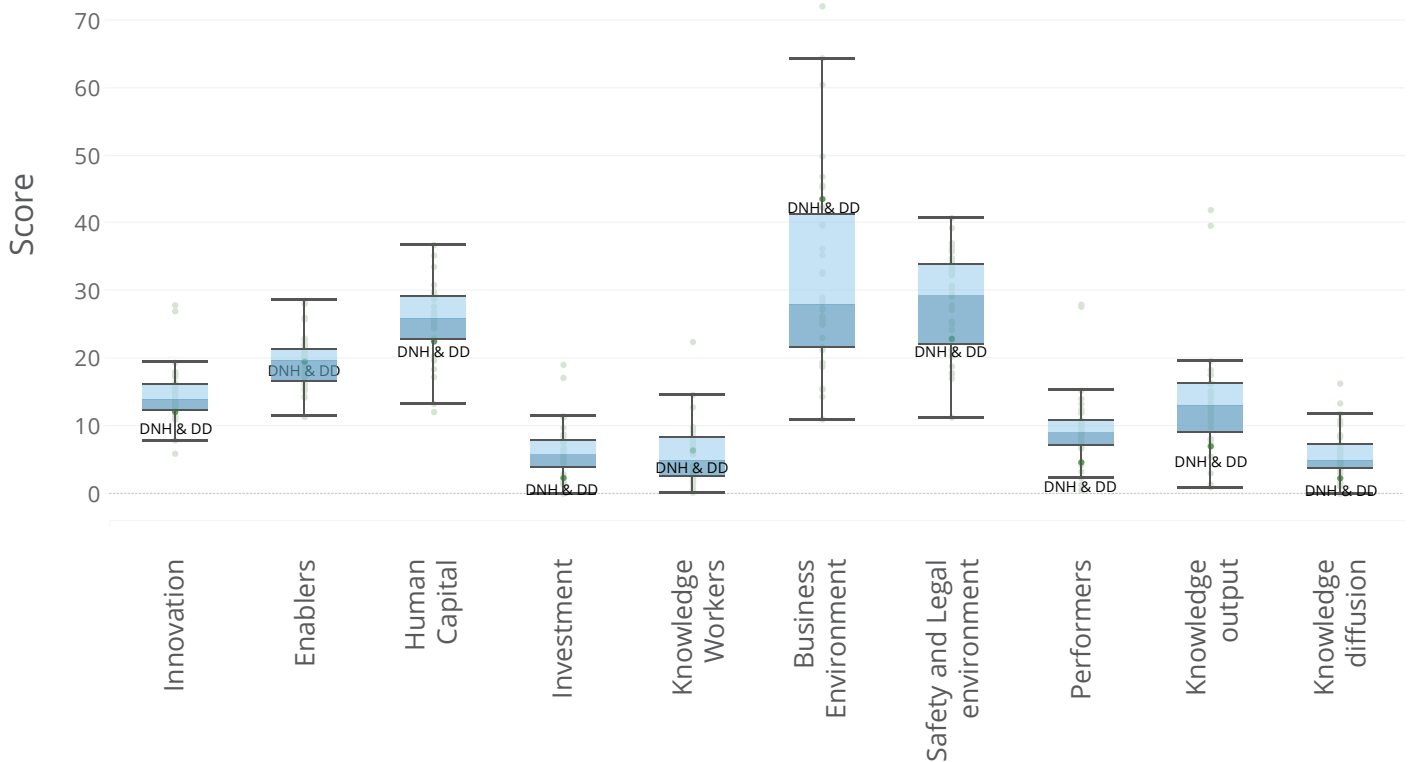


Country Comparison

— Best Performing State — Dadra and Nagar Haveli & Daman and Diu



Relative Performance



India Innovation Index **12.09** ●Performers **4.64** ●Enablers **19.55** ●**Human Capital** ● **22.52**

| | |
|---|---------|
| Schools with functional computer facility | ● 90.45 |
| NAS scores | ● 59.24 |
| Expenditure on school education as a (% of GSDP) | ● 0.00 |
| NER in school education | ● 59.06 |
| Accolades in STEM Activities | ● 17.07 |
| Pupil-Teacher ratio: Primary & Secondary | ● 65.97 |
| Percentage of schools having (ATL) labs | ● 0.41 |
| Secondary school level completion rate | ● 99.92 |
| Enrolment in PhD | ● 0.00 |
| Enrolment in engineering and technology | ● 15.73 |
| Percentage of Colleges connected through NMEICT | ● 0.00 |
| Higher education institutions- NAAC grade A and above | ● 0.00 |
| Enrolment in vocational education | ● 39.09 |
| Pupil Teacher Ratio- Higher Education | ● 71.07 |
| Tertiary mobility | ● 0.00 |

Investment ● **2.32**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 17.64 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.00 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.0 |

Knowledge Worker ● **6.39**

| | |
|--|---------|
| Knowledge intensive employment | ● 6.68 |
| Females employed with advanced degrees | ● 2.39 |
| NGOs involved in knowledge intensive areas | ● 0.99 |
| No. of private R&D units | ● 38.33 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 0.00 |

Knowledge Output ● **7.00**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 12.32 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 31.66 |
| GSDP per capita growth rate | ● 39.56 |
| New Businesses | ● 1.15 |
| Startups | ● 0.00 |
| Industrial design filed | ● 16.42 |
| Patent filed (per unit of GSDP) | ● 0.07 |
| Trade mark filed | ● 9.15 |

Business Environment ● **22.92**

| | |
|--|----------|
| Ease of Doing Business score | ● 6.40 |
| Cluster strength | ● 20.41 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 0.77 |
| Bank accounts | ● 0.33 |
| Gross capital formation as a (% of GVA) | ● 0.00 |
| Incubators | ● 0.00 |
| Micro finance institutions (MUDRA) | ● 96.26 |
| Bank accounts with Aadhar seeding | ● 84.88 |
| Share of manufacturing and services as a (% of GSDP) | ● 0.00 |
| Internet subscribers | ● 5.73 |
| Online services transaction | ● 66.67 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 12.12 |
| Subsidies or benefits transferred through DBT | ● 40.45 |

Safety and Legal Environment ● **43.60**

| | |
|---|---------|
| IT/IP related Acts | ● 96.93 |
| Cyber cells | ● 43.23 |
| Social Media Monitoring Cells | ● 43.23 |
| Pendency rate | ● 69.22 |
| Charge sheeting Rate | ● 26.36 |
| Pendency Percentage- Corruption cases investigation | ● 0.00 |
| Rate of Cognizable Crime | ● 97.16 |
| Police personnel | ● 4.26 |

Knowledge Diffusion ● **2.28**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 8.01 |
| GIs registered | ● 0.01 |
| Handlooms sales as a (% of GSDP) | ● 0.00 |
| High and medium high tech manufacturing entities | ● 1.72 |
| High-tech exports | ● 26.85 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Uttarakhand, Assam, Jharkhand, Chhattisgarh, Goa, Tripura

UT and city states

Delhi

Category Rank

2



Efficiency Ratio

1.074

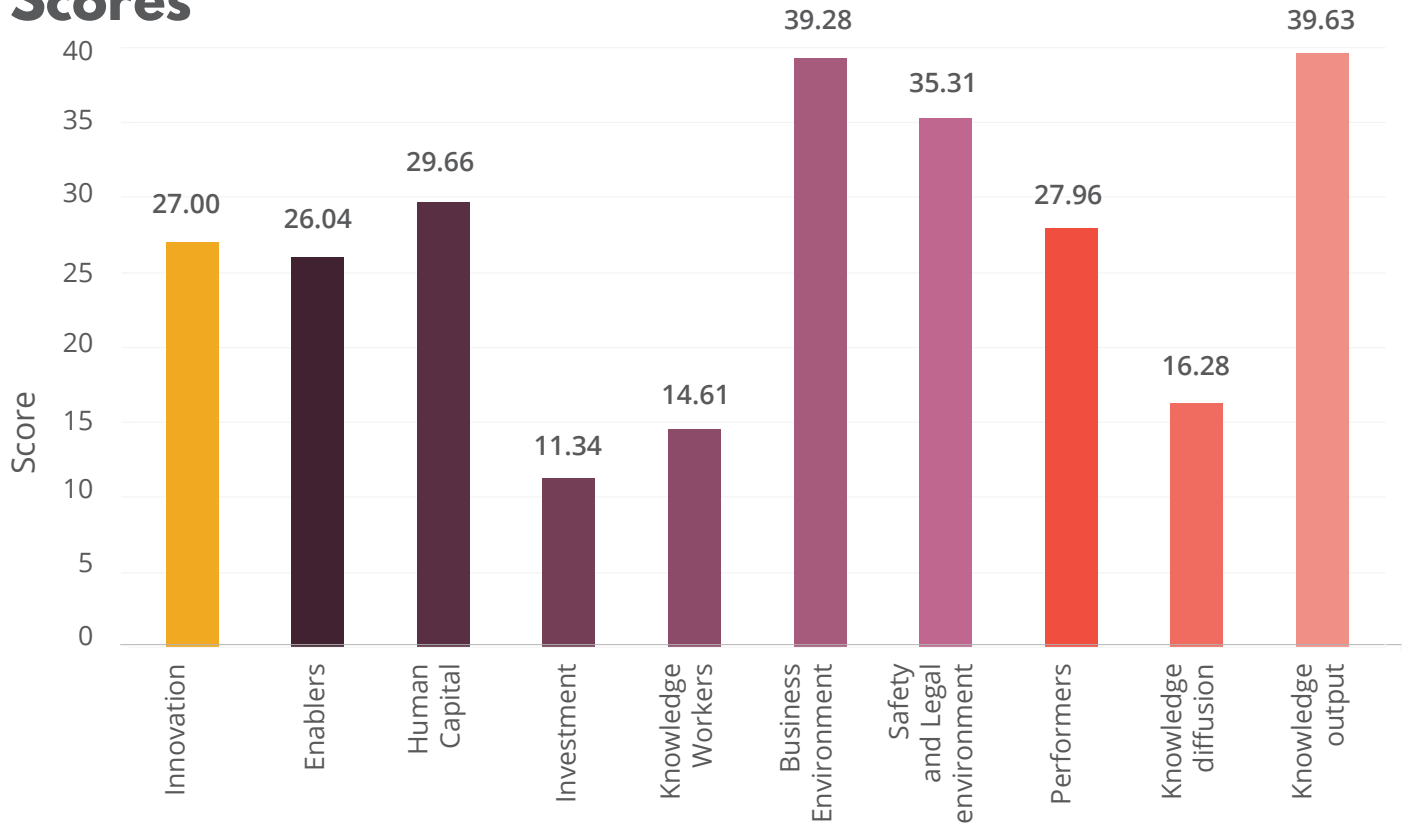


GSDP per Capita
(2019-20)

₹ 306385

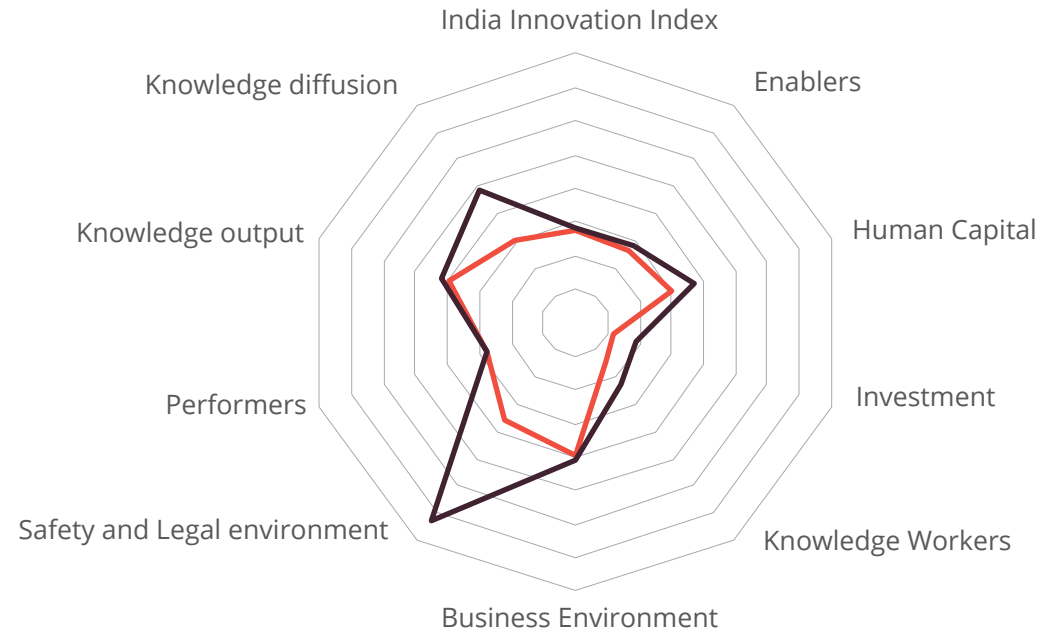


Scores

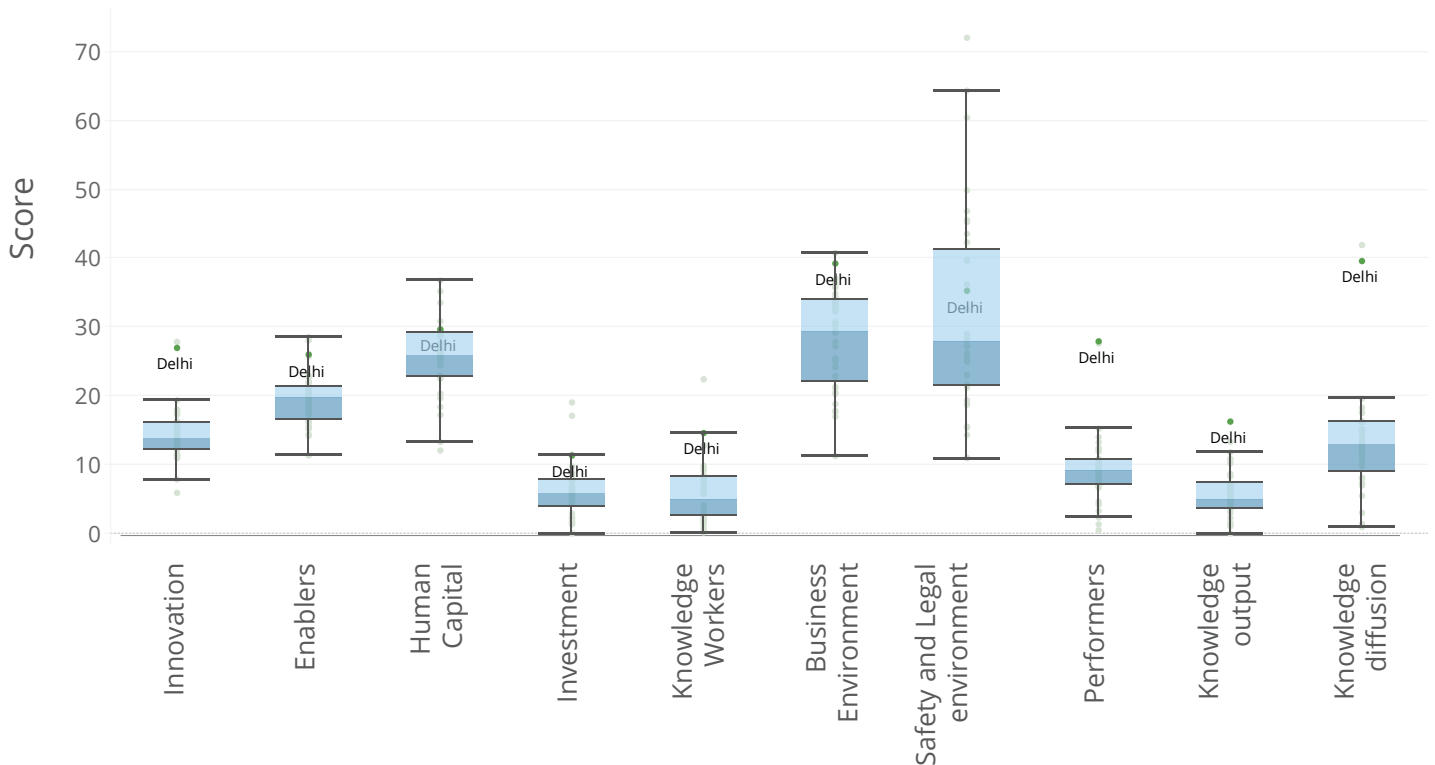


Country Comparison

— Best Performing State — Delhi



Relative Performance



India Innovation Index **27.00** ●Performers **27.96** ●Enablers **26.04** ●**Human Capital** ● **29.66**

| | |
|---|----------|
| Schools with functional computer facility | ● 93.88 |
| NAS scores | ● 76.93 |
| Expenditure on school education as a (% of GSDP) | ● 6.28 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 5.70 |
| Pupil-Teacher ratio: Primary & Secondary | ● 56.77 |
| Percentage of schools having (ATL) labs | ● 0.99 |
| Secondary school level completion rate | ● 97.70 |
| Enrolment in PhD | ● 66.67 |
| Enrolment in engineering and technology | ● 11.12 |
| Percentage of Colleges connected through NMEICT | ● 35.15 |
| Higher education institutions- NAAC grade A and above | ● 26.34 |
| Enrolment in vocational education | ● 5.09 |
| Pupil Teacher Ratio- Higher Education | ● 14.39 |
| Tertiary mobility | ● 17.52 |

Investment ● **11.34**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 9.40 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.20 |
| NIRF ranking of top 5 universities | ● 70.70 |
| FDI inflow as a percentage of state GDP | ● 13.70 |
| Venture capital deals | ● 12.26 |

Knowledge Worker ● **14.61**

| | |
|--|---------|
| Knowledge intensive employment | ● 1.77 |
| Females employed with advanced degrees | ● 12.17 |
| NGOs involved in knowledge intensive areas | ● 16.59 |
| No. of private R&D units | ● 66.67 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 7.59 |

Knowledge Output ● **39.63**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 5.07 |
| Publication | ● 39.25 |
| Environment clearance approved | ● 16.62 |
| GSDP per capita growth rate | ● 21.98 |
| New Businesses | ● 58.82 |
| Startups | ● 34.58 |
| Industrial design filed | ● 18.52 |
| Patent filed (per unit of GSDP) | ● 28.57 |
| Trade mark filed | ● 95.24 |

Business Environment ● **39.28**

| | |
|--|----------|
| Ease of Doing Business score | ● 22.09 |
| Cluster strength | ● 79.23 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 83.62 |
| Bank accounts | ● 1.01 |
| Gross capital formation as a (% of GVA) | ● 19.50 |
| Incubators | ● 9.40 |
| Micro finance institutions (MUDRA) | ● 97.30 |
| Bank accounts with Aadhar seeding | ● 82.64 |
| Share of manufacturing and services as a (% of GSDP) | ● 79.85 |
| Internet subscribers | ● 9.96 |
| Online services transaction | ● 11.44 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 37.32 |
| Subsidies or benefits transferred through DBT | ● 53.03 |

Safety and Legal Environment ● **35.31**

| | |
|---|---------|
| IT/IP related Acts | ● 93.87 |
| Cyber cells | ● 24.18 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 95.16 |
| Charge sheeting Rate | ● 71.47 |
| Pendency Percentage- Corruption cases investigation | ● 9.50 |
| Rate of Cognizable Crime | ● 27.60 |
| Police personnel | ● 21.62 |

Knowledge Diffusion ● **16.28**

| | |
|--|----------|
| Citation Score | ● 70.63 |
| Circulation | ● 100.00 |
| GIs registered | ● 0.01 |
| Handlooms sales as a (% of GSDP) | ● 0.08 |
| High and medium high tech manufacturing entities | ● 0.20 |
| High-tech exports | ● 34.99 |
| Software exports | ● 0.68 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Madhya Pradesh, Telangana, Kerala, Haryana, Andhra Pradesh, Rajasthan, West Bengal, Punjab, Odisha, Bihar

UT and city states

Goa

Category Rank

5



Efficiency Ratio

0.426

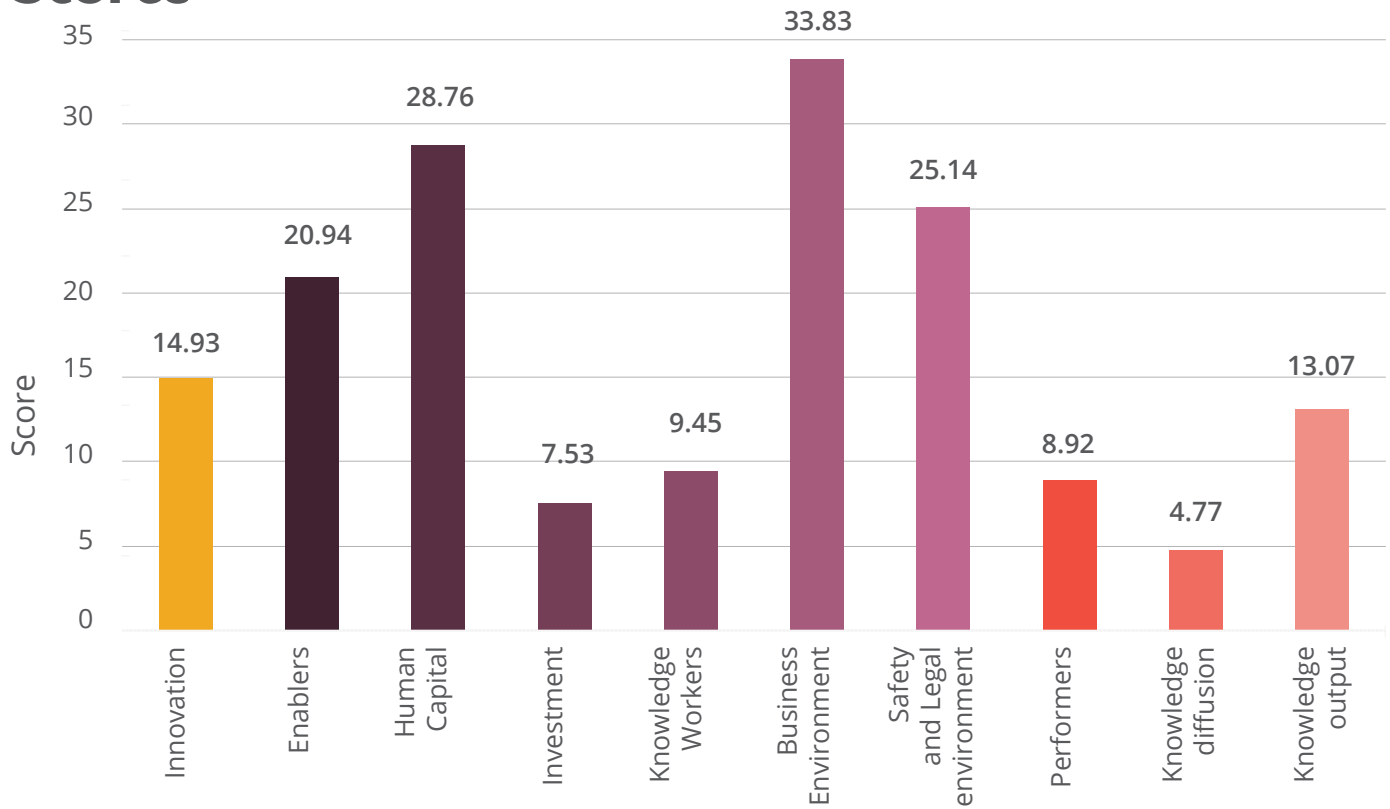


GSDP per Capita
(2019-20)

₹ 343687

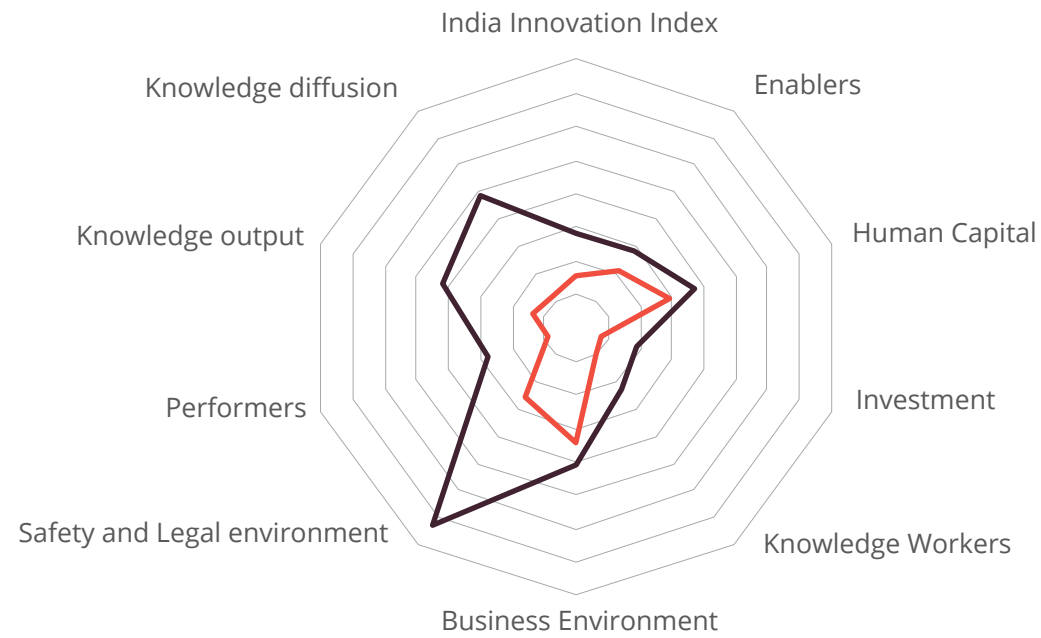


Scores

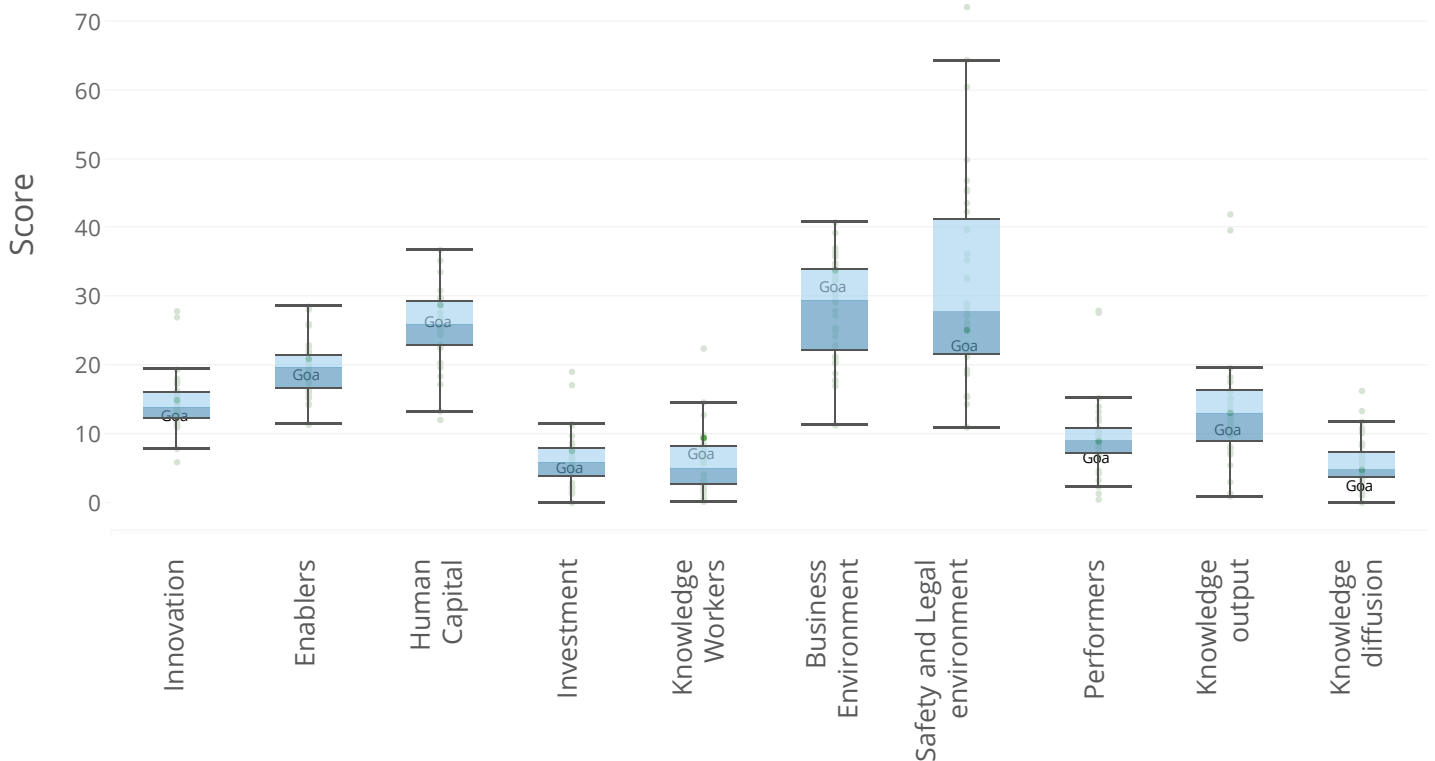


Country Comparison

— Best Performing State — Goa



Relative Performance



India Innovation Index **14.93** ●Performers **8.92** ●Enablers **20.94** ●**Human Capital** ● **28.76**

| | |
|---|----------|
| Schools with functional computer facility | ● 49.87 |
| NAS scores | ● 73.04 |
| Expenditure on school education as a (% of GSDP) | ● 15.11 |
| NER in school education | ● 72.59 |
| Accolades in STEM Activities | ● 11.73 |
| Pupil-Teacher ratio: Primary & Secondary | ● 73.56 |
| Percentage of schools having (ATL) labs | ● 0.13 |
| Secondary school level completion rate | ● 100.00 |
| Enrolment in PhD | ● 20.42 |
| Enrolment in engineering and technology | ● 44.00 |
| Percentage of Colleges connected through NMEICT | ● 25.80 |
| Higher education institutions- NAAC grade A and above | ● 17.44 |
| Enrolment in vocational education | ● 2.46 |
| Pupil Teacher Ratio- Higher Education | ● 80.96 |
| Tertiary mobility | ● 0.00 |

Investment ● **7.53**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 26.17 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 21.58 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 2.56 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **9.45**

| | |
|--|---------|
| Knowledge intensive employment | ● 6.77 |
| Females employed with advanced degrees | ● 2.19 |
| NGOs involved in knowledge intensive areas | ● 1.20 |
| No. of private R&D units | ● 53.98 |
| No. of R&D Institutions funded | ● 10.82 |
| Skill development training | ● 0.00 |

Knowledge Output ● **13.07**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 4.59 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 8.42 |
| GSDP per capita growth rate | ● 60.44 |
| New Businesses | ● 23.64 |
| Startups | ● 23.82 |
| Industrial design filed | ● 3.02 |
| Patent filed (per unit of GSDP) | ● 8.49 |
| Trade mark filed | ● 13.11 |

Business Environment ● **33.83**

| | |
|--|---------|
| Ease of Doing Business score | ● 3.84 |
| Cluster strength | ● 52.82 |
| Common facility centre | ● 66.67 |
| Domestic credit to private sector as a (% of SDP) | ● 13.61 |
| Bank accounts | ● 1.10 |
| Gross capital formation as a (% of GVA) | ● 21.04 |
| Incubators | ● 13.53 |
| Micro finance institutions (MUDRA) | ● 94.69 |
| Bank accounts with Aadhar seeding | ● 81.67 |
| Share of manufacturing and services as a (% of GSDP) | ● 80.31 |
| Internet subscribers | ● 7.86 |
| Online services transaction | ● 7.18 |
| Villages in state with internet connectivity | ● 91.25 |
| Services offered online by state government | ● 31.26 |
| Subsidies or benefits transferred through DBT | ● 0.00 |

Safety and Legal Environment ● **25.14**

| | |
|---|---------|
| IT/IP related Acts | ● 95.09 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 79.69 |
| Charge sheeting Rate | ● 13.59 |
| Pendency Percentage- Corruption cases investigation | ● 4.50 |
| Rate of Cognizable Crime | ● 84.46 |
| Police personnel | ● 28.19 |

Knowledge Diffusion ● **4.77**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 13.67 |
| GIs registered | ● 0.03 |
| Handlooms sales as a (% of GSDP) | ● 0.01 |
| High and medium high tech manufacturing entities | ● 0.12 |
| High-tech exports | ● 86.24 |
| Software exports | ● 0.26 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Tripura, Chandigarh, Meghalaya, Puducherry, Manipur, Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Andaman and Nicobar Islands

Major states

Gujarat

Category Rank

14



Efficiency Ratio

0.547

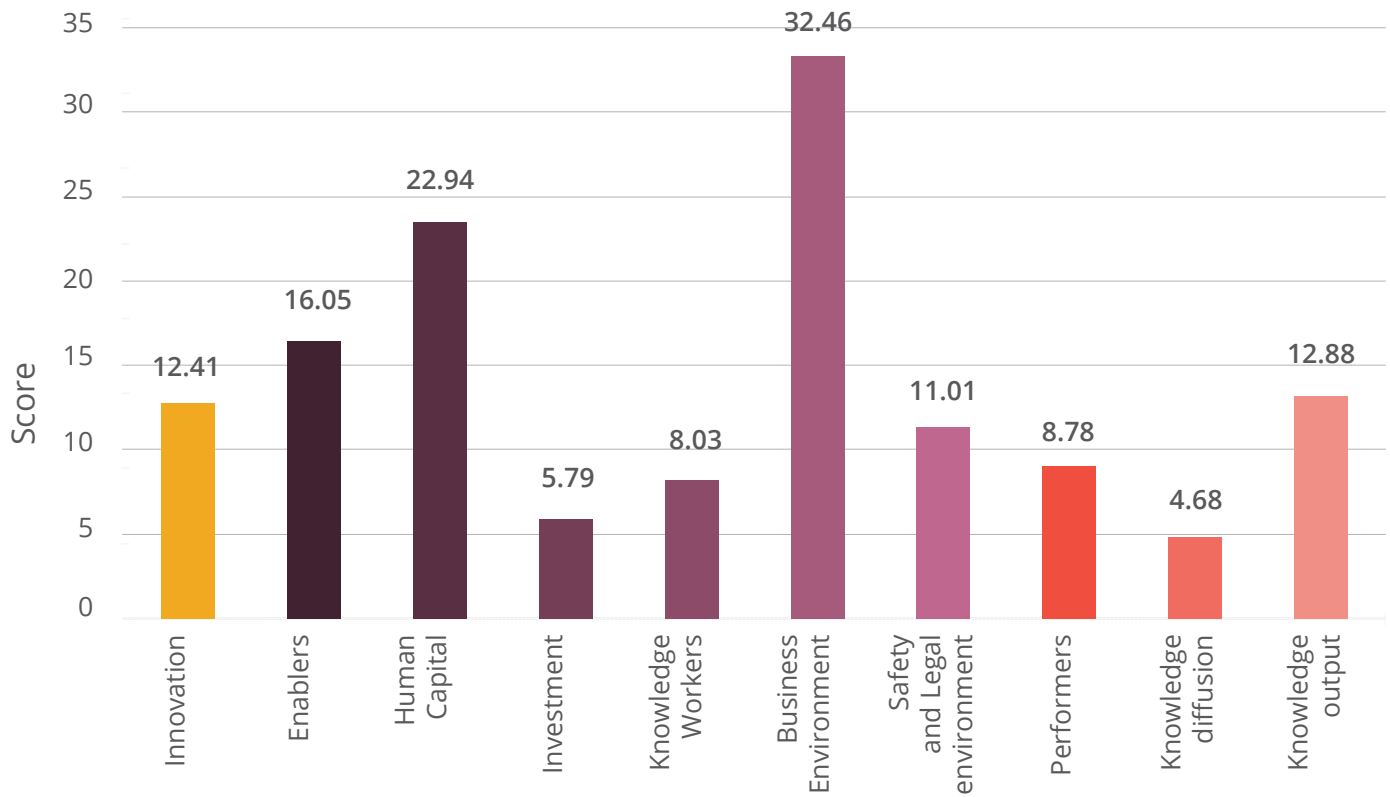


GSDP per Capita
(2019-20)

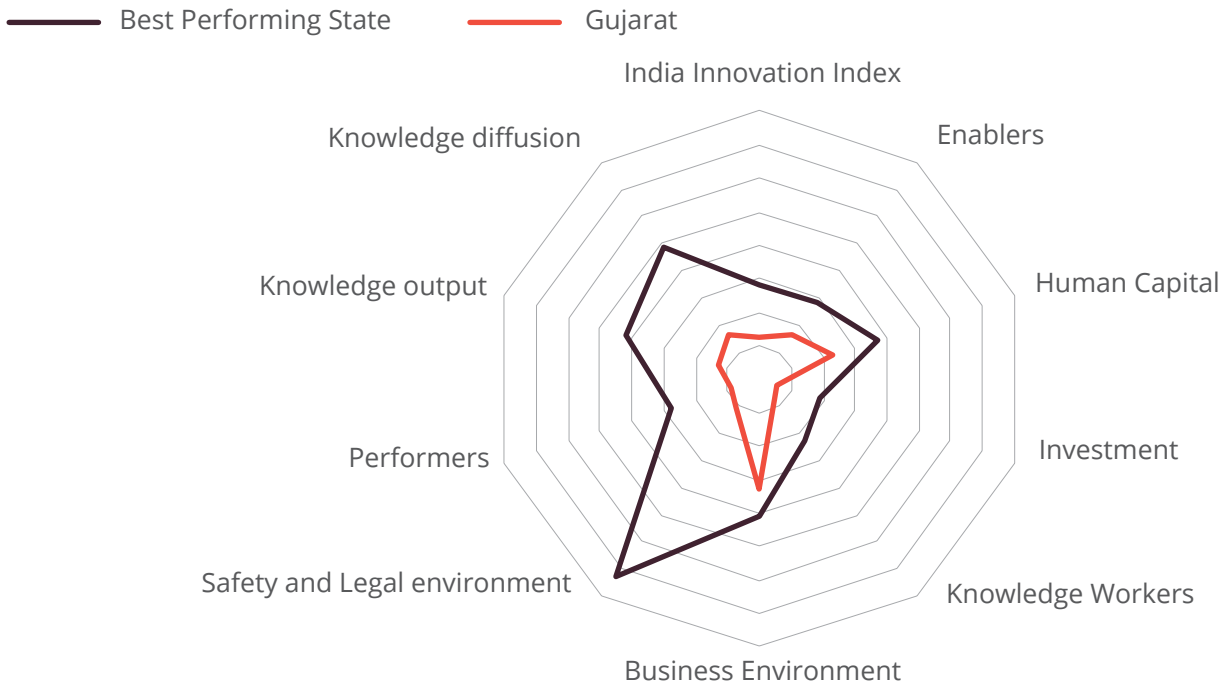
₹ 187524



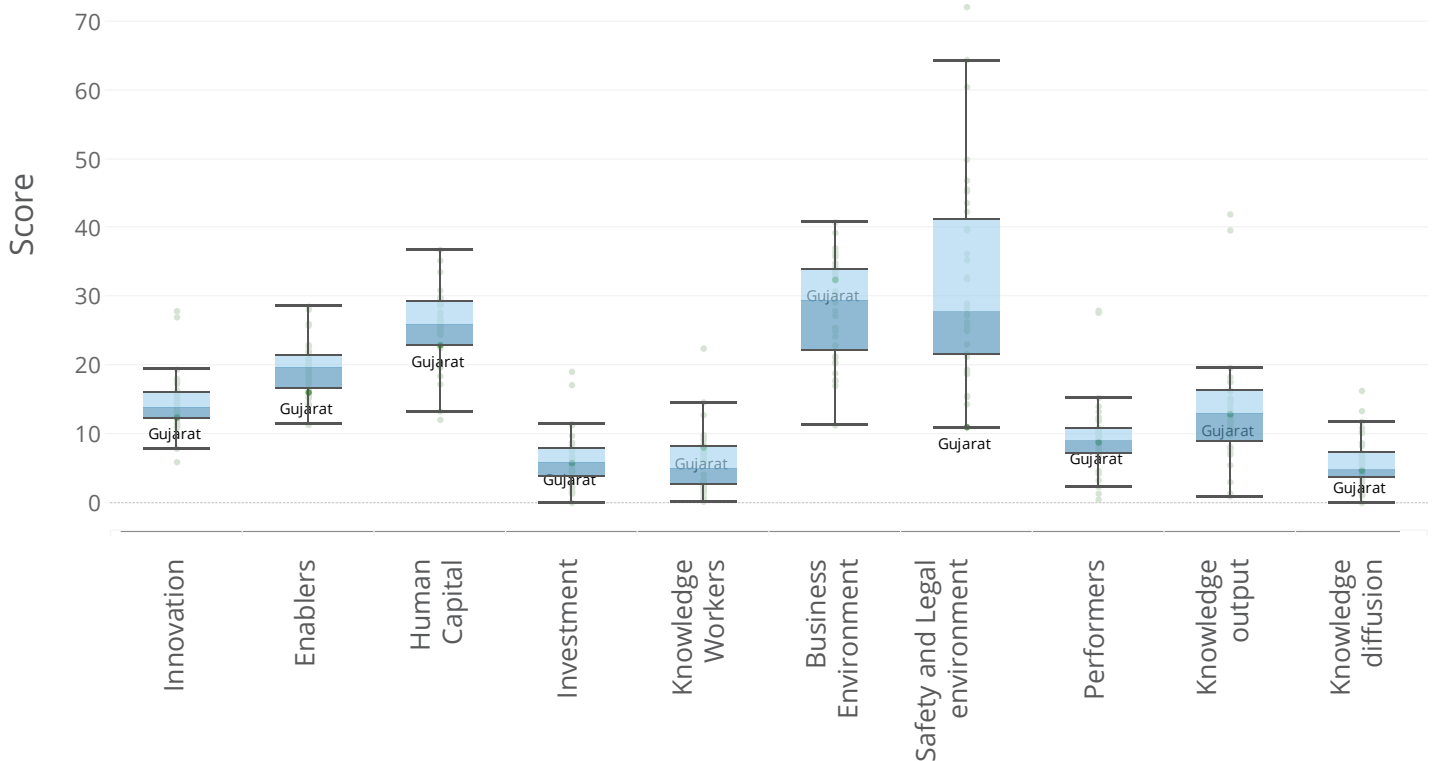
Scores



Country Comparison



Relative Performance



India Innovation Index **12.41** ●Performers **8.78** ●Enablers **16.05** ●**Human Capital** ● **22.94**

| | |
|---|---------|
| Schools with functional computer facility | ● 73.95 |
| NAS scores | ● 62.72 |
| Expenditure on school education as a (% of GSDP) | ● 10.36 |
| NER in school education | ● 50.31 |
| Accolades in STEM Activities | ● 40.95 |
| Pupil-Teacher ratio: Primary & Secondary | ● 58.65 |
| Percentage of schools having (ATL) labs | ● 0.58 |
| Secondary school level completion rate | ● 88.50 |
| Enrolment in PhD | ● 8.46 |
| Enrolment in engineering and technology | ● 16.92 |
| Percentage of Colleges connected through NMEICT | ● 25.28 |
| Higher education institutions- NAAC grade A and above | ● 1.51 |
| Enrolment in vocational education | ● 1.32 |
| Pupil Teacher Ratio- Higher Education | ● 61.17 |
| Tertiary mobility | ● 1.55 |

Investment ● **5.79**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 3.21 |
| Expenditure on R&D | ● 1.62 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 8.29 |
| NIRF ranking of top 5 universities | ● 33.20 |
| FDI inflow as a percentage of state GDP | ● 4.41 |
| Venture capital deals | ● 2.16 |

Knowledge Worker ● **8.03**

| | |
|--|---------|
| Knowledge intensive employment | ● 1.90 |
| Females employed with advanced degrees | ● 2.70 |
| NGOs involved in knowledge intensive areas | ● 2.89 |
| No. of private R&D units | ● 22.47 |
| No. of R&D Institutions funded | ● 37.08 |
| Skill development training | ● 0.00 |

Knowledge Output ● **12.88**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 20.29 |
| Publication | ● 25.50 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 38.46 |
| New Businesses | ● 19.64 |
| Startups | ● 9.1 |
| Industrial design filed | ● 4.52 |
| Patent filed (per unit of GSDP) | ● 8.49 |
| Trade mark filed | ● 11.40 |

Business Environment ● **32.46**

| | |
|--|---------|
| Ease of Doing Business score | ● 23.26 |
| Cluster strength | ● 49.22 |
| Common facility centre | ● 2.81 |
| Domestic credit to private sector as a (% of GDP) | ● 17.48 |
| Bank accounts | ● 0.48 |
| Gross capital formation as a (% of GVA) | ● 4.59 |
| Incubators | ● 1.49 |
| Micro finance institutions (MUDRA) | ● 98.43 |
| Bank accounts with Aadhar seeding | ● 82.44 |
| Share of manufacturing and services as a (% of GSDP) | ● 66.14 |
| Internet subscribers | ● 4.78 |
| Online services transaction | ● 30.79 |
| Villages in state with internet connectivity | ● 97.13 |
| Services offered online by state government | ● 53.59 |
| Subsidies or benefits transferred through DBT | ● 60.00 |

Safety and Legal Environment ● **11.01**

| | |
|---|---------|
| IT/IP related Acts | ● 96.32 |
| Cyber cells | ● 4.20 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 52.58 |
| Charge sheeting Rate | ● 0.00 |
| Pendency Percentage- Corruption cases investigation | ● 4.20 |
| Rate of Cognizable Crime | ● 44.08 |
| Police personnel | ● 3.01 |

Knowledge Diffusion ● **4.68**

| | |
|--|---------|
| Citation Score | ● 44.91 |
| Circulation | ● 12.57 |
| GIs registered | ● 0.22 |
| Handlooms sales as a (% of GSDP) | ● 0.11 |
| High and medium high tech manufacturing entities | ● 0.14 |
| High-tech exports | ● 26.25 |
| Software exports | ● 0.43 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Tamil Nadu, Uttar Pradesh, Karnataka, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala

Major states

Haryana

Category Rank

3



Efficiency Ratio

0.442

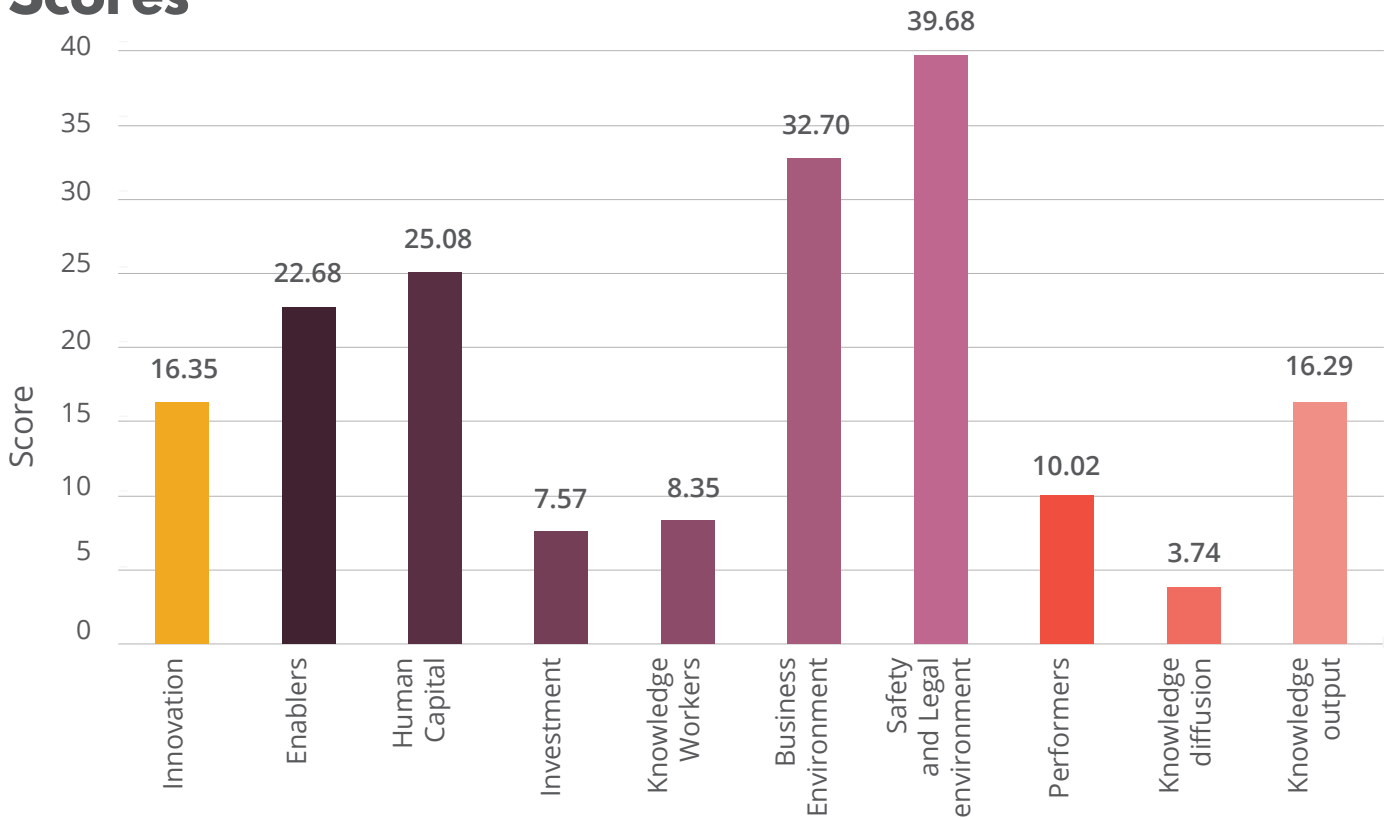


GSDP per Capita
(2019-20)

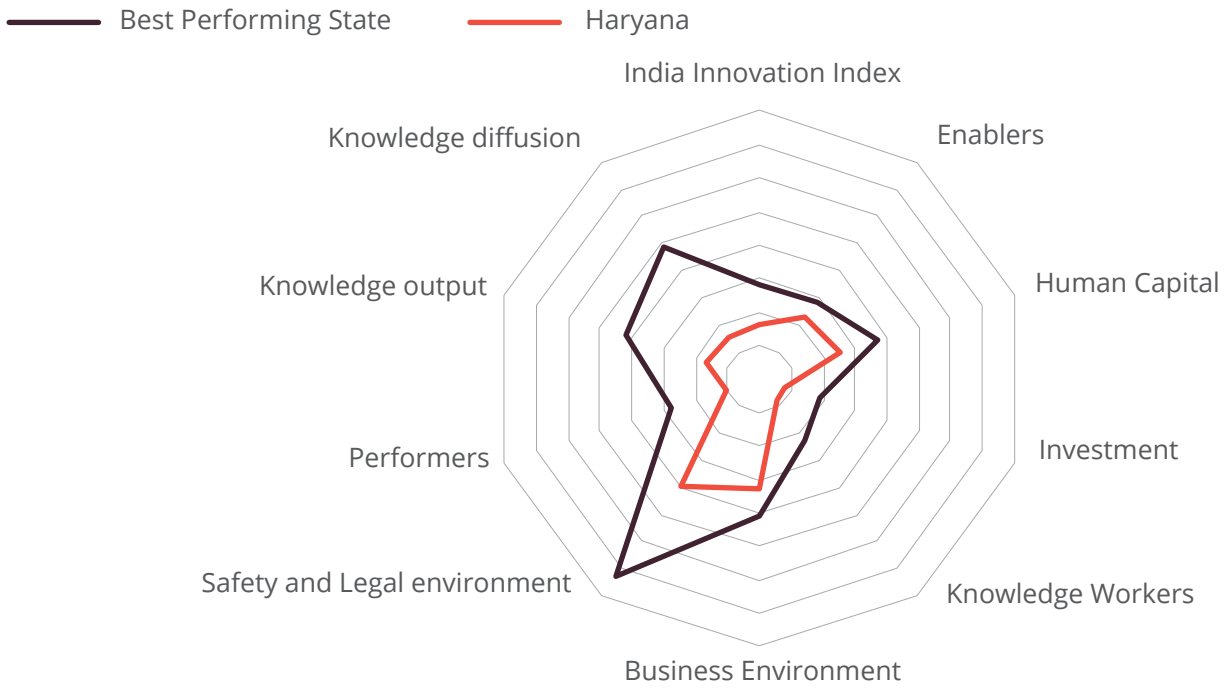
₹ 195660



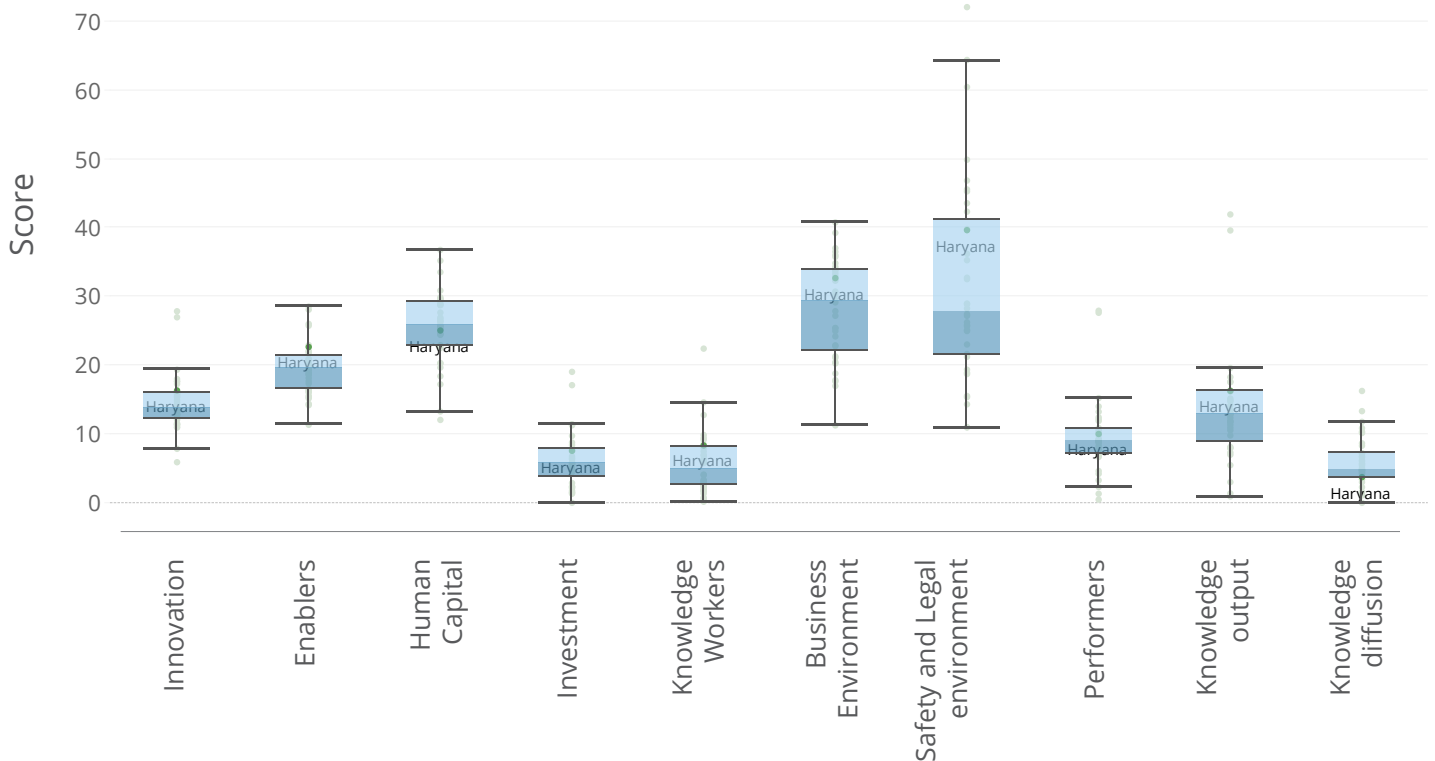
Scores



Country Comparison



Relative Performance



India Innovation Index **16.35** ●Performers **10.02** ●Enablers **22.68** ●**Human Capital** ● **25.08**

| | |
|---|---------|
| Schools with functional computer facility | ● 52.21 |
| NAS scores | ● 62.72 |
| Expenditure on school education as a (% of GSDP) | ● 10.20 |
| NER in school education | ● 53.44 |
| Accolades in STEM Activities | ● 20.50 |
| Pupil-Teacher ratio: Primary & Secondary | ● 74.72 |
| Percentage of schools having (ATL) labs | ● 1.46 |
| Secondary school level completion rate | ● 95.66 |
| Enrolment in PhD | ● 11.30 |
| Enrolment in engineering and technology | ● 19.87 |
| Percentage of Colleges connected through NMEICT | ● 54.55 |
| Higher education institutions- NAAC grade A and above | ● 3.06 |
| Enrolment in vocational education | ● 4.43 |
| Pupil Teacher Ratio- Higher Education | ● 64.77 |
| Tertiary mobility | ● 0.00 |

Investment ● **7.57**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 10.68 |
| Expenditure on R&D | ● 1.50 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 1.17 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 2.74 |
| Venture capital deals | ● 29.08 |

Knowledge Worker ● **8.35**

| | |
|--|---------|
| Knowledge intensive employment | ● 2.53 |
| Females employed with advanced degrees | ● 6.17 |
| NGOs involved in knowledge intensive areas | ● 2.19 |
| No. of private R&D units | ● 36.05 |
| No. of R&D Institutions funded | ● 14.32 |
| Skill development training | ● 2.87 |

Knowledge Output ● **16.29**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 17.63 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 78.05 |
| GSDP per capita growth rate | ● 16.48 |
| New Businesses | ● 30.17 |
| Startups | ● 14.91 |
| Industrial design filed | ● 4.50 |
| Patent filed (per unit of GSDP) | ● 14.56 |
| Trade mark filed | ● 17.83 |

Business Environment ● **32.70**

| | |
|--|----------|
| Ease of Doing Business score | ● 15.25 |
| Cluster strength | ● 42.02 |
| Common facility centre | ● 9.62 |
| Domestic credit to private sector as a (% of GDP) | ● 20.07 |
| Bank accounts | ● 0.74 |
| Gross capital formation as a (% of GVA) | ● 40.10 |
| Incubators | ● 1.89 |
| Micro finance institutions (MUDRA) | ● 97.00 |
| Bank accounts with Aadhar seeding | ● 86.01 |
| Share of manufacturing and services as a (% of GSDP) | ● 67.03 |
| Internet subscribers | ● 5.61 |
| Online services transaction | ● 15.62 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 33.17 |
| Subsidies or benefits transferred through DBT | ● 49.55 |

Safety and Legal Environment ● **39.68**

| | |
|---|---------|
| IT/IP related Acts | ● 87.73 |
| Cyber cells | ● 30.02 |
| Social Media Monitoring Cells | ● 24.02 |
| Pendency rate | ● 99.47 |
| Charge sheeting Rate | ● 51.18 |
| Pendency Percentage- Corruption cases investigation | ● 8.20 |
| Rate of Cognizable Crime | ● 63.59 |
| Police personnel | ● 6.73 |

Knowledge Diffusion ● **3.74**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 10.58 |
| GIs registered | ● 0.03 |
| Handlooms sales as a (% of GSDP) | ● 0.59 |
| High and medium high tech manufacturing entities | ● 0.53 |
| High-tech exports | ● 19.14 |
| Software exports | ● 7.59 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Kerala, Madhya Pradesh, Delhi, Telangana, Andhra Pradesh, Rajasthan, Punjab, Odisha, Bihar, West Bengal

NE and Hill states

Himachal Pradesh

Category Rank

5



Efficiency Ratio

0.519

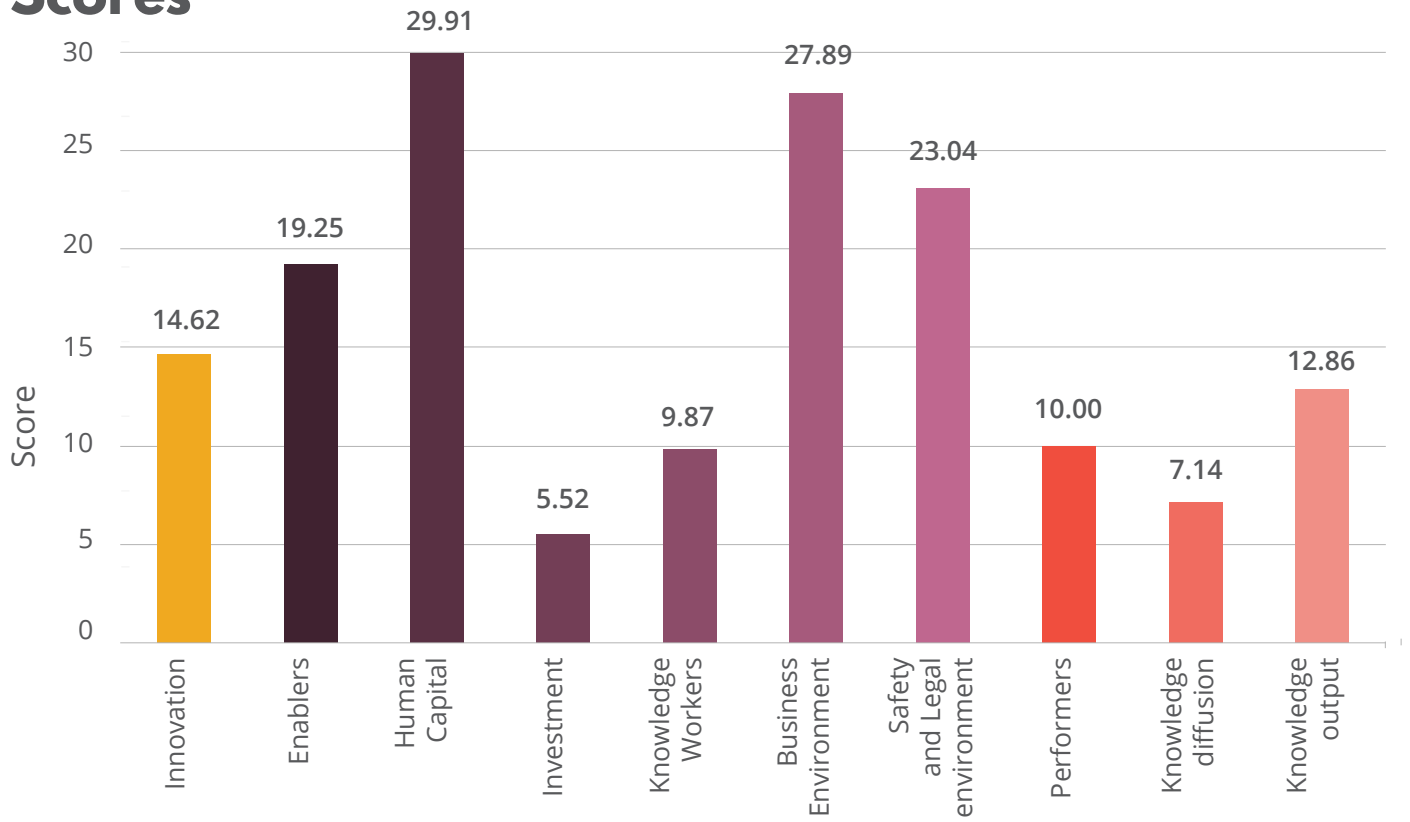


GSDP per Capita
(2019-20)

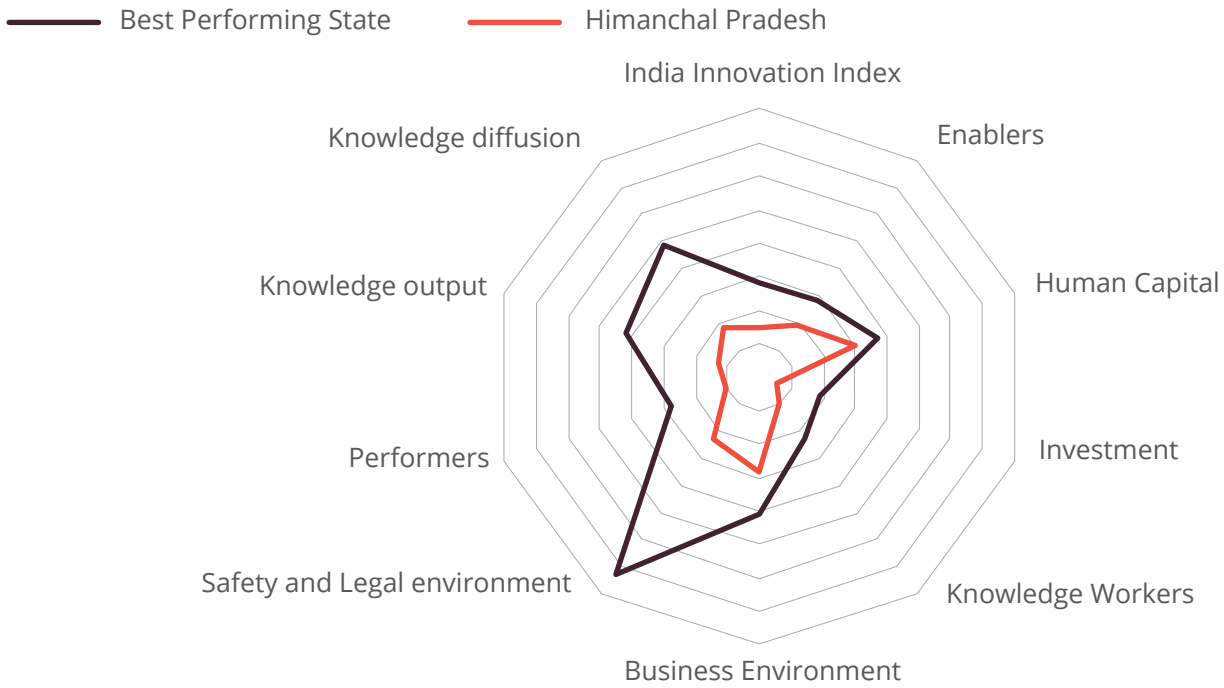
₹ 166895



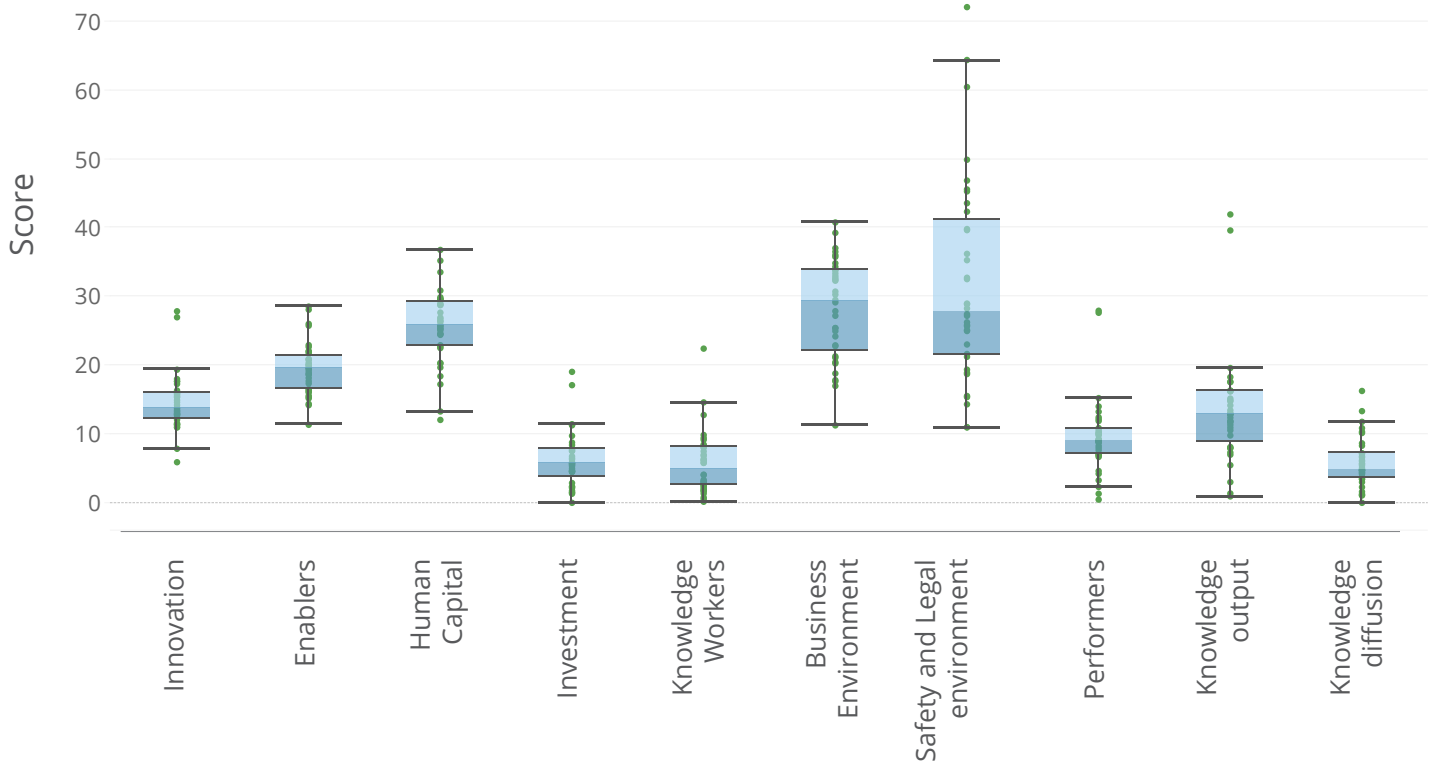
Scores



Country Comparison



Relative Performance



India Innovation Index **14.62** ●Performers **10.00** ●Enablers **19.25** ●**Human Capital** ● **29.91**

| | |
|---|---------|
| Schools with functional computer facility | ● 33.20 |
| NAS scores | ● 62.42 |
| Expenditure on school education as a (% of GSDP) | ● 20.46 |
| NER in school education | ● 75.00 |
| Accolades in STEM Activities | ● 66.53 |
| Pupil-Teacher ratio: Primary & Secondary | ● 84.90 |
| Percentage of schools having (ATL) labs | ● 0.33 |
| Secondary school level completion rate | ● 99.52 |
| Enrolment in PhD | ● 19.28 |
| Enrolment in engineering and technology | ● 7.71 |
| Percentage of Colleges connected through NMEICT | ● 57.32 |
| Higher education institutions- NAAC grade A and above | ● 1.01 |
| Enrolment in vocational education | ● 4.62 |
| Pupil Teacher Ratio- Higher Education | ● 59.37 |
| Tertiary mobility | ● 9.97 |

Business Environment ● **27.89**

| | |
|--|---------|
| Ease of Doing Business score | ● 32.82 |
| Cluster strength | ● 0.00 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of GDP) | ● 9.26 |
| Bank accounts | ● 0.69 |
| Gross capital formation as a (% of GVA) | ● 21.31 |
| Incubators | ● 0.82 |
| Micro finance institutions (MUDRA) | ● 92.64 |
| Bank accounts with Aadhar seeding | ● 87.99 |
| Share of manufacturing and services as a (% of GSDP) | ● 71.70 |
| Internet subscribers | ● 6.94 |
| Online services transaction | ● 12.25 |
| Villages in state with internet connectivity | ● 97.86 |
| Services offered online by state government | ● 37.64 |
| Subsidies or benefits transferred through DBT | ● 41.35 |

Investment ● **5.52**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 26.36 |
| Expenditure on R&D | ● 2.99 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 1.50 |
| NIRF ranking of top 5 universities | ● 15.68 |
| FDI inflow as a percentage of state GDP | ● 0.21 |
| Venture capital deals | ● 0.00 |

Safety and Legal Environment ● **23.04**

| | |
|---|---------|
| IT/IP related Acts | ● 92.64 |
| Cyber cells | ● 3.70 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 97.24 |
| Charge sheeting Rate | ● 12.77 |
| Pendency Percentage- Corruption cases investigation | ● 4.30 |
| Rate of Cognizable Crime | ● 84.51 |
| Police personnel | ● 10.63 |

Knowledge Worker ● **9.87**

| | |
|--|---------|
| Knowledge intensive employment | ● 2.39 |
| Females employed with advanced degrees | ● 3.38 |
| NGOs involved in knowledge intensive areas | ● 2.72 |
| No. of private R&D units | ● 7.78 |
| No. of R&D Institutions funded | ● 66.67 |
| Skill development training | ● 0.00 |

Knowledge Diffusion ● **7.14**

| | |
|--|----------|
| Citation Score | ● 53.09 |
| Circulation | ● 6.91 |
| GIs registered | ● 0.10 |
| Handlooms sales as a (% of GSDP) | ● 1.47 |
| High and medium high tech manufacturing entities | ● 0.08 |
| High-tech exports | ● 100.00 |
| Software exports | ● 0.01 |

Knowledge Output ● **12.86**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 11.84 |
| Publication | ● 34.42 |
| Environment clearance approved | ● 69.99 |
| GSDP per capita growth rate | ● 21.98 |
| New Businesses | ● 11.48 |
| Startups | ● 6.14 |
| Industrial design filed | ● 2.26 |
| Patent filed (per unit of GSDP) | ● 14.04 |
| Trade mark filed | ● 5.10 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Jammu and Kashmir, Ladakh, Lakshadweep, Dadra and Nagar Haveli, Goa, Uttarakhand, Tripura, Chandigarh, Meghalaya, Puducherry

UT and city states

Jammu and Kashmir

Category Rank

6



Efficiency Ratio

0.478

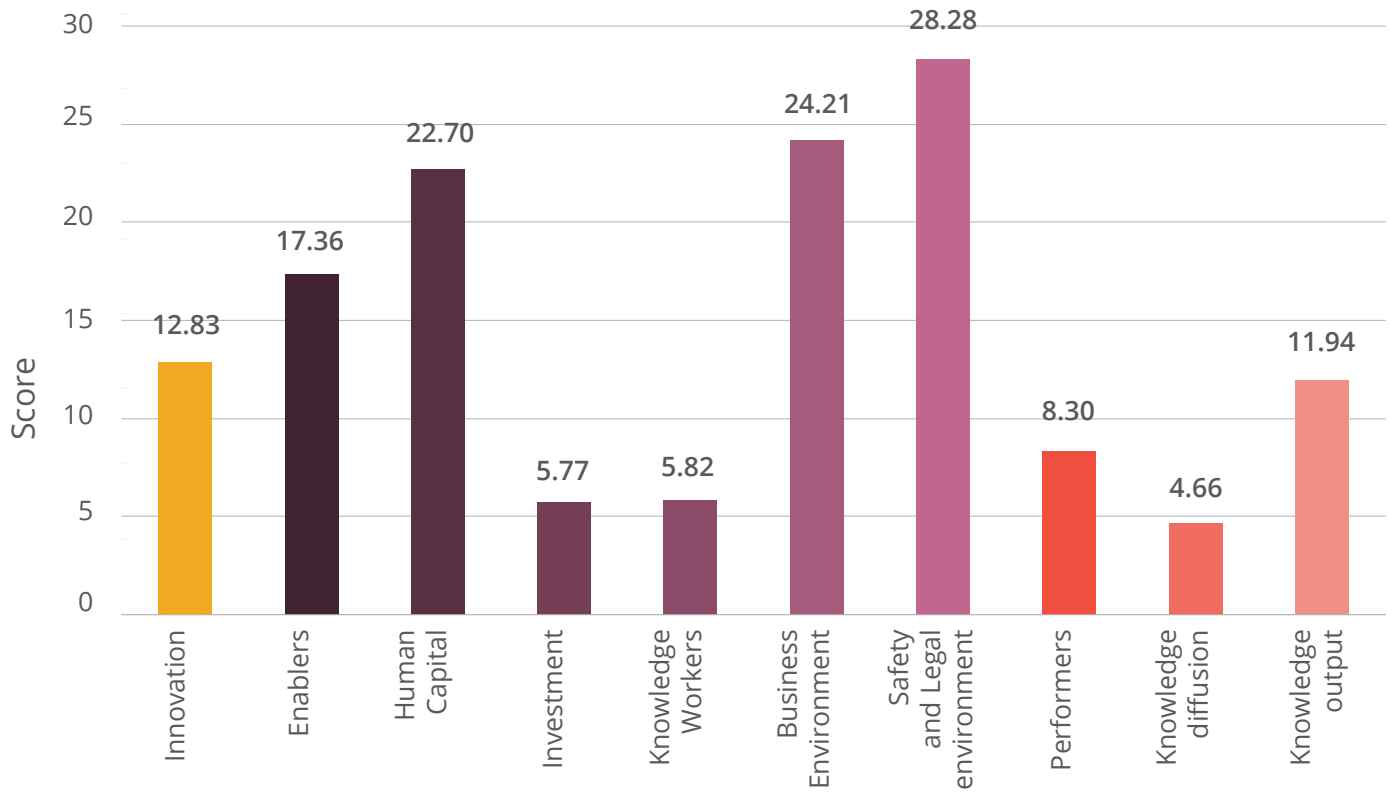


GSDP per Capita
(2019-20)

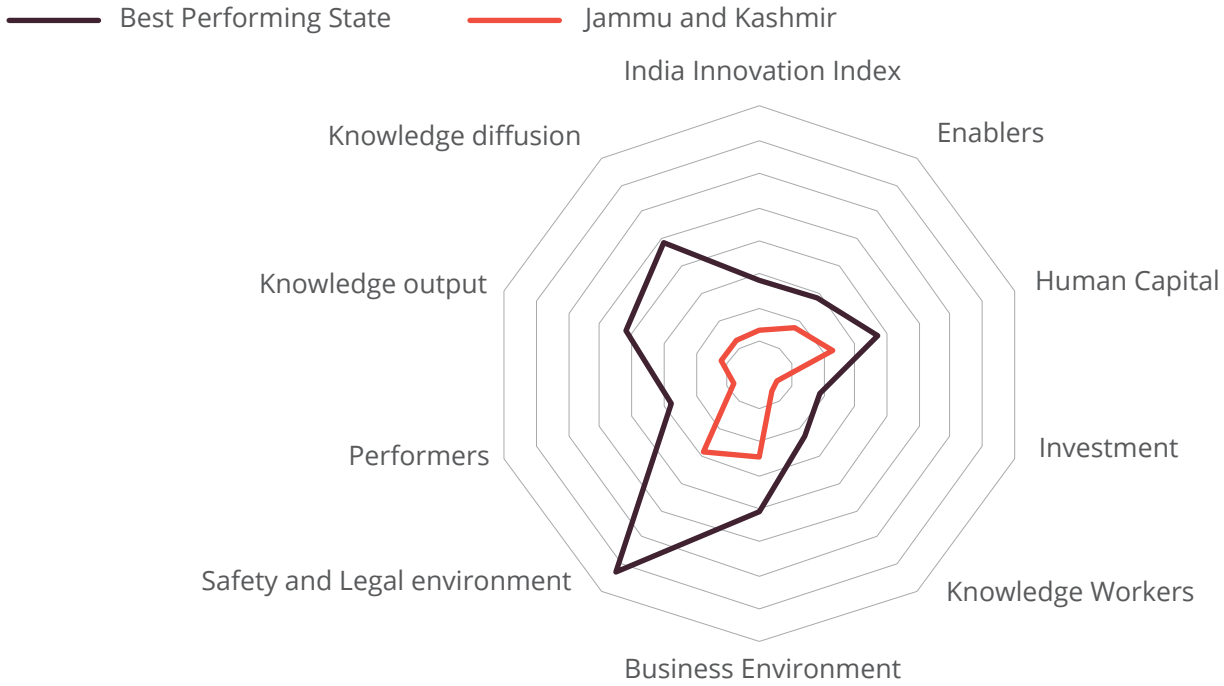
₹ 85219



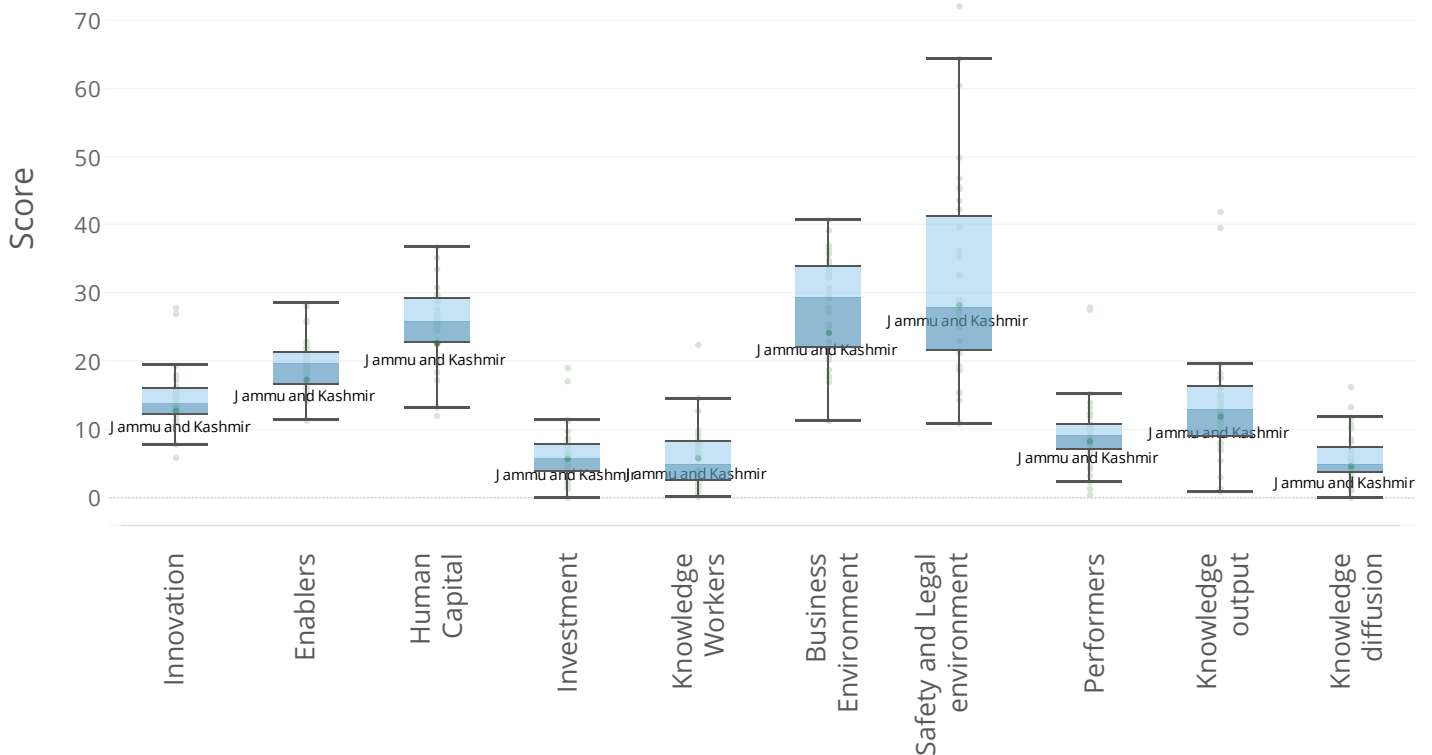
Scores



Country Comparison



Relative Performance



India Innovation Index **12.83** ●Performers **8.30** ●Enablers **17.36** ●**Human Capital** ● **22.70**

| | |
|---|---------|
| Schools with functional computer facility | ● 23.68 |
| NAS scores | ● 54.34 |
| Expenditure on school education as a (% of GSDP) | ● 22.94 |
| NER in school education | ● 19.38 |
| Accolades in STEM Activities | ● 40.76 |
| Pupil-Teacher ratio: Primary & Secondary | ● 82.63 |
| Percentage of schools having (ATL) labs | ● 0.16 |
| Secondary school level completion rate | ● 90.00 |
| Enrolment in PhD | ● 21.77 |
| Enrolment in engineering and technology | ● 6.60 |
| Percentage of Colleges connected through NMEICT | ● 31.00 |
| Higher education institutions- NAAC grade A and above | ● 2.71 |
| Enrolment in vocational education | ● 6.48 |
| Pupil Teacher Ratio- Higher Education | ● 44.98 |
| Tertiary mobility | ● 0.00 |

Investment ● **5.77**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 13.73 |
| Expenditure on R&D | ● 5.46 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 4.19 |
| NIRF ranking of top 5 universities | ● 29.72 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **5.82**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.54 |
| Females employed with advanced degrees | ● 6.71 |
| NGOs involved in knowledge intensive areas | ● 6.47 |
| No. of private R&D units | ● 0.22 |
| No. of R&D Institutions funded | ● 30.20 |
| Skill development training | ● 0.00 |

Knowledge Output ● **11.94**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 19.08 |
| Publication | ● 16.69 |
| Environment clearance approved | ● 84.63 |
| GSDP per capita growth rate | ● 43.96 |
| New Businesses | ● 16.10 |
| Startups | ● 10.61 |
| Industrial design filed | ● 0.13 |
| Patent filed (per unit of GSDP) | ● 4.60 |
| Trade mark filed | ● 2.66 |

Business Environment ● **24.21**

| | |
|--|---------|
| Ease of Doing Business score | ● 5.76 |
| Cluster strength | ● 18.01 |
| Common facility centre | ● 6.58 |
| Domestic credit to private sector as a (% of GDP) | ● 18.06 |
| Bank accounts | ● 0.33 |
| Gross capital formation as a (% of GVA) | ● 18.03 |
| Incubators | ● 0.67 |
| Micro finance institutions (MUDRA) | ● 97.70 |
| Bank accounts with Aadhar seeding | ● 80.67 |
| Share of manufacturing and services as a (% of GSDP) | ● 63.04 |
| Internet subscribers | ● 3.89 |
| Online services transaction | ● 4.29 |
| Villages in state with internet connectivity | ● 97.48 |
| Services offered online by state government | ● 18.50 |
| Subsidies or benefits transferred through DBT | ● 16.18 |

Safety and Legal Environment ● **28.28**

| | |
|---|---------|
| IT/IP related Acts | ● 95.71 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 2.02 |
| Pendency rate | ● 84.80 |
| Charge sheeting Rate | ● 16.48 |
| Pendency Percentage- Corruption cases investigation | ● 2.10 |
| Rate of Cognizable Crime | ● 88.02 |
| Police personnel | ● 34.56 |

Knowledge Diffusion ● **4.66**

| | |
|--|---------|
| Citation Score | ● 37.02 |
| Circulation | ● 10.03 |
| GIs registered | ● 0.12 |
| Handlooms sales as a (% of GSDP) | ● 2.61 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 37.66 |
| Software exports | ● 0.01 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Ladakh, Himachal Pradesh, Lakshadweep, Dadra and Nagar Haveli, Goa, Tripura, Uttarakhand, Chandigarh, Meghalaya, Puducherry

Major states

Jharkhand

Category Rank

10



Efficiency Ratio

0.599

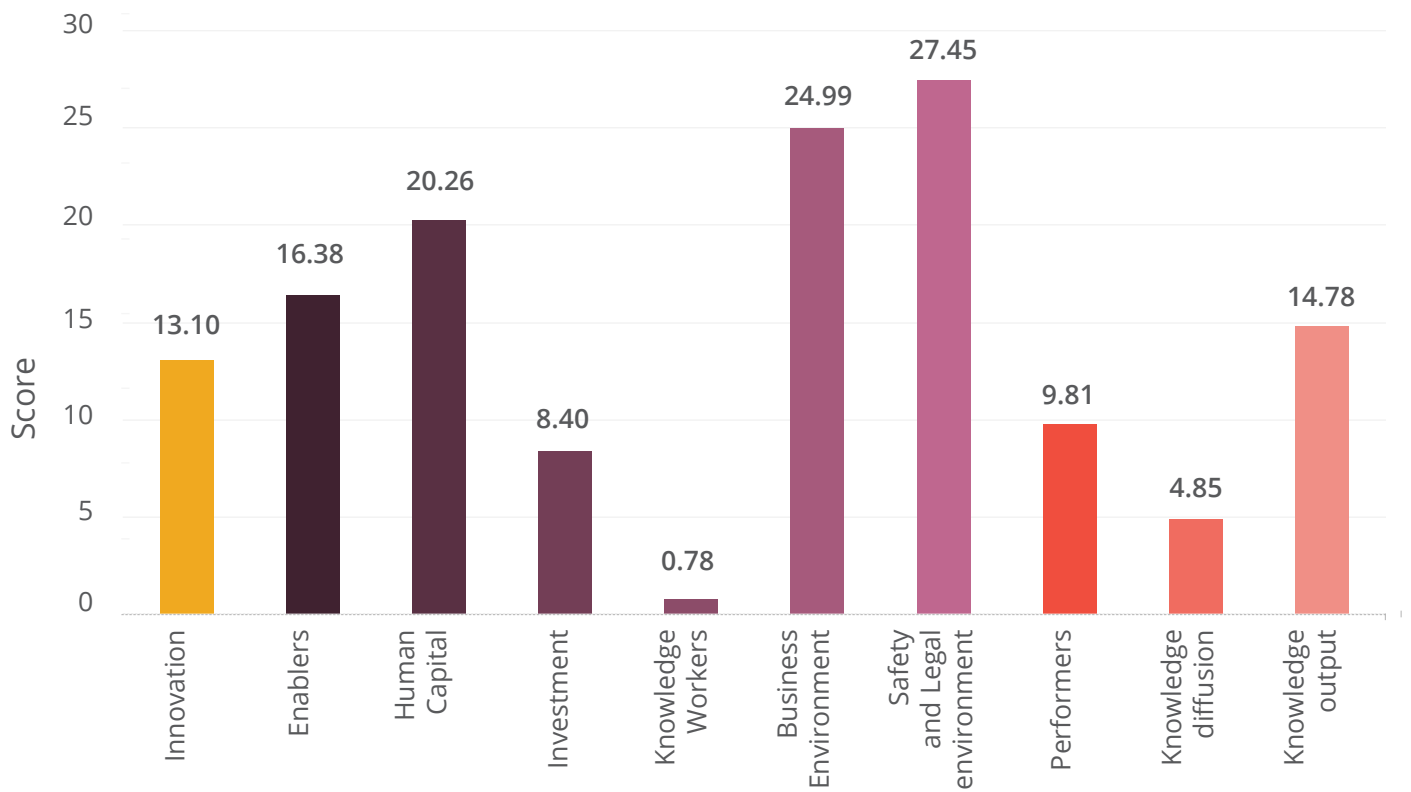


GSDP per Capita
(2019-20)

₹ 63210

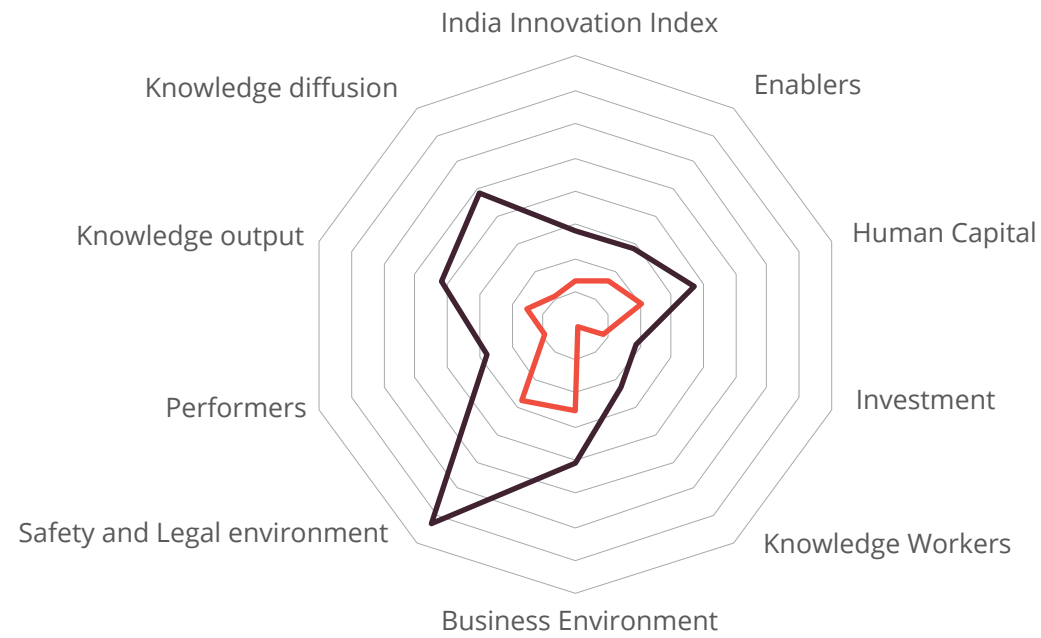


Scores

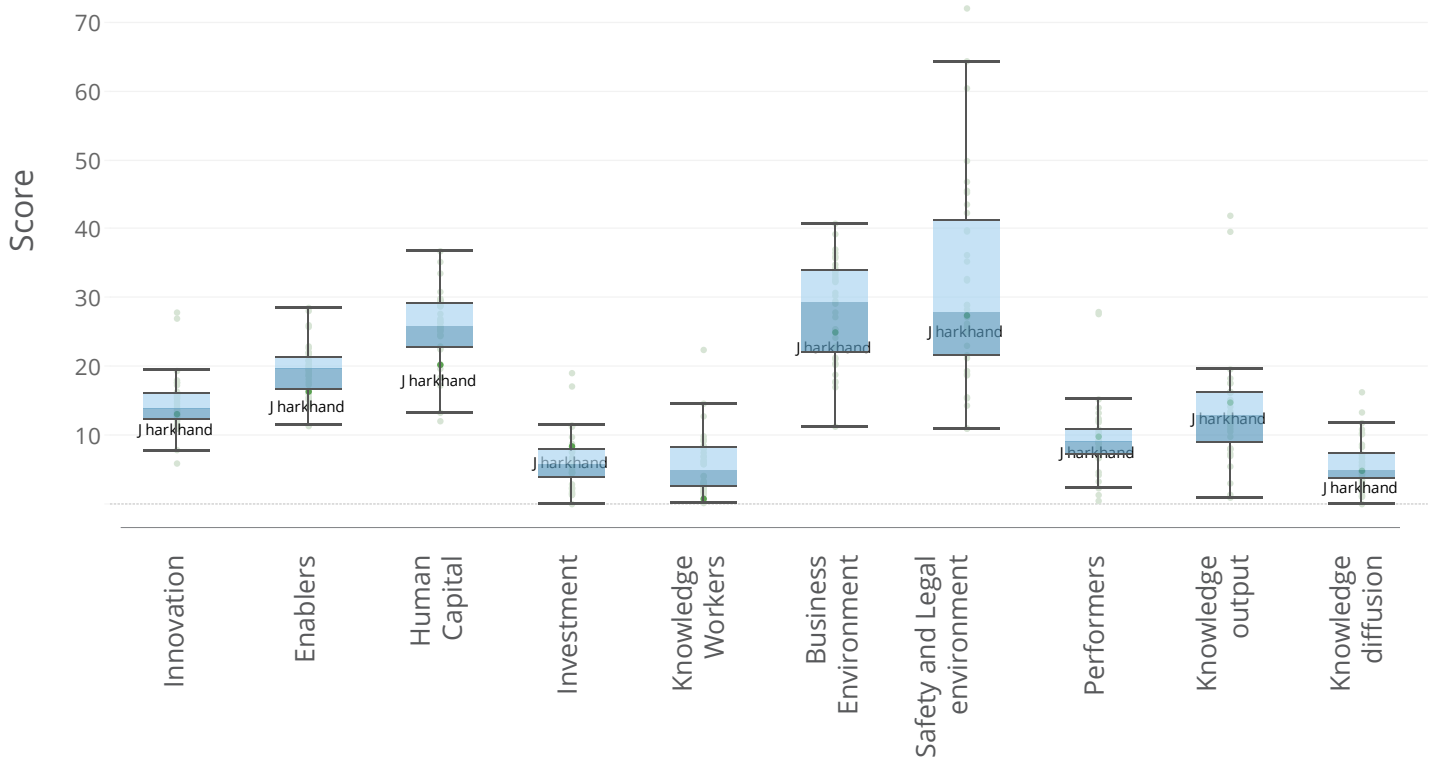


Country Comparison

— Best Performing State — Jharkhand



Relative Performance



India Innovation Index **13.10** ●Performers **9.81** ●Enablers **16.38** ●**Human Capital** ● **20.26**

| | |
|---|---------|
| Schools with functional computer facility | ● 73.39 |
| NAS scores | ● 62.45 |
| Expenditure on school education as a (% of GSDP) | ● 17.10 |
| NER in school education | ● 77.81 |
| Accolades in STEM Activities | ● 21.82 |
| Pupil-Teacher ratio: Primary & Secondary | ● 58.36 |
| Percentage of schools having (ATL) labs | ● 0.15 |
| Secondary school level completion rate | ● 80.10 |
| Enrolment in PhD | ● 7.28 |
| Enrolment in engineering and technology | ● 6.09 |
| Percentage of Colleges connected through NMEICT | ● 42.94 |
| Higher education institutions- NAAC grade A and above | ● 0.84 |
| Enrolment in vocational education | ● 1.41 |
| Pupil Teacher Ratio- Higher Education | ● 0.00 |
| Tertiary mobility | ● 10.05 |

Investment ● **8.40**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 7.49 |
| Expenditure on R&D | ● 0.97 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 6.80 |
| NIRF ranking of top 5 universities | ● 33.74 |
| FDI inflow as a percentage of state GDP | ● 16.35 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **0.78**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.65 |
| Females employed with advanced degrees | ● 1.26 |
| NGOs involved in knowledge intensive areas | ● 2.09 |
| No. of private R&D units | ● 0.60 |
| No. of R&D Institutions funded | ● 1.91 |
| Skill development training | ● 0.00 |

Knowledge Output ● **14.78**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 9.66 |
| Publication | ● 56.18 |
| Environment clearance approved | ● 76.96 |
| GSDP per capita growth rate | ● 21.98 |
| New Businesses | ● 16.73 |
| Startups | ● 8.57 |
| Industrial design filed | ● 0.12 |
| Patent filed (per unit of GSDP) | ● 9.45 |
| Trade mark filed | ● 1.09 |

Business Environment ● **24.99**

| | |
|--|---------|
| Ease of Doing Business score | ● 34.03 |
| Cluster strength | ● 12.00 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 10.54 |
| Bank accounts | ● 0.45 |
| Gross capital formation as a (% of GVA) | ● 6.15 |
| Incubators | ● 0.43 |
| Micro finance institutions (MUDRA) | ● 97.53 |
| Bank accounts with Aadhar seeding | ● 90.76 |
| Share of manufacturing and services as a (% of GSDP) | ● 65.11 |
| Internet subscribers | ● 2.89 |
| Online services transaction | ● 3.54 |
| Villages in state with internet connectivity | ● 96.12 |
| Services offered online by state government | ● 26.48 |
| Subsidies or benefits transferred through DBT | ● 24.94 |

Safety and Legal Environment ● **27.45**

| | |
|---|---------|
| IT/IP related Acts | ● 84.05 |
| Cyber cells | ● 11.54 |
| Social Media Monitoring Cells | ● 4.61 |
| Pendency rate | ● 77.94 |
| Charge sheeting Rate | ● 31.31 |
| Pendency Percentage- Corruption cases investigation | ● 3.80 |
| Rate of Cognizable Crime | ● 90.78 |
| Police personnel | ● 6.21 |

Knowledge Diffusion ● **4.85**

| | |
|--|---------|
| Citation Score | ● 89.79 |
| Circulation | ● 1.95 |
| GIs registered | ● 0.00 |
| Handlooms sales as a (% of GSDP) | ● 1.19 |
| High and medium high tech manufacturing entities | ● 0.04 |
| High-tech exports | ● 6.84 |
| Software exports | ● 0.01 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Assam, Chhattisgarh, Uttarakhand, Dadra and Nagar Haveli, Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Bihar, Odisha

Major states

Karnataka

Category Rank

1



Efficiency Ratio

0.637

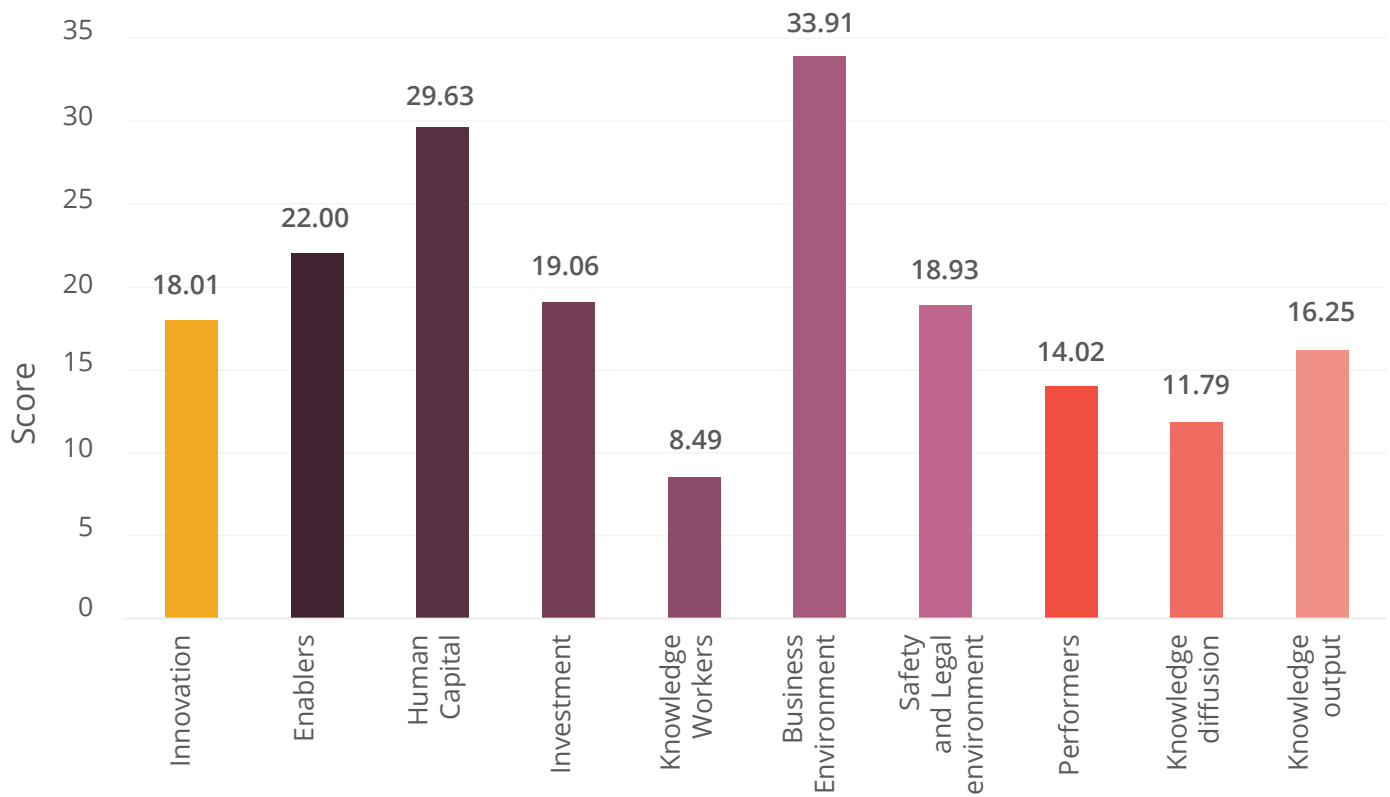


GSDP per Capita
(2019-20)

₹ 173028

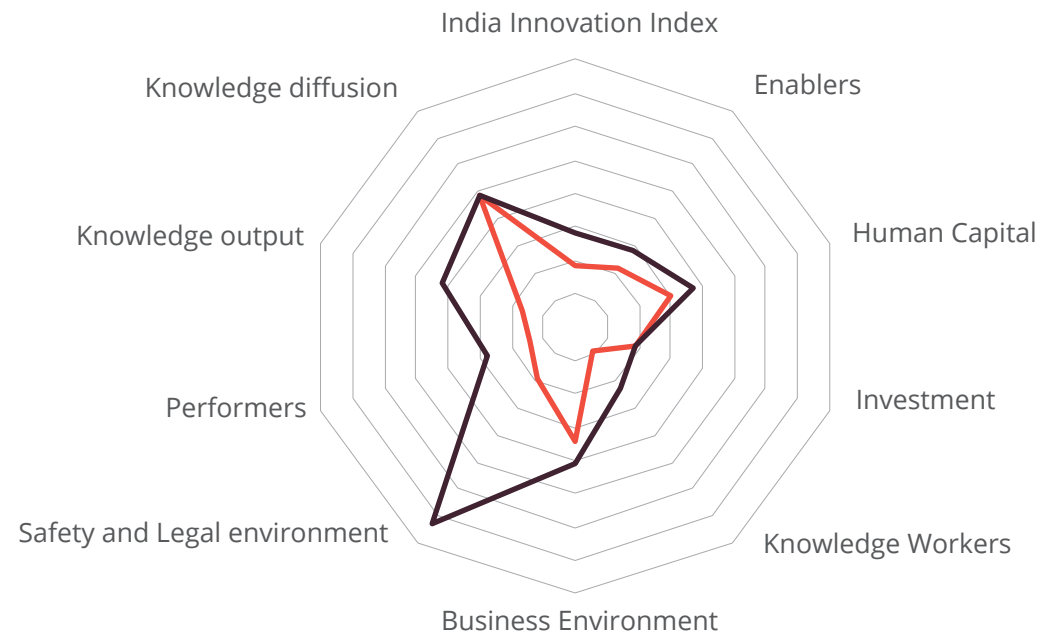


Scores

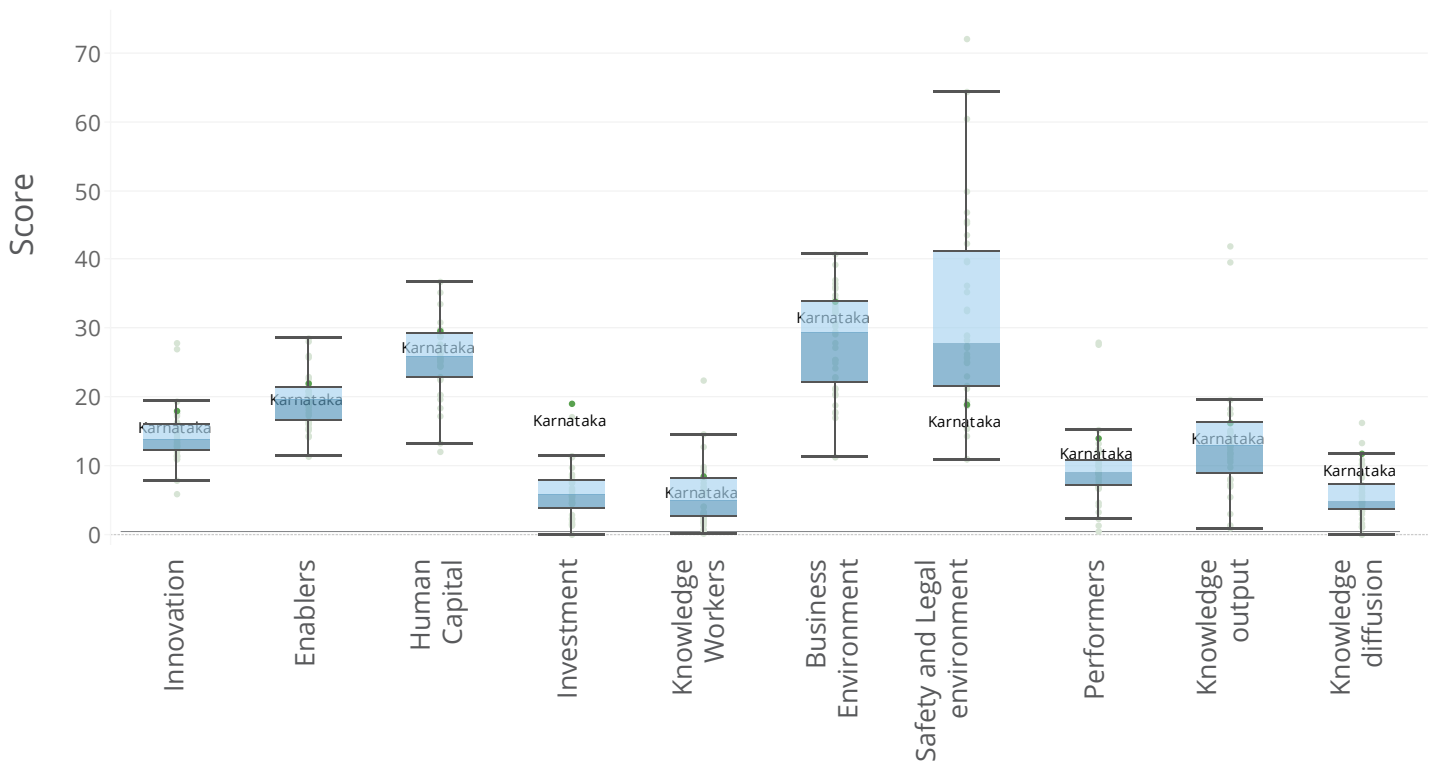


Country Comparison

— Best Performing State — Karnataka



Relative Performance



India Innovation Index **18.01** ●Performers **14.02** ●Enablers **22.00** ●**Human Capital** ● **29.63**

| | |
|---|----------|
| Schools with functional computer facility | ● 46.34 |
| NAS scores | ● 75.05 |
| Expenditure on school education as a (% of GSDP) | ● 9.19 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 58.11 |
| Pupil-Teacher ratio: Primary & Secondary | ● 74.28 |
| Percentage of schools having (ATL) labs | ● 0.75 |
| Secondary school level completion rate | ● 95.48 |
| Enrolment in PhD | ● 16.85 |
| Enrolment in engineering and technology | ● 27.82 |
| Percentage of Colleges connected through NMEICT | ● 30.48 |
| Higher education institutions- NAAC grade A and above | ● 3.79 |
| Enrolment in vocational education | ● 1.08 |
| Pupil Teacher Ratio- Higher Education | ● 80.96 |
| Tertiary mobility | ● 4.21 |

Investment ● **19.06**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 4.12 |
| Expenditure on R&D | ● 0.82 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 3.55 |
| NIRF ranking of top 5 universities | ● 66.00 |
| FDI inflow as a percentage of state GDP | ● 7.93 |
| Venture capital deals | ● 66.67 |

Knowledge Worker ● **8.49**

| | |
|--|---------|
| Knowledge intensive employment | ● 1.50 |
| Females employed with advanced degrees | ● 2.40 |
| NGOs involved in knowledge intensive areas | ● 3.30 |
| No. of private R&D units | ● 22.60 |
| No. of R&D Institutions funded | ● 34.61 |
| Skill development training | ● 4.74 |

Knowledge Output ● **16.25**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 2.17 |
| Publication | ● 38.50 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 49.45 |
| New Businesses | ● 23.92 |
| Startups | ● 15.32 |
| Industrial design filed | ● 1.74 |
| Patent filed (per unit of GSDP) | ● 23.74 |
| Trade mark filed | ● 7.78 |

Business Environment ● **33.91**

| | |
|--|---------|
| Ease of Doing Business score | ● 9.01 |
| Cluster strength | ● 49.22 |
| Common facility centre | ● 12.17 |
| Domestic credit to private sector as a (% of SDP) | ● 23.78 |
| Bank accounts | ● 0.71 |
| Gross capital formation as a (% of GVA) | ● 40.96 |
| Incubators | ● 2.86 |
| Micro finance institutions (MUDRA) | ● 98.40 |
| Bank accounts with Aadhar seeding | ● 86.42 |
| Share of manufacturing and services as a (% of GSDP) | ● 75.03 |
| Internet subscribers | ● 4.74 |
| Online services transaction | ● 13.99 |
| Villages in state with internet connectivity | ● 98.39 |
| Services offered online by state government | ● 54.23 |
| Subsidies or benefits transferred through DBT | ● 23.26 |

Safety and Legal Environment ● **18.93**

| | |
|---|---------|
| IT/IP related Acts | ● 0.00 |
| Cyber cells | ● 0.42 |
| Social Media Monitoring Cells | ● 12.87 |
| Pendency rate | ● 83.36 |
| Charge sheeting Rate | ● 18.85 |
| Pendency Percentage- Corruption cases investigation | ● 10.50 |
| Rate of Cognizable Crime | ● 87.52 |
| Police personnel | ● 3.22 |

Knowledge Diffusion ● **11.79**

| | |
|--|---------|
| Citation Score | ● 66.20 |
| Circulation | ● 13.42 |
| GIs registered | ● 0.62 |
| Handlooms sales as a (% of GSDP) | ● 0.45 |
| High and medium high tech manufacturing entities | ● 0.19 |
| High-tech exports | ● 37.29 |
| Software exports | ● 26.03 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Uttar Pradesh, Gujarat, Tamil Nadu, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala

Major states

Kerala

Category Rank

8



Efficiency Ratio

0.505

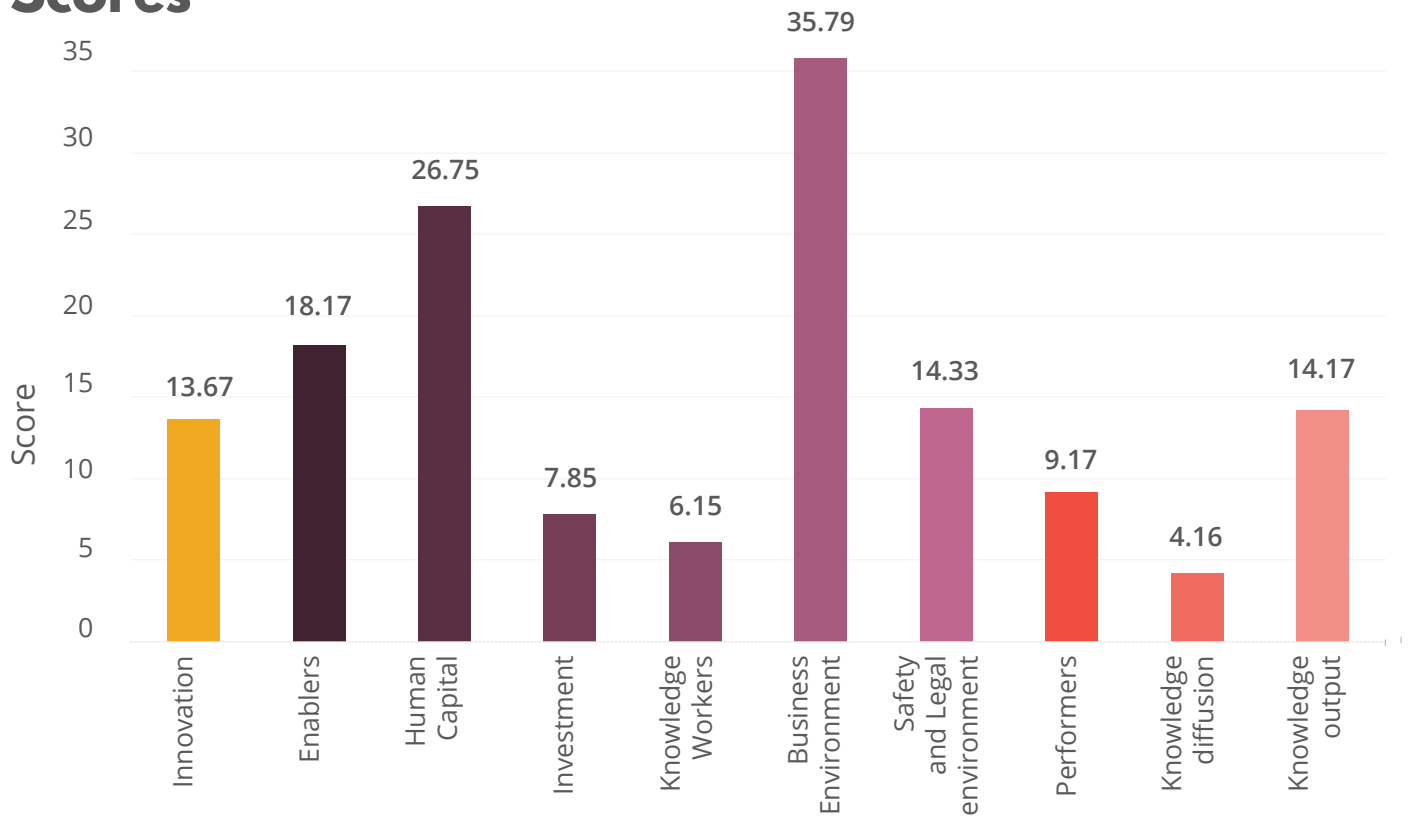


GSDP per Capita
(2019-20)

₹ 163216

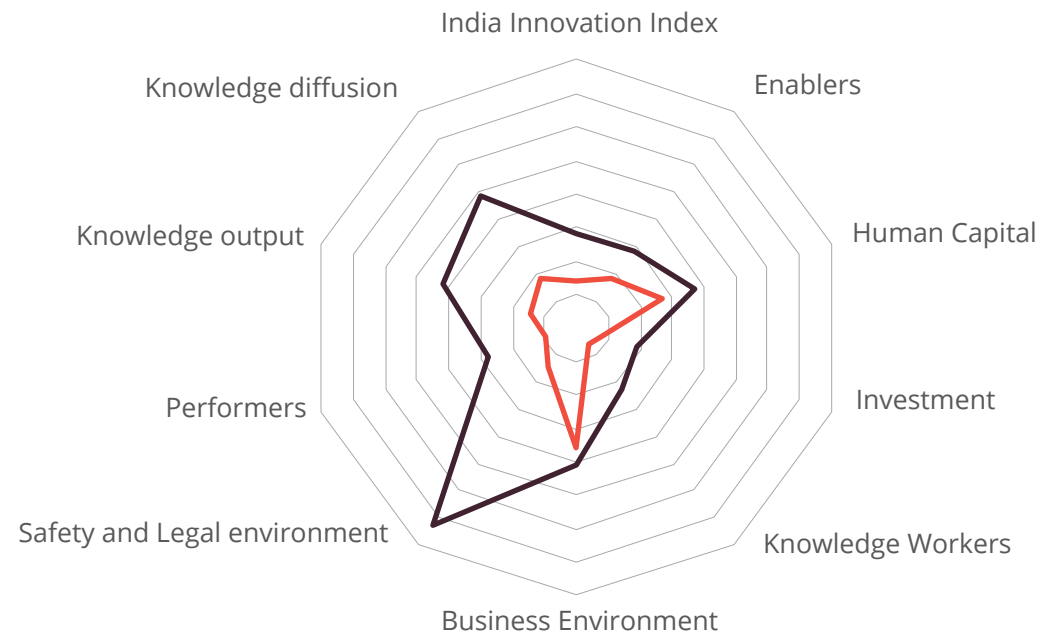


Scores

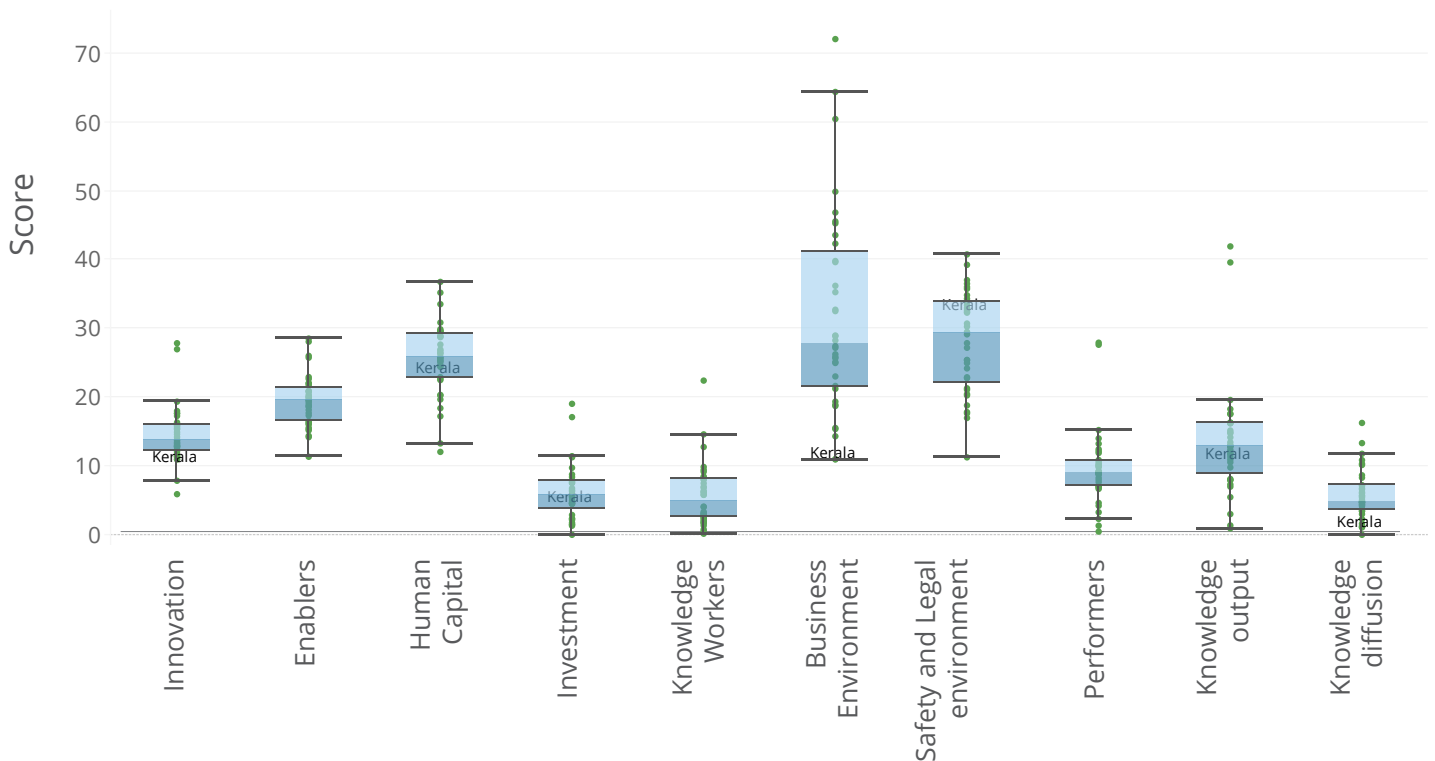


Country Comparison

— Best Performing State — Kerala



Relative Performance



India Innovation Index **13.67** ●Performers **9.17** ●Enablers **18.17** ●**Human Capital** ● **26.75**

| | |
|---|----------|
| Schools with functional computer facility | ● 92.44 |
| NAS scores | ● 69.17 |
| Expenditure on school education as a (% of GSDP) | ● 16.20 |
| NER in school education | ● 70.63 |
| Accolades in STEM Activities | ● 11.47 |
| Pupil-Teacher ratio: Primary & Secondary | ● 70.57 |
| Percentage of schools having (ATL) labs | ● 0.84 |
| Secondary school level completion rate | ● 100.00 |
| Enrolment in PhD | ● 15.45 |
| Enrolment in engineering and technology | ● 34.64 |
| Percentage of Colleges connected through NMEICT | ● 13.51 |
| Higher education institutions- NAAC grade A and above | ● 8.28 |
| Enrolment in vocational education | ● 0.92 |
| Pupil Teacher Ratio- Higher Education | ● 75.57 |
| Tertiary mobility | ● 0.08 |

Investment ● **7.85**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 5.82 |
| Expenditure on R&D | ● 0.61 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 8.44 |
| NIRF ranking of top 5 universities | ● 48.73 |
| FDI inflow as a percentage of state GDP | ● 0.21 |
| Venture capital deals | ● 12.98 |

Knowledge Worker ● **6.15**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.60 |
| Females employed with advanced degrees | ● 5.96 |
| NGOs involved in knowledge intensive areas | ● 1.21 |
| No. of private R&D units | ● 6.99 |
| No. of R&D Institutions funded | ● 34.96 |
| Skill development training | ● 0.00 |

Knowledge Output ● **14.17**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 8.94 |
| Publication | ● 23.46 |
| Environment clearance approved | ● 88.52 |
| GSDP per capita growth rate | ● 0.00 |
| New Businesses | ● 28.95 |
| Startups | ● 10.46 |
| Industrial design filed | ● 0.91 |
| Patent filed (per unit of GSDP) | ● 7.73 |
| Trade mark filed | ● 8.04 |

Business Environment ● **35.79**

| | |
|--|----------|
| Ease of Doing Business score | ● 1.28 |
| Cluster strength | ● 43.22 |
| Common facility centre | ● 21.58 |
| Domestic credit to private sector as a (% of SDP) | ● 23.25 |
| Bank accounts | ● 0.66 |
| Gross capital formation as a (% of GVA) | ● 38.27 |
| Incubators | ● 2.36 |
| Micro finance institutions (MUDRA) | ● 98.31 |
| Bank accounts with Aadhar seeding | ● 87.62 |
| Share of manufacturing and services as a (% of GSDP) | ● 69.24 |
| Internet subscribers | ● 5.75 |
| Online services transaction | ● 60.99 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 43.70 |
| Subsidies or benefits transferred through DBT | ● 17.98 |

Safety and Legal Environment ● **14.33**

| | |
|---|---------|
| IT/IP related Acts | ● 93.87 |
| Cyber cells | ● 14.43 |
| Social Media Monitoring Cells | ● 0.76 |
| Pendency rate | ● 97.34 |
| Charge sheeting Rate | ● 2.27 |
| Pendency Percentage- Corruption cases investigation | ● 12.22 |
| Rate of Cognizable Crime | ● 13.29 |
| Police personnel | ● 4.94 |

Knowledge Diffusion ● **4.16**

| | |
|--|---------|
| Citation Score | ● 42.75 |
| Circulation | ● 14.18 |
| GIs registered | ● 0.43 |
| Handlooms sales as a (% of GSDP) | ● 0.46 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 3.24 |
| Software exports | ● 1.20 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Haryana, Madhya Pradesh, Delhi, Telangana, Andhra Pradesh, Rajasthan, Punjab, Odisha, Bihar, West Bengal

UT and city states

Ladakh

Category Rank

9



Efficiency Ratio

0.041

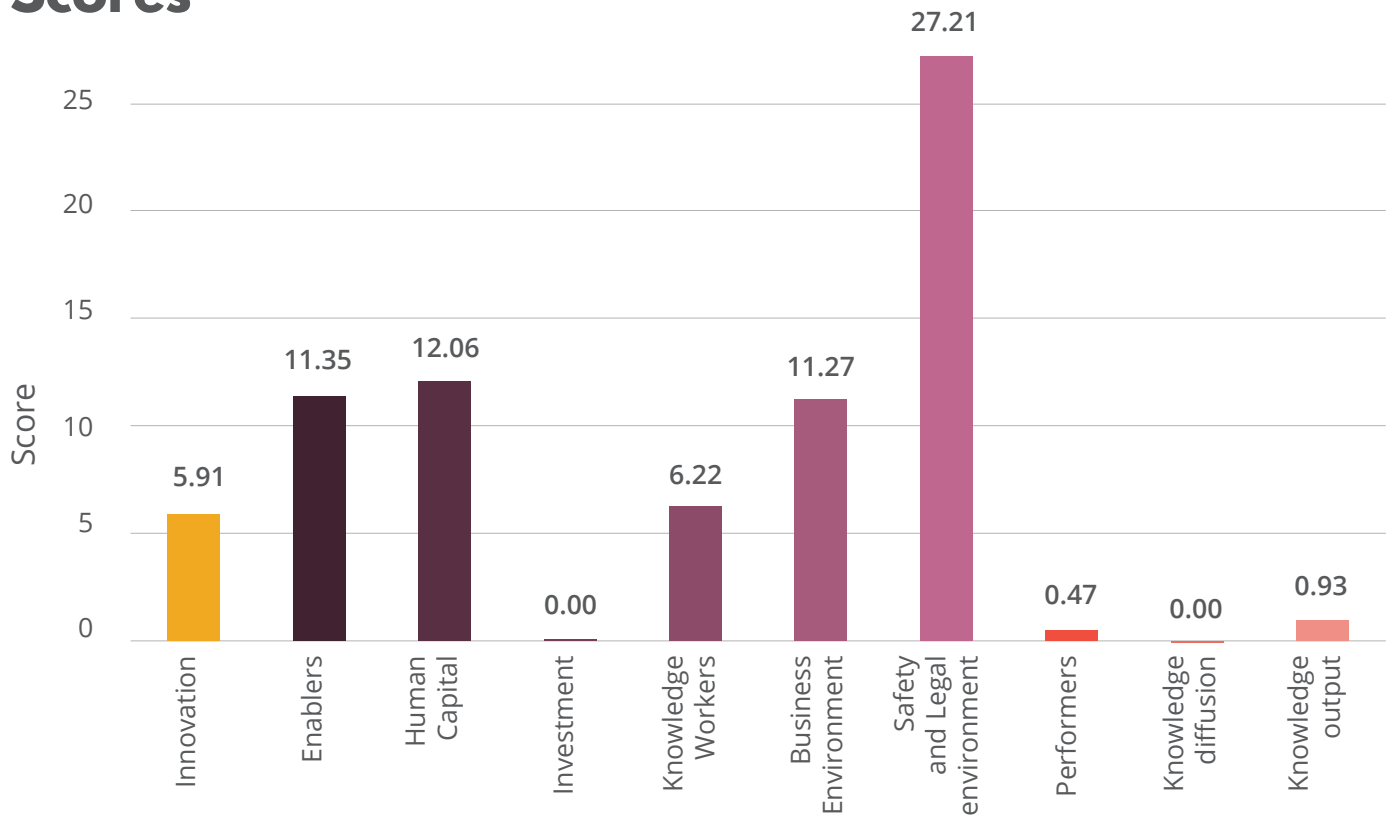


GSDP per Capita
(2019-20)

N.A

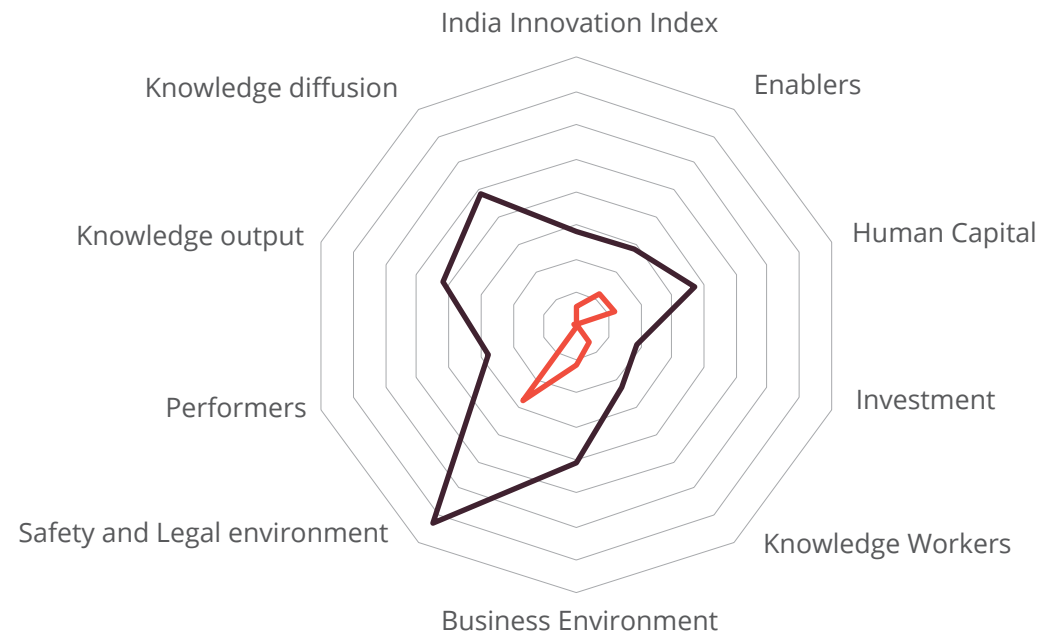


Scores

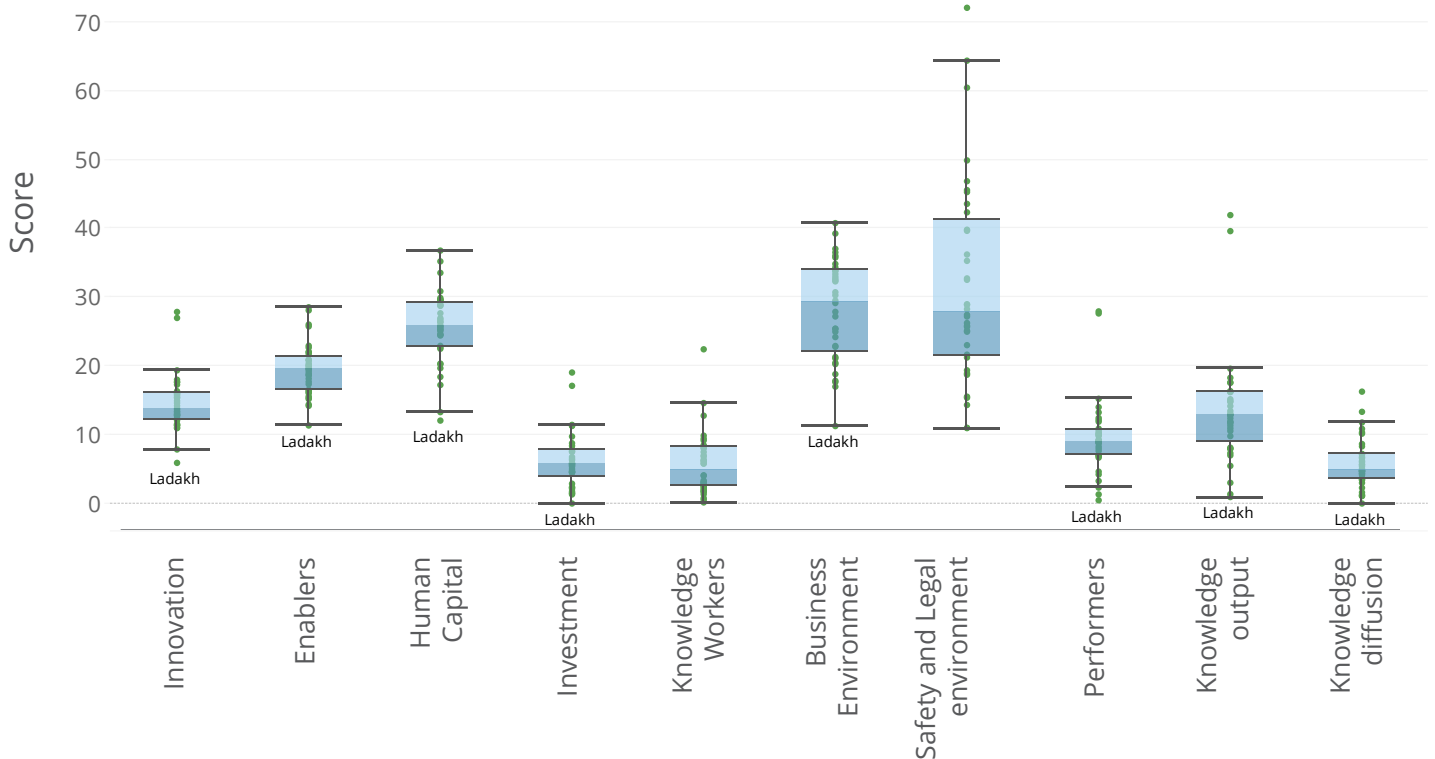


Country Comparison

— Best Performing State — Ladakh



Relative Performance



India Innovation Index **5.91** ●Performers **0.47** ●Enablers **11.35** ●**Human Capital** ● **12.06**

| | |
|---|---------|
| Schools with functional computer facility | ● 31.31 |
| NAS scores | ● 0.00 |
| Expenditure on school education as a (% of GSDP) | ● 0.00 |
| NER in school education | ● 0.00 |
| Accolades in STEM Activities | ● 0.00 |
| Pupil-Teacher ratio: Primary & Secondary | ● 89.58 |
| Percentage of schools having (ATL) labs | ● 0.00 |
| Secondary school level completion rate | ● 0.00 |
| Enrolment in PhD | ● 0.00 |
| Enrolment in engineering and technology | ● 0.00 |
| Percentage of Colleges connected through NMEICT | ● 0.00 |
| Higher education institutions- NAAC grade A and above | ● 0.00 |
| Enrolment in vocational education | ● 66.15 |
| Pupil Teacher Ratio- Higher Education | ● 80.96 |
| Tertiary mobility | ● 0.00 |

Investment ● **0.00**

| | |
|---|--------|
| Expenditure on higher and technical education | ● 0.00 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.00 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **6.22**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.00 |
| Females employed with advanced degrees | ● 0.00 |
| NGOs involved in knowledge intensive areas | ● 0.00 |
| No. of private R&D units | ● 0.00 |
| No. of R&D Institutions funded | ● 57.53 |
| Skill development training | ● 0.00 |

Knowledge Output ● **0.93**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 0.00 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 39.56 |
| New Businesses | ● 0.12 |
| Startups | ● 0.18 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 0.00 |
| Trade mark filed | ● 0.00 |

Business Environment ● **11.27**

| | |
|--|---------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 1.20 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 0.00 |
| Bank accounts | ● 0.60 |
| Gross capital formation as a (% of GVA) | ● 0.00 |
| Incubators | ● 0.00 |
| Micro finance institutions (MUDRA) | ● 97.88 |
| Bank accounts with Aadhar seeding | ● 81.10 |
| Share of manufacturing and services as a (% of GSDP) | ● 0.00 |
| Internet subscribers | ● 0.00 |
| Online services transaction | ● 0.00 |
| Villages in state with internet connectivity | ● 72.88 |
| Services offered online by state government | ● 0.00 |
| Subsidies or benefits transferred through DBT | ● 0.00 |

Safety and Legal Environment ● **27.21**

| | |
|---|----------|
| IT/IP related Acts | ● 100.00 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 96.81 |
| Charge sheeting Rate | ● 9.37 |
| Pendency Percentage- Corruption cases investigation | ● 0.00 |
| Rate of Cognizable Crime | ● 92.48 |
| Police personnel | ● 31.90 |

Knowledge Diffusion ● **0.00**

| | |
|--|--------|
| Citation Score | ● 0.00 |
| Circulation | ● 0.00 |
| GIs registered | ● 0.00 |
| Handlooms sales as a (% of GSDP) | ● 0.00 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 0.00 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Jammu and Kashmir, Himachal Pradesh, Lakshadweep, Dadra and Nagar Haveli, Goa, Tripura, Uttarakhand, Chandigarh, Meghalaya, Puducherry

UT and city states

Lakshadweep

Category Rank

8



Efficiency Ratio

0.092

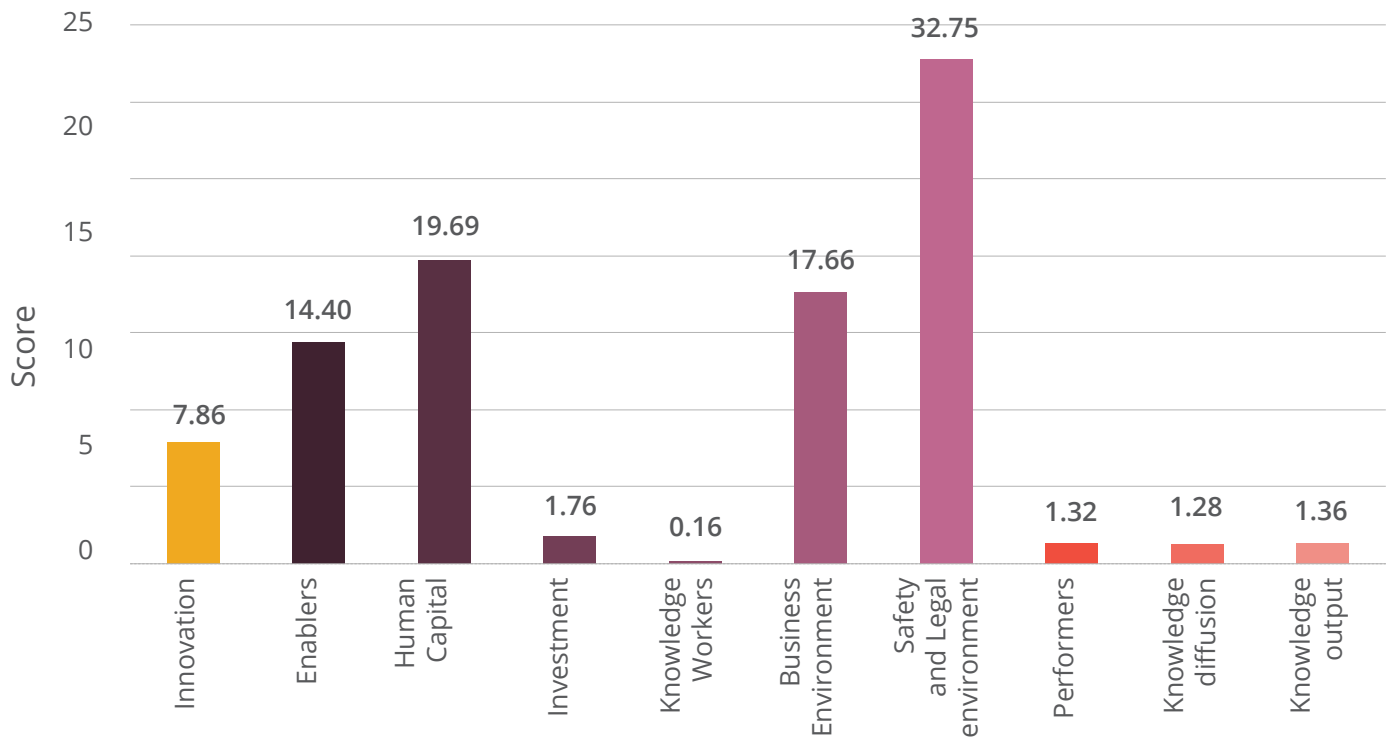


GSDP per Capita
(2019-20)

N.A

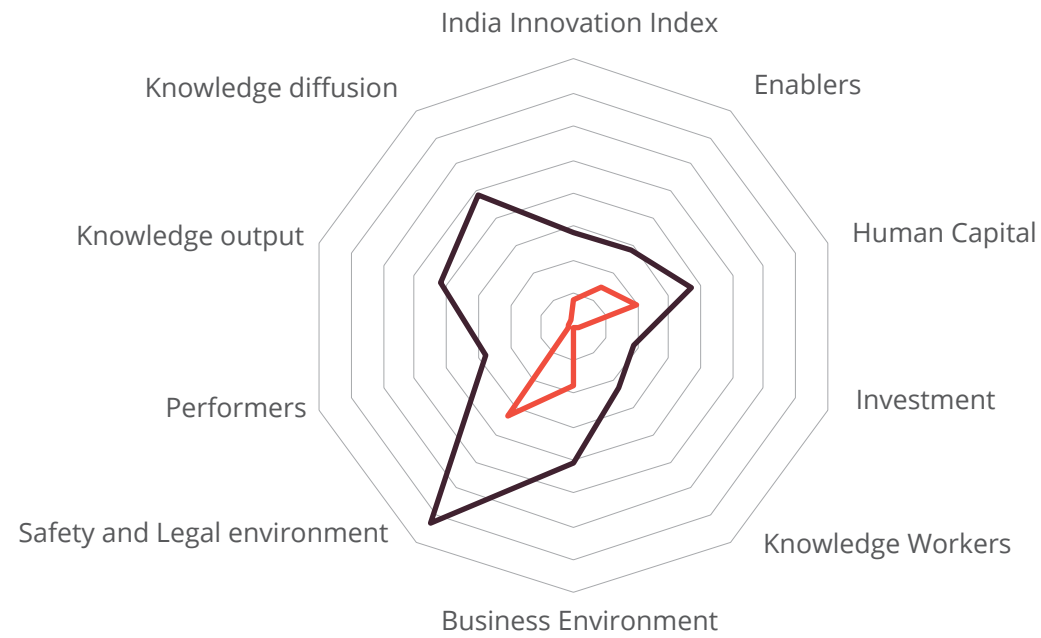


Scores

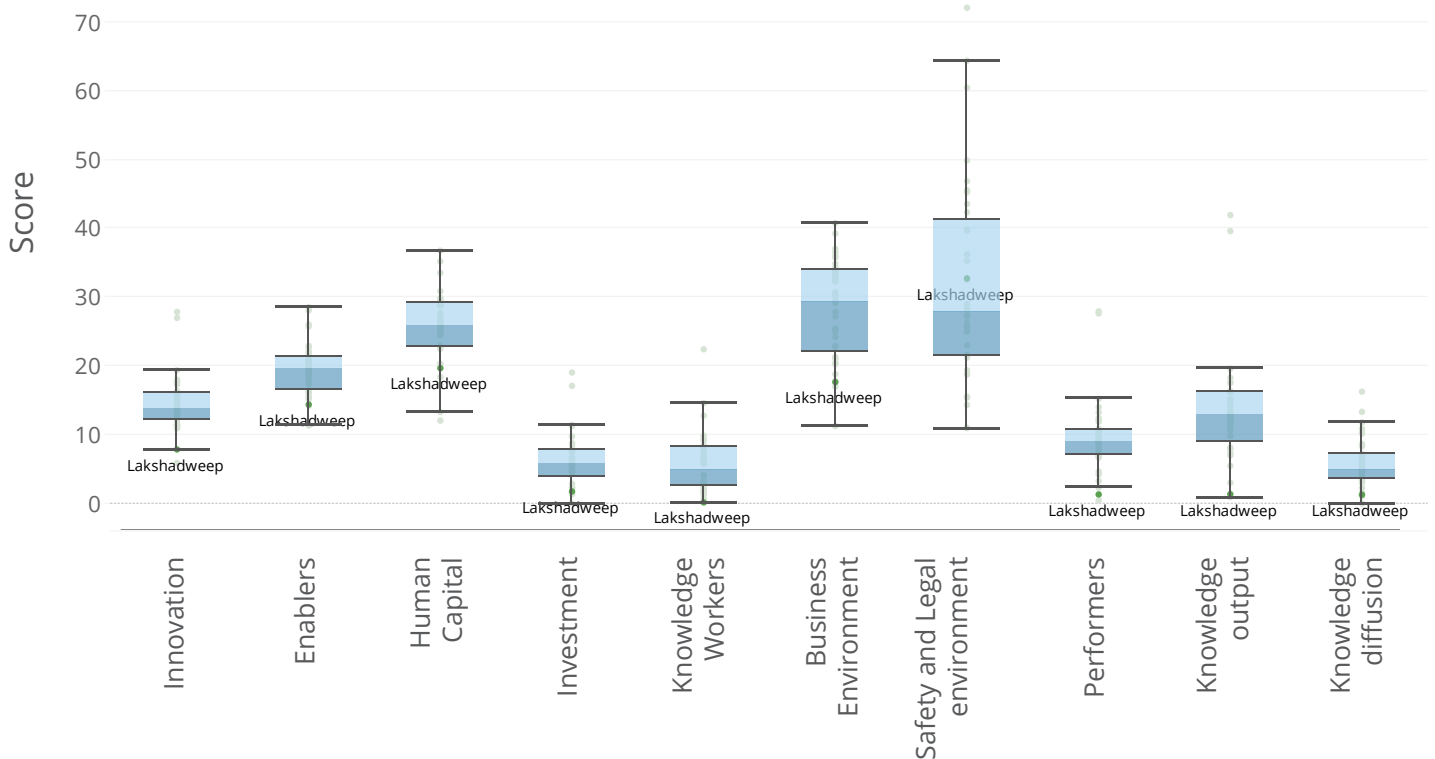


Country Comparison

— Best Performing State — Lakshadweep



Relative Performance



India Innovation Index **7.86** ●Performers **1.32** ●Enablers **14.40** ●**Human Capital** ● **19.69**

| | |
|---|---------|
| Schools with functional computer facility | ● 97.78 |
| NAS scores | ● 60.56 |
| Expenditure on school education as a (% of GSDP) | ● 0.00 |
| NER in school education | ● 23.75 |
| Accolades in STEM Activities | ● 17.70 |
| Pupil-Teacher ratio: Primary & Secondary | ● 90.11 |
| Percentage of schools having (ATL) labs | ● 0.00 |
| Secondary school level completion rate | ● 74.08 |
| Enrolment in PhD | ● 0.00 |
| Enrolment in engineering and technology | ● 0.00 |
| Percentage of Colleges connected through NMEICT | ● 10.91 |
| Higher education institutions- NAAC grade A and above | ● 0.00 |
| Enrolment in vocational education | ● 1.72 |
| Pupil Teacher Ratio- Higher Education | ● 86.36 |
| Tertiary mobility | ● 0.00 |

Investment ● **1.76**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 13.34 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.00 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **0.16**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.77 |
| Females employed with advanced degrees | ● 1.11 |
| NGOs involved in knowledge intensive areas | ● 0.00 |
| No. of private R&D units | ● 0.00 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 0.00 |

Knowledge Output ● **1.36**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 6.04 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 39.56 |
| New Businesses | ● 0.08 |
| Startups | ● 0.00 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 0.00 |
| Trade mark filed | ● 0.41 |

Business Environment ● **17.66**

| | |
|--|---------|
| Ease of Doing Business score | ● 15.36 |
| Cluster strength | ● 9.60 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 0.00 |
| Bank accounts | ● 0.51 |
| Gross capital formation as a (% of GVA) | ● 0.00 |
| Incubators | ● 0.00 |
| Micro finance institutions (MUDRA) | ● 74.10 |
| Bank accounts with Aadhar seeding | ● 87.67 |
| Share of manufacturing and services as a (% of GSDP) | ● 0.00 |
| Internet subscribers | ● 5.35 |
| Online services transaction | ● 46.93 |
| Villages in state with internet connectivity | ● 83.33 |
| Services offered online by state government | ● 4.78 |
| Subsidies or benefits transferred through DBT | ● 13.15 |

Safety and Legal Environment ● **32.75**

| | |
|---|----------|
| IT/IP related Acts | ● 82.21 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 75.92 |
| Charge sheeting Rate | ● 19.88 |
| Pendency Percentage- Corruption cases investigation | ● 100.00 |
| Rate of Cognizable Crime | ● 88.05 |
| Police personnel | ● 20.48 |

Knowledge Diffusion ● **1.28**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 11.10 |
| GIs registered | ● 0.00 |
| Handlooms sales as a (% of GSDP) | ● 0.00 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 0.00 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Dadra and Nagar Haveli, Himachal Pradesh, Jammu and Kashmir, Ladakh, Uttarakhand, Assam, Jharkhand, Chhattisgarh, Goa, Tripura

Major states

Madhya Pradesh

Category Rank

13



Efficiency Ratio

0.573

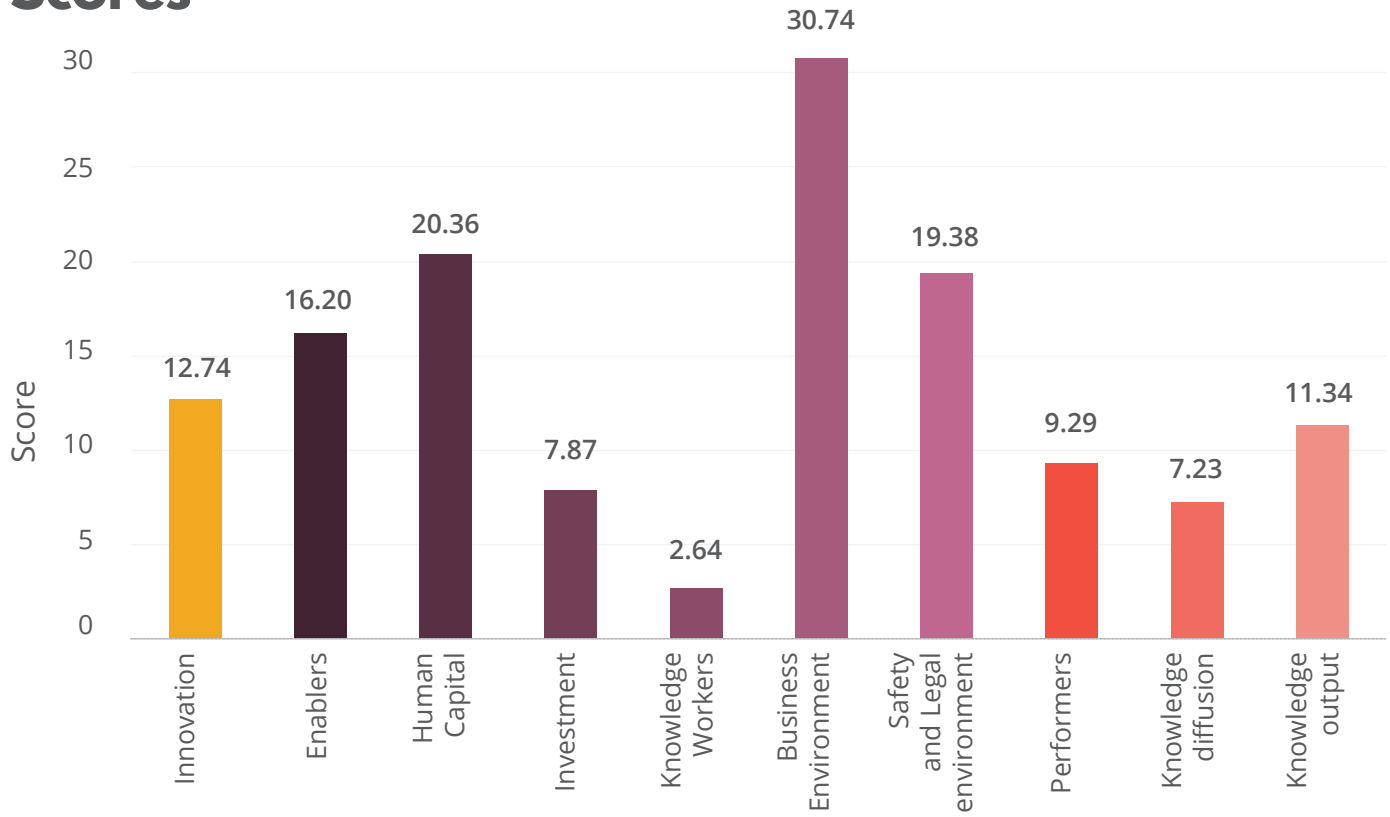


GSDP per Capita
(2019-20)

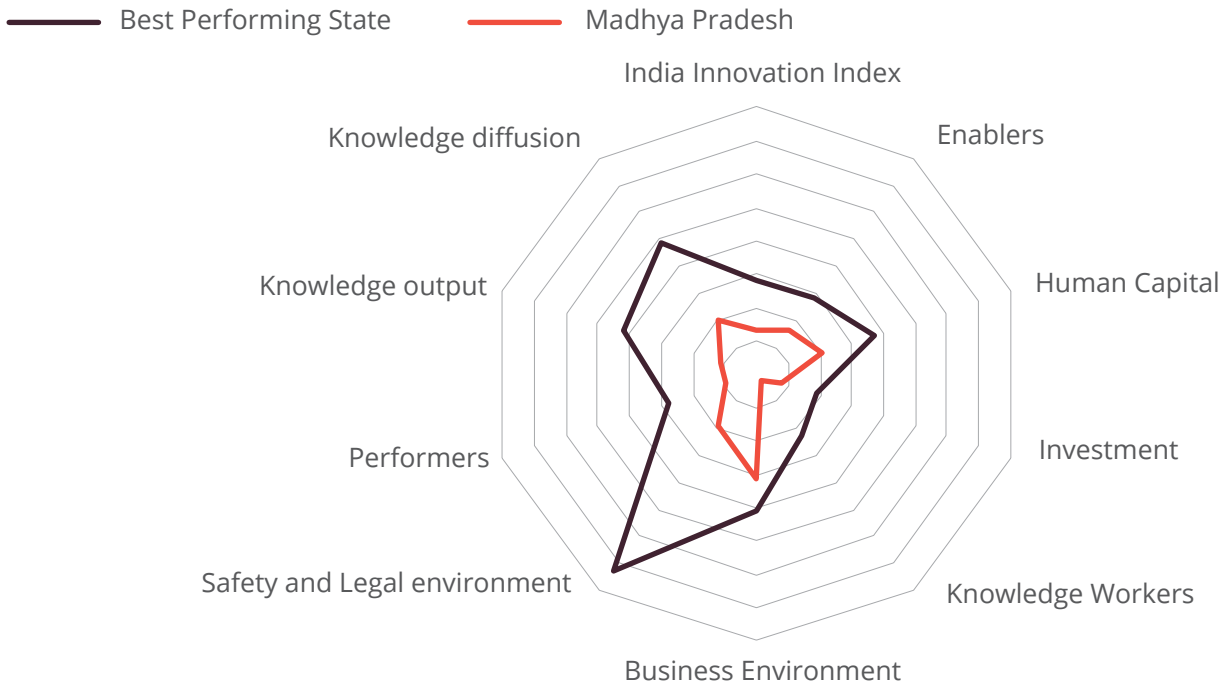
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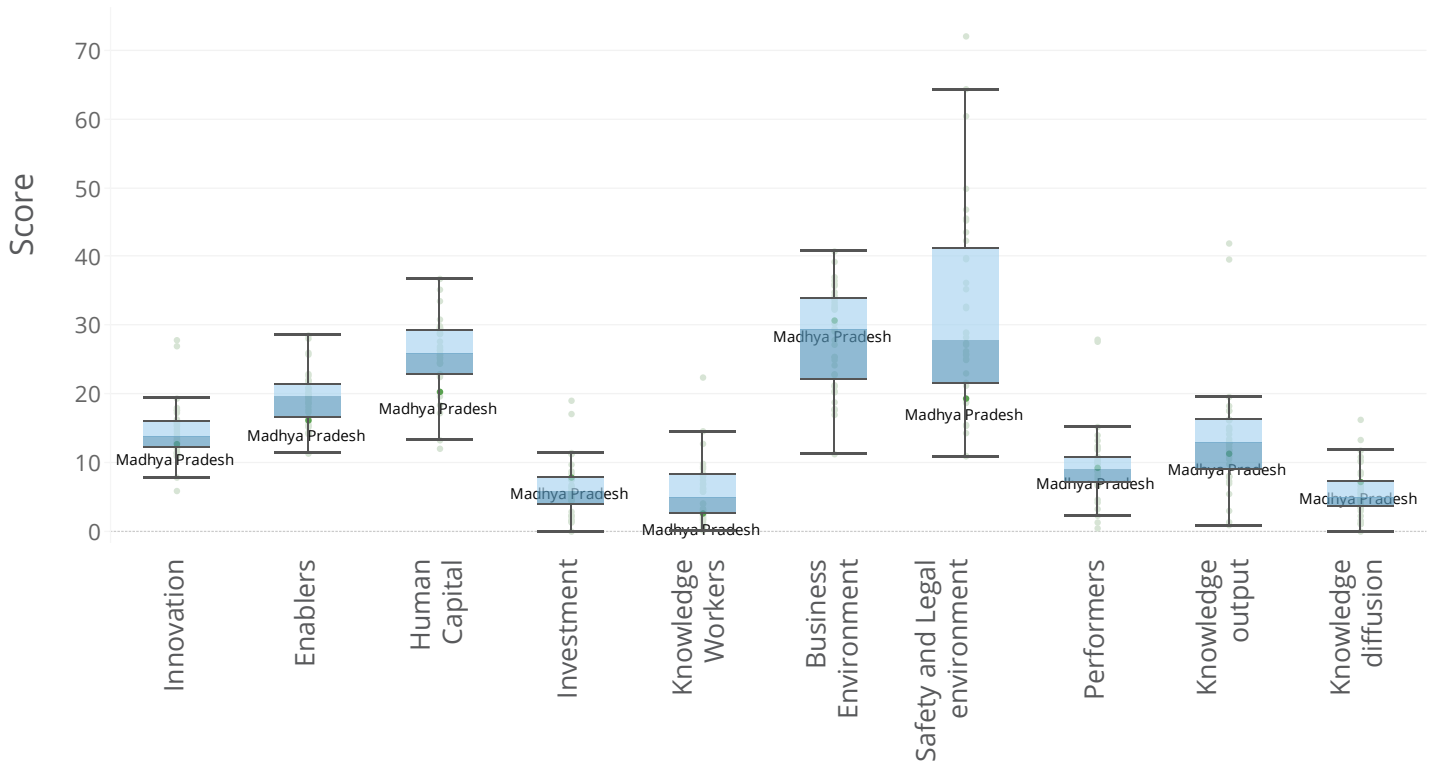
Scores



Country Comparison



Relative Performance



India Innovation Index **12.74** ●Performers **9.29** ●Enablers **16.20** ●**Human Capital** ● **20.36**

| | |
|---|---------|
| Schools with functional computer facility | ● 13.28 |
| NAS scores | ● 60.74 |
| Expenditure on school education as a (% of GSDP) | ● 19.08 |
| NER in school education | ● 39.69 |
| Accolades in STEM Activities | ● 40.62 |
| Pupil-Teacher ratio: Primary & Secondary | ● 64.35 |
| Percentage of schools having (ATL) labs | ● 0.26 |
| Secondary school level completion rate | ● 88.58 |
| Enrolment in PhD | ● 8.00 |
| Enrolment in engineering and technology | ● 15.66 |
| Percentage of Colleges connected through NMEICT | ● 20.95 |
| Higher education institutions- NAAC grade A and above | ● 2.31 |
| Enrolment in vocational education | ● 1.42 |
| Pupil Teacher Ratio- Higher Education | ● 46.78 |
| Tertiary mobility | ● 0.45 |

Investment ● **7.87**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 7.25 |
| Expenditure on R&D | ● 2.09 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 6.97 |
| NIRF ranking of top 5 universities | ● 35.96 |
| FDI inflow as a percentage of state GDP | ● 0.28 |
| Venture capital deals | ● 16.34 |

Knowledge Worker ● **2.64**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.48 |
| Females employed with advanced degrees | ● 2.60 |
| NGOs involved in knowledge intensive areas | ● 3.86 |
| No. of private R&D units | ● 2.56 |
| No. of R&D Institutions funded | ● 8.69 |
| Skill development training | ● 1.88 |

Knowledge Output ● **11.34**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 3.14 |
| Publication | ● 42.85 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 38.46 |
| New Businesses | ● 17.93 |
| Startups | ● 10.55 |
| Industrial design filed | ● 0.37 |
| Patent filed (per unit of GSDP) | ● 5.98 |
| Trade mark filed | ● 3.53 |

Business Environment ● **30.74**

| | |
|--|---------|
| Ease of Doing Business score | ● 50.05 |
| Cluster strength | ● 30.01 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 17.89 |
| Bank accounts | ● 0.45 |
| Gross capital formation as a (% of GVA) | ● 39.68 |
| Incubators | ● 1.01 |
| Micro finance institutions (MUDRA) | ● 97.47 |
| Bank accounts with Aadhar seeding | ● 89.41 |
| Share of manufacturing and services as a (% of GSDP) | ● 50.17 |
| Internet subscribers | ● 3.27 |
| Online services transaction | ● 4.91 |
| Villages in state with internet connectivity | ● 94.97 |
| Services offered online by state government | ● 33.81 |
| Subsidies or benefits transferred through DBT | ● 38.09 |

Safety and Legal Environment ● **19.38**

| | |
|---|---------|
| IT/IP related Acts | ● 96.93 |
| Cyber cells | ● 3.49 |
| Social Media Monitoring Cells | ● 0.35 |
| Pendency rate | ● 93.83 |
| Charge sheeting Rate | ● 9.27 |
| Pendency Percentage- Corruption cases investigation | ● 6.00 |
| Rate of Cognizable Crime | ● 71.74 |
| Police personnel | ● 2.84 |

Knowledge Diffusion ● **7.23**

| | |
|--|---------|
| Citation Score | ● 68.42 |
| Circulation | ● 18.85 |
| GIs registered | ● 0.15 |
| Handlooms sales as a (% of GSDP) | ● 0.46 |
| High and medium high tech manufacturing entities | ● 0.16 |
| High-tech exports | ● 46.52 |
| Software exports | ● 0.24 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Kerala, Haryana, Delhi, Telangana, Andhra Pradesh, Rajasthan, Punjab, Odisha, Bihar, West Bengal

Major states

Maharashtra

Category Rank

4



Efficiency Ratio

0.609

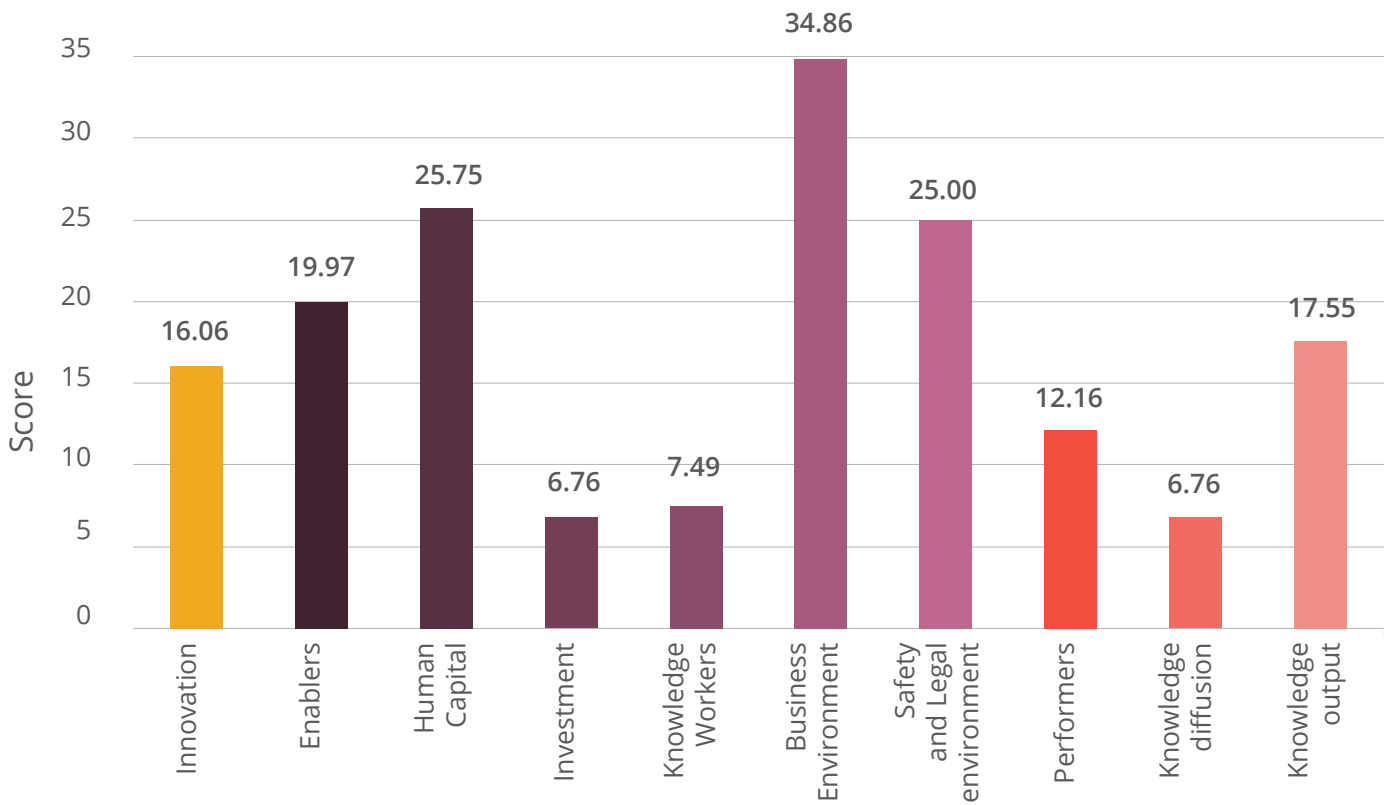


GSDP per Capita
(2019-20)

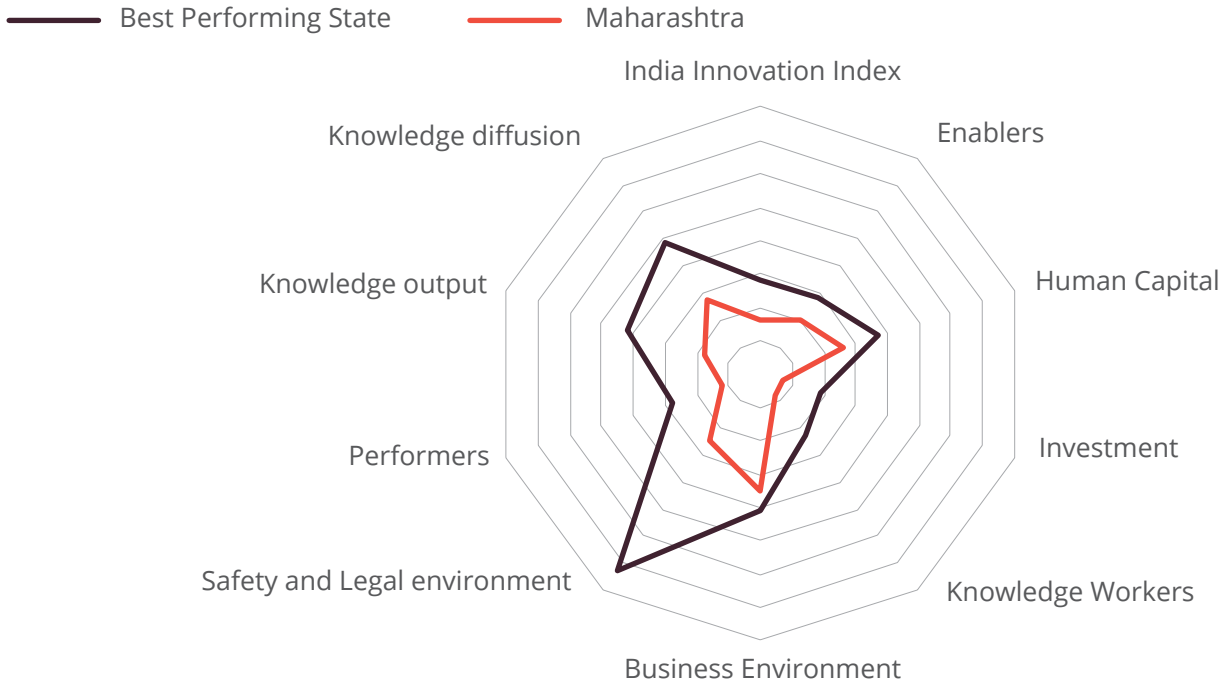
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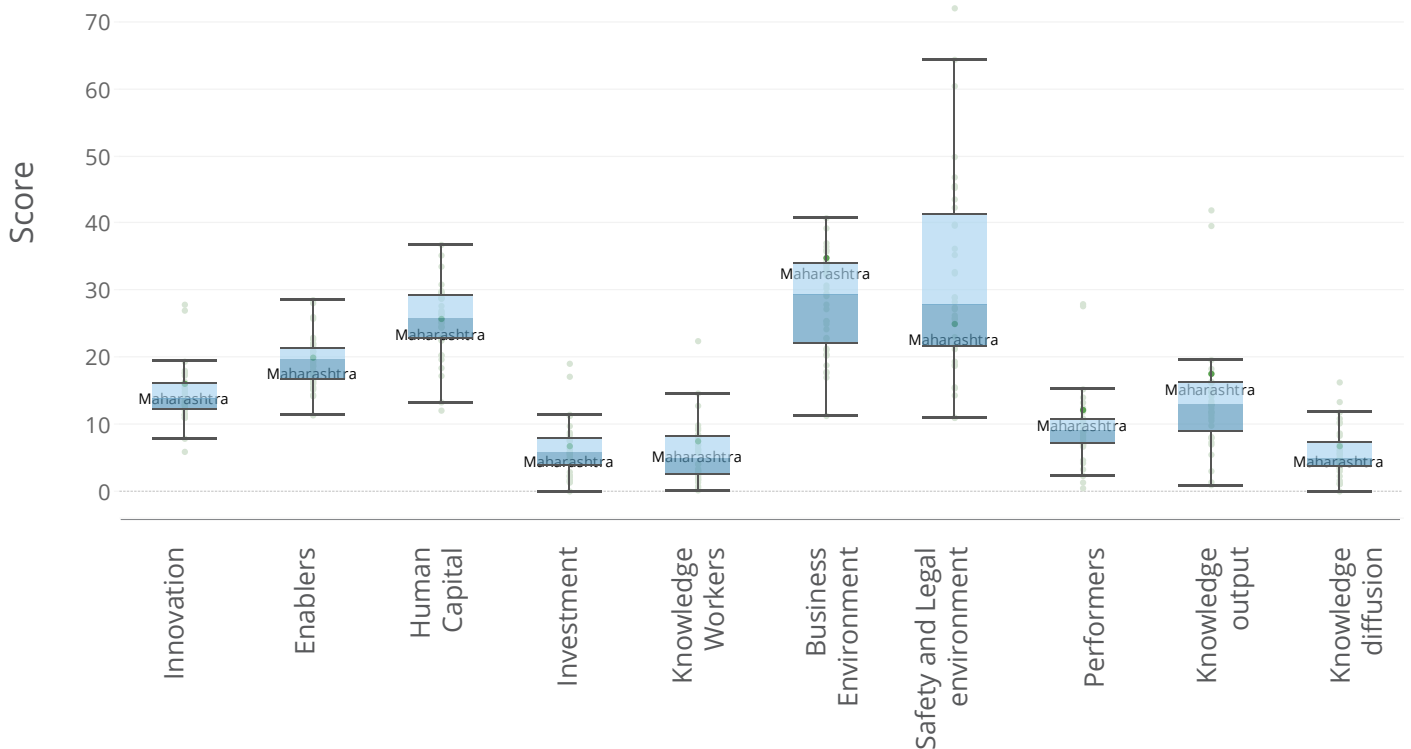
Scores



Country Comparison



Relative Performance



India Innovation Index **16.06** ●Performers **12.16** ●Enablers **19.97** ●**Human Capital** ● **25.75**

| | |
|---|---------|
| Schools with functional computer facility | ● 71.07 |
| NAS scores | ● 66.46 |
| Expenditure on school education as a (% of GSDP) | ● 11.87 |
| NER in school education | ● 93.13 |
| Accolades in STEM Activities | ● 24.18 |
| Pupil-Teacher ratio: Primary & Secondary | ● 65.17 |
| Percentage of schools having (ATL) labs | ● 0.50 |
| Secondary school level completion rate | ● 98.03 |
| Enrolment in PhD | ● 7.32 |
| Enrolment in engineering and technology | ● 21.30 |
| Percentage of Colleges connected through NMEICT | ● 36.54 |
| Higher education institutions- NAAC grade A and above | ● 7.09 |
| Enrolment in vocational education | ● 2.71 |
| Pupil Teacher Ratio- Higher Education | ● 61.17 |
| Tertiary mobility | ● 4.16 |

Investment ● **6.76**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 1.01 |
| Expenditure on R&D | ● 0.25 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 2.80 |
| NIRF ranking of top 5 universities | ● 65.65 |
| FDI inflow as a percentage of state GDP | ● 7.20 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **7.49**

| | |
|--|---------|
| Knowledge intensive employment | ● 1.52 |
| Females employed with advanced degrees | ● 2.87 |
| NGOs involved in knowledge intensive areas | ● 6.80 |
| No. of private R&D units | ● 34.48 |
| No. of R&D Institutions funded | ● 14.60 |
| Skill development training | ● 0.00 |

Knowledge Output ● **17.55**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 1.45 |
| Publication | ● 27.16 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 10.99 |
| New Businesses | ● 35.19 |
| Startups | ● 14.33 |
| Industrial design filed | ● 4.28 |
| Patent filed (per unit of GSDP) | ● 27.05 |
| Trade mark filed | ● 15.41 |

Business Environment ● **34.86**

| | |
|--|---------|
| Ease of Doing Business score | ● 20.16 |
| Cluster strength | ● 85.23 |
| Common facility centre | ● 12.70 |
| Domestic credit to private sector as a (% of GDP) | ● 43.73 |
| Bank accounts | ● 0.49 |
| Gross capital formation as a (% of GVA) | ● 41.35 |
| Incubators | ● 1.43 |
| Micro finance institutions (MUDRA) | ● 98.19 |
| Bank accounts with Aadhar seeding | ● 86.12 |
| Share of manufacturing and services as a (% of GSDP) | ● 71.65 |
| Internet subscribers | ● 4.82 |
| Online services transaction | ● 4.76 |
| Villages in state with internet connectivity | ● 94.32 |
| Services offered online by state government | ● 24.56 |
| Subsidies or benefits transferred through DBT | ● 15.17 |

Safety and Legal Environment ● **25.00**

| | |
|---|---------|
| IT/IP related Acts | ● 96.32 |
| Cyber cells | ● 10.61 |
| Social Media Monitoring Cells | ● 9.03 |
| Pendency rate | ● 64.27 |
| Charge sheeting Rate | ● 24.30 |
| Pendency Percentage- Corruption cases investigation | ● 2.30 |
| Rate of Cognizable Crime | ● 75.91 |
| Police personnel | ● 6.39 |

Knowledge Diffusion ● **6.76**

| | |
|--|---------|
| Citation Score | ● 48.51 |
| Circulation | ● 18.23 |
| GIs registered | ● 0.46 |
| Handlooms sales as a (% of GSDP) | ● 0.02 |
| High and medium high tech manufacturing entities | ● 0.17 |
| High-tech exports | ● 21.03 |
| Software exports | ● 7.04 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Tamil Nadu, Gujarat, Uttar Pradesh, Karnataka, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh

NE and Hill states

Manipur

Category Rank

1



Efficiency Ratio

0.357

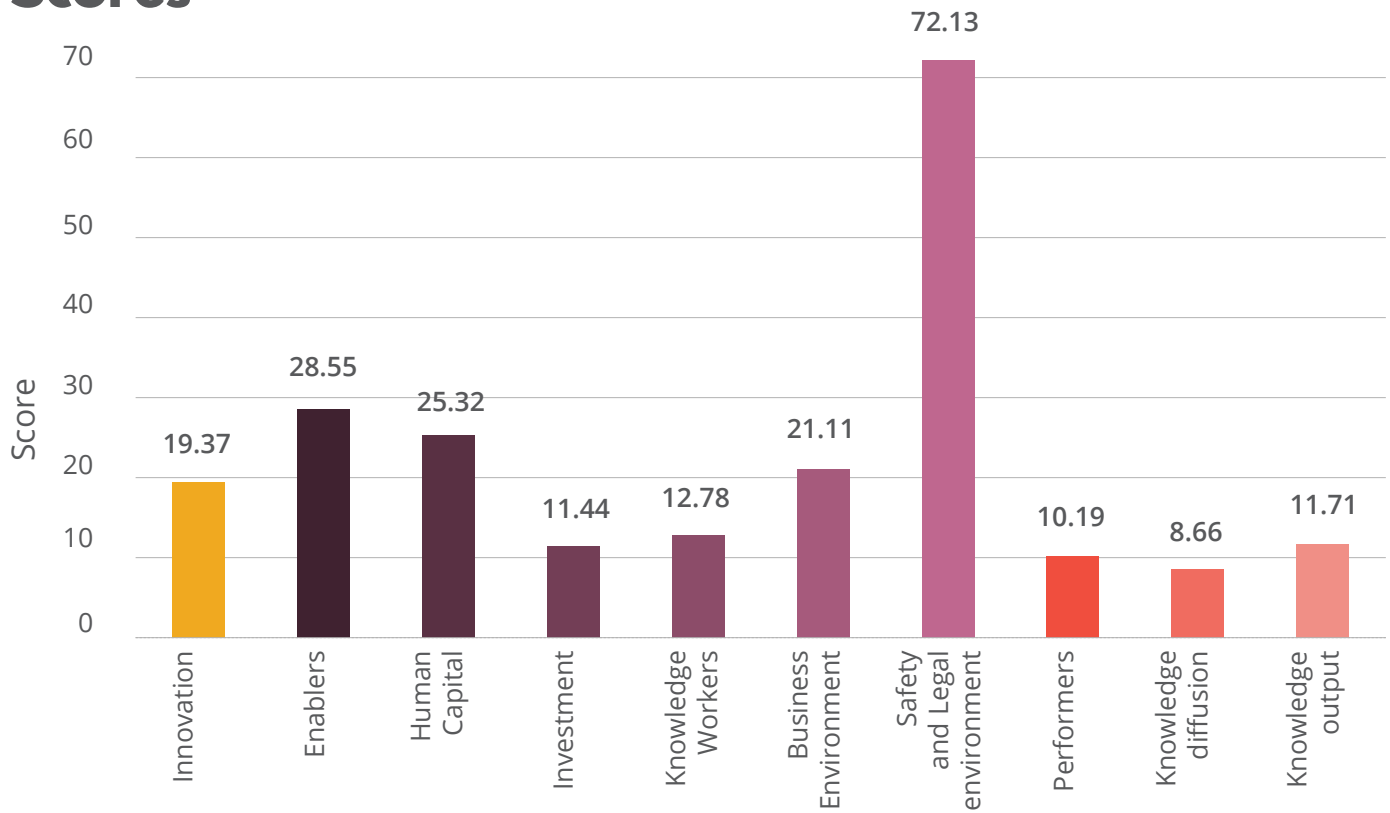


GSDP per Capita
(2019-20)

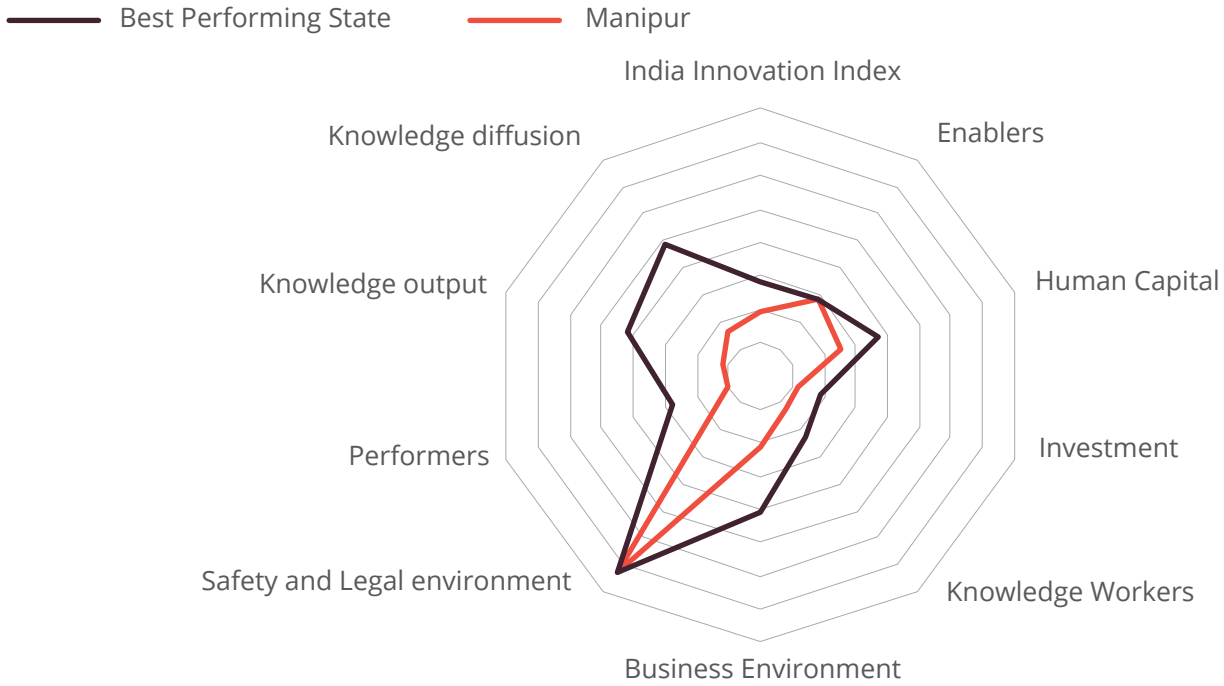
₹ 60107



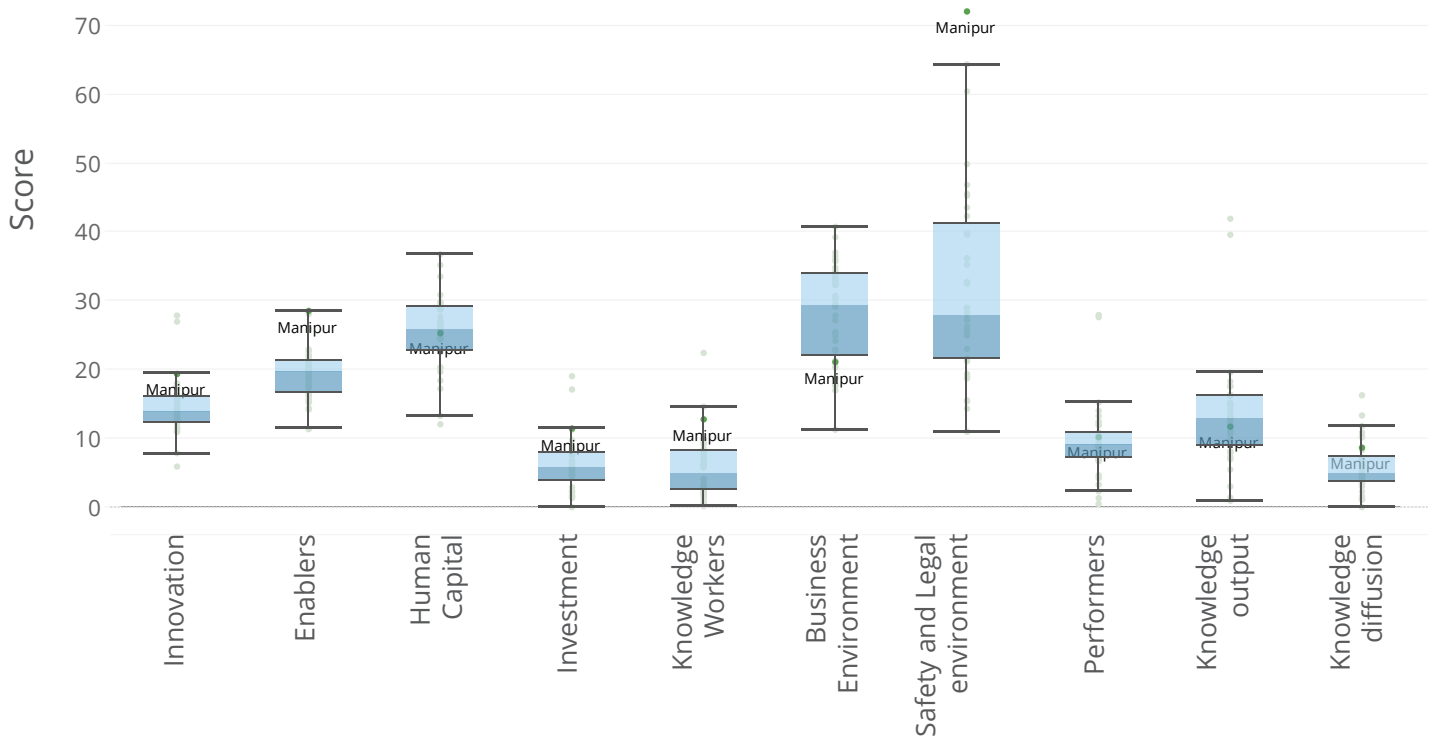
Scores



Country Comparison



Relative Performance



India Innovation Index **19.37** ●Performers **10.19** ●Enablers **28.55** ●**Human Capital** ● **25.32**

| | |
|---|----------|
| Schools with functional computer facility | ● 29.68 |
| NAS scores | ● 65.07 |
| Expenditure on school education as a (% of GSDP) | ● 27.87 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 8.51 |
| Pupil-Teacher ratio: Primary & Secondary | ● 84.08 |
| Percentage of schools having (ATL) labs | ● 1.46 |
| Secondary school level completion rate | ● 90.03 |
| Enrolment in PhD | ● 25.17 |
| Enrolment in engineering and technology | ● 1.39 |
| Percentage of Colleges connected through NMEICT | ● 38.44 |
| Higher education institutions- NAAC grade A and above | ● 1.69 |
| Enrolment in vocational education | ● 7.03 |
| Pupil Teacher Ratio- Higher Education | ● 66.57 |
| Tertiary mobility | ● 0.00 |

Business Environment ● **21.11**

| | |
|--|---------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 8.40 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of GDP) | ● 10.48 |
| Bank accounts | ● 0.31 |
| Gross capital formation as a (% of GVA) | ● 24.84 |
| Incubators | ● 0.00 |
| Micro finance institutions (MUDRA) | ● 95.36 |
| Bank accounts with Aadhar seeding | ● 82.09 |
| Share of manufacturing and services as a (% of GSDP) | ● 66.09 |
| Internet subscribers | ● 3.55 |
| Online services transaction | ● 3.24 |
| Villages in state with internet connectivity | ● 81.59 |
| Services offered online by state government | ● 15.95 |
| Subsidies or benefits transferred through DBT | ● 6.18 |

Investment ● **11.44**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 1.88 |
| Expenditure on R&D | ● 16.99 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 44.66 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Safety and Legal Environment ● **72.13**

| | |
|---|---------|
| IT/IP related Acts | ● 98.77 |
| Cyber cells | ● 88.84 |
| Social Media Monitoring Cells | ● 26.65 |
| Pendency rate | ● 90.11 |
| Charge sheeting Rate | ● 80.95 |
| Pendency Percentage- Corruption cases investigation | ● 0.00 |
| Rate of Cognizable Crime | ● 94.75 |
| Police personnel | ● 56.09 |

Knowledge Worker ● **12.78**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.37 |
| Females employed with advanced degrees | ● 3.18 |
| NGOs involved in knowledge intensive areas | ● 66.67 |
| No. of private R&D units | ● 2.95 |
| No. of R&D Institutions funded | ● 11.05 |
| Skill development training | ● 0.00 |

Knowledge Diffusion ● **8.66**

| | |
|--|----------|
| Citation Score | ● 0.00 |
| Circulation | ● 9.45 |
| GIs registered | ● 0.07 |
| Handlooms sales as a (% of GSDP) | ● 24.83 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 100.00 |
| Software exports | ● 0.00 |

Knowledge Output ● **11.71**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 52.17 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 60.44 |
| New Businesses | ● 20.57 |
| Startups | ● 13.98 |
| Industrial design filed | ● 0.29 |
| Patent filed (per unit of GSDP) | ● 7.07 |
| Trade mark filed | ● 1.08 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Puducherry, Meghalaya, Chandigarh, Andaman and Nicobar Islands, Tripura, Goa

NE and Hill states

Meghalaya

Category Rank

3



Efficiency Ratio

0.394

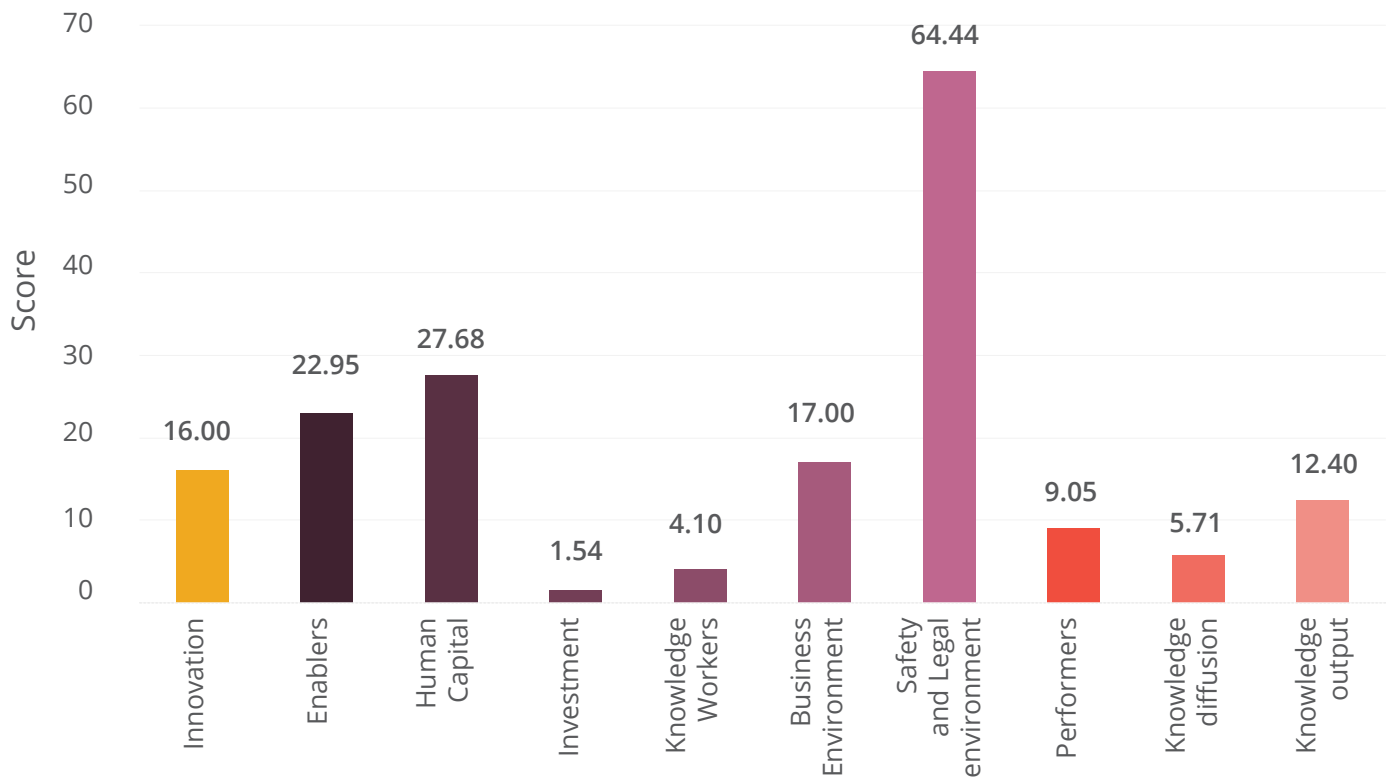


GSDP per Capita
(2019-20)

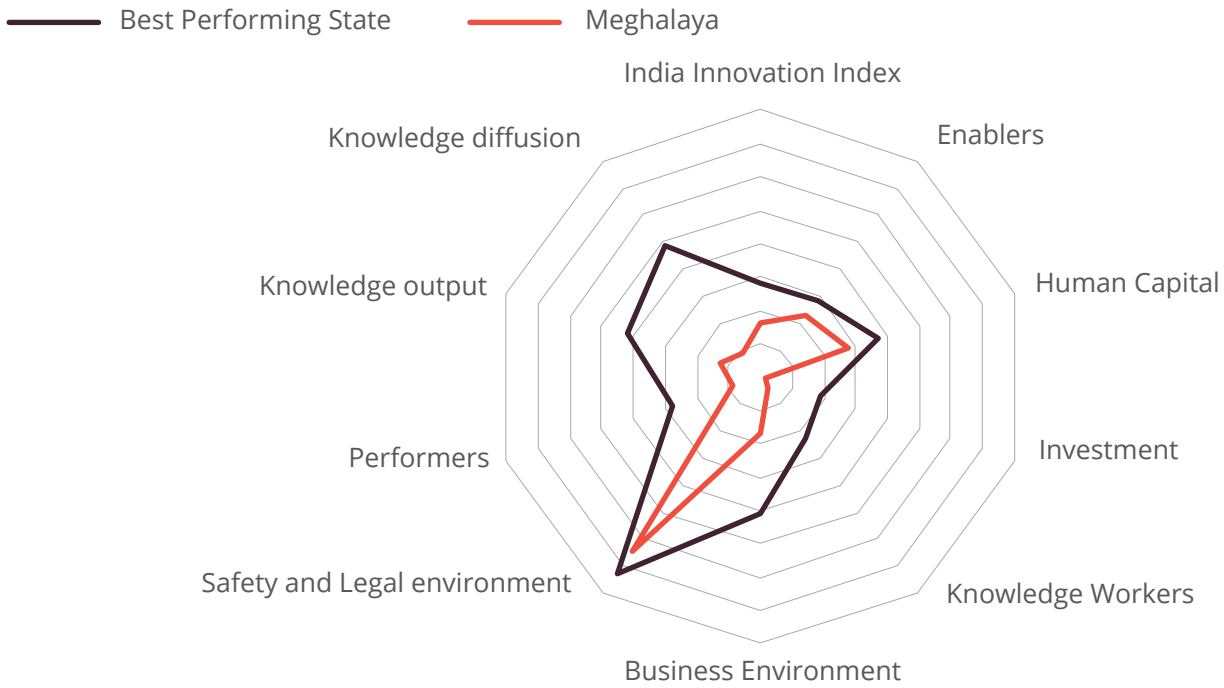
₹ 70718



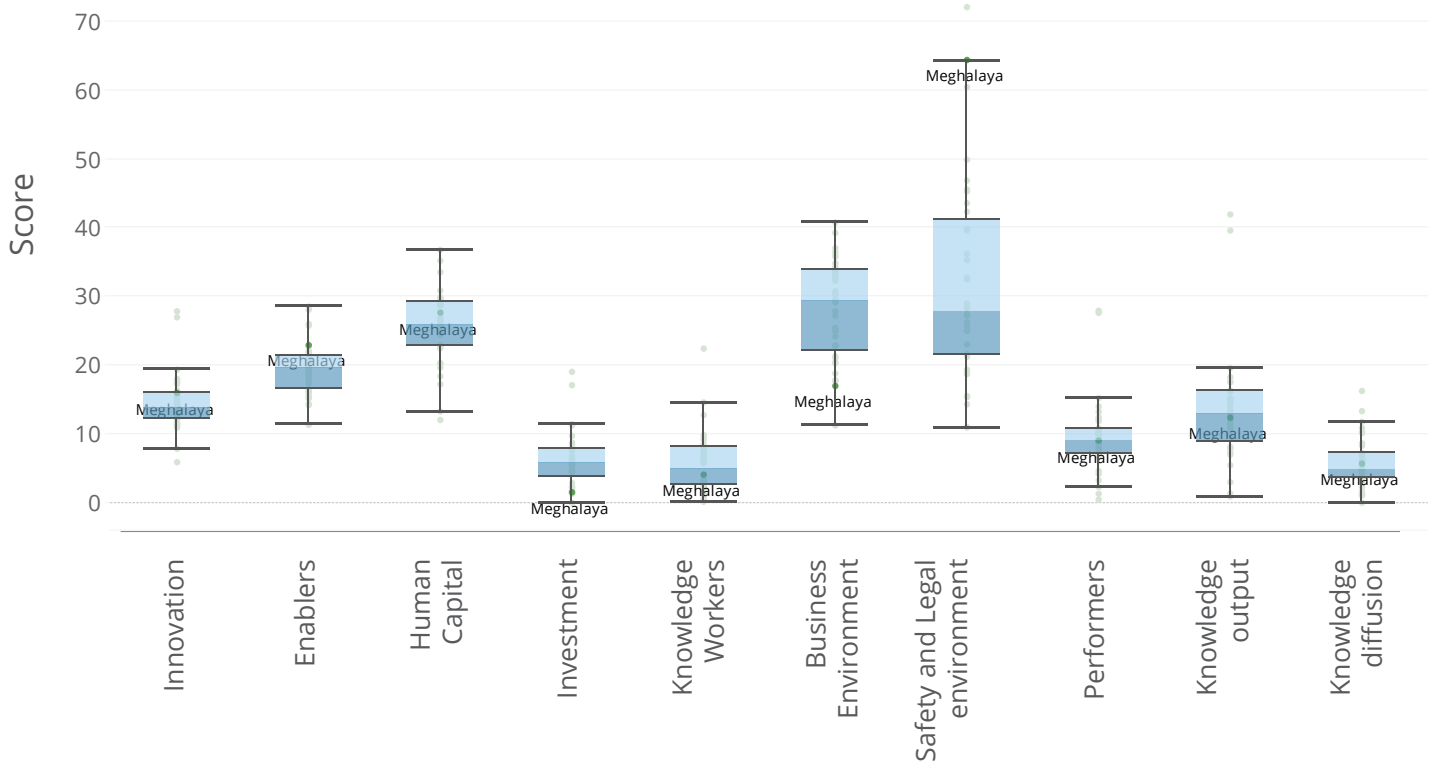
Scores



Country Comparison



Relative Performance



India Innovation Index **16.00** ●Performers **9.05** ●Enablers **22.95** ●**Human Capital** ● **27.68**

| | |
|---|----------|
| Schools with functional computer facility | ● 13.27 |
| NAS scores | ● 47.59 |
| Expenditure on school education as a (% of GSDP) | ● 24.32 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 11.51 |
| Pupil-Teacher ratio: Primary & Secondary | ● 78.63 |
| Percentage of schools having (ATL) labs | ● 0.04 |
| Secondary school level completion rate | ● 82.06 |
| Enrolment in PhD | ● 20.17 |
| Enrolment in engineering and technology | ● 1.49 |
| Percentage of Colleges connected through NMEICT | ● 37.58 |
| Higher education institutions- NAAC grade A and above | ● 6.43 |
| Enrolment in vocational education | ● 2.02 |
| Pupil Teacher Ratio- Higher Education | ● 64.77 |
| Tertiary mobility | ● 66.67 |

Investment ● **1.54**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 1.67 |
| Expenditure on R&D | ● 0.84 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.56 |
| NIRF ranking of top 5 universities | ● 15.26 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **4.10**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.00 |
| Females employed with advanced degrees | ● 1.05 |
| NGOs involved in knowledge intensive areas | ● 1.97 |
| No. of private R&D units | ● 1.90 |
| No. of R&D Institutions funded | ● 31.91 |
| Skill development training | ● 0.00 |

Knowledge Output ● **12.40**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 37.68 |
| Publication | ● 17.05 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 5.49 |
| New Businesses | ● 40.19 |
| Startups | ● 4.08 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 7.73 |
| Trade mark filed | ● 0.50 |

Business Environment ● **17.00**

| | |
|--|---------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 0.00 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 11.93 |
| Bank accounts | ● 0.21 |
| Gross capital formation as a (% of GVA) | ● 9.51 |
| Incubators | ● 0.00 |
| Micro finance institutions (MUDRA) | ● 97.41 |
| Bank accounts with Aadhar seeding | ● 10.73 |
| Share of manufacturing and services as a (% of GSDP) | ● 68.46 |
| Internet subscribers | ● 3.40 |
| Online services transaction | ● 2.79 |
| Villages in state with internet connectivity | ● 74.08 |
| Services offered online by state government | ● 22.65 |
| Subsidies or benefits transferred through DBT | ● 24.04 |

Safety and Legal Environment ● **64.44**

| | |
|---|---------|
| IT/IP related Acts | ● 77.91 |
| Cyber cells | ● 85.52 |
| Social Media Monitoring Cells | ● 34.21 |
| Pendency rate | ● 61.67 |
| Charge sheeting Rate | ● 81.36 |
| Pendency Percentage- Corruption cases investigation | ● 14.30 |
| Rate of Cognizable Crime | ● 93.66 |
| Police personnel | ● 24.5 |

Knowledge Diffusion ● **5.71**

| | |
|--|---------|
| Citation Score | ● 29.48 |
| Circulation | ● 4.17 |
| GIs registered | ● 0.03 |
| Handlooms sales as a (% of GSDP) | ● 25.36 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 0.00 |
| Software exports | ● 0.10 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Puducherry, Manipur, Sikkim, Chandigarh, Nagaland, Mizoram, Arunachal Pradesh, Tripura, Andaman and Nicobar Islands, Goa

NE and Hill states

Mizoram

Category Rank

7



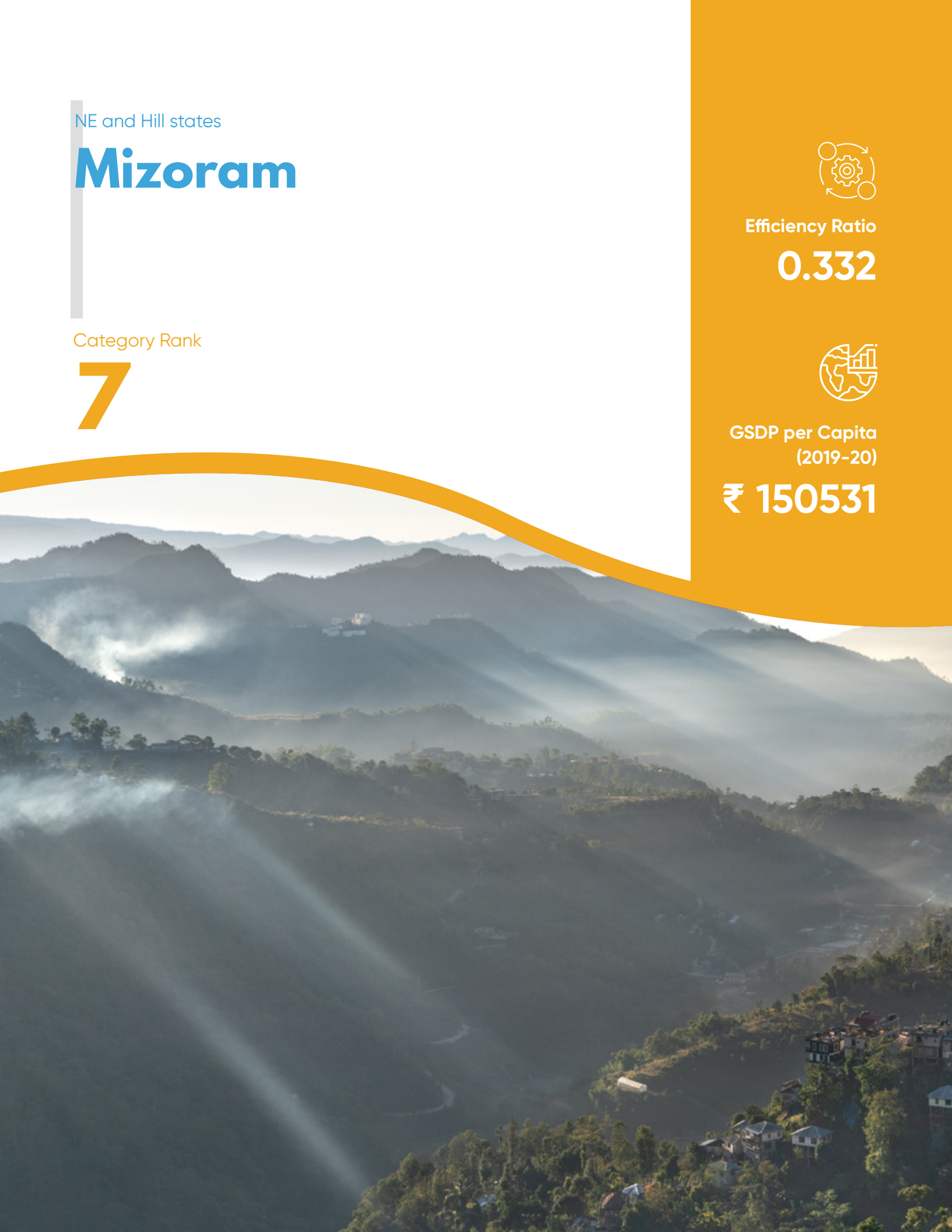
Efficiency Ratio

0.332

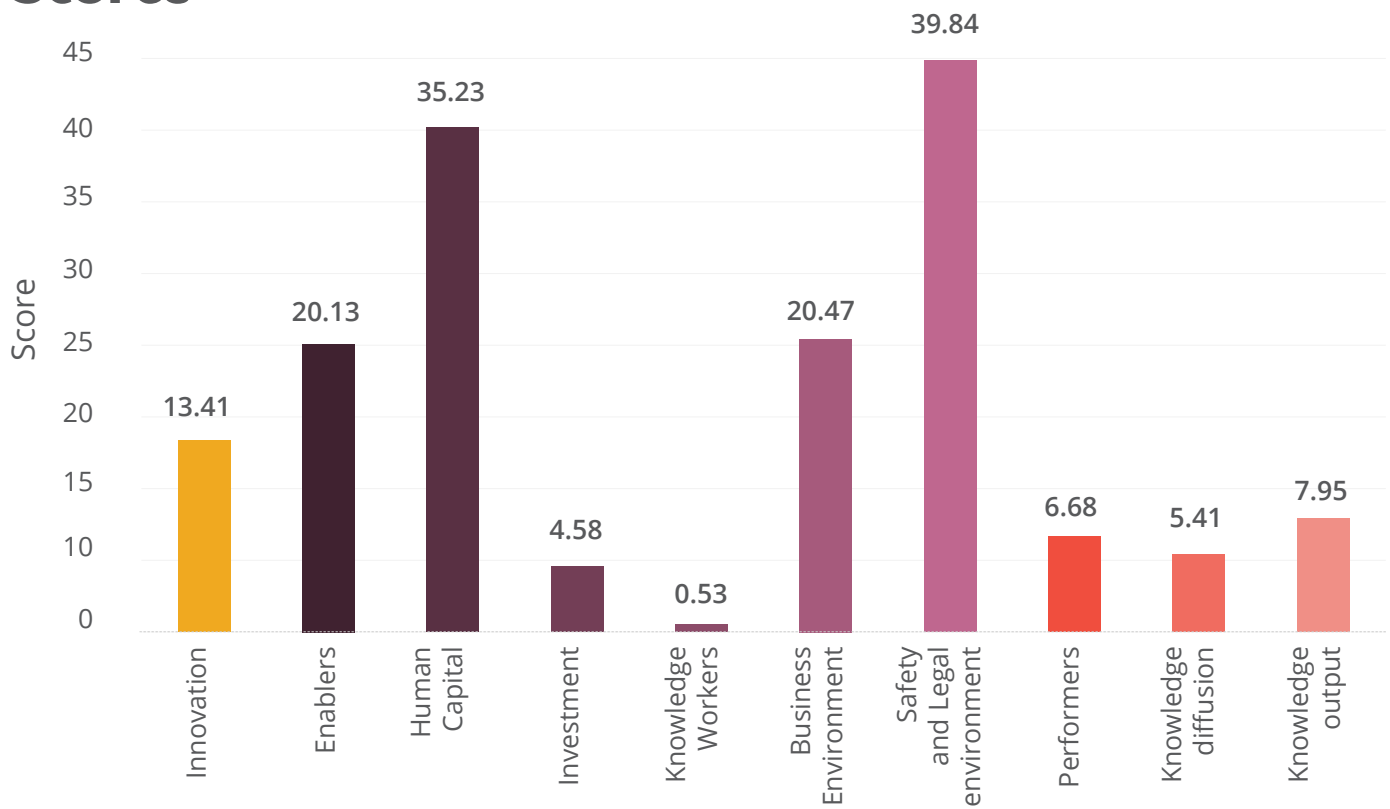


GSDP per Capita
(2019-20)

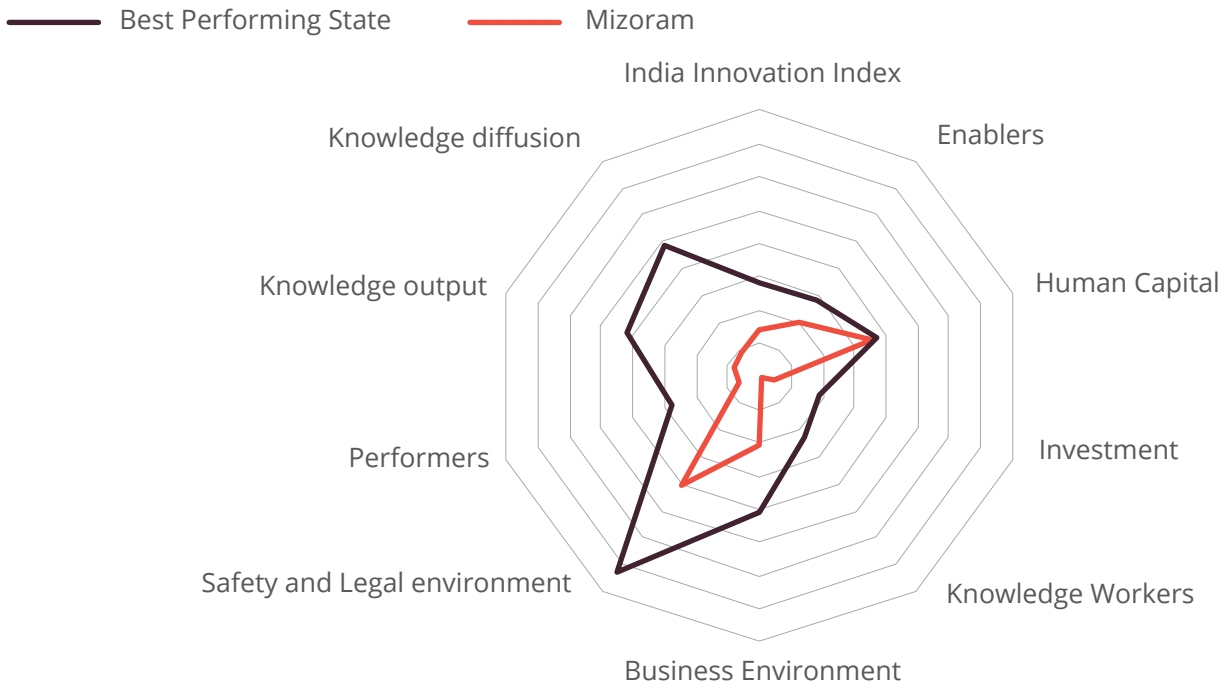
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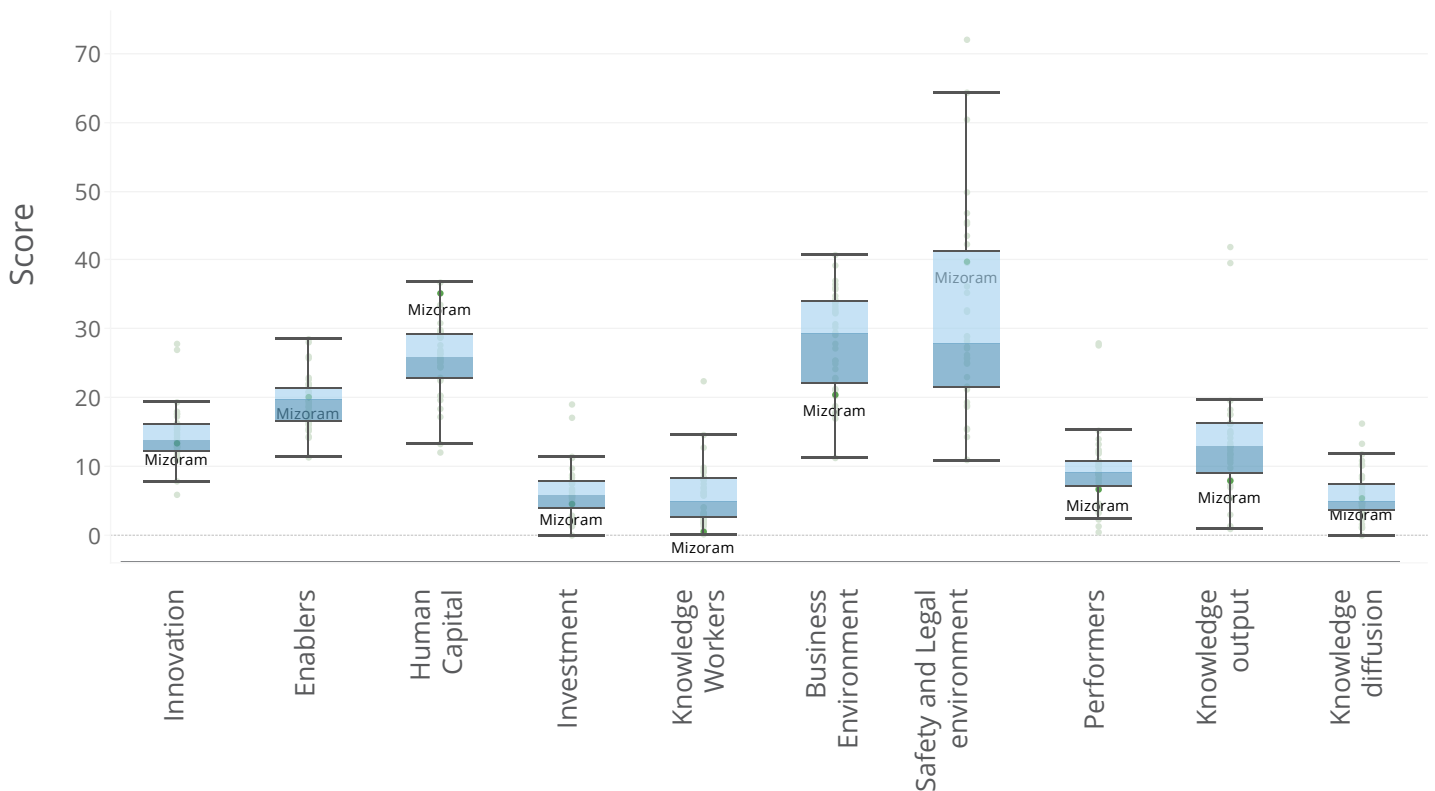
Scores



Country Comparison



Relative Performance



India Innovation Index **13.41** ●Performers **6.68** ●Enablers **20.13** ●**Human Capital** ● **35.23**

| | |
|---|----------|
| Schools with functional computer facility | ● 48.04 |
| NAS scores | ● 70.21 |
| Expenditure on school education as a (% of GSDP) | ● 59.08 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 51.16 |
| Pupil-Teacher ratio: Primary & Secondary | ● 83.93 |
| Percentage of schools having (ATL) labs | ● 0.15 |
| Secondary school level completion rate | ● 100.28 |
| Enrolment in PhD | ● 54.36 |
| Enrolment in engineering and technology | ● 3.55 |
| Percentage of Colleges connected through NMEICT | ● 32.55 |
| Higher education institutions- NAAC grade A and above | ● 6.34 |
| Enrolment in vocational education | ● 4.67 |
| Pupil Teacher Ratio- Higher Education | ● 77.37 |
| Tertiary mobility | ● 0.00 |

Investment ● **4.58**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 5.93 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 17.62 |
| NIRF ranking of top 5 universities | ● 14.04 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **0.53**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.00 |
| Females employed with advanced degrees | ● 1.65 |
| NGOs involved in knowledge intensive areas | ● 2.66 |
| No. of private R&D units | ● 0.00 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 0.00 |

Knowledge Output ● **7.95**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 44.69 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 90.65 |
| New Businesses | ● 2.62 |
| Startups | ● 2.11 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 7.43 |
| Trade mark filed | ● 0.98 |

Business Environment ● **20.47**

| | |
|--|---------|
| Ease of Doing Business score | ● 3.44 |
| Cluster strength | ● 18.01 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 8.02 |
| Bank accounts | ● 0.26 |
| Gross capital formation as a (% of GVA) | ● 0.00 |
| Incubators | ● 0.00 |
| Micro finance institutions (MUDRA) | ● 94.48 |
| Bank accounts with Aadhar seeding | ● 76.71 |
| Share of manufacturing and services as a (% of GSDP) | ● 48.44 |
| Internet subscribers | ● 5.42 |
| Online services transaction | ● 6.52 |
| Villages in state with internet connectivity | ● 70.74 |
| Services offered online by state government | ● 23.92 |
| Subsidies or benefits transferred through DBT | ● 46.97 |

Safety and Legal Environment ● **39.84**

| | |
|---|---------|
| IT/IP related Acts | ● 95.71 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 23.12 |
| Pendency rate | ● 97.08 |
| Charge sheeting Rate | ● 32.75 |
| Pendency Percentage- Corruption cases investigation | ● 7.40 |
| Rate of Cognizable Crime | ● 89.52 |
| Police personnel | ● 38.72 |

Knowledge Diffusion ● **5.41**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 19.01 |
| GIs registered | ● 0.08 |
| Handlooms sales as a (% of GSDP) | ● 21.23 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 0.00 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Nagaland, Arunachal Pradesh, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa

NE and Hill states

Nagaland

Category Rank

10



Efficiency Ratio

0.117

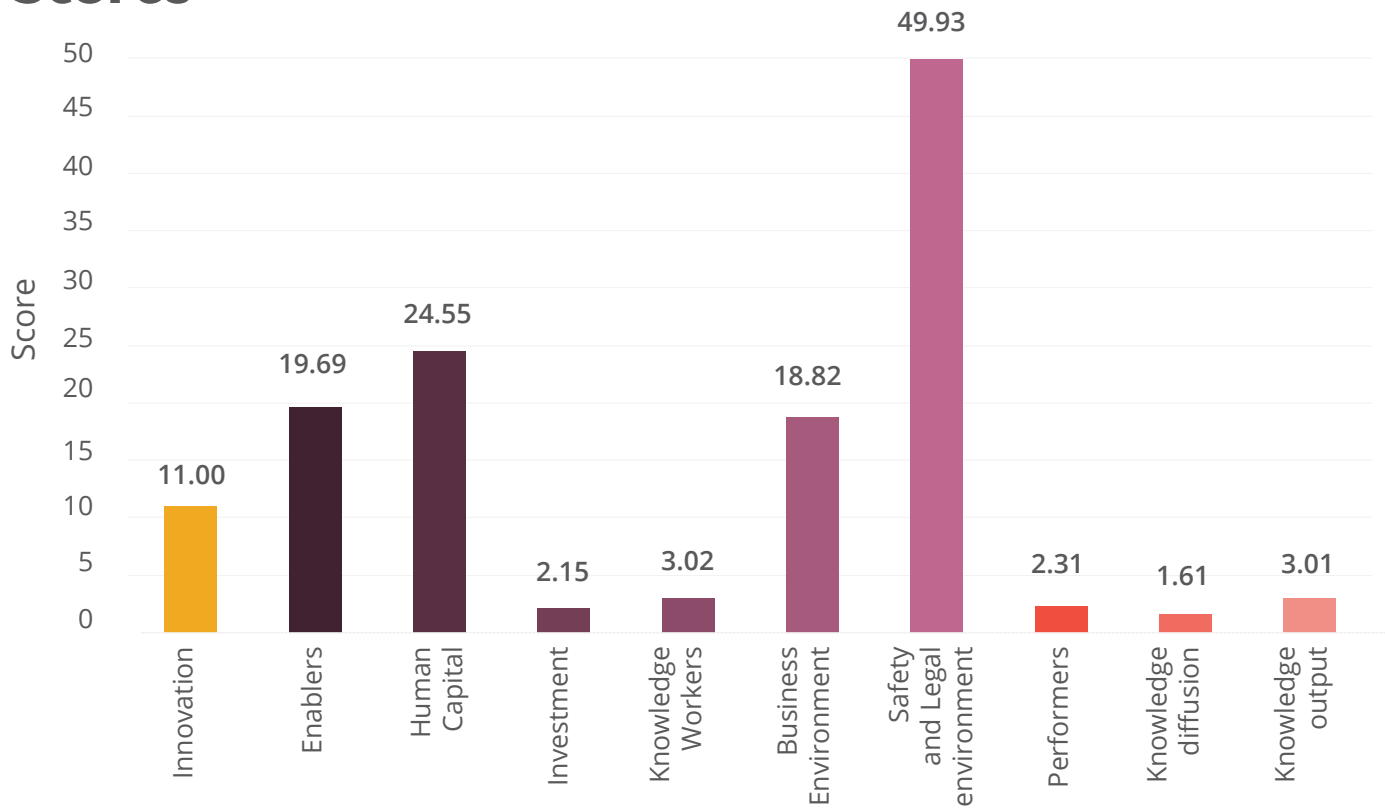


GSDP per Capita
(2019-20)

₹ 83622

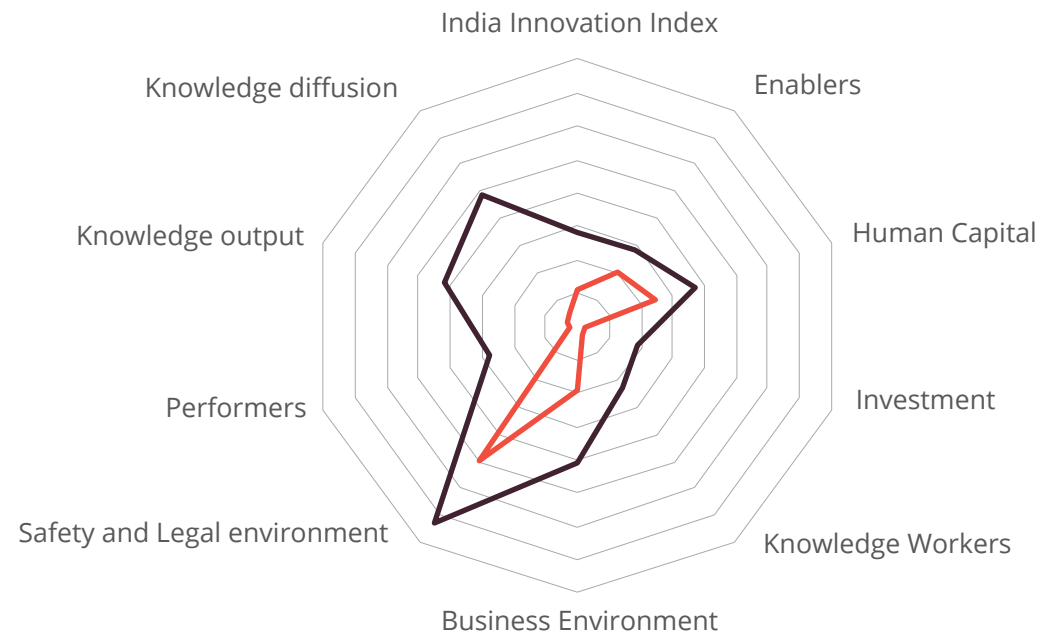


Scores

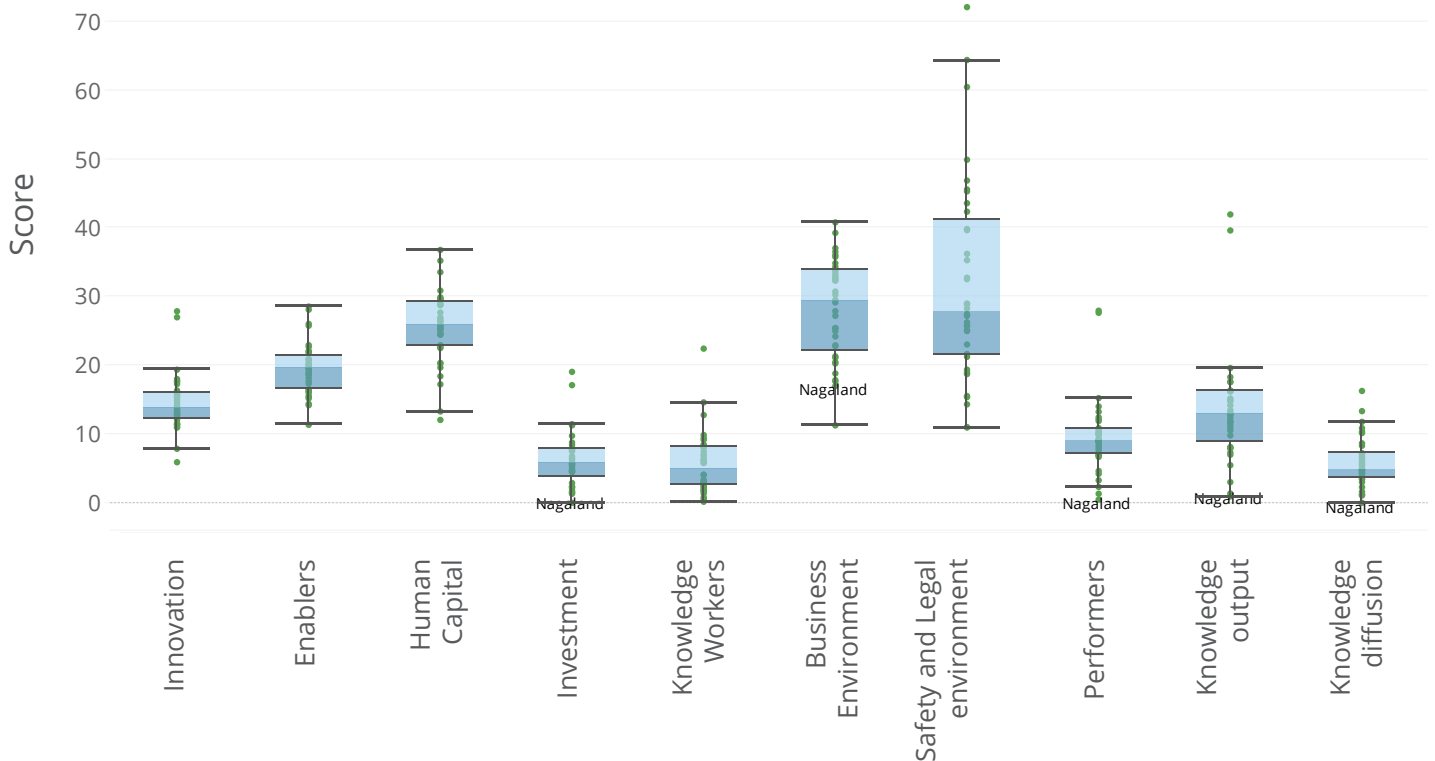


Country Comparison

— Best Performing State — Nagaland



Relative Performance



India Innovation Index **11.00** ●Performers **2.31** ●Enablers **19.69** ●**Human Capital** ● **24.55**

| | |
|---|---------|
| Schools with functional computer facility | ● 42.39 |
| NAS scores | ● 55.08 |
| Expenditure on school education as a (% of GSDP) | ● 29.64 |
| NER in school education | ● 32.19 |
| Accolades in STEM Activities | ● 7.45 |
| Pupil-Teacher ratio: Primary & Secondary | ● 85.38 |
| Percentage of schools having (ATL) labs | ● 0.18 |
| Secondary school level completion rate | ● 86.85 |
| Enrolment in PhD | ● 20.06 |
| Enrolment in engineering and technology | ● 2.03 |
| Percentage of Colleges connected through NMEICT | ● 52.47 |
| Higher education institutions- NAAC grade A and above | ● 5.50 |
| Enrolment in vocational education | ● 5.17 |
| Pupil Teacher Ratio- Higher Education | ● 75.57 |
| Tertiary mobility | ● 0.00 |

Investment ● **2.15**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 3.49 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 10.47 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **3.02**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.00 |
| Females employed with advanced degrees | ● 3.71 |
| NGOs involved in knowledge intensive areas | ● 9.74 |
| No. of private R&D units | ● 0.00 |
| No. of R&D Institutions funded | ● 7.98 |
| Skill development training | ● 0.00 |

Knowledge Output ● **3.01**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 30.92 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 38.46 |
| New Businesses | ● 0.00 |
| Startups | ● 0.00 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 0.00 |
| Trade mark filed | ● 0.37 |

Business Environment ● **18.82**

| | |
|--|---------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 7.20 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 0.00 |
| Bank accounts | ● 0.12 |
| Gross capital formation as a (% of GVA) | ● 2.76 |
| Incubators | ● 1.42 |
| Micro finance institutions (MUDRA) | ● 92.30 |
| Bank accounts with Aadhar seeding | ● 77.64 |
| Share of manufacturing and services as a (% of GSDP) | ● 59.87 |
| Internet subscribers | ● 3.61 |
| Online services transaction | ● 4.35 |
| Villages in state with internet connectivity | ● 89.71 |
| Services offered online by state government | ● 18.18 |
| Subsidies or benefits transferred through DBT | ● 13.60 |

Safety and Legal Environment ● **49.93**

| | |
|---|---------|
| IT/IP related Acts | ● 97.55 |
| Cyber cells | ● 12.82 |
| Social Media Monitoring Cells | ● 12.82 |
| Pendency rate | ● 82.72 |
| Charge sheeting Rate | ● 37.90 |
| Pendency Percentage- Corruption cases investigation | ● 14.30 |
| Rate of Cognizable Crime | ● 96.16 |
| Police personnel | ● 79.26 |

Knowledge Diffusion ● **1.61**

| | |
|--|---------|
| Citation Score | ● 0.00 |
| Circulation | ● 1.50 |
| GIs registered | ● 0.04 |
| Handlooms sales as a (% of GSDP) | ● 0.00 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 39.58 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Mizoram, Arunachal Pradesh, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa

Major states

Odisha

Category Rank

16



Efficiency Ratio

0.503

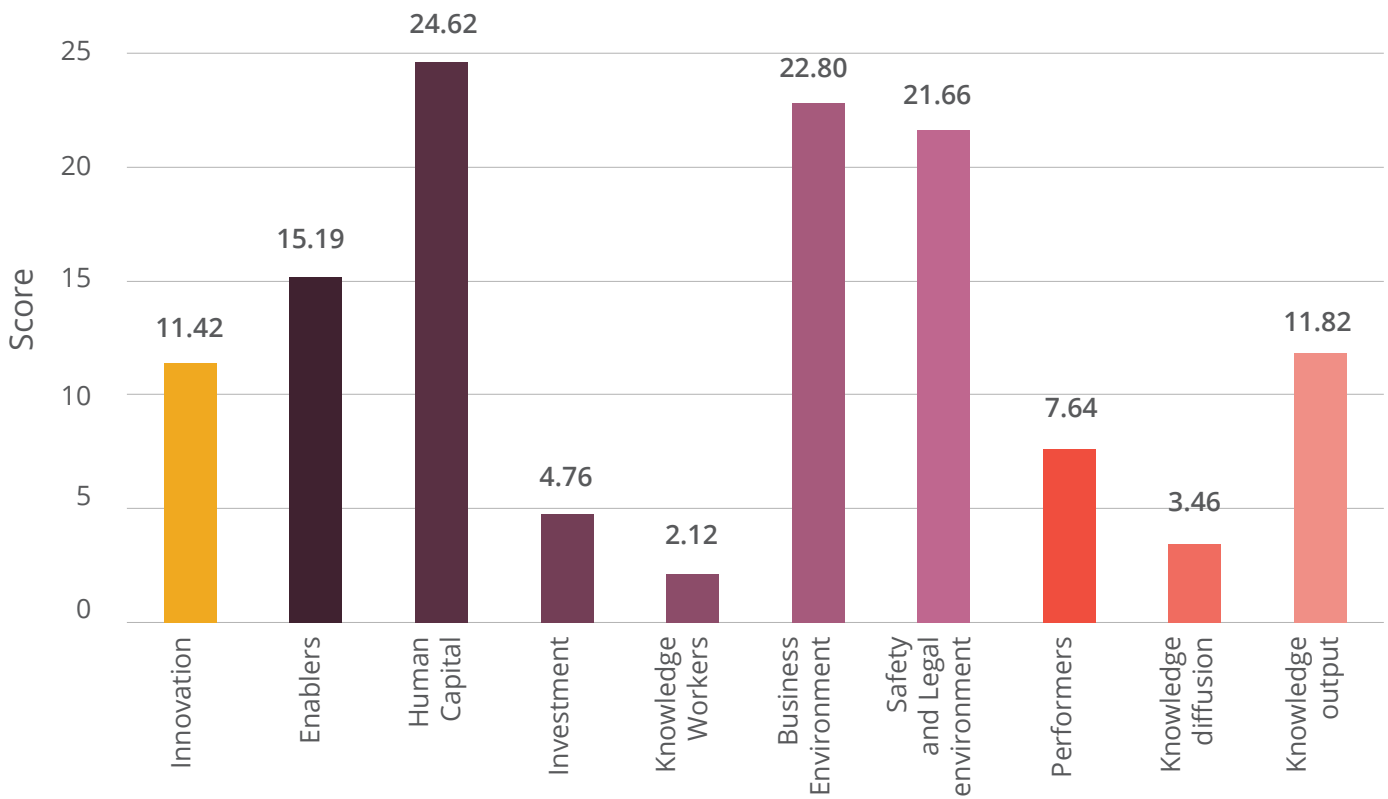


GSDP per Capita
(2019-20)

₹ 94199

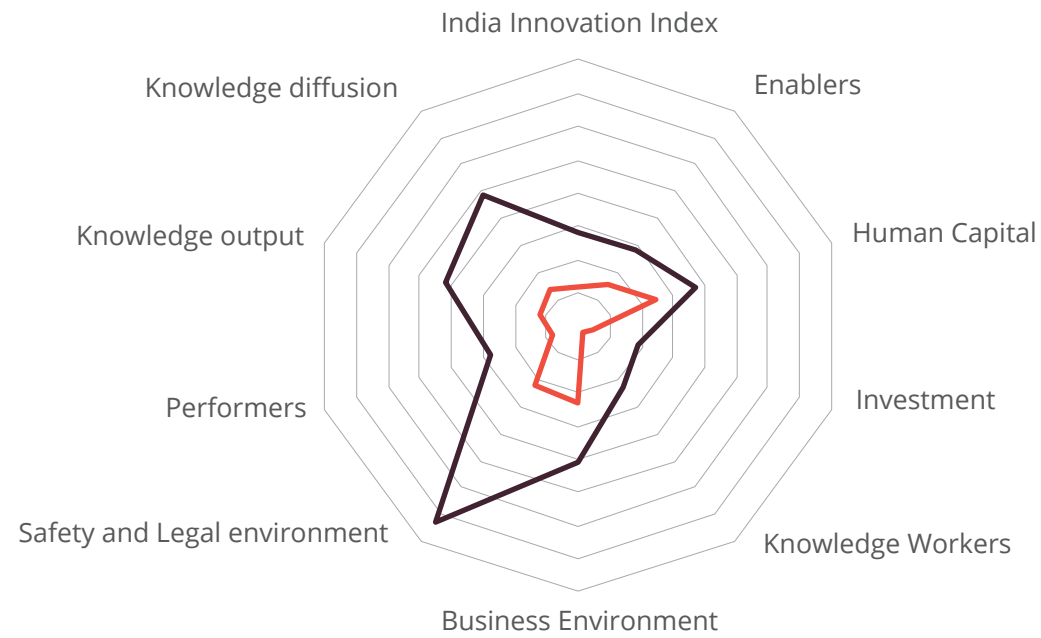


Scores

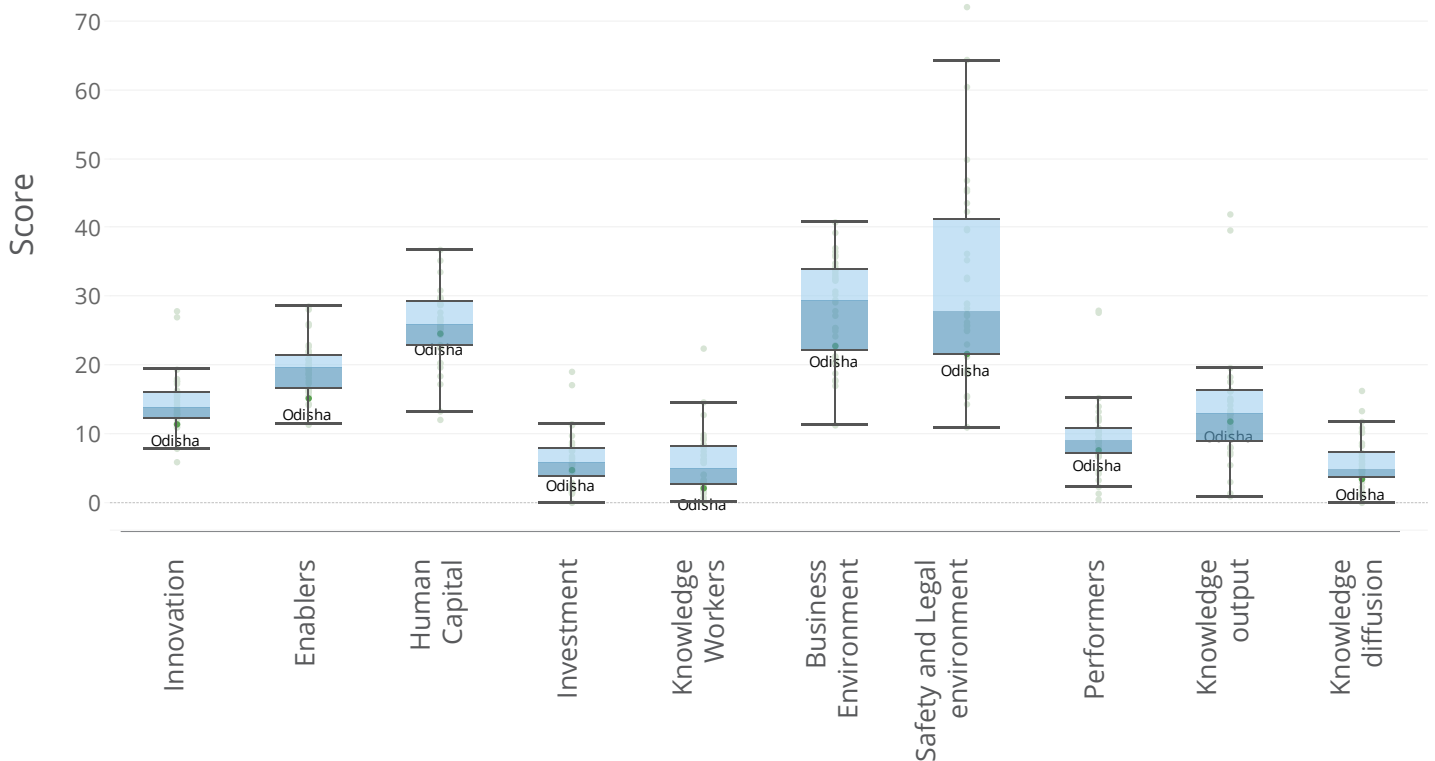


Country Comparison

— Best Performing State — Odisha



Relative Performance



India Innovation Index **11.42** ●Performers **7.64** ●Enablers **15.19** ●**Human Capital** ● **24.62**

| | |
|---|---------|
| Schools with functional computer facility | ● 25.46 |
| NAS scores | ● 68.23 |
| Expenditure on school education as a (% of GSDP) | ● 16.21 |
| NER in school education | ● 27.50 |
| Accolades in STEM Activities | ● 41.54 |
| Pupil-Teacher ratio: Primary & Secondary | ● 76.60 |
| Percentage of schools having (ATL) labs | ● 0.24 |
| Secondary school level completion rate | ● 91.09 |
| Enrolment in PhD | ● 5.48 |
| Enrolment in engineering and technology | ● 23.11 |
| Percentage of Colleges connected through NMEICT | ● 29.44 |
| Higher education institutions- NAAC grade A and above | ● 2.39 |
| Enrolment in vocational education | ● 3.06 |
| Pupil Teacher Ratio- Higher Education | ● 62.97 |
| Tertiary mobility | ● 13.25 |

Investment ● **4.76**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 3.75 |
| Expenditure on R&D | ● 0.92 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 3.39 |
| NIRF ranking of top 5 universities | ● 51.55 |
| FDI inflow as a percentage of state GDP | ● 0.07 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **2.12**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.37 |
| Females employed with advanced degrees | ● 1.15 |
| NGOs involved in knowledge intensive areas | ● 3.58 |
| No. of private R&D units | ● 2.48 |
| No. of R&D Institutions funded | ● 10.53 |
| Skill development training | ● 0.00 |

Knowledge Output ● **11.82**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 17.39 |
| Publication | ● 34.36 |
| Environment clearance approved | ● 64.67 |
| GSDP per capita growth rate | ● 21.98 |
| New Businesses | ● 14.70 |
| Startups | ● 7.13 |
| Industrial design filed | ● 0.40 |
| Patent filed (per unit of GSDP) | ● 6.79 |
| Trade mark filed | ● 1.17 |

Business Environment ● **22.80**

| | |
|--|---------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 7.20 |
| Common facility centre | ● 7.06 |
| Domestic credit to private sector as a (% of SDP) | ● 12.46 |
| Bank accounts | ● 0.49 |
| Gross capital formation as a (% of GVA) | ● 4.69 |
| Incubators | ● 1.48 |
| Micro finance institutions (MUDRA) | ● 98.31 |
| Bank accounts with Aadhar seeding | ● 85.73 |
| Share of manufacturing and services as a (% of GSDP) | ● 62.32 |
| Internet subscribers | ● 3.44 |
| Online services transaction | ● 7.74 |
| Villages in state with internet connectivity | ● 87.21 |
| Services offered online by state government | ● 28.39 |
| Subsidies or benefits transferred through DBT | ● 28.65 |

Safety and Legal Environment ● **21.66**

| | |
|---|---------|
| IT/IP related Acts | ● 90.18 |
| Cyber cells | ● 20.55 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 20.26 |
| Charge sheeting Rate | ● 26.98 |
| Pendency Percentage- Corruption cases investigation | ● 1.30 |
| Rate of Cognizable Crime | ● 83.68 |
| Police personnel | ● 3.44 |

Knowledge Diffusion ● **3.46**

| | |
|--|---------|
| Citation Score | ● 60.32 |
| Circulation | ● 0.19 |
| GIs registered | ● 0.23 |
| Handlooms sales as a (% of GSDP) | ● 2.08 |
| High and medium high tech manufacturing entities | ● 0.09 |
| High-tech exports | ● 0.29 |
| Software exports | ● 1.07 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Punjab, Bihar, Haryana, Kerala, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Delhi, Uttarakhand

UT and city states

Puducherry

Category Rank

4



Efficiency Ratio

0.503

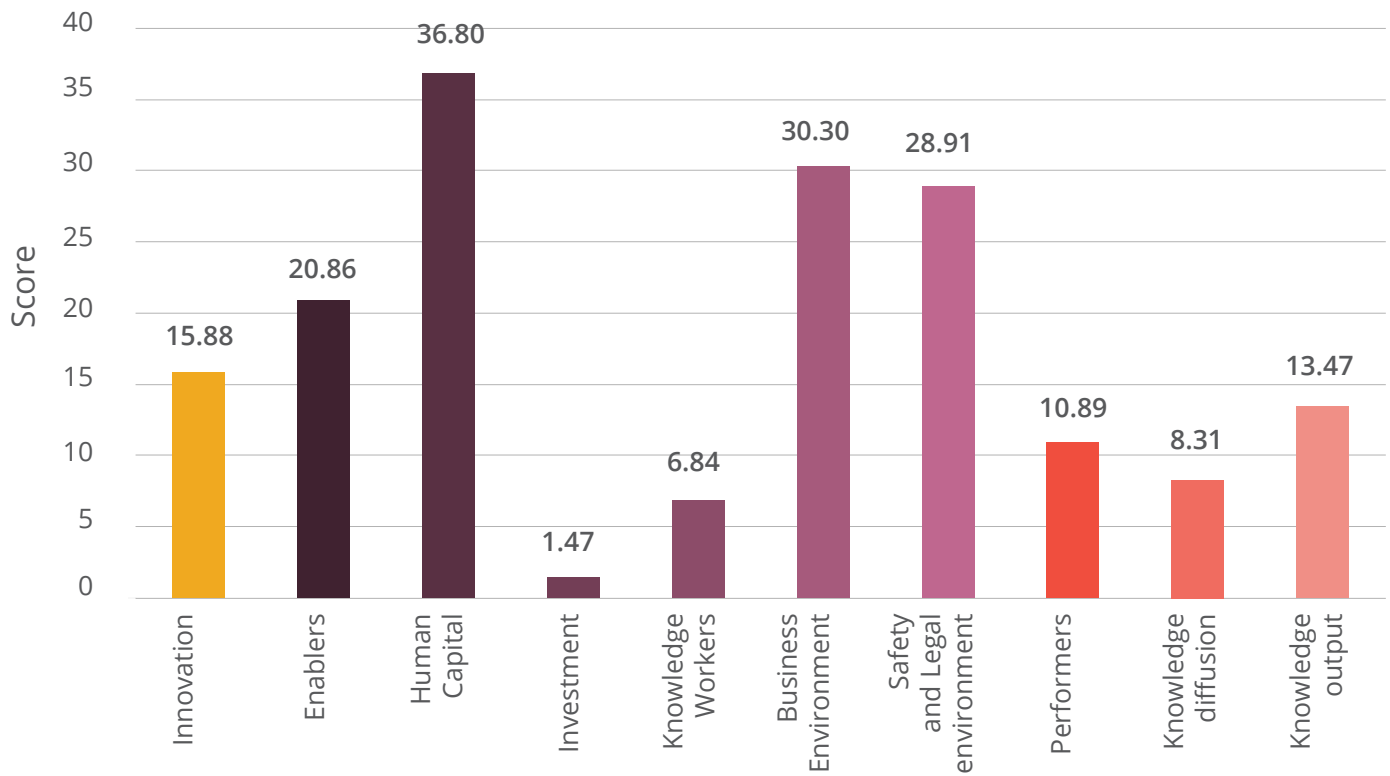


GSDP per Capita
(2019-20)

₹ 94199

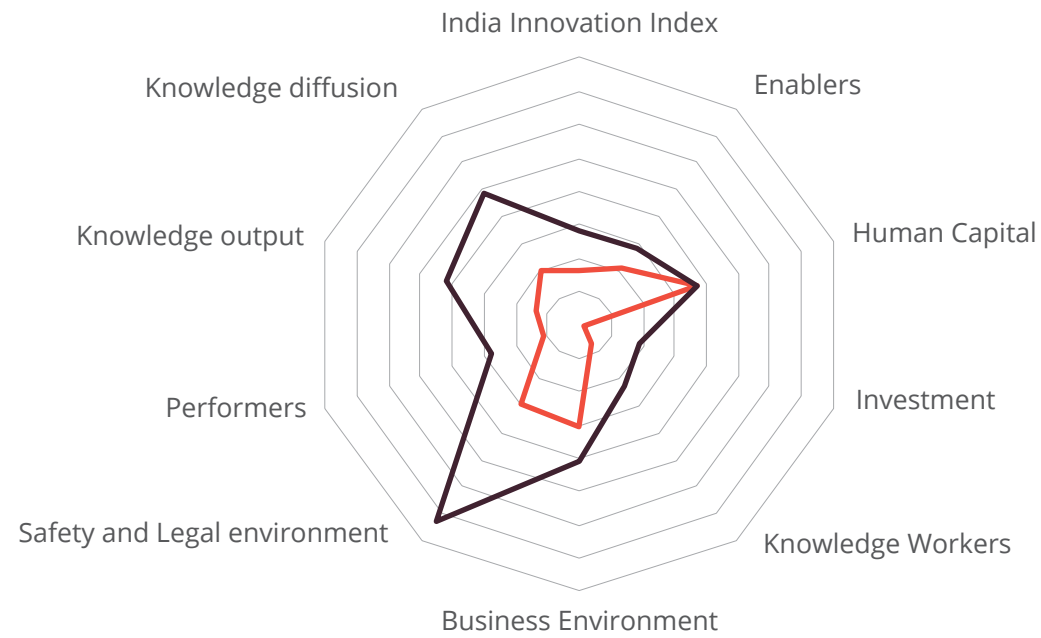


Scores

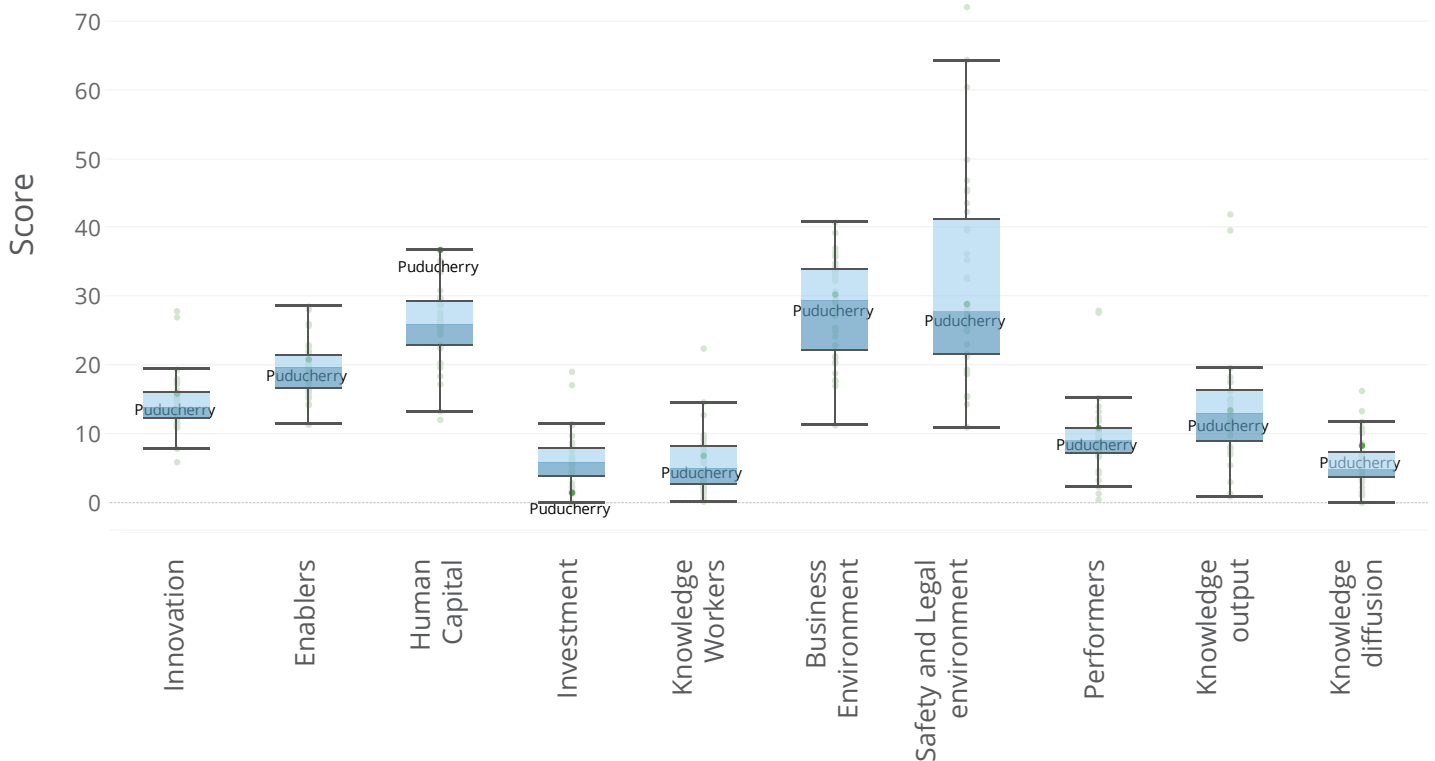


Country Comparison

— Best Performing State — Puducherry



Relative Performance



India Innovation Index **15.88** ●Performers **10.89** ●Enablers **20.86** ●**Human Capital** ● **36.80**

| | |
|---|----------|
| Schools with functional computer facility | ● 88.53 |
| NAS scores | ● 63.75 |
| Expenditure on school education as a (% of GSDP) | ● 18.10 |
| NER in school education | ● 15.00 |
| Accolades in STEM Activities | ● 32.77 |
| Pupil-Teacher ratio: Primary & Secondary | ● 80.75 |
| Percentage of schools having (ATL) labs | ● 0.81 |
| Secondary school level completion rate | ● 100.00 |
| Enrolment in PhD | ● 28.00 |
| Enrolment in engineering and technology | ● 66.67 |
| Percentage of Colleges connected through NMEICT | ● 66.67 |
| Higher education institutions- NAAC grade A and above | ● 7.96 |
| Enrolment in vocational education | ● 2.38 |
| Pupil Teacher Ratio- Higher Education | ● 84.56 |
| Tertiary mobility | ● 22.71 |

Investment ● **1.47**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 2.19 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 1.00 |
| NIRF ranking of top 5 universities | ● 14.97 |
| FDI inflow as a percentage of state GDP | ● 0.04 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **6.84**

| | |
|--|---------|
| Knowledge intensive employment | ● 2.78 |
| Females employed with advanced degrees | ● 7.32 |
| NGOs involved in knowledge intensive areas | ● 5.62 |
| No. of private R&D units | ● 33.80 |
| No. of R&D Institutions funded | ● 0.00 |
| Skill development training | ● 0.00 |

Knowledge Output ● **13.47**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 4.83 |
| Publication | ● 30.54 |
| Environment clearance approved | ● 66.10 |
| GSDP per capita growth rate | ● 38.46 |
| New Businesses | ● 14.03 |
| Startups | ● 0.00 |
| Industrial design filed | ● 0.50 |
| Patent filed (per unit of GSDP) | ● 28.73 |
| Trade mark filed | ● 4.85 |

Business Environment ● **30.30**

| | |
|--|----------|
| Ease of Doing Business score | ● 2.56 |
| Cluster strength | ● 44.42 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 19.40 |
| Bank accounts | ● 0.82 |
| Gross capital formation as a (% of GVA) | ● 18.63 |
| Incubators | ● 2.26 |
| Micro finance institutions (MUDRA) | ● 99.00 |
| Bank accounts with Aadhar seeding | ● 89.88 |
| Share of manufacturing and services as a (% of GSDP) | ● 72.25 |
| Internet subscribers | ● 3.87 |
| Online services transaction | ● 10.65 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 17.54 |
| Subsidies or benefits transferred through DBT | ● 94.27 |

Safety and Legal Environment ● **28.91**

| | |
|---|---------|
| IT/IP related Acts | ● 95.09 |
| Cyber cells | ● 20.33 |
| Social Media Monitoring Cells | ● 0.00 |
| Pendency rate | ● 0.00 |
| Charge sheeting Rate | ● 41.19 |
| Pendency Percentage- Corruption cases investigation | ● 62.50 |
| Rate of Cognizable Crime | ● 71.66 |
| Police personnel | ● 9.65 |

Knowledge Diffusion ● **8.31**

| | |
|--|---------|
| Citation Score | ● 54.74 |
| Circulation | ● 17.69 |
| GIs registered | ● 0.03 |
| Handlooms sales as a (% of GSDP) | ● 0.83 |
| High and medium high tech manufacturing entities | ● 0.15 |
| High-tech exports | ● 87.97 |
| Software exports | ● 1.77 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Meghalaya, Manipur, Sikkim, Chandigarh, Nagaland, Mizoram, Arunachal Pradesh, Tripura, Andaman and Nicobar Islands, Goa

Major states

Punjab

Category Rank

6



Efficiency Ratio

0.505

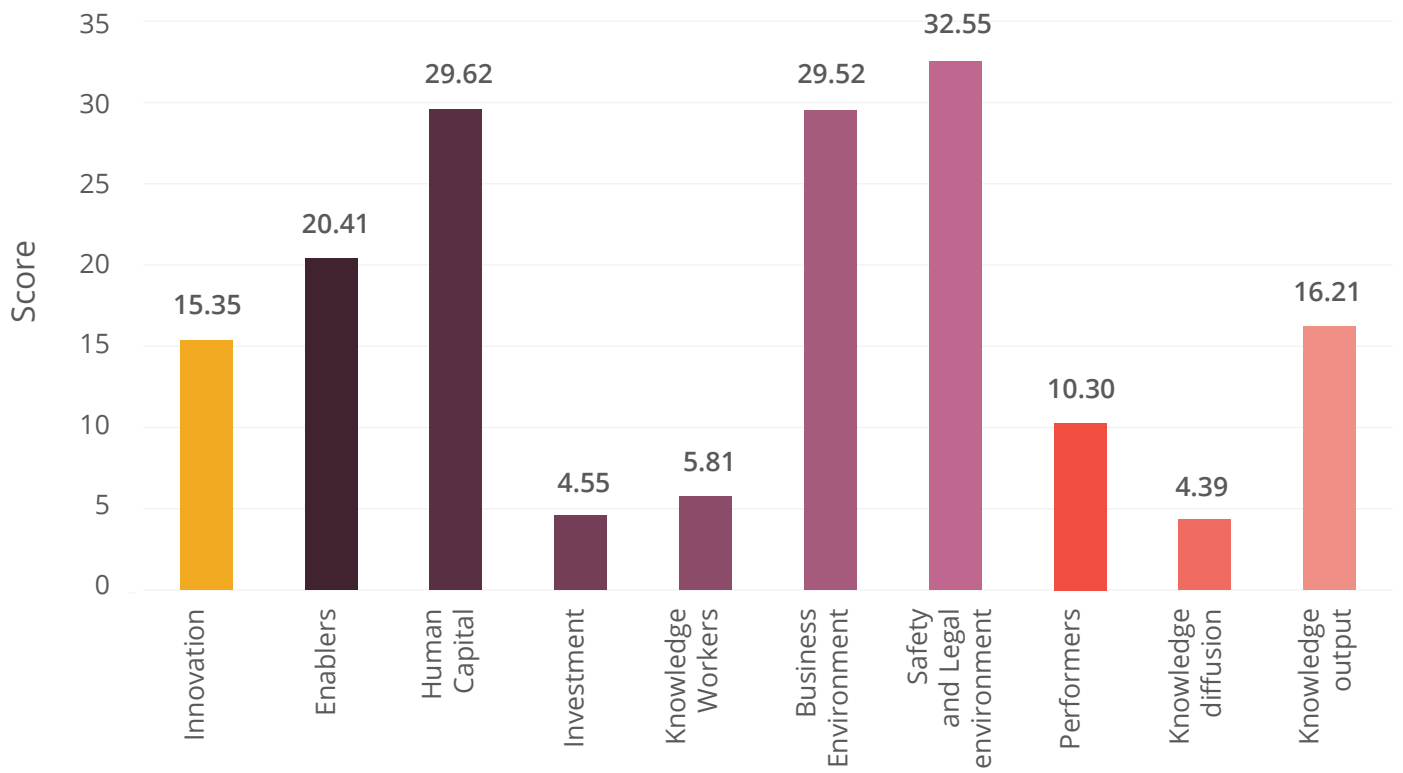


GSDP per Capita
(2019-20)

₹ 133322

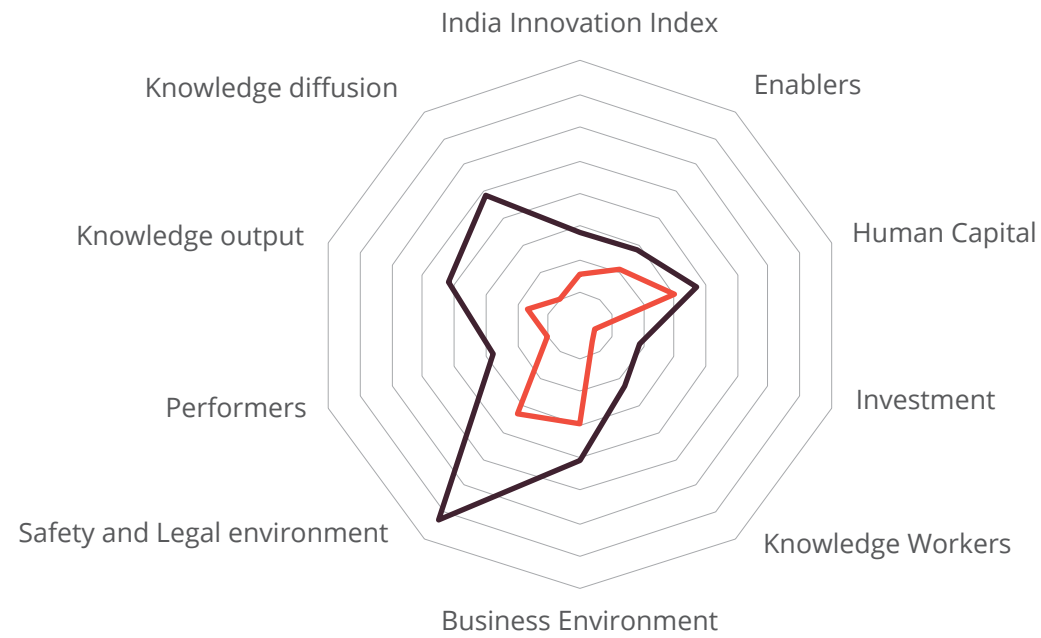


Scores

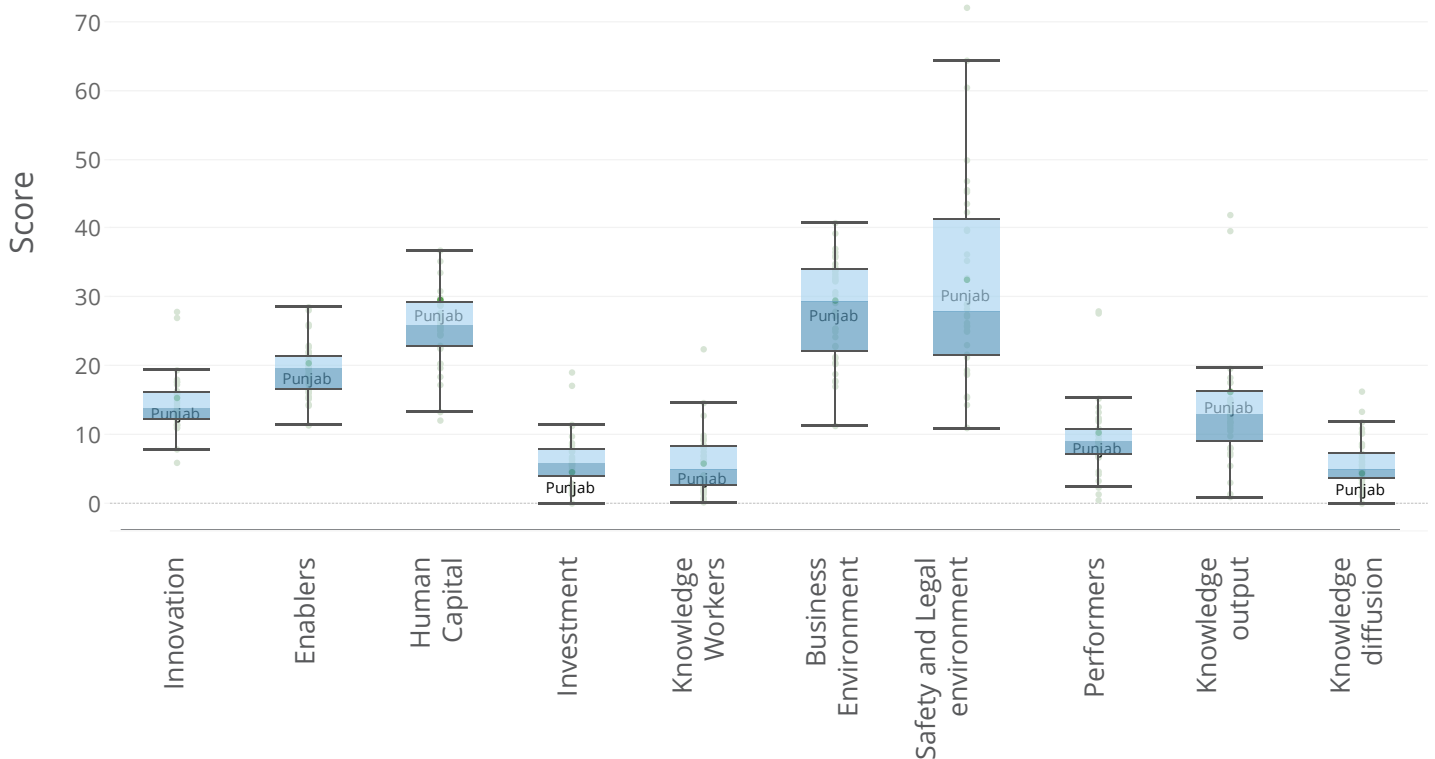


Country Comparison

— Best Performing State — Punjab



Relative Performance



India Innovation Index **15.35** ●Performers **10.30** ●Enablers **20.41** ●**Human Capital** ● **29.62**

| | |
|---|----------|
| Schools with functional computer facility | ● 56.89 |
| NAS scores | ● 65.40 |
| Expenditure on school education as a (% of GSDP) | ● 10.63 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 21.58 |
| Pupil-Teacher ratio: Primary & Secondary | ● 70.47 |
| Percentage of schools having (ATL) labs | ● 0.54 |
| Secondary school level completion rate | ● 100.00 |
| Enrolment in PhD | ● 22.31 |
| Enrolment in engineering and technology | ● 15.38 |
| Percentage of Colleges connected through NMEICT | ● 26.32 |
| Higher education institutions- NAAC grade A and above | ● 5.99 |
| Enrolment in vocational education | ● 1.92 |
| Pupil Teacher Ratio- Higher Education | ● 77.37 |
| Tertiary mobility | ● 45.44 |

Investment ● **4.55**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 2.16 |
| Expenditure on R&D | ● 3.18 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.39 |
| NIRF ranking of top 5 universities | ● 49.40 |
| FDI inflow as a percentage of state GDP | ● 0.50 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **5.81**

| | |
|--|---------|
| Knowledge intensive employment | ● 3.11 |
| Females employed with advanced degrees | ● 7.26 |
| NGOs involved in knowledge intensive areas | ● 1.03 |
| No. of private R&D units | ● 9.02 |
| No. of R&D Institutions funded | ● 13.08 |
| Skill development training | ● 6.27 |

Knowledge Output ● **16.21**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 3.86 |
| Publication | ● 25.10 |
| Environment clearance approved | ● 66.12 |
| GSDP per capita growth rate | ● 27.47 |
| New Businesses | ● 11.93 |
| Startups | ● 5.73 |
| Industrial design filed | ● 1.84 |
| Patent filed (per unit of GSDP) | ● 42.25 |
| Trade mark filed | ● 10.86 |

Business Environment ● **29.52**

| | |
|--|----------|
| Ease of Doing Business score | ● 8.77 |
| Cluster strength | ● 28.81 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of GDP) | ● 21.57 |
| Bank accounts | ● 0.75 |
| Gross capital formation as a (% of GVA) | ● 33.52 |
| Incubators | ● 1.12 |
| Micro finance institutions (MUDRA) | ● 96.89 |
| Bank accounts with Aadhar seeding | ● 85.11 |
| Share of manufacturing and services as a (% of GSDP) | ● 61.43 |
| Internet subscribers | ● 5.62 |
| Online services transaction | ● 9.47 |
| Villages in state with internet connectivity | ● 100.00 |
| Services offered online by state government | ● 29.35 |
| Subsidies or benefits transferred through DBT | ● 61.12 |

Safety and Legal Environment ● **32.55**

| | |
|---|---------|
| IT/IP related Acts | ● 95.09 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 21.95 |
| Pendency rate | ● 98.99 |
| Charge sheeting Rate | ● 27.50 |
| Pendency Percentage- Corruption cases investigation | ● 7.20 |
| Rate of Cognizable Crime | ● 84.82 |
| Police personnel | ● 13.61 |

Knowledge Diffusion ● **4.39**

| | |
|--|---------|
| Citation Score | ● 48.31 |
| Circulation | ● 11.85 |
| GIs registered | ● 0.01 |
| Handlooms sales as a (% of GSDP) | ● 0.03 |
| High and medium high tech manufacturing entities | ● 0.09 |
| High-tech exports | ● 19.18 |
| Software exports | ● 0.25 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Odisha, Bihar, Haryana, Kerala, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Delhi, Uttarakhand

Major states

Rajasthan

Category Rank

12



Efficiency Ratio

0.379

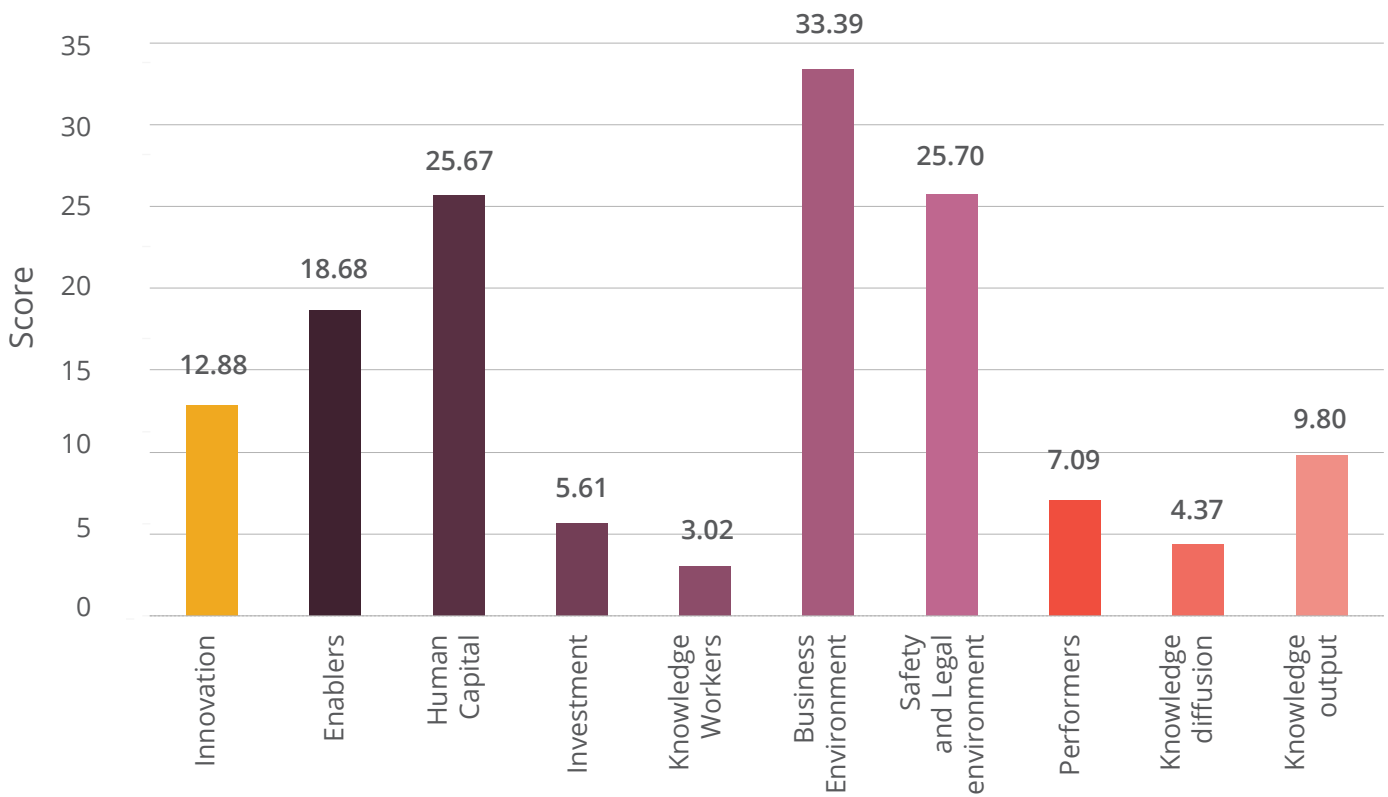


GSDP per Capita
(2019-20)

₹ 88463



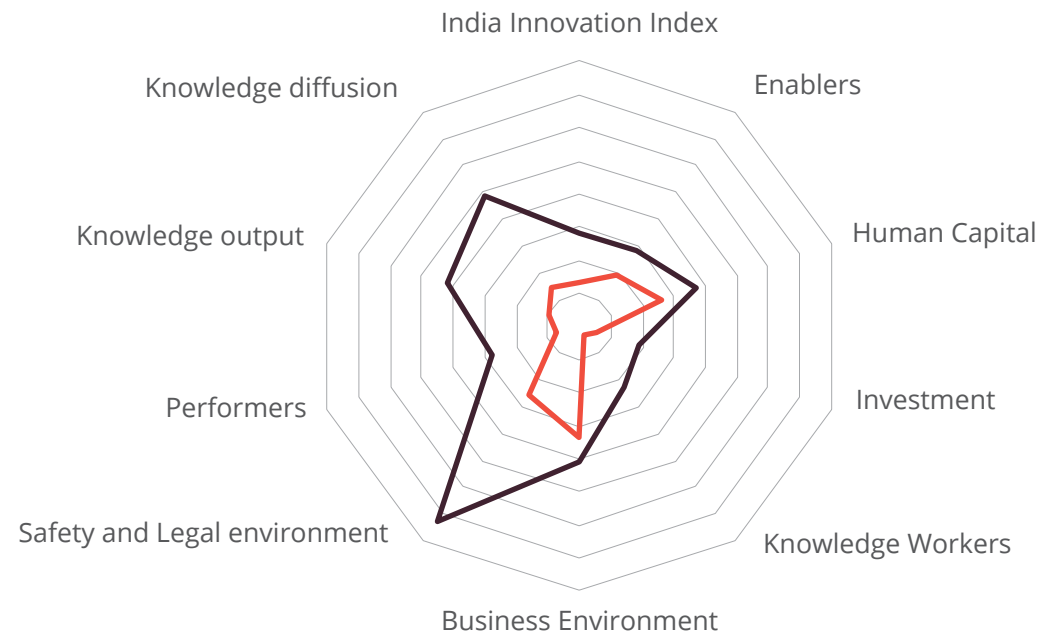
Scores



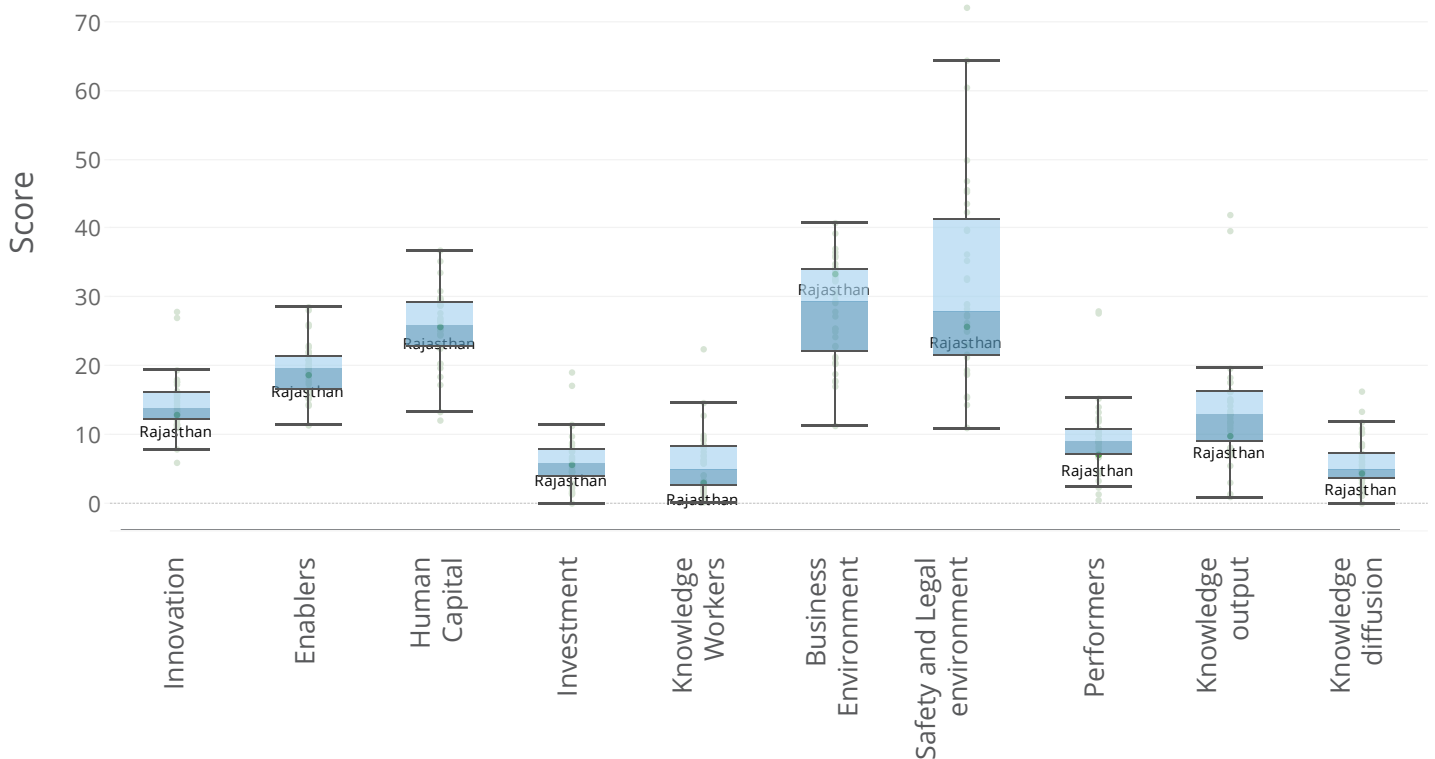
Country Comparison

— Best Performing State

— Rajasthan



Relative Performance



India Innovation Index **12.88** ●Performers **7.09** ●Enablers **18.68** ●**Human Capital** ● **25.67**

| | |
|---|---------|
| Schools with functional computer facility | ● 44.21 |
| NAS scores | ● 74.21 |
| Expenditure on school education as a (% of GSDP) | ● 15.81 |
| NER in school education | ● 58.75 |
| Accolades in STEM Activities | ● 37.09 |
| Pupil-Teacher ratio: Primary & Secondary | ● 76.75 |
| Percentage of schools having (ATL) labs | ● 0.29 |
| Secondary school level completion rate | ● 97.12 |
| Enrolment in PhD | ● 10.89 |
| Enrolment in engineering and technology | ● 6.50 |
| Percentage of Colleges connected through NMEICT | ● 31.86 |
| Higher education institutions- NAAC grade A and above | ● 0.76 |
| Enrolment in vocational education | ● 3.49 |
| Pupil Teacher Ratio- Higher Education | ● 55.78 |
| Tertiary mobility | ● 19.89 |

Investment ● **5.61**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 0.96 |
| Expenditure on R&D | ● 0.74 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.65 |
| NIRF ranking of top 5 universities | ● 48.63 |
| FDI inflow as a percentage of state GDP | ● 0.58 |
| Venture capital deals | ● 10.41 |

Knowledge Worker ● **3.02**

| | |
|--|--------|
| Knowledge intensive employment | ● 1.22 |
| Females employed with advanced degrees | ● 3.83 |
| NGOs involved in knowledge intensive areas | ● 2.48 |
| No. of private R&D units | ● 3.98 |
| No. of R&D Institutions funded | ● 9.44 |
| Skill development training | ● 1.35 |

Knowledge Output ● **9.80**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 5.56 |
| Publication | ● 28.53 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 32.97 |
| New Businesses | ● 18.79 |
| Startups | ● 8.62 |
| Industrial design filed | ● 0.64 |
| Patent filed (per unit of GSDP) | ● 4.83 |
| Trade mark filed | ● 5.12 |

Business Environment ● **33.39**

| | |
|--|----------|
| Ease of Doing Business score | ● 29.86 |
| Cluster strength | ● 37.21 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of GDP) | ● 18.61 |
| Bank accounts | ● 0.48 |
| Gross capital formation as a (% of GVA) | ● 36.94 |
| Incubators | ● 1.07 |
| Micro finance institutions (MUDRA) | ● 98.50 |
| Bank accounts with Aadhar seeding | ● 88.15 |
| Share of manufacturing and services as a (% of GSDP) | ● 55.46 |
| Internet subscribers | ● 4.10 |
| Online services transaction | ● 14.25 |
| Villages in state with internet connectivity | ● 97.82 |
| Services offered online by state government | ● 32.85 |
| Subsidies or benefits transferred through DBT | ● 100.00 |

Safety and Legal Environment ● **25.70**

| | |
|---|---------|
| IT/IP related Acts | ● 94.48 |
| Cyber cells | ● 0.00 |
| Social Media Monitoring Cells | ● 0.37 |
| Pendency rate | ● 79.37 |
| Charge sheeting Rate | ● 44.18 |
| Pendency Percentage- Corruption cases investigation | ● 4.00 |
| Rate of Cognizable Crime | ● 81.69 |
| Police personnel | ● 2.99 |

Knowledge Diffusion ● **4.37**

| | |
|--|---------|
| Citation Score | ● 52.17 |
| Circulation | ● 11.68 |
| GIs registered | ● 0.19 |
| Handlooms sales as a (% of GSDP) | ● 0.19 |
| High and medium high tech manufacturing entities | ● 0.11 |
| High-tech exports | ● 11.92 |
| Software exports | ● 0.32 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Andhra Pradesh, Telangana, Delhi, West Bengal, Madhya Pradesh, Kerala, Haryana, Punjab, Odisha, Bihar

NE and Hill states

Sikkim

Category Rank

6



Efficiency Ratio

0.330

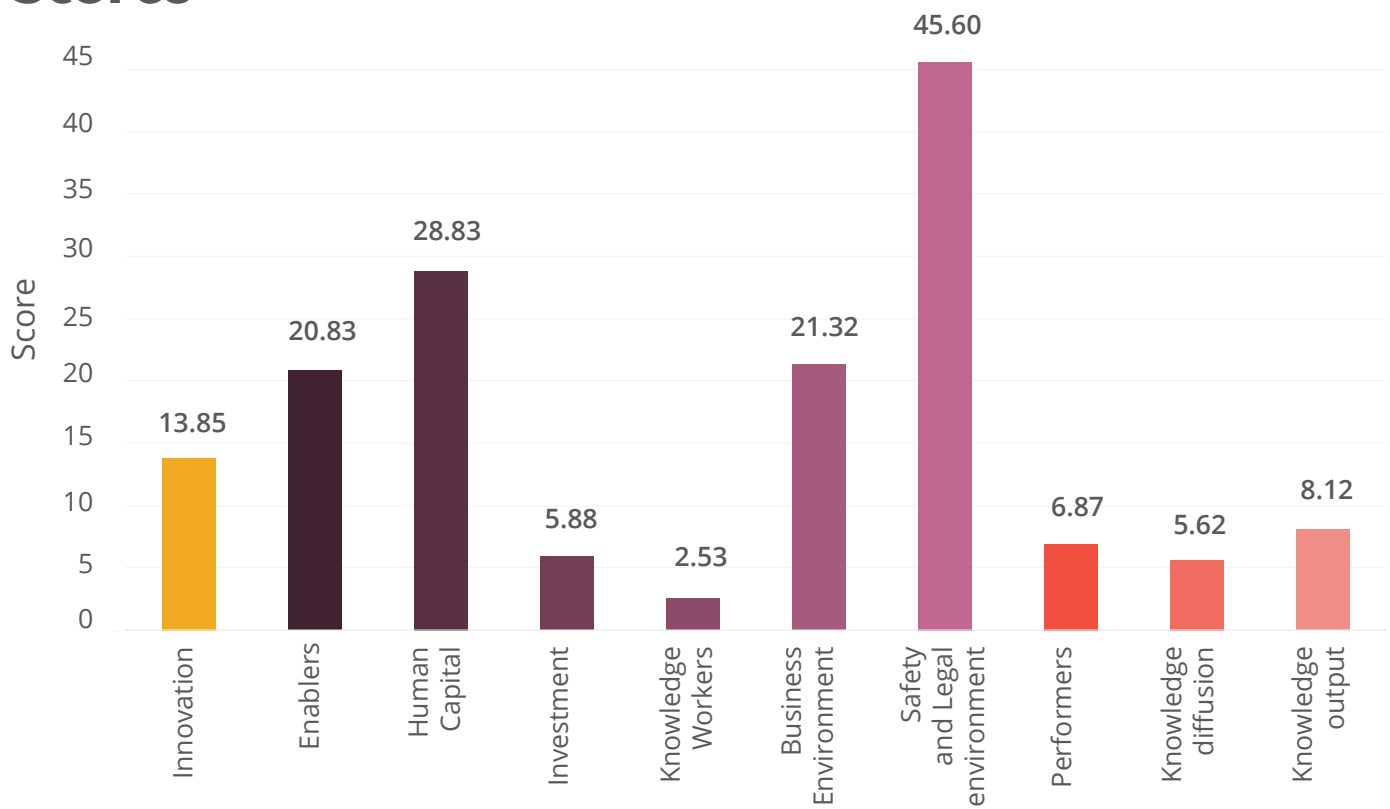


GSDP per Capita
(2019-20)

₹ 295355

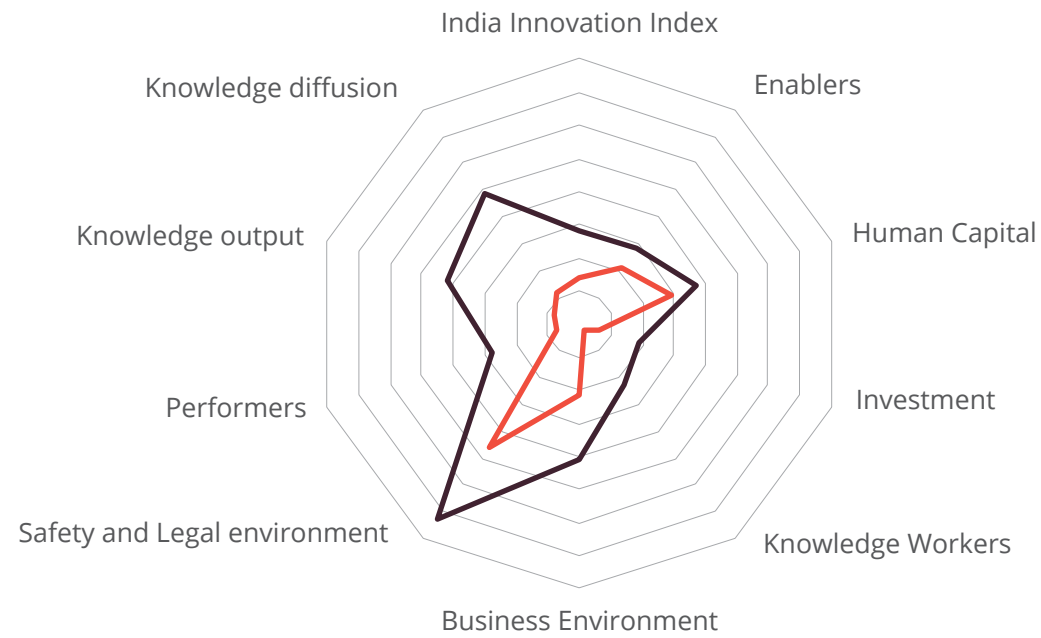


Scores

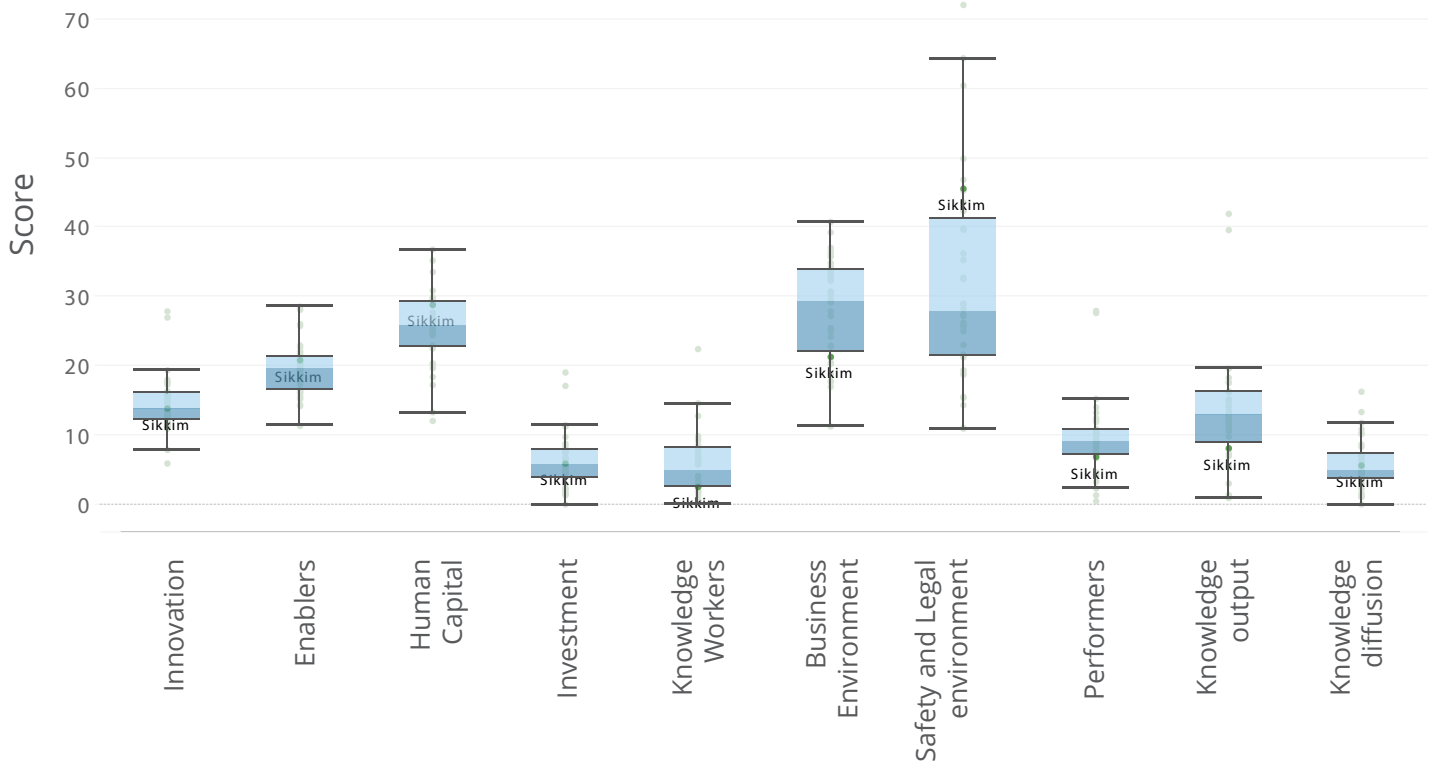


Country Comparison

— Best Performing State — Sikkim



Relative Performance



India Innovation Index **13.8**Performers **6.87**Enablers **20.83****Human Capital** 28.83

| | |
|---|--------|
| Schools with functional computer facility | 60.38 |
| NAS scores | 64.42 |
| Expenditure on school education as a (% of GSDP) | 15.99 |
| NER in school education | 37.81 |
| Accolades in STEM Activities | 54.56 |
| Pupil-Teacher ratio: Primary & Secondary | 87.36 |
| Percentage of schools having (ATL) labs | 0.31 |
| Secondary school level completion rate | 100.00 |
| Enrolment in PhD | 46.19 |
| Enrolment in engineering and technology | 18.87 |
| Percentage of Colleges connected through NMEICT | 25.97 |
| Higher education institutions- NAAC grade A and above | 0.00 |
| Enrolment in vocational education | 3.17 |
| Pupil Teacher Ratio- Higher Education | 46.78 |
| Tertiary mobility | 0.00 |

Investment 5.88

| | |
|---|-------|
| Expenditure on higher and technical education | 29.61 |
| Expenditure on R&D | 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | 12.30 |
| NIRF ranking of top 5 universities | 0.00 |
| FDI inflow as a percentage of state GDP | 0.00 |
| Venture capital deals | 0.00 |

Knowledge Worker 2.53

| | |
|--|------|
| Knowledge intensive employment | 6.54 |
| Females employed with advanced degrees | 2.30 |
| NGOs involved in knowledge intensive areas | 1.91 |
| No. of private R&D units | 4.61 |
| No. of R&D Institutions funded | 0.00 |
| Skill development training | 0.00 |

Knowledge Output 8.12

| | |
|---------------------------------|-------|
| Grassroot innovations | 41.55 |
| Publication | 0.00 |
| Environment clearance approved | 72.47 |
| GSDP per capita growth rate | 71.43 |
| New Businesses | 1.37 |
| Startups | 0.00 |
| Industrial design filed | 0.69 |
| Patent filed (per unit of GSDP) | 4.33 |
| Trade mark filed | 2.93 |

Business Environment 21.32

| | |
|--|-------|
| Ease of Doing Business score | 0.00 |
| Cluster strength | 7.20 |
| Common facility centre | 0.00 |
| Domestic credit to private sector as a (% of SDP) | 5.44 |
| Bank accounts | 0.56 |
| Gross capital formation as a (% of GVA) | 5.81 |
| Incubators | 0.00 |
| Micro finance institutions (MUDRA) | 97.41 |
| Bank accounts with Aadhar seeding | 90.15 |
| Share of manufacturing and services as a (% of GSDP) | 72.39 |
| Internet subscribers | 6.92 |
| Online services transaction | 5.43 |
| Villages in state with internet connectivity | 97.65 |
| Services offered online by state government | 14.04 |
| Subsidies or benefits transferred through DBT | 6.97 |

Safety and Legal Environment 45.60

| | |
|---|-------|
| IT/IP related Acts | 99.39 |
| Cyber cells | 41.55 |
| Social Media Monitoring Cells | 0.00 |
| Pendency rate | 98.88 |
| Charge sheeting Rate | 36.97 |
| Pendency Percentage- Corruption cases investigation | 0.00 |
| Rate of Cognizable Crime | 94.45 |
| Police personnel | 50.16 |

Knowledge Diffusion 5.62

| | |
|--|-------|
| Citation Score | 0.00 |
| Circulation | 20.09 |
| GIs registered | 0.01 |
| Handlooms sales as a (% of GSDP) | 0.50 |
| High and medium high tech manufacturing entities | 0.00 |
| High-tech exports | 88.50 |
| Software exports | 0.20 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Manipur, Nagaland, Mizoram, Arunachal Pradesh, Puducherry, Meghalaya, Chandigarh, Andaman and Nicobar Islands, Tripura, Goa

Major states

Tamil Nadu

Category Rank

5



Efficiency Ratio

0.658

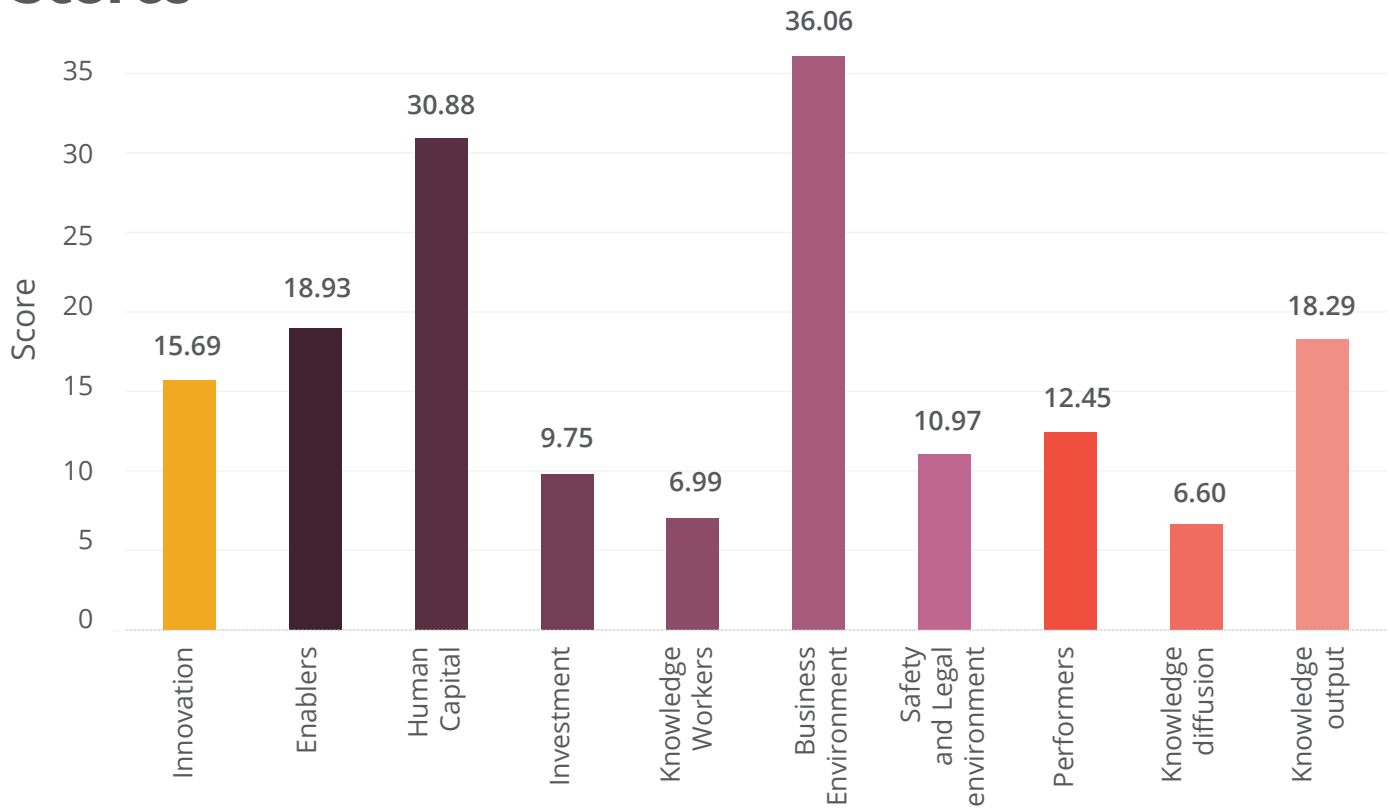


GSDP per Capita
(2019-20)

₹ 168449

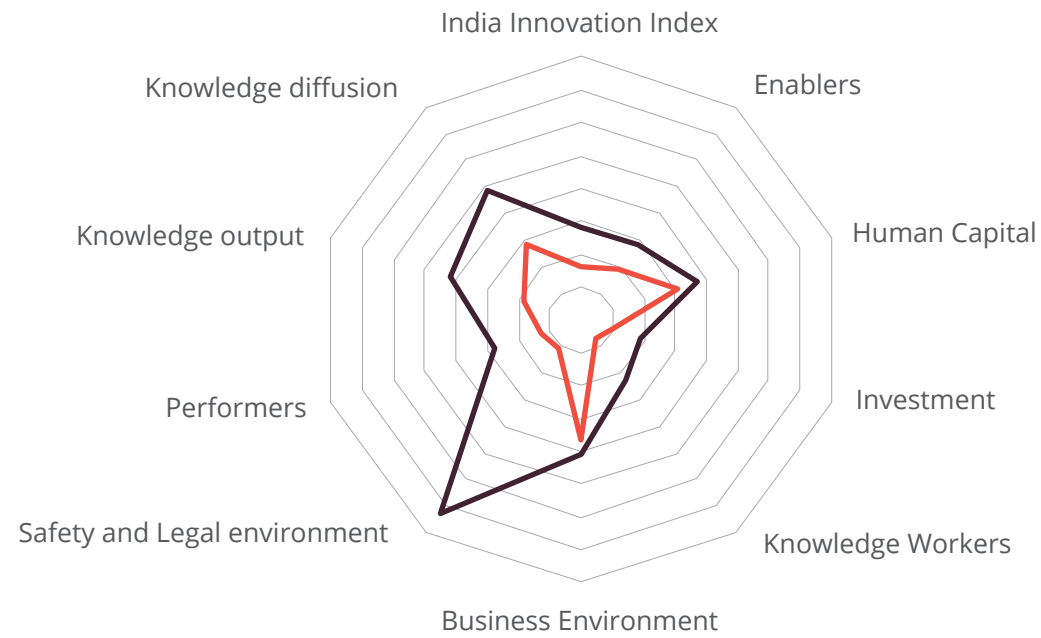


Scores

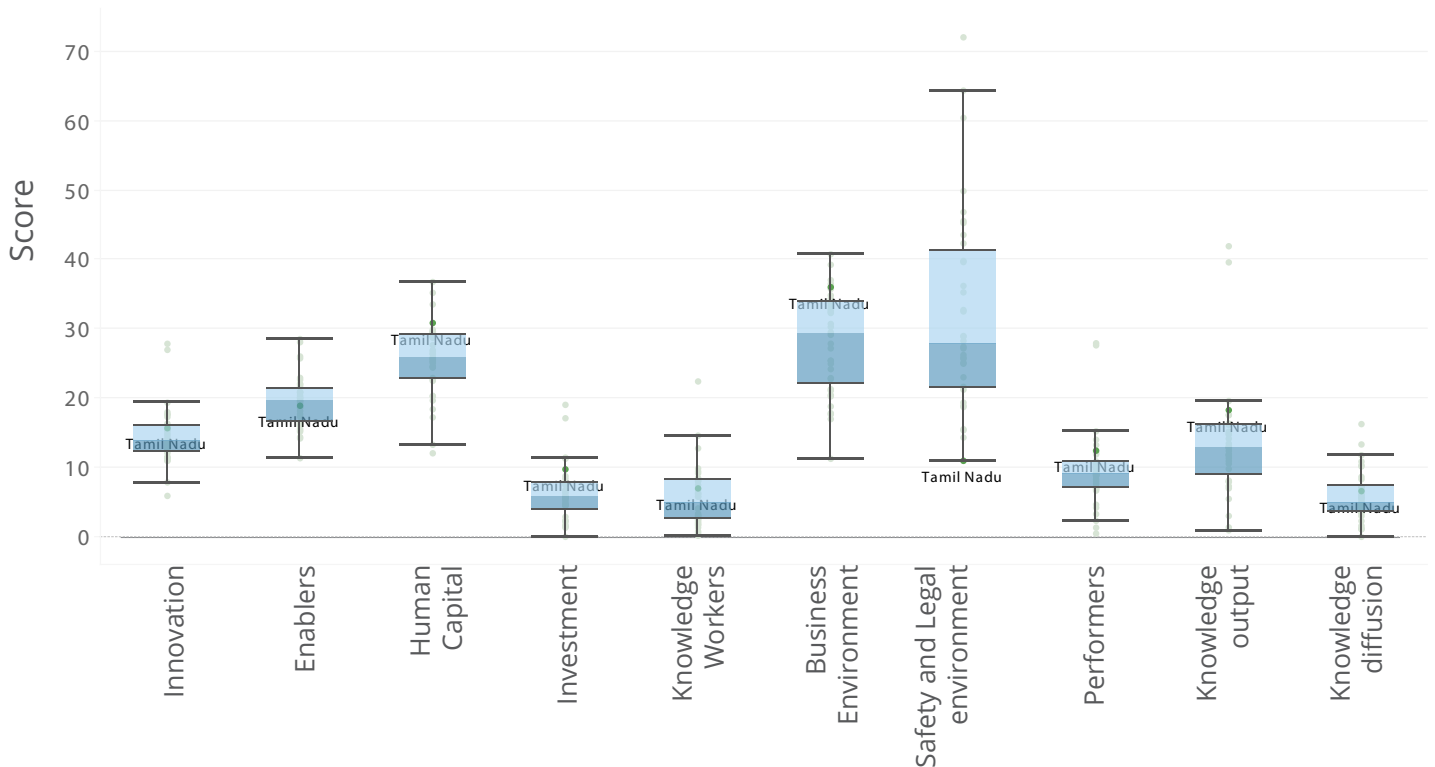


Country Comparison

— Best Performing State — Tamil Nadu



Relative Performance



India Innovation Index **15.69** ●Performers **12.45** ●Enablers **18.93** ●**Human Capital** ● **30.88**

| | |
|---|---------|
| Schools with functional computer facility | ● 76.55 |
| NAS scores | ● 63.11 |
| Expenditure on school education as a (% of GSDP) | ● 11.37 |
| NER in school education | ● 51.88 |
| Accolades in STEM Activities | ● 26.85 |
| Pupil-Teacher ratio: Primary & Secondary | ● 76.94 |
| Percentage of schools having (ATL) labs | ● 1.29 |
| Secondary school level completion rate | ● 99.51 |
| Enrolment in PhD | ● 29.23 |
| Enrolment in engineering and technology | ● 55.75 |
| Percentage of Colleges connected through NMEICT | ● 21.65 |
| Higher education institutions- NAAC grade A and above | ● 7.64 |
| Enrolment in vocational education | ● 0.63 |
| Pupil Teacher Ratio- Higher Education | ● 77.37 |
| Tertiary mobility | ● 13.53 |

Investment ● **9.75**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 14.47 |
| Expenditure on R&D | ● 1.31 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.30 |
| NIRF ranking of top 5 universities | ● 68.74 |
| FDI inflow as a percentage of state GDP | ● 1.67 |
| Venture capital deals | ● 14.29 |

Knowledge Worker ● **6.99**

| | |
|--|---------|
| Knowledge intensive employment | ● 1.16 |
| Females employed with advanced degrees | ● 3.92 |
| NGOs involved in knowledge intensive areas | ● 2.61 |
| No. of private R&D units | ● 21.48 |
| No. of R&D Institutions funded | ● 21.00 |
| Skill development training | ● 4.82 |

Knowledge Output ● **18.29**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 5.31 |
| Publication | ● 33.55 |
| Environment clearance approved | ● 91.45 |
| GSDP per capita growth rate | ● 60.44 |
| New Businesses | ● 16.59 |
| Startups | ● 8.23 |
| Industrial design filed | ● 2.43 |
| Patent filed (per unit of GSDP) | ● 33.77 |
| Trade mark filed | ● 7.04 |

Business Environment ● **36.06**

| | |
|--|---------|
| Ease of Doing Business score | ● 15.68 |
| Cluster strength | ● 74.43 |
| Common facility centre | ● 22.64 |
| Domestic credit to private sector as a (% of SDP) | ● 28.28 |
| Bank accounts | ● 0.64 |
| Gross capital formation as a (% of GVA) | ● 34.25 |
| Incubators | ● 2.77 |
| Micro finance institutions (MUDRA) | ● 98.88 |
| Bank accounts with Aadhar seeding | ● 84.16 |
| Share of manufacturing and services as a (% of GSDP) | ● 70.05 |
| Internet subscribers | ● 4.74 |
| Online services transaction | ● 17.71 |
| Villages in state with internet connectivity | ● 99.67 |
| Services offered online by state government | ● 46.25 |
| Subsidies or benefits transferred through DBT | ● 23.48 |

Safety and Legal Environment ● **10.97**

| | |
|---|---------|
| IT/IP related Acts | ● 95.09 |
| Cyber cells | ● 2.46 |
| Social Media Monitoring Cells | ● 6.68 |
| Pendency rate | ● 81.39 |
| Charge sheeting Rate | ● 5.56 |
| Pendency Percentage- Corruption cases investigation | ● 6.70 |
| Rate of Cognizable Crime | ● 0.00 |
| Police personnel | ● 4.68 |

Knowledge Diffusion ● **6.60**

| | |
|--|---------|
| Citation Score | ● 57.97 |
| Circulation | ● 12.57 |
| GIs registered | ● 0.52 |
| Handlooms sales as a (% of GSDP) | ● 2.22 |
| High and medium high tech manufacturing entities | ● 0.16 |
| High-tech exports | ● 21.57 |
| Software exports | ● 5.55 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Gujarat, Uttar Pradesh, Karnataka, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala

Major states

Telangana

Category Rank

2



Efficiency Ratio

0.759

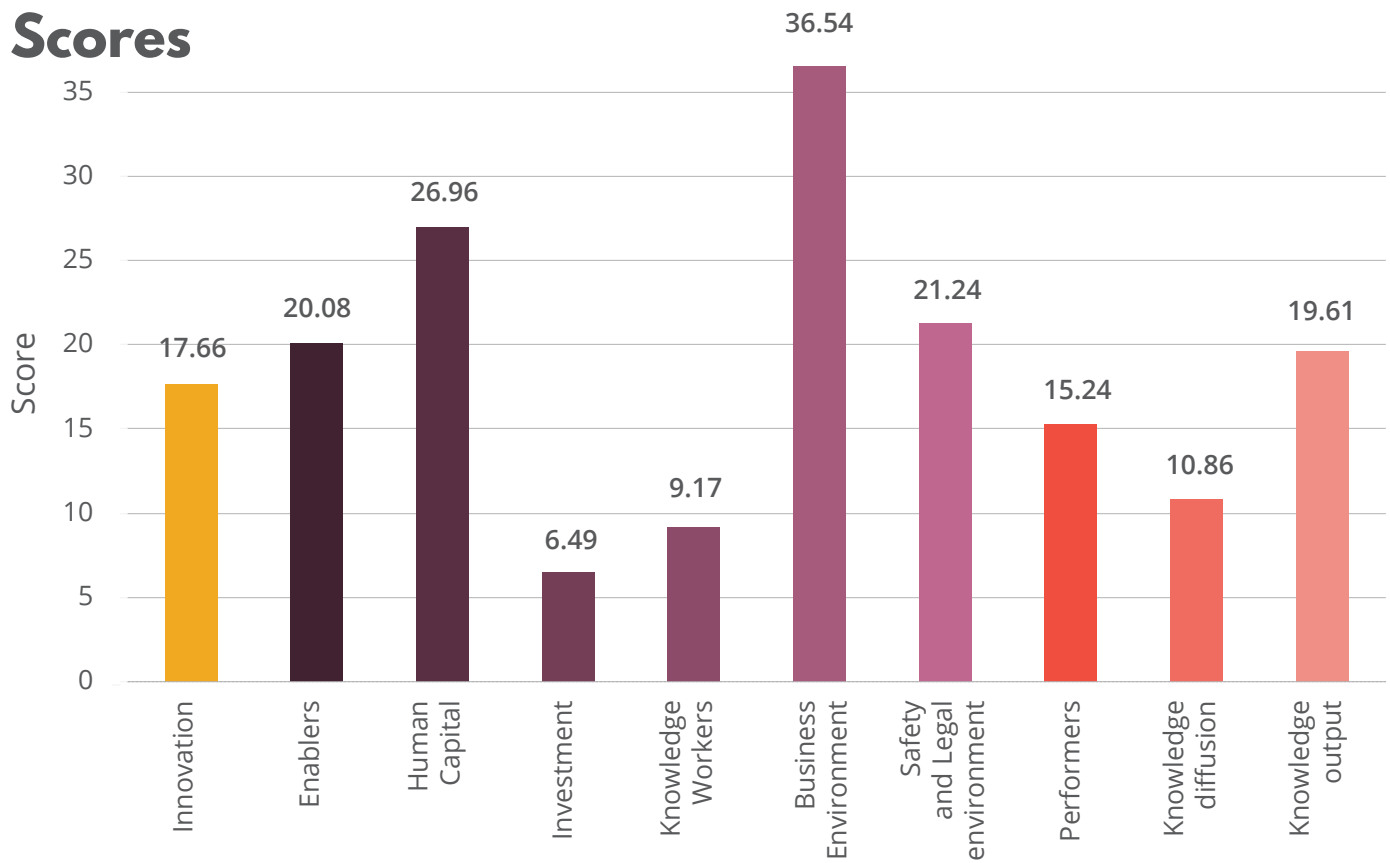


GSDP per Capita
(2019-20)

₹ 173672

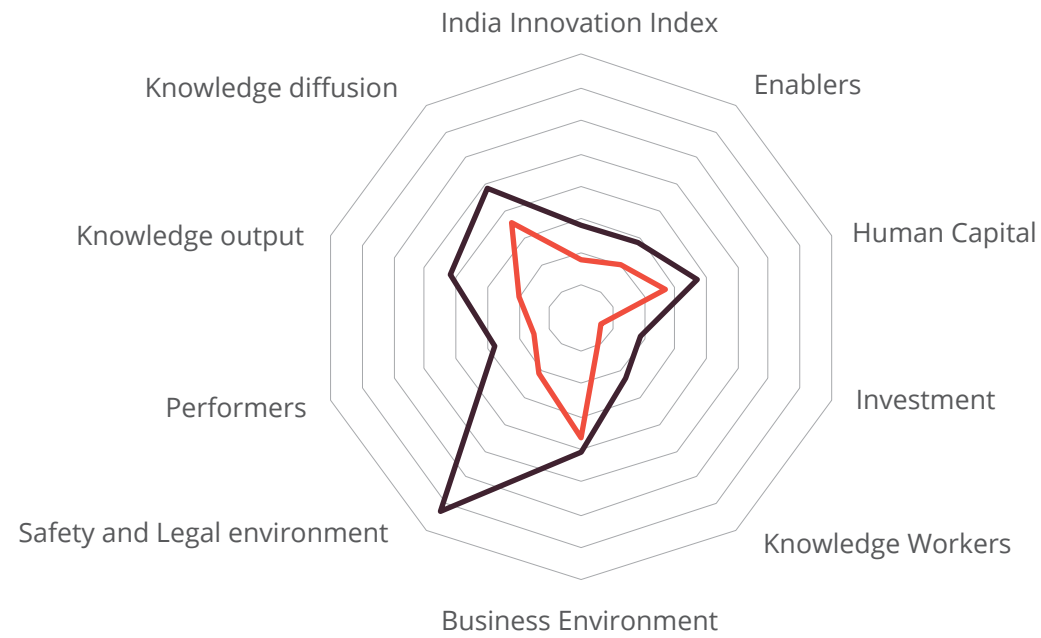


Scores

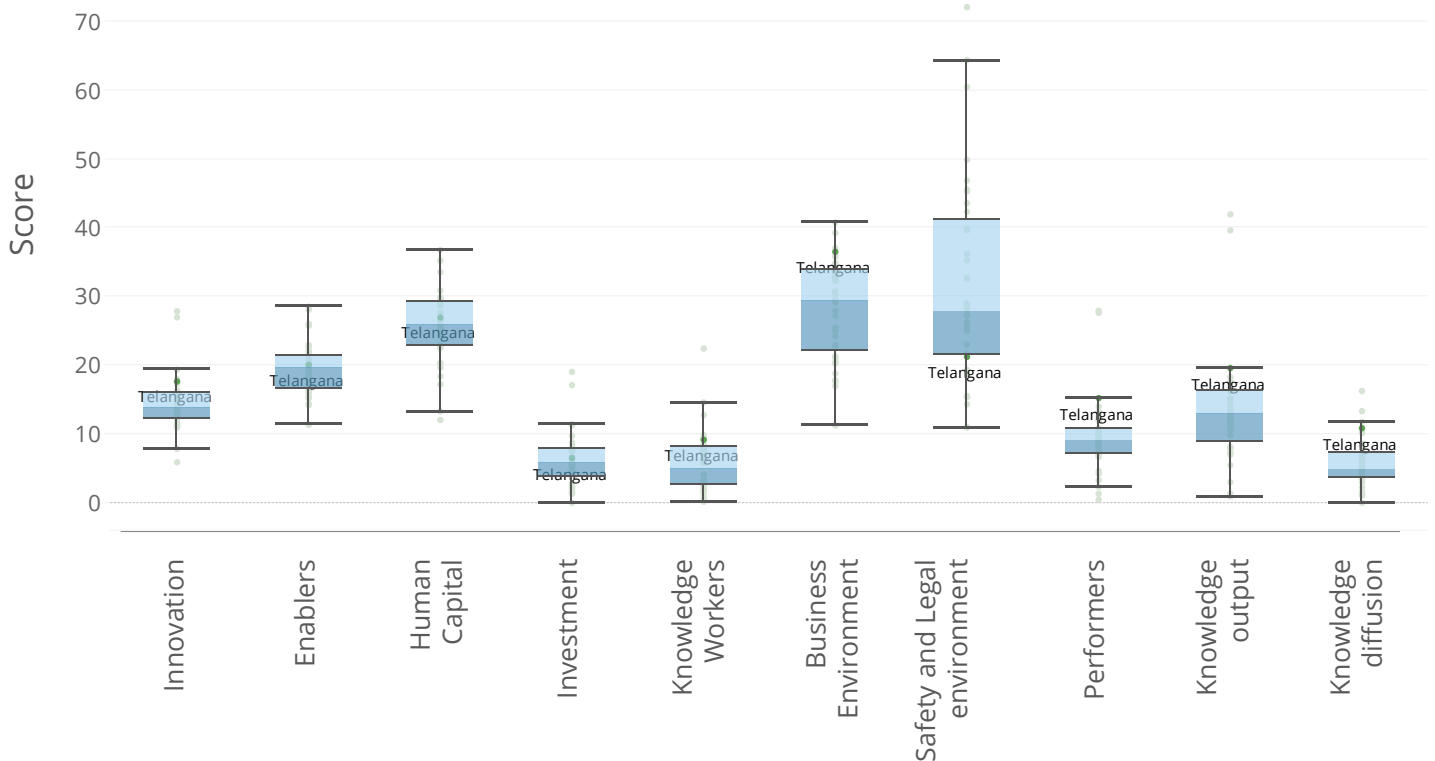


Country Comparison

— Best Performing State — Telangana



Relative Performance



India Innovation Index **17.66** ●Performers **15.24** ●Enablers **20.08** ●**Human Capital** ● **26.96**

| | |
|---|---------|
| Schools with functional computer facility | ● 35.34 |
| NAS scores | ● 67.09 |
| Expenditure on school education as a (% of GSDP) | ● 12.43 |
| NER in school education | ● 83.75 |
| Accolades in STEM Activities | ● 17.21 |
| Pupil-Teacher ratio: Primary & Secondary | ● 77.95 |
| Percentage of schools having (ATL) labs | ● 0.63 |
| Secondary school level completion rate | ● 99.25 |
| Enrolment in PhD | ● 10.77 |
| Enrolment in engineering and technology | ● 32.98 |
| Percentage of Colleges connected through NMEICT | ● 48.48 |
| Higher education institutions- NAAC grade A and above | ● 4.32 |
| Enrolment in vocational education | ● 1.23 |
| Pupil Teacher Ratio- Higher Education | ● 77.37 |
| Tertiary mobility | ● 1.30 |

Investment ● **6.49**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 2.42 |
| Expenditure on R&D | ● 1.14 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 0.40 |
| NIRF ranking of top 5 universities | ● 57.02 |
| FDI inflow as a percentage of state GDP | ● 2.21 |
| Venture capital deals | ● 8.57 |

Knowledge Worker ● **9.17**

| | |
|--|---------|
| Knowledge intensive employment | ● 2.09 |
| Females employed with advanced degrees | ● 3.78 |
| NGOs involved in knowledge intensive areas | ● 2.57 |
| No. of private R&D units | ● 40.43 |
| No. of R&D Institutions funded | ● 19.73 |
| Skill development training | ● 4.42 |

Knowledge Output ● **19.61**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 3.86 |
| Publication | ● 37.28 |
| Environment clearance approved | ● 74.27 |
| GSDP per capita growth rate | ● 32.97 |
| New Businesses | ● 36.31 |
| Startups | ● 12.92 |
| Industrial design filed | ● 1.21 |
| Patent filed (per unit of GSDP) | ● 23.26 |
| Trade mark filed | ● 8.81 |

Business Environment ● **36.54**

| | |
|--|---------|
| Ease of Doing Business score | ● 55.99 |
| Cluster strength | ● 28.81 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 31.34 |
| Bank accounts | ● 0.69 |
| Gross capital formation as a (% of GVA) | ● 40.19 |
| Incubators | ● 3.69 |
| Micro finance institutions (MUDRA) | ● 98.45 |
| Bank accounts with Aadhar seeding | ● 88.82 |
| Share of manufacturing and services as a (% of GSDP) | ● 72.40 |
| Internet subscribers | ● 5.13 |
| Online services transaction | ● 30.92 |
| Villages in state with internet connectivity | ● 98.49 |
| Services offered online by state government | ● 53.91 |
| Subsidies or benefits transferred through DBT | ● 22.81 |

Safety and Legal Environment ● **21.24**

| | |
|---|---------|
| IT/IP related Acts | ● 94.48 |
| Cyber cells | ● 3.61 |
| Social Media Monitoring Cells | ● 2.88 |
| Pendency rate | ● 93.04 |
| Charge sheeting Rate | ● 13.59 |
| Pendency Percentage- Corruption cases investigation | ● 1.20 |
| Rate of Cognizable Crime | ● 78.27 |
| Police personnel | ● 3.54 |

Knowledge Diffusion ● **10.86**

| | |
|--|---------|
| Citation Score | ● 60.65 |
| Circulation | ● 10.08 |
| GIs registered | ● 0.19 |
| Handlooms sales as a (% of GSDP) | ● 0.66 |
| High and medium high tech manufacturing entities | ● 0.27 |
| High-tech exports | ● 92.95 |
| Software exports | ● 15.56 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Andhra Pradesh, Delhi, Rajasthan, Madhya Pradesh, Kerala, Haryana, West Bengal, Punjab, Odisha, Bihar

NE and Hill states

Tripura

Category Rank

8



Efficiency Ratio

0.167

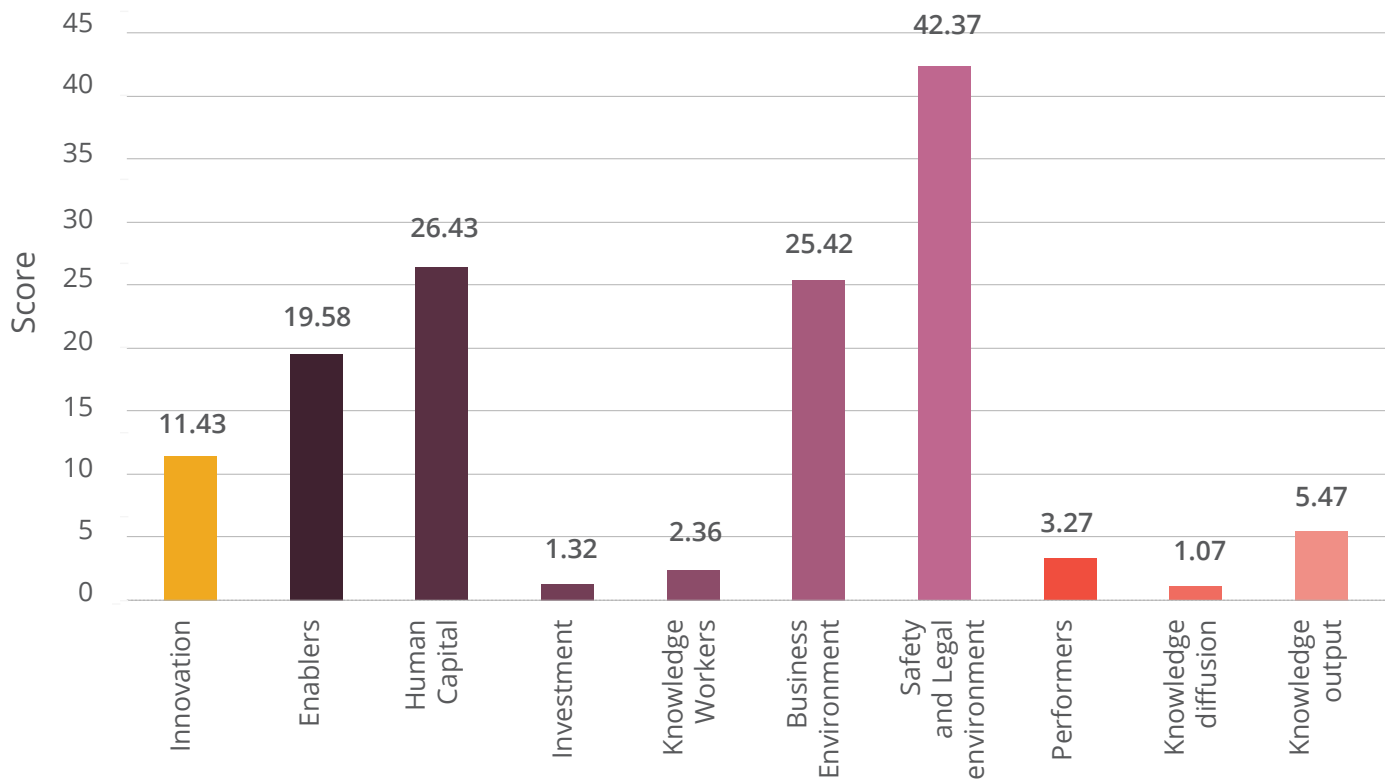


GSDP per Capita
(2019-20)

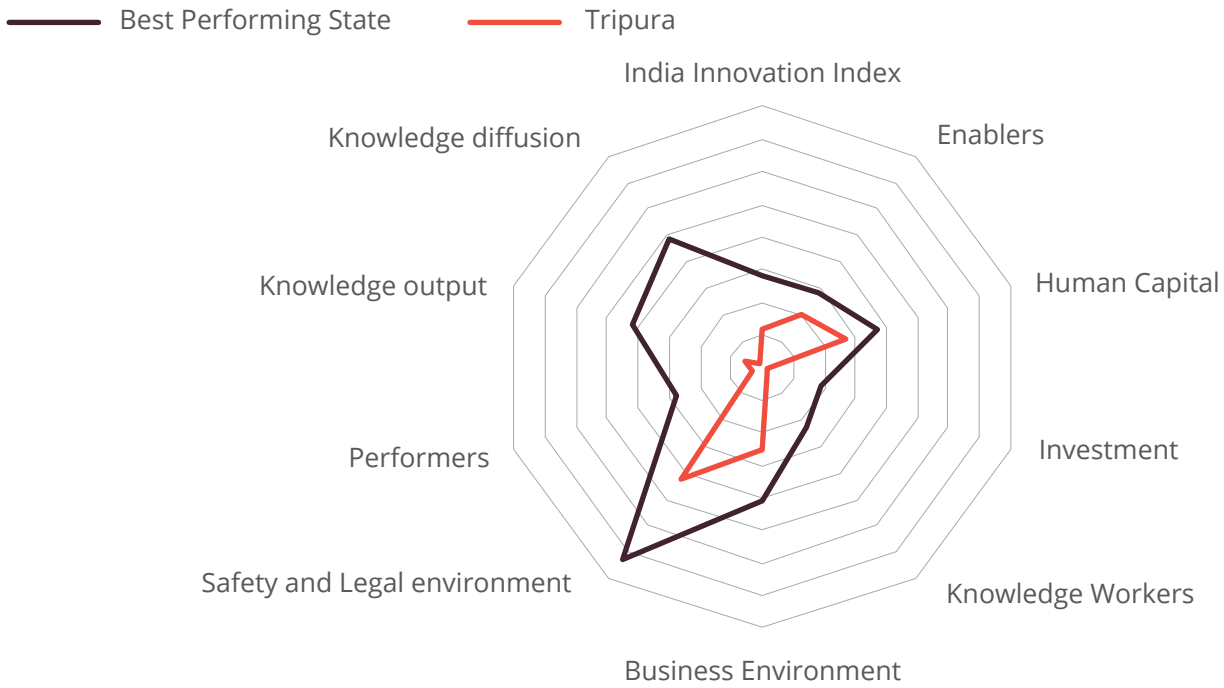
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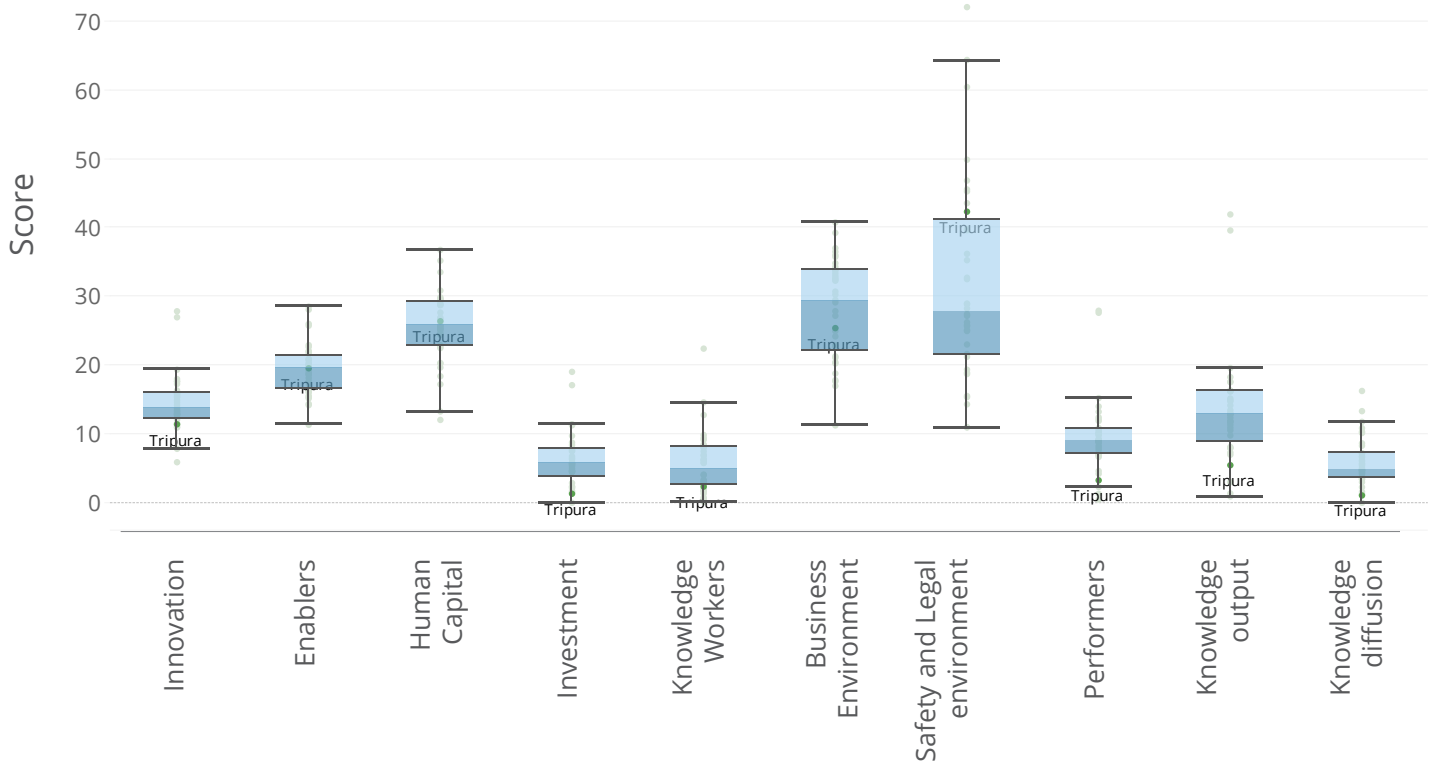
Scores



Country Comparison



Relative Performance



India Innovation Index **11.43** ●Performers **3.27** ●Enablers **19.58** ●**Human Capital** ● **26.43**

| | |
|---|----------|
| Schools with functional computer facility | ● 15.08 |
| NAS scores | ● 57.91 |
| Expenditure on school education as a (% of GSDP) | ● 24.76 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 20.92 |
| Pupil-Teacher ratio: Primary & Secondary | ● 76.99 |
| Percentage of schools having (ATL) labs | ● 0.40 |
| Secondary school level completion rate | ● 95.82 |
| Enrolment in PhD | ● 11.52 |
| Enrolment in engineering and technology | ● 4.39 |
| Percentage of Colleges connected through NMEICT | ● 0.00 |
| Higher education institutions- NAAC grade A and above | ● 70.91 |
| Enrolment in vocational education | ● 8.78 |
| Pupil Teacher Ratio- Higher Education | ● 43.18 |
| Tertiary mobility | ● 0.00 |

Investment ● **1.32**

| | |
|---|--------|
| Expenditure on higher and technical education | ● 7.05 |
| Expenditure on R&D | ● 0.00 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 2.41 |
| NIRF ranking of top 5 universities | ● 0.00 |
| FDI inflow as a percentage of state GDP | ● 0.00 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **2.36**

| | |
|--|---------|
| Knowledge intensive employment | ● 0.03 |
| Females employed with advanced degrees | ● 0.88 |
| NGOs involved in knowledge intensive areas | ● 6.04 |
| No. of private R&D units | ● 0.00 |
| No. of R&D Institutions funded | ● 12.89 |
| Skill development training | ● 0.00 |

Knowledge Output ● **5.47**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 20.05 |
| Publication | ● 0.00 |
| Environment clearance approved | ● 0.00 |
| GSDP per capita growth rate | ● 71.43 |
| New Businesses | ● 3.69 |
| Startups | ● 5.18 |
| Industrial design filed | ● 0.00 |
| Patent filed (per unit of GSDP) | ● 6.06 |
| Trade mark filed | ● 0.67 |

Business Environment ● **25.42**

| | |
|--|---------|
| Ease of Doing Business score | ● 0.00 |
| Cluster strength | ● 0.00 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 9.94 |
| Bank accounts | ● 0.54 |
| Gross capital formation as a (% of GVA) | ● 29.84 |
| Incubators | ● 0.77 |
| Micro finance institutions (MUDRA) | ● 98.22 |
| Bank accounts with Aadhar seeding | ● 93.15 |
| Share of manufacturing and services as a (% of GSDP) | ● 50.83 |
| Internet subscribers | ● 3.72 |
| Online services transaction | ● 4.03 |
| Villages in state with internet connectivity | ● 96.41 |
| Services offered online by state government | ● 21.37 |
| Subsidies or benefits transferred through DBT | ● 83.71 |

Safety and Legal Environment ● **42.37**

| | |
|---|----------|
| IT/IP related Acts | ● 94.48 |
| Cyber cells | ● 6.91 |
| Social Media Monitoring Cells | ● 6.91 |
| Pendency rate | ● 83.20 |
| Charge sheeting Rate | ● 28.73 |
| Pendency Percentage- Corruption cases investigation | ● 100.00 |
| Rate of Cognizable Crime | ● 93.64 |
| Police personnel | ● 31.83 |

Knowledge Diffusion ● **1.07**

| | |
|--|--------|
| Citation Score | ● 0.00 |
| Circulation | ● 4.06 |
| GIs registered | ● 0.01 |
| Handlooms sales as a (% of GSDP) | ● 3.97 |
| High and medium high tech manufacturing entities | ● 0.00 |
| High-tech exports | ● 0.14 |
| Software exports | ● 0.00 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Chandigarh, Goa, Meghalaya, Puducherry, Manipur, Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Andaman and Nicobar Islands

Major states

Uttar Pradesh

Category Rank

7



Efficiency Ratio

0.719

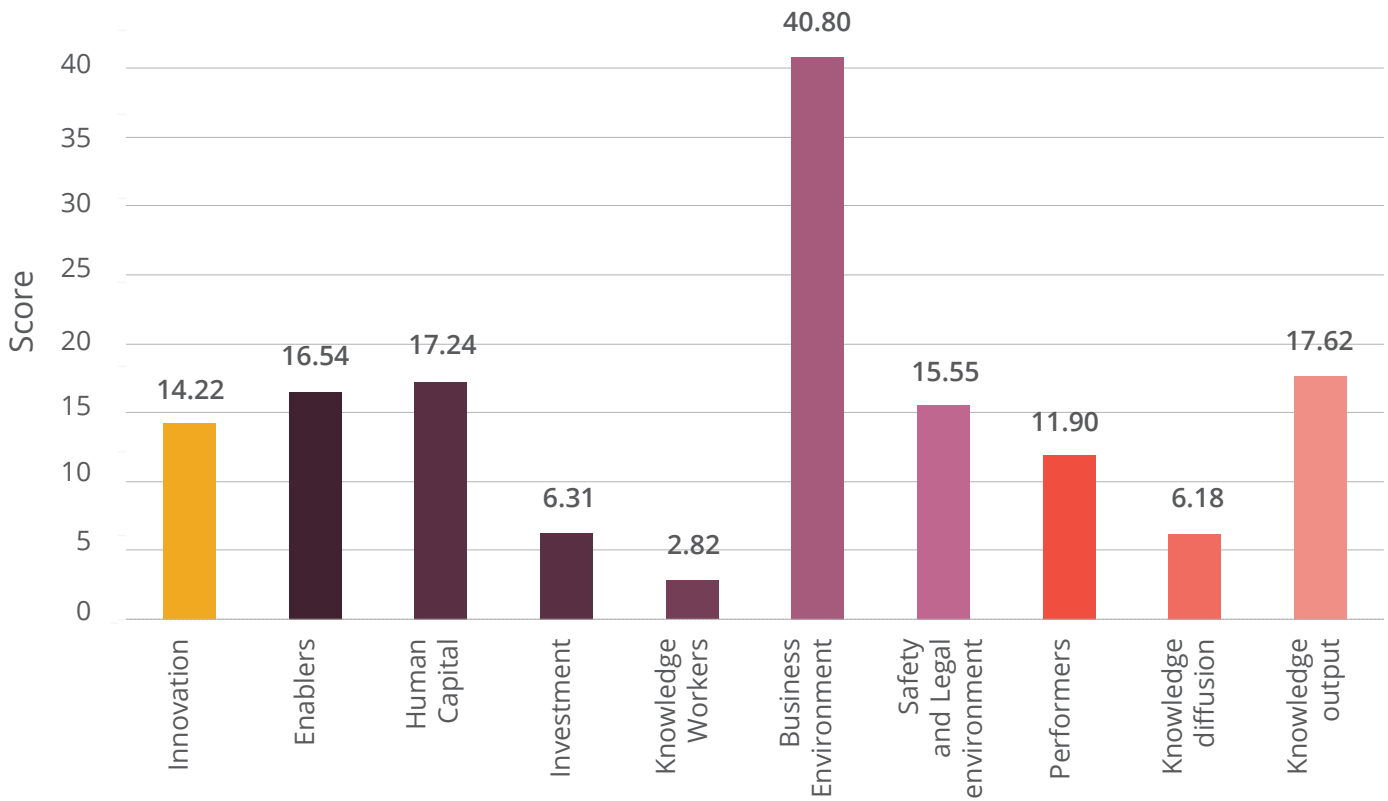


GSDP per Capita
(2019-20)

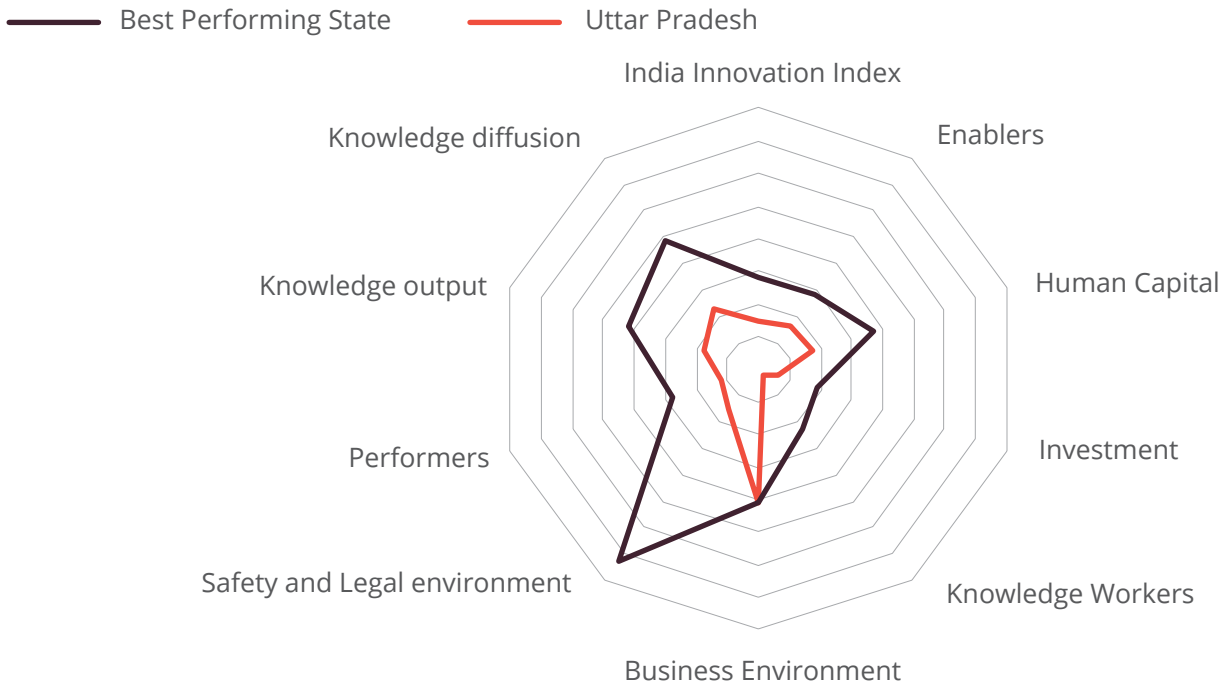
₹ 51255



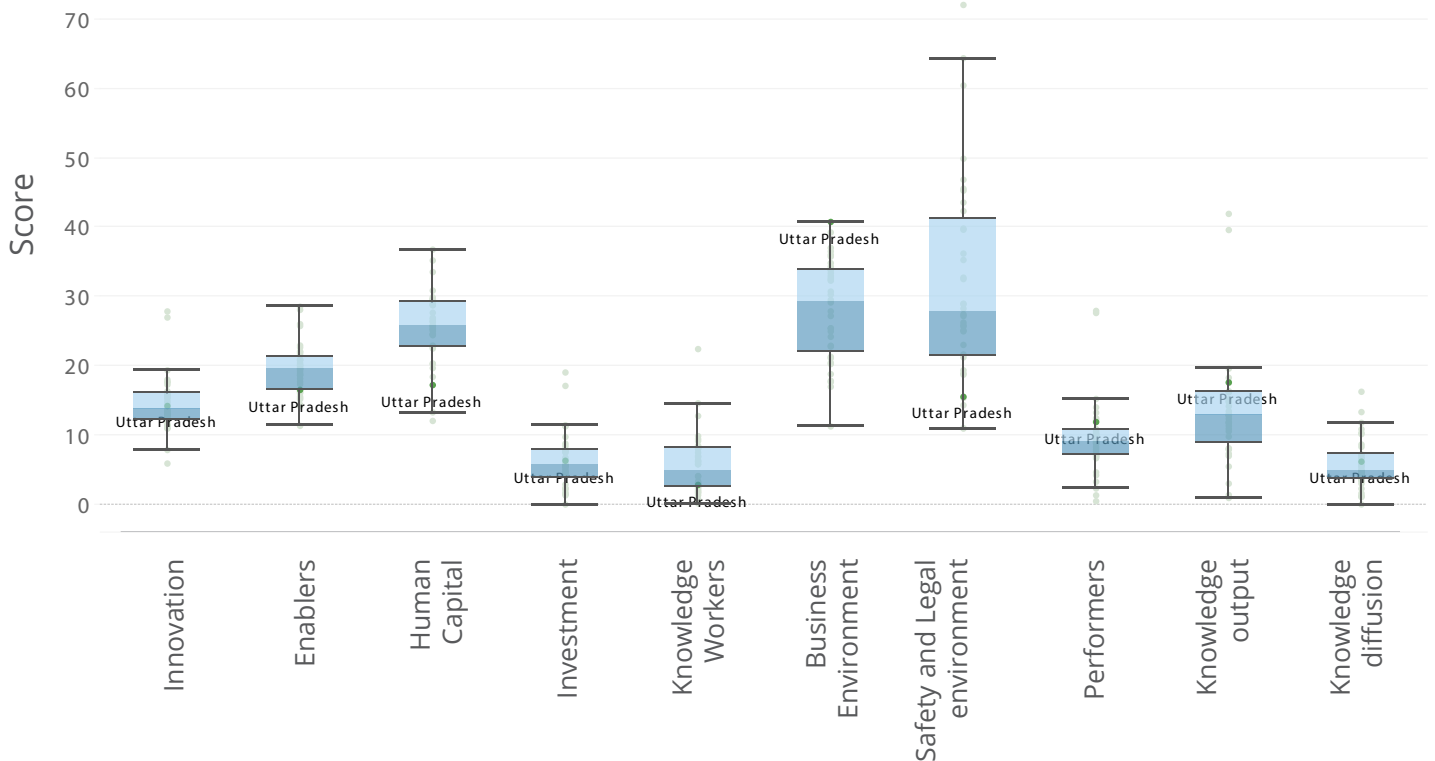
Scores



Country Comparison



Relative Performance



India Innovation Index **14.22** ●Performers **11.90** ●Enablers **16.54** ●**Human Capital** ● **17.24**

| | |
|---|---------|
| Schools with functional computer facility | ● 17.70 |
| NAS scores | ● 0.00 |
| Expenditure on school education as a (% of GSDP) | ● 16.72 |
| NER in school education | ● 73.75 |
| Accolades in STEM Activities | ● 10.95 |
| Pupil-Teacher ratio: Primary & Secondary | ● 59.62 |
| Percentage of schools having (ATL) labs | ● 0.29 |
| Secondary school level completion rate | ● 87.05 |
| Enrolment in PhD | ● 8.18 |
| Enrolment in engineering and technology | ● 9.00 |
| Percentage of Colleges connected through NMEICT | ● 51.95 |
| Higher education institutions- NAAC grade A and above | ● 9.29 |
| Enrolment in vocational education | ● 1.69 |
| Pupil Teacher Ratio- Higher Education | ● 35.98 |
| Tertiary mobility | ● 9.68 |

Investment ● **6.31**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 0.38 |
| Expenditure on R&D | ● 0.56 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 1.14 |
| NIRF ranking of top 5 universities | ● 64.60 |
| FDI inflow as a percentage of state GDP | ● 0.44 |
| Venture capital deals | ● 8.59 |

Knowledge Worker ● **2.82**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.53 |
| Females employed with advanced degrees | ● 3.69 |
| NGOs involved in knowledge intensive areas | ● 4.57 |
| No. of private R&D units | ● 3.22 |
| No. of R&D Institutions funded | ● 3.48 |
| Skill development training | ● 3.77 |

Knowledge Output ● **17.62**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 19.81 |
| Publication | ● 36.13 |
| Environment clearance approved | ● 82.63 |
| GSDP per capita growth rate | ● 21.98 |
| New Businesses | ● 31.17 |
| Startups | ● 15.03 |
| Industrial design filed | ● 0.38 |
| Patent filed (per unit of GSDP) | ● 12.27 |
| Trade mark filed | ● 2.97 |

Business Environment ● **40.80**

| | |
|--|---------|
| Ease of Doing Business score | ● 57.71 |
| Cluster strength | ● 60.02 |
| Common facility centre | ● 1.04 |
| Domestic credit to private sector as a (% of GDP) | ● 15.71 |
| Bank accounts | ● 0.63 |
| Gross capital formation as a (% of GVA) | ● 42.27 |
| Incubators | ● 0.56 |
| Micro finance institutions (MUDRA) | ● 96.29 |
| Bank accounts with Aadhar seeding | ● 86.89 |
| Share of manufacturing and services as a (% of GSDP) | ● 62.29 |
| Internet subscribers | ● 66.67 |
| Online services transaction | ● 6.56 |
| Villages in state with internet connectivity | ● 99.67 |
| Services offered online by state government | ● 28.39 |
| Subsidies or benefits transferred through DBT | ● 58.43 |

Safety and Legal Environment ● **15.55**

| | |
|---|---------|
| IT/IP related Acts | ● 74.85 |
| Cyber cells | ● 0.25 |
| Social Media Monitoring Cells | ● 0.13 |
| Pendency rate | ● 22.86 |
| Charge sheeting Rate | ● 20.80 |
| Pendency Percentage- Corruption cases investigation | ● 1.40 |
| Rate of Cognizable Crime | ● 84.11 |
| Police personnel | ● 3.73 |

Knowledge Diffusion ● **6.18**

| | |
|--|---------|
| Citation Score | ● 64.34 |
| Circulation | ● 10.95 |
| GIs registered | ● 0.39 |
| Handlooms sales as a (% of GSDP) | ● 1.51 |
| High and medium high tech manufacturing entities | ● 0.09 |
| High-tech exports | ● 26.06 |
| Software exports | ● 3.02 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Karnataka, Gujarat, Tamil Nadu, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala

NE and Hill states

Uttarakhand

Category Rank

2



Efficiency Ratio

0.600

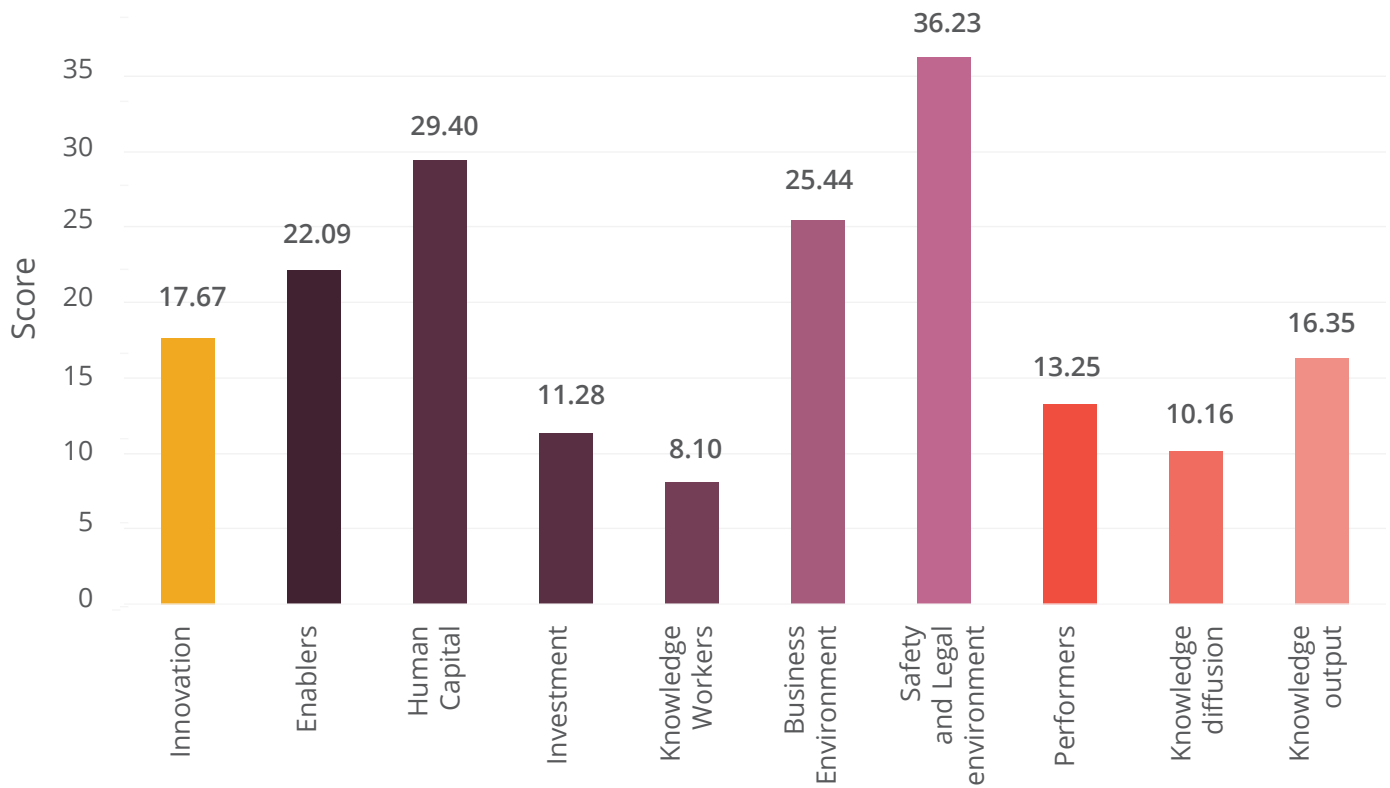


GSDP per Capita
(2019-20)

₹ 178050

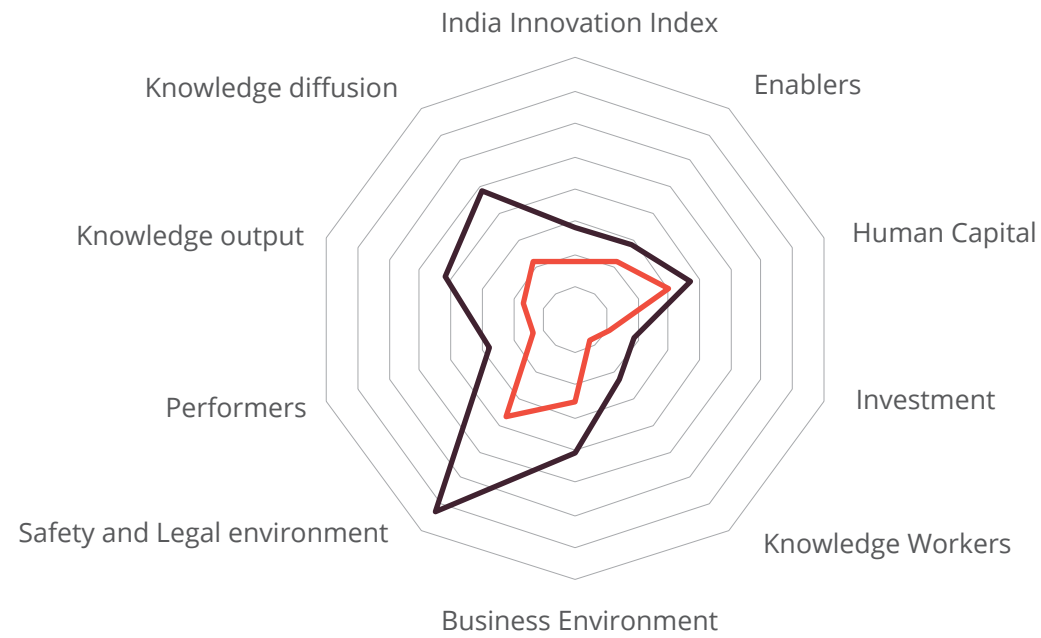


Scores

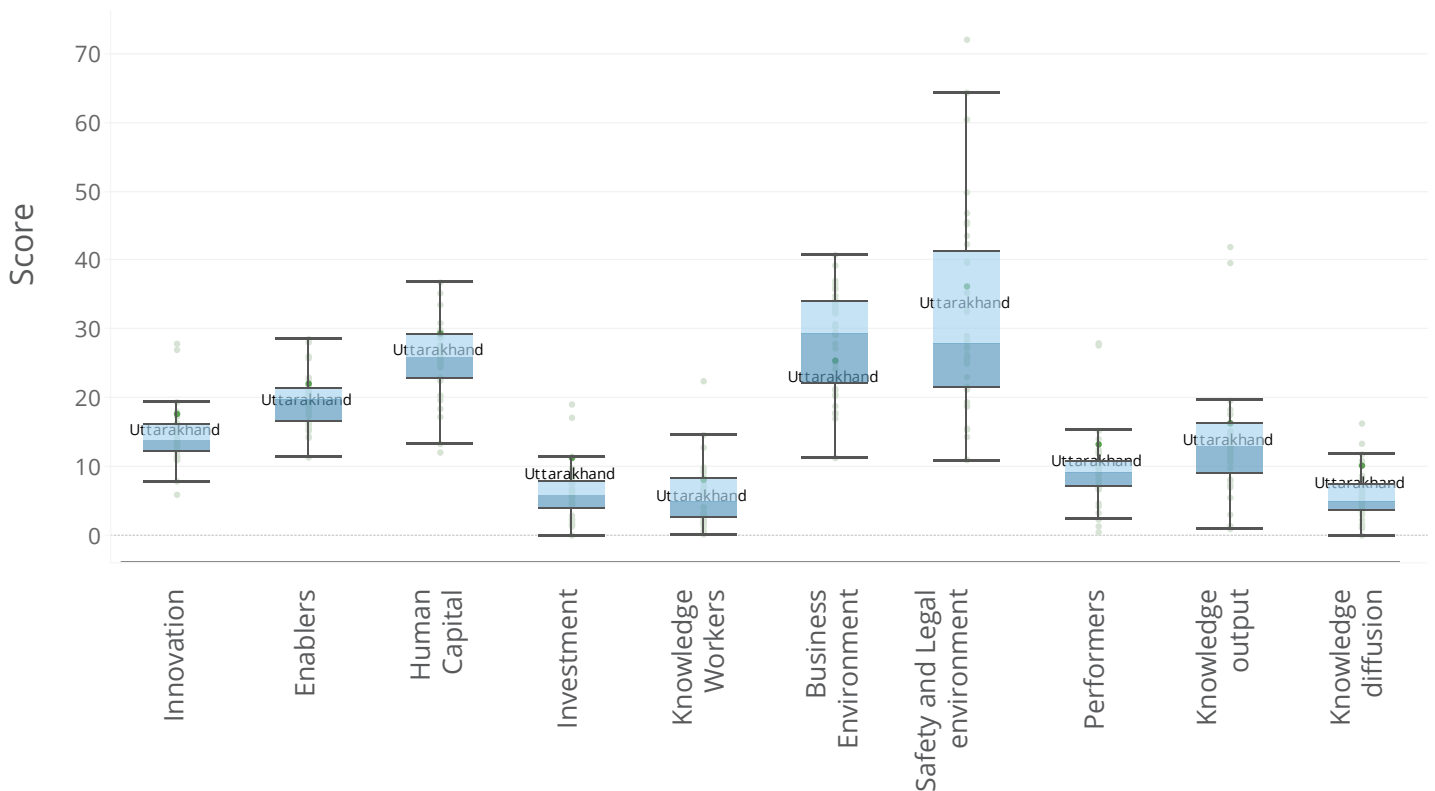


Country Comparison

— Best Performing State — Uttarakhand



Relative Performance



India Innovation Index **17.67** ●Performers **13.25** ●Enablers **22.09** ●**Human Capital** ● **29.40**

| | |
|---|---------|
| Schools with functional computer facility | ● 34.65 |
| NAS scores | ● 66.67 |
| Expenditure on school education as a (% of GSDP) | ● 66.67 |
| NER in school education | ● 90.31 |
| Accolades in STEM Activities | ● 26.96 |
| Pupil-Teacher ratio: Primary & Secondary | ● 75.78 |
| Percentage of schools having (ATL) labs | ● 0.20 |
| Secondary school level completion rate | ● 93.67 |
| Enrolment in PhD | ● 37.29 |
| Enrolment in engineering and technology | ● 16.64 |
| Percentage of Colleges connected through NMEICT | ● 0.00 |
| Higher education institutions- NAAC grade A and above | ● 0.11 |
| Enrolment in vocational education | ● 4.13 |
| Pupil Teacher Ratio- Higher Education | ● 59.37 |
| Tertiary mobility | ● 9.37 |

Investment ● **11.28**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 60.89 |
| Expenditure on R&D | ● 5.40 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 2.52 |
| NIRF ranking of top 5 universities | ● 23.06 |
| FDI inflow as a percentage of state GDP | ● 0.16 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **8.10**

| | |
|--|---------|
| Knowledge intensive employment | ● 2.96 |
| Females employed with advanced degrees | ● 6.42 |
| NGOs involved in knowledge intensive areas | ● 6.14 |
| No. of private R&D units | ● 6.13 |
| No. of R&D Institutions funded | ● 40.68 |
| Skill development training | ● 0.00 |

Knowledge Output ● **16.35**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 2.17 |
| Publication | ● 63.94 |
| Environment clearance approved | ● 91.32 |
| GSDP per capita growth rate | ● 10.99 |
| New Businesses | ● 15.14 |
| Startups | ● 8.89 |
| Industrial design filed | ● 0.89 |
| Patent filed (per unit of GSDP) | ● 12.74 |
| Trade mark filed | ● 6.51 |

Business Environment ● **25.44**

| | |
|--|---------|
| Ease of Doing Business score | ● 22.72 |
| Cluster strength | ● 12.00 |
| Common facility centre | ● 0.00 |
| Domestic credit to private sector as a (% of SDP) | ● 9.97 |
| Bank accounts | ● 0.65 |
| Gross capital formation as a (% of GVA) | ● 15.85 |
| Incubators | ● 1.12 |
| Micro finance institutions (MUDRA) | ● 96.12 |
| Bank accounts with Aadhar seeding | ● 83.80 |
| Share of manufacturing and services as a (% of GSDP) | ● 75.49 |
| Internet subscribers | ● 0.61 |
| Online services transaction | ● 8.25 |
| Villages in state with internet connectivity | ● 97.29 |
| Services offered online by state government | ● 22.65 |
| Subsidies or benefits transferred through DBT | ● 31.69 |

Safety and Legal Environment ● **36.23**

| | |
|---|---------|
| IT/IP related Acts | ● 87.12 |
| Cyber cells | ● 32.70 |
| Social Media Monitoring Cells | ● 32.70 |
| Pendency rate | ● 91.02 |
| Charge sheeting Rate | ● 18.85 |
| Pendency Percentage- Corruption cases investigation | ● 7.00 |
| Rate of Cognizable Crime | ● 71.98 |
| Police personnel | ● 7.25 |

Knowledge Diffusion ● **10.16**

| | |
|--|----------|
| Citation Score | ● 100.00 |
| Circulation | ● 36.97 |
| GIs registered | ● 0.03 |
| Handlooms sales as a (% of GSDP) | ● 0.73 |
| High and medium high tech manufacturing entities | ● 0.18 |
| High-tech exports | ● 22.56 |
| Software exports | ● 0.13 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Assam, Jharkhand, Dadra and Nagar Haveli, Lakshadweep, Chhattisgarh, Himachal Pradesh, Jammu and Kashmir, Ladakh, Goa, Tripura

Major states

West Bengal

Category Rank

11



Efficiency Ratio
Ratio Major states

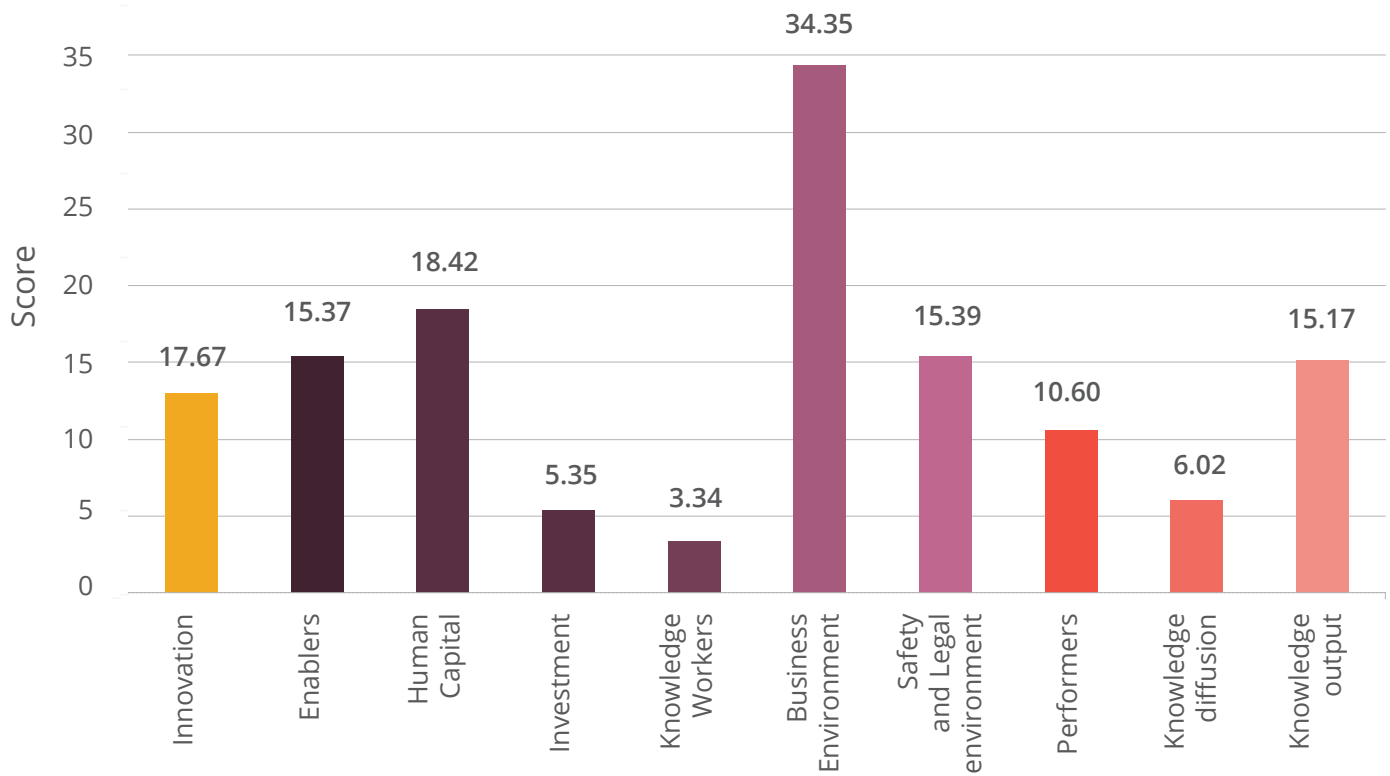


GSDP per Capita
(2019-20)

₹ 80651

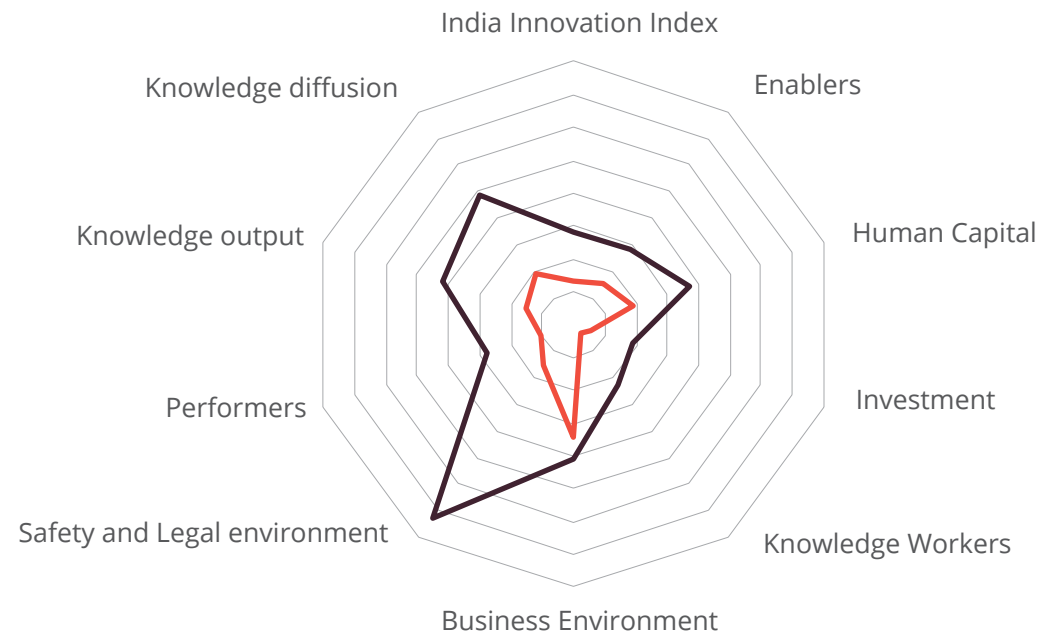


Scores

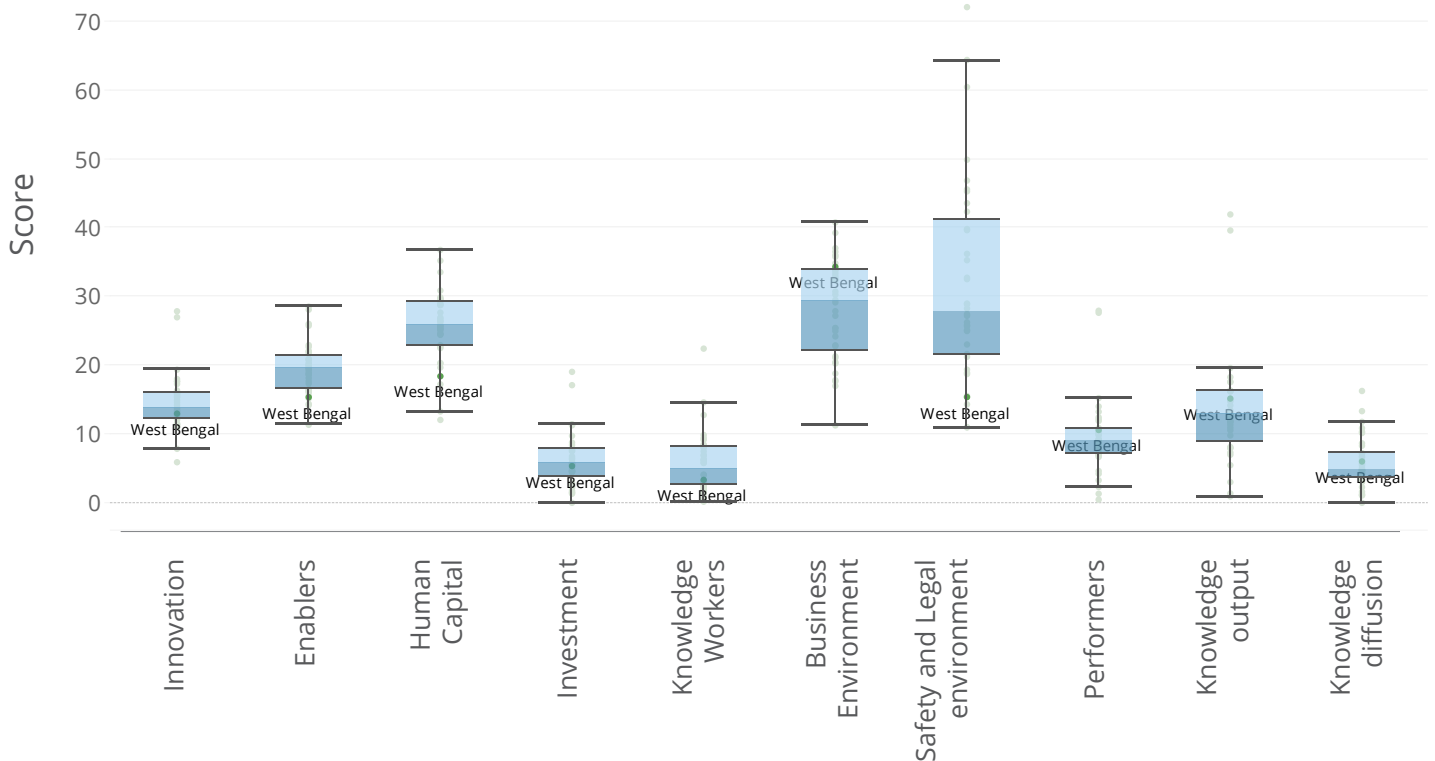


Country Comparison

— Best Performing State — West Bengal



Relative Performance



India Innovation Index **12.98** ●Performers **10.60** ●Enablers **15.37** ●**Human Capital** ● **18.42**

| | |
|---|----------|
| Schools with functional computer facility | ● 13.66 |
| NAS scores | ● 0.00 |
| Expenditure on school education as a (% of GSDP) | ● 18.15 |
| NER in school education | ● 100.00 |
| Accolades in STEM Activities | ● 4.41 |
| Pupil-Teacher ratio: Primary & Secondary | ● 63.62 |
| Percentage of schools having (ATL) labs | ● 0.17 |
| Secondary school level completion rate | ● 96.11 |
| Enrolment in PhD | ● 9.67 |
| Enrolment in engineering and technology | ● 7.92 |
| Percentage of Colleges connected through NMEICT | ● 58.53 |
| Higher education institutions- NAAC grade A and above | ● 3.03 |
| Enrolment in vocational education | ● 0.00 |
| Pupil Teacher Ratio- Higher Education | ● 48.58 |
| Tertiary mobility | ● 9.32 |

Investment ● **5.35**

| | |
|---|---------|
| Expenditure on higher and technical education | ● 0.96 |
| Expenditure on R&D | ● 0.86 |
| Expenditure on Sci, Tech and Env as a (% of GSDP) | ● 2.52 |
| NIRF ranking of top 5 universities | ● 66.55 |
| FDI inflow as a percentage of state GDP | ● 0.51 |
| Venture capital deals | ● 0.00 |

Knowledge Worker ● **3.34**

| | |
|--|--------|
| Knowledge intensive employment | ● 0.68 |
| Females employed with advanced degrees | ● 2.37 |
| NGOs involved in knowledge intensive areas | ● 3.95 |
| No. of private R&D units | ● 7.83 |
| No. of R&D Institutions funded | ● 5.01 |
| Skill development training | ● 4.73 |

Knowledge Output ● **15.17**

| | |
|---------------------------------|---------|
| Grassroot innovations | ● 2.66 |
| Publication | ● 42.50 |
| Environment clearance approved | ● 66.85 |
| GSDP per capita growth rate | ● 54.95 |
| New Businesses | ● 23.41 |
| Startups | ● 9.31 |
| Industrial design filed | ● 1.94 |
| Patent filed (per unit of GSDP) | ● 9.50 |
| Trade mark filed | ● 3.17 |

Business Environment ● **34.35**

| | |
|--|---------|
| Ease of Doing Business score | ● 26.32 |
| Cluster strength | ● 58.82 |
| Common facility centre | ● 3.16 |
| Domestic credit to private sector as a (% of GDP) | ● 19.95 |
| Bank accounts | ● 0.56 |
| Gross capital formation as a (% of GVA) | ● 34.46 |
| Incubators | ● 0.34 |
| Micro finance institutions (MUDRA) | ● 98.76 |
| Bank accounts with Aadhar seeding | ● 85.69 |
| Share of manufacturing and services as a (% of GSDP) | ● 68.81 |
| Internet subscribers | ● 3.76 |
| Online services transaction | ● 26.29 |
| Villages in state with internet connectivity | ● 99.98 |
| Services offered online by state government | ● 66.67 |
| Subsidies or benefits transferred through DBT | ● 2.25 |

Safety and Legal Environment ● **15.39**

| | |
|---|---------|
| IT/IP related Acts | ● 98.16 |
| Cyber cells | ● 9.17 |
| Social Media Monitoring Cells | ● 0.56 |
| Pendency rate | ● 7.39 |
| Charge sheeting Rate | ● 7.93 |
| Pendency Percentage- Corruption cases investigation | ● 0.00 |
| Rate of Cognizable Crime | ● 89.68 |
| Police personnel | ● 1.57 |

Knowledge Diffusion ● **6.02**

| | |
|--|---------|
| Citation Score | ● 72.73 |
| Circulation | ● 8.45 |
| GIs registered | ● 0.29 |
| Handlooms sales as a (% of GSDP) | ● 6.63 |
| High and medium high tech manufacturing entities | ● 0.07 |
| High-tech exports | ● 6.50 |
| Software exports | ● 1.60 |

Key

| | |
|----------------------------------|---|
| Overperforming | ● |
| Performing within expected range | ● |
| Underperforming | ● |

Strengths and Weaknesses are relative to 10 state of similar population: Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala, Haryana, Karnataka, Punjab, Odisha

Efficiency of Innovation

It is crucial to assess how efficiently the states use available resources to obtain innovative solutions.



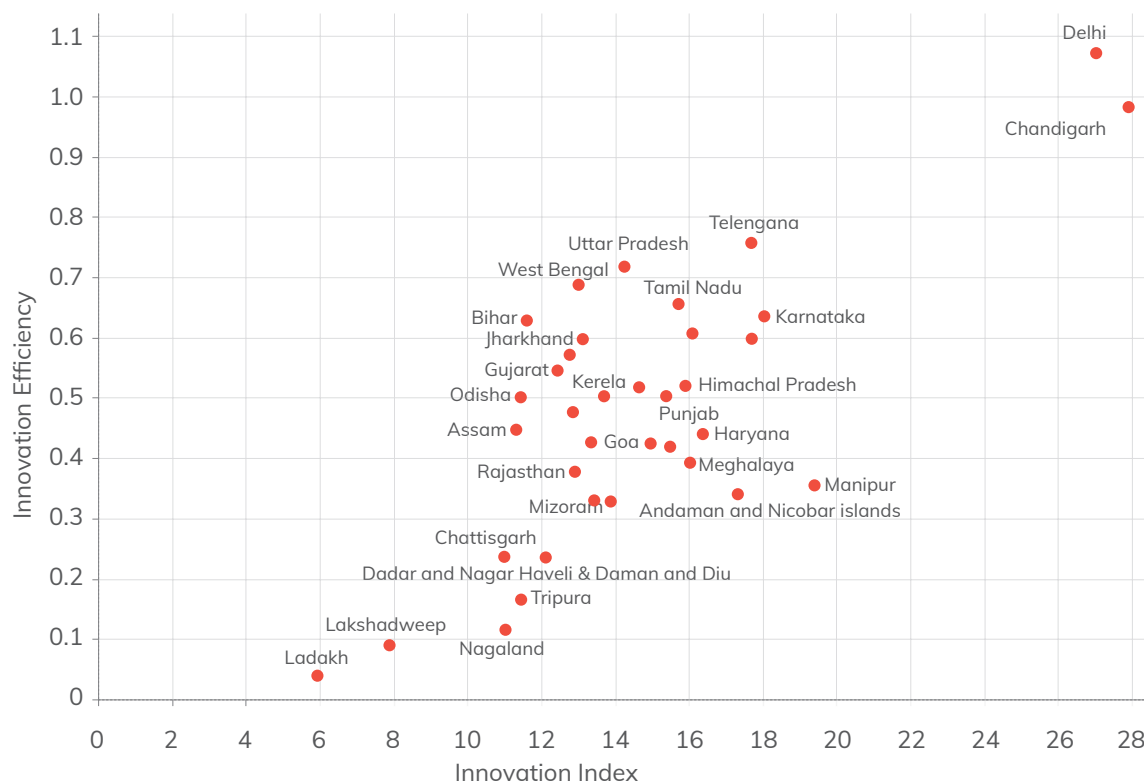
The figure 22 maps the efficiency of the states with respect to their innovation scores, which is measured for each state by dividing its performance scores with the enablers scores. The states that score an efficiency of less than 1 have not been able to attain a level of performance proportionate to the strength of their enabling factors.



The Innovation Efficiency Ratio is the ratio of the Output Sub-Index, i.e., Performers score over the Input Sub-Index, i.e., Enabler's score. It shows the innovation output obtained by the states with its given inputs.

Delhi (1.07) is the only one scoring an efficiency of more than 1. This sheds light on the fact that most of the states in India have not efficiently enabled their existing system to result in better performance.

Figure 22 Innovation Index vs. Innovation Efficiency

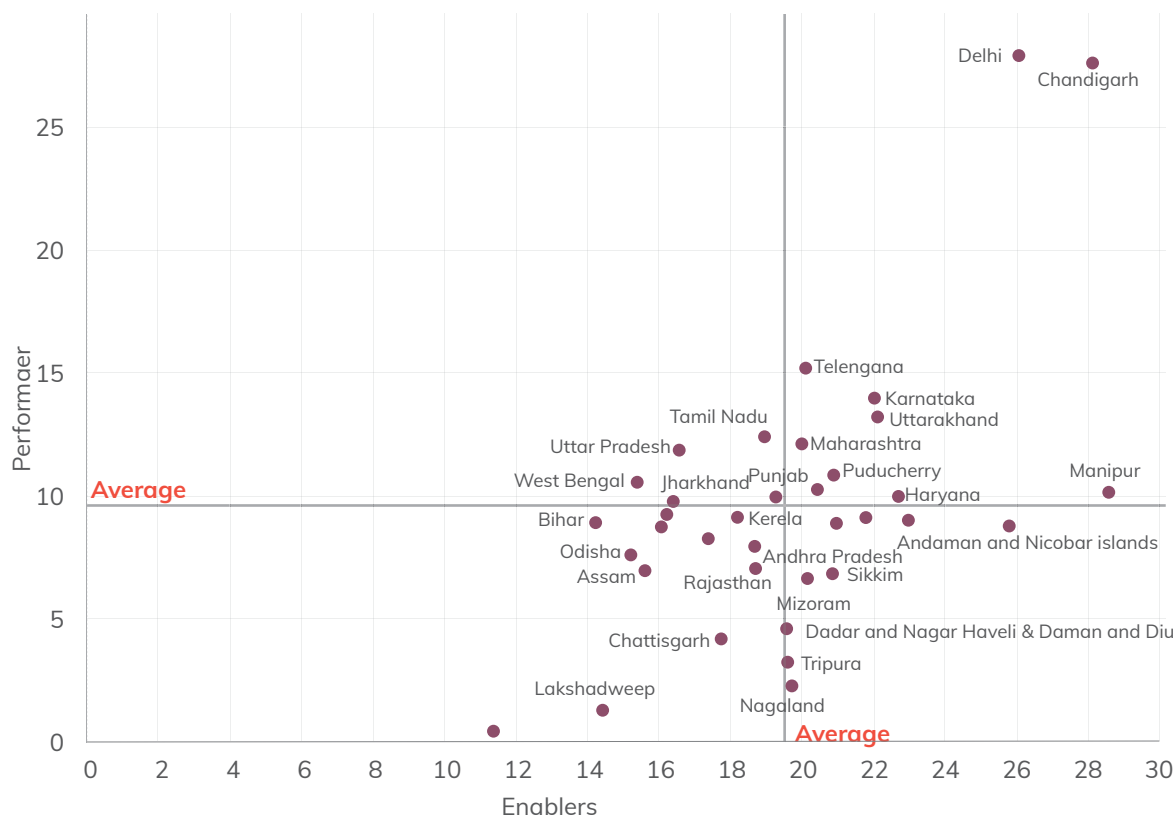


Overall, 19 states/UTs have scored above the national average on Enablers. Out of these 19 states/UTs, only 10 states have fared high on the Performance pillar as well.

It must be noted that emphasizing the relationship between input and output indicators does shed light on the effectiveness of innovation systems and policies; however, the innovation efficiency ratios must be approached with care. The two sub-indices propagate uncertainty over the ratio, which can impact their state's ranks. For instance, a state scoring low on enablers but high on performance would drive the ratio to a higher value. This is not a challenge specific to the Innovation Index but the result of statistical property that is the case with the ratios in general.



Figure 23 Enablers vs. Performers



The efficiency of the states can also be measured concerning the country average scores by plotting Enablers scores against Performance scores. The figure has been divided into four quadrants.

- Top-right quadrant: States which have scored high in both the Enablers and Performance scores than their respective national averages. UT/city States like Delhi, Chandigarh, Puducherry and Major States such as Karnataka, Maharashtra, Telangana, Haryana lie in this quadrant. Uttarakhand and Manipur are the only north east and hilly states to lie in the quadrant.
- Top-left quadrant: States which have scored higher on performance dimension but have scored lower on the enabler's dimension, than their respective national averages. States like West Bengal, Jharkhand, Tamil Nadu, Punjab, and Uttar Pradesh lie in this quadrant.
- The bottom right quadrant: States which have scored higher on the enablers dimension, but have scored lower on performance's dimension than their respective national averages. States like, Arunachal Pradesh, Sikkim, Tripura, and Andaman and Nicobar Islands, among others lie in this quadrant.
- The bottom left quadrant: States which have performed poorly on both the dimensions lie in this quadrant. Most of the states fall under this quadrant, which is a cause of concern. It further demonstrates that the goal of innovation has not permeated beyond major city-states, to the rest of the country.

An aerial photograph of a city skyline under a clear blue sky with scattered white clouds. In the foreground, there are several modern buildings, including a prominent one with a green-tinted glass facade. A large, semi-transparent orange rectangle is overlaid on the right side of the image, containing the title text. In the background, several construction cranes are visible against the sky, indicating ongoing development. The city extends to the horizon with various high-rise buildings.

Learnings and Recommendations

This section captures the broad learnings and recommendations drawn from this detailed report. By looking at India's average innovation score (14.56), we learnt that this score is arguably insufficient given India's ambitious targets to enter into the top 25 nations concerning the global innovation index.

Figure 24 Top Performers across Pillars

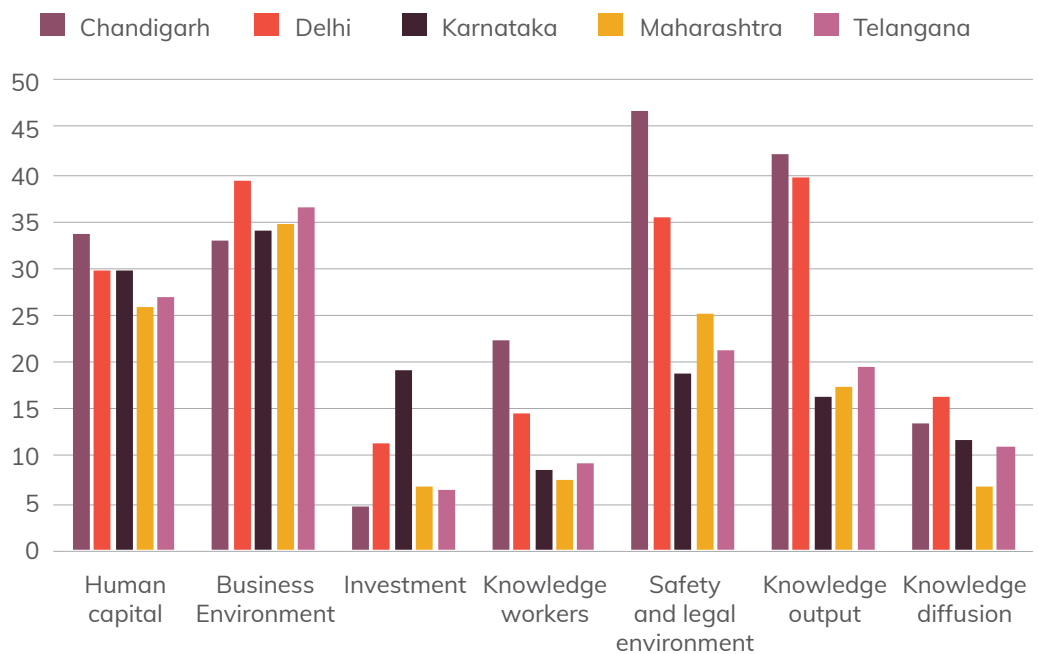
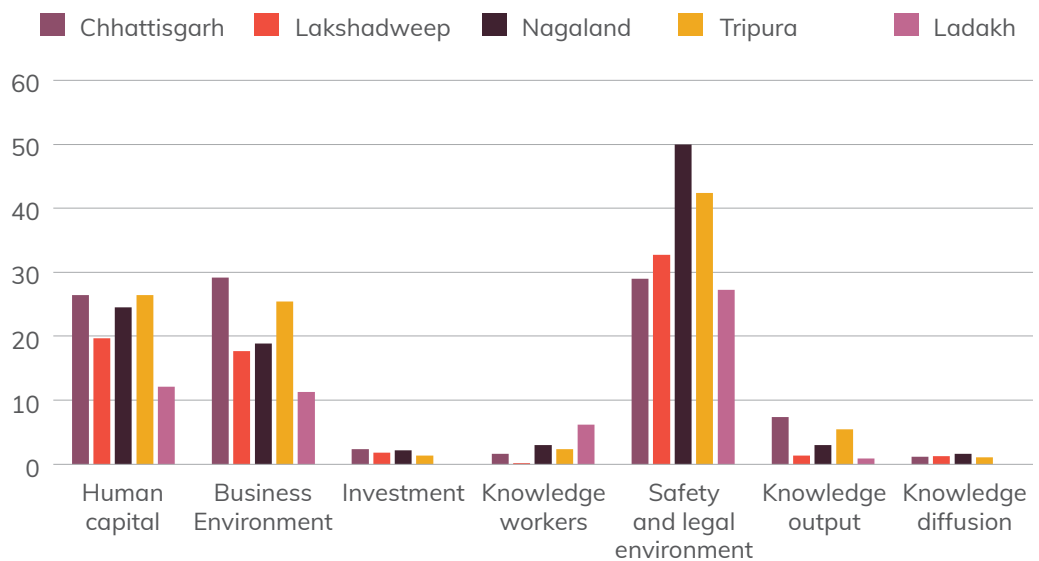


Figure 25 Bottom Performers across Pillars



By seeing the top performers, it is clear that the given states/UTs have performed well on almost each pillar. There are a few exceptions, as Maharashtra and Telangana didn't perform well on the pillars of investment, knowledge workers, and safety and legal environment. This was due to their low performance on certain indicators. For example, Maharashtra and Telangana performed relatively poor in terms of expenditure on higher and technical education (6th and 11th from below). They also performed low in expenditure on science, technology and environment as a percentage of GSDP. Moreover, Telangana performed low in NGOs involved in knowledge-intensive areas. Its performance was average with respect to the number of women employed with advanced degrees. Telangana also had just 5 cyber cells. Both Maharashtra and Telangana had low number of police personnel (per lakh of the population) – about 175 and 131 respectively, which is below the national average of 371.

Likewise, Chandigarh, a high overall performer, scored low on investment and knowledge diffusion. For example, its expenditure on science, technology, and environment (as a percentage of GSDP) was 0. It also received a low FDI inflow of ₹2,558 (in lakhs), which is much lower than the national average of ₹4,69,955 (in lakhs) and below the UTs average of ₹3,21,953.

Coming to low performing states, they performed lower in terms of investment and knowledge workers. For example, Nagaland and Lakshadweep's expenditure on science, technology, and environment (as a percentage of GSDP) was zero. Tripura's share was low at 0.01%. Nagaland and Tripura received no FDI inflows and no venture capital deals. Both of them had 33 and 38 NGOs involved in knowledge-intensive areas, respectively, which is much below the national average of 240. Chhattisgarh had about 0.08 number of private R&D units in the state (per lakh population), much below the national average of 0.49.

In contrast, Nagaland and Tripura had zero such units. Their performance on percentage of females employed with advanced degrees out of total employed was also average. On the contrary, their counterparts like Manipur and Arunachal (North-Eastern and Hilly States) were among the top performers in the investment pillar. Similarly, Jharkhand, a close neighbour of Chhattisgarh, performed exceedingly well in the investment pillar. Poor performance in 'enablers' is bound to reflect in 'performers'. This is what happened with the low-performing states/UTs, showing poor performance in both outcome pillars.

Having shown the regional disparities, we have some learnings and

recommendations. We learn that it is not the case that innovation has expanded or reduced in a region based on categories, i.e., innovation is present/absent in all the three categories – Major States, North-Eastern and Hilly States, and UTs and city-states. This makes the regional distribution equal. Also, it means that if one creates an environment for innovation, that place will perform well in the outcome pillars. Barring Ladakh, which is relatively new and has its data-discrepancies, innovation can flow across the country. Although North-Eastern and Hilly States find it a little tricky, even they have shown the potency to make their space in the innovation landscape. Therefore, some general recommendations follow based on our analysis, and previous chapters.

- **First**, we have consistently seen that the overall spending on R&D has been relatively low across the country. This was even reflected in the overall share of GERD as a percentage of GDP, at about 0.7 per cent. It is also important to note that countries that spend less on GERD fail to retain their human capital in the long-run. The ability to innovate is dependent on the quality of human capital. It rests on the opportunities in terms of research and development. Lower spending on R&D, and less innovative opportunities may lead people to move from one region to another region - state/ country for better opportunity. This phenomenon is known as brain drain and reduces the competitive edge of a state, further impacting the country's overall economy. Therefore, GERD needs considerable improvement and should touch at least 2%, which would play an instrumental role in India achieving the goal of a 5 trillion economy and further influence its innovative footprint across the globe.
- **Second**, the role of the private sector in research and development needs to pick up pace. The role of the business/private sector is yet to overtake the government sector, unlike countries like South Korea, USA, and Germany, where the presence of the private sector is quite evident. Empirical evidence from these countries has shown that public expenditure is productive up to some extent; however, once the growth follows a trajectory it is desirable to shift to R&D - mostly driven by the private sector. Therefore, it is important for India to find that inflexion point after which private sector takes over the government sector.

- **Third**, from analysis we have seen that although the country has performed well in the human capital pillar, however it has not performed well in the knowledge worker pillar. This contrasts with the expectation that the two tend to move simultaneously. This implies that the expenditure on human capital has been unable to create that knowledge base in the country, which could be due to the intricate reasons of bureaucracy, administration, outreach, etc. Moreover, it was also observed that innovation is skewed against the manufacturing sector due to the problems pertaining to and the missing middle. This requires inexorable efforts to overcome challenges and make the best use possible.
- **Fourth**, we are yet to take full advantage of our demographic dividend. It seems that India has been able to provide a conducive environment for businesses to thrive, in terms of a business environment, safety, and a legal environment, but we have not been able to support the same in terms of investment and knowledge workers. Given, that about 60% of the population lies in the working age category, there lies a huge scope for innovation within the country, whereby the energy and potential of this age group can be channelized.
- **Fifth**, one needs to sincerely fill the gap between industry demand and what we produce through our education systems. Universities have the potential to become the go-to-place for industries, for any sort of innovation.
- **Sixth**, India is among the top 10 performing developing economies in stimulating global trade in creative goods. Indian creative exports grew from US\$ 4.4 billion in 2003 to US\$ 20.7 billion in 2019. Improving demographics, better access to ICTs and dynamic shifts to digital platforms associated with creative products and services, promise a progressive future for India's creative economy. Therefore, India needs to undertake efforts in creative goods and services, which have been ignored for a long time.
- **Seventh**, Innovation leads to the creation of economically-useful knowledge, in the form of intangible assets that can be an output of a production process as well as an input into the creation of new output. These include creative works, scientific works, discoveries, inventions, computer software, and systems created within businesses.⁵⁵ In India, intangible assets like patents and trademarks filing process are complex and face procedural delays.

⁵⁵ Opportunities to observe and measure intangible inputs to innovation: Definitions, operationalization, and examples Sallie Kellera,1, Gizem Korkmaz, Carol Robbins, and Stephanie Shippa

According to the Economic Survey 2021-22 of India, the average pendency for final decision in acquiring patents in India is 42 months as of 2020. This is much higher than 20.8, 20, 15.8 and 15 months respectively for USA, China, Korea and Japan. Even though India reduced average pendency for final decisions in acquiring patents from 64 months in 2017 to 52 months in 2019 and further to 42 months in 2020.⁵⁶ However, for Intangibles to create spill-overs, it is important to encourage more start-ups to file patents across India.

- **And finally**, we need to break silos and start working in tandem, i.e., no state/UT can thrive alone endlessly without taking care of its peers. This involves learning from peers, and providing adequate support to other states/UTs to ensure inclusive growth. This promotes the spirit of competitive federalism, which forces states/UTs to perform well, and ensures encompassing growth.

⁵⁶ Economic Survey 2021-22

An aerial photograph of a wide, multi-lane highway bridge spanning a river. The bridge has multiple lanes with white lane markings and is bordered by concrete barriers with yellow and black diagonal stripes. The surrounding landscape is a mix of green fields and dry, brownish areas. A red semi-transparent overlay covers the right side of the image, containing the title and a descriptive paragraph.

The Way Forward

India Innovation Index 2021 report provides a comprehensive study on the innovation landscape of the country.

The objective of the report is to assess innovation at the state level by ranking the states and union territories on their performance in fostering an innovative ecosystem. The states can utilize it to identify their strengths and weaknesses, compared to their peers, and develop a better policy framework to drive innovation at the sub-national level. This is the third edition of the India Innovation Index, and the current edition has mapped its framework to the Global Innovation Index strengthening the index from the core. The 2021 edition has increased



the number of indicators from 36 to 66 individual indicators, across 7 core pillars. Further, the methodology has been modified to consolidate the statistical basis of the index and attempts to provide a crisp and accurate outcome. The coming editions of the index need to be expanded by introducing 19 indicators across all sub-pillars, especially knowledge absorption. It would further enhance the data granularity of current indicators. Future editions can be strengthened by focusing on certain important elements such as:

01

Focus on factors that lead to better performance

The states that have consistently shown strong performance and the areas of strength for various states need to be critically analysed and the knowledge of the best practices needs to be disseminated to promote innovation. For instance, the achievement of North-Eastern states, including Mizoram, Manipur, Assam, Tripura, and Meghalaya in accomplishing 100 per cent net enrolment in primary school education can be studied as a successful case-study.

02

Focus on challenges that cause low performance

In the same manner, the critical challenges faced by the low performing states and the areas of weaknesses of various states need to identify to promote economic well-being, by fostering innovation in the region.

03

Peer to peer learning and state-specific policies

The index is based on the foundational principle of competitive federalism by ranking the states based on their innovation development efforts and achievements. It can be utilised to create a peer group specific to individual states, to promote peer-to-peer learning based on their core characteristics. It will also help in identifying the challenges, and the drivers for each state, to establish context-specific strategies and policy recommendations to promote innovation.

As the world is reeling from the effects of the Covid-19 pandemic, India has still been able to make significant headway in reinvigorating the economy and promoting innovation-driven growth, as attested by the report. The momentum gained in the year 2021 has to be further expanded by exploring the innovation landscape in the States and Union Territories across the country. The future editions of the India Innovation Index will continue to investigate the innovation ecosystem of the country.



Appendix

Appendix A : Indicator and Definitions

| Enablers | Definitions |
|--|---|
| Human Capital | |
| School Education | |
| Schools with ICT labs | Percentage of schools with ICT labs |
| Assessment in reading, mathematics, and science (Class V NAS Scores, 2015, Cycle 4) | Mean Assessment scores in Reading, Mathematics and Science for class V |
| Expenditure on school education as a % of GSDP | Expenditure by STATE GOVT./ Other Sources as a % of their Gross State Domestic Product |
| NER in school education | Total enrolment in Grades I-V/ 6-11 age group divided by Population age 6 to 11 years |
| Secondary school level completion rate with respect to Primary School level completion rate | Total Secondary school completion rate to the total Primary School Completion Rate |
| Pupil-Teacher ratio: Primary & Secondary | Total enrolment in institutions divided by total teachers in institutions |
| Accolades in STEM Activities/ 1000 Students in States i.e.: INSPIRE Awards, NTSE Scholarship, Olympiads, Any other State/ national/ international level awards | Ratio of INSPIRE Awards, NTSE Scholarship, Olympiads, Any other State/ national/ international level awards to 1000 students |
| Percentage of schools having Science/ Technology Tinkering/ Innovation labs like Atal Tinkering Labs (ATL's) | Percentage of schools having Science/ Technology Tinkering/ Innovation labs like Atal Tinkering Labs (ATL's) |
| Tertiary and Higher education | |
| Enrolment in engineering and technology (at UG, PG & Diploma level) | Intake in Engineering and Technology at UG, PG and Diploma level (per lakh of population between 18-23 years) |
| Enrolment in PhD per lakh of population | Number of pupils enrolled in Phd programs in states |
| Higher education institutions with NAAC grade A and above | Number of higher education institutions with NAAC grade A and above (% of total institutions graded by NAAC in the state) |
| Pupil Teacher Ratio- Higher Education | Pupil-teacher ratio, higher education |
| Colleges connected through NMEICT | Percentage of colleges connected through ICT (National Mission in Education through ICT) |
| Enrolment in vocational education or skill development courses / lakh of population | Enrolment in vocational education in states per lakh of population |
| Tertiary in-bound mobility (non state students coming to study in the state) | Number of non-domicile students coming to study in state (vocational/tertiary education).NIRF data for top 100 colleges of the state is the source. |

| Investment | |
|--|---|
| Research & Development | |
| Expenditure on higher and technical education | State government expenditure on higher and technical education (per lakh of population) |
| Expenditure on Science, Technology and Environment | State government on Research and Development/ Science, Technology and Environment (% of GSDP); Average of three years |
| Expenditure on R&D | State government on Research and Development (% of GSDP); Average of three years |
| NIRF ranking of top 5 universities | Average ranking of universities in a state according to NIRF 2020 rankings |
| Market Sophistication | |
| Venture capital deals | Number of Venture capital investment deals proportion to GSDP |
| FDI inflows | Share of FDI net inflows to the total state GDP |

| Knowledge Workers | |
|--|---|
| Workforce | |
| Knowledge-intensive employment | Number of people employed as 1. Managers 2. professionals and 3. Technicians and associate professionals as a percentage of total people employed |
| Private R&D units in state | Number of private R&D units in the state (per lakh of population) |
| NGOs involved in knowledge intensive areas | Number of NGO's involved in knowledge intensive areas (per lakh of population) |
| R & D Institutions funded by States/UT's | Number of R&D Institutions funded by the state (per lakh of population) |
| Skill development training | No. of people trained in skill development center in state / 1000 employment |
| % of females employed with advanced degrees out of total employed. | Percentage of women employed with advanced degrees (PG, Mphil, D.Phil, PhD) to total employees |

| Business Environment | |
|--|--|
| Trade, competition & market scale | |
| Ease of Doing Business | Ease of Doing Business Score- Implementation percentage |
| Common Facility Centers | Number of Common Facility Centres in the state (per lakh of Micro, Small and Medium Enterprises- MSME) |
| Share of manufacturing & services as a % of GSVA | Contribution of manufacturing and services sector to GSDP as a percentage of GSDP |
| Gross capital formation as a % of GSDP/ GVA | Gross CapitalFormation of a state as percentage of Gross State Domestic Product |

| | |
|--|---|
| Incubator centers in state | Number of Incubator centres in the state (per lakh population) |
| Cluster Strength | Number of stars accorded to each state for its performance in all clusters using three star methodology. Cluster strength represents the potential of a region's cluster portfolio measured by summing up the performance across individual clusters on the basis of Employment creation, Specialization and location Quotient. |
| Credit | |
| Number of bank accounts / 100000 population | Total number of banks accounts in a state per 1000 of state population |
| Percentage of bank accounts with Aadhar seeding | Number of bank accounts linked with Aadhar divided by total number of bank accounts in the state |
| Domestic credit to private sector, % SDP | State wise credit given by Scheduled Commercial Banks |
| Micro finance institutions Loan portfolio (MUDRA etc.) | Amount of loans disbursed to the total amount sanctioned under MUDRA scheme |
| Digital Infrastructure | |
| Internet subscribers | Number of wireless subscriber in the region |
| Total number of online services transaction / 1000 population | Total amount of online services transactions (per thousand population) |
| No. of services offered online by STATE GOVT./ Other Sources | Number of services offered online by state government |
| Percentage of villages in state with internet connectivity | Number of villages in a state with internet connectivity by total number of villages in the state |
| Percentage of subsidies or benefits transferred through digital platform | Percentage of funds disbursed through Electronic Mode |

Safety and Legal Environment

Security/Safety Environment

| | |
|--|--|
| Information Technology / Intellectual Property related Acts (Rate of offences) | Incidence of crimes under Information Technology / Intellectual Property related Acts per one lakh of population |
| Cyber crime police stations | No. of Cyber Cells per lakh of population |
| Rate of Cognizable Crime | Cognizable crimes comprise of heinous or serious offences such as murder, rape, kidnapping, theft, dowry death etc, under both Indian Penal Code (IPC) and Special & Local Laws (SLL). This indicator measures the rate of cognizable crime per lakh population. |
| Police personnel/lakh of population | Number of police personnel in the state per one lakh population |
| Social Media Monitoring Cells | No. of Social Media Monitoring Cells per lakh population |

| Legal Regulatory Environment | |
|---|--|
| Pendency of court cases | Percentage of court cases pending |
| Charge Sheetting Rate | The NCRB defines Charge-sheeting rate as Cases Chargesheeted/Cases disposed off by Police)*100. The charge-sheeting rate in its entirety is available with NCRB. |
| Pendency Percentage- Corruption cases investigation | Cases investigated / total cases reported under Prevention of Corruption Act 1988 |

| Performance | |
|--|---|
| Knowledge Output | |
| Knowledge creation | |
| Grass root innovations | Number of grassroots innovators in the state per lakh of population |
| Publications | Composite score using combined matrix for Publications (PU) and number of colleges in NIRF Ranking 2021 (Top 100) |
| Knowledge Impact | |
| Startups in the state | Percentage of New Businesses registered with the State Startup program. |
| New Businesses- No. of companies registered during previous FY | State/UT-wise Registration of Companies during January 2020 to March 2021 |
| GSDP per capita growth rate | Growth rate of Gross State Domestic Product |
| Environment clearance of proposals/project | Number of projects/ proposals approved for environment clearance. |
| Intangible Assets | |
| Patents filed from state | Number of patent applications filed in the state (per lakh of population) |
| Industrial designs by origin | Number of designs contained in industrial design applications filed (per lakh population) |
| Trademark application filed | Number of trade mark applications filed in Indian states (per lakh population) |

| Knowledge Diffusion | |
|--|--|
| Knowledge Dissemination | |
| High-tech exports as a % of total exports | High tech exports as a percentage of total exports in Indian states. High-technology exports contain technical products with a high intensity of R&D, defined by the Eurostat classification, which is based on Standard International Trade Classification (SITC) Revision 4 and the Organisation for Economic Co operation and Development (OECD) definition. Commodities belong to the following sectors: aerospace; computers & office machines; electronics; telecommunications; pharmacy; scientific instruments; electrical machinery; chemistry; non-electrical machinery; and armament. |
| ICT exports | State wise Software Exports made by registered units through STPI [Telecommunications, computers and information services export (% of total export)] |
| High and medium-high-tech manufacturing entities | Number of high tech and medium high-tech manufacturing entities (per crore of GSDP)- companies with investment in plant and machinery above ten crore rupees in the state |
| Citations | Composite score using combined matric for Quality of Publications (QP) and number of colleges in NIRF Ranking 2021 (Top 100) |
| Creative Goods and Services | |
| GIs registered | Number of Geographical Indications in states |
| Circulation by all newspapers/ State population | State/UT –Wise Circulation of newspapers divided by state population |
| Handicraft sales/gsdp; Handloom sales | Handicraft sales in Indian States as a percent of their GSDP |

Appendix B : Data Availability and Sources

| Enablers | Year | Data Sources |
|--|---------|--|
| Human Capital | | |
| School Education | | |
| Schools with ICT labs | 2019-20 | UDISE+ |
| Assessment in reading, mathematics, and science (Class V NAS Scores, 2015, Cycle 4) | 2017-18 | NCERT |
| Expenditure on school education as a % of GSDP | 2017-18 | Ministry of Education/RBI |
| NER in school education | 2019-20 | UDISE+ |
| Secondary school level completion rate with respect to Primary School level completion rate | 2019-20 | UDISE+ |
| Pupil-Teacher ratio: Primary & Secondary | 2019-20 | UDISE+ |
| Accolades in STEM Activities/ 1000 Students in States i.e.: INSPIRE Awards, NTSE Scholarship, Olympiads, Any other State/ national/ international level awards | 2019-20 | DST, NCERT, Science Olympiad Foundation, National Innovation Foundation- India |
| Percentage of schools having Science/ Technology Tinkering/ Innovation labs like Atal Tinkering Labs (ATL's) | 2021 | Atal Innovation Mission |
| Tertiary and Higher education | | |
| Enrolment in engineering and technology (at UG, PG & Diploma level) | 2020-21 | AICTE |
| Enrolment in PhD per lakh of population | 2019-20 | AISHE |
| Higher education institutions with NAAC grade A and above | 2020-21 | NAAC |
| Pupil Teacher Ratio- Higher Education | 2019-20 | AISHE |
| Colleges connected through NMEICT | 2019-20 | AISHE |
| Enrolment in vocational education or skill development courses / lakh of population | 2019-20 | AICTE |
| Tertiary in-bound mobility (non state students coming to study in the state) | 2021 | NIRF |

| | | |
|--|---------|-----------------------|
| Investment | | |
| Research & Development | | |
| Expenditure on higher and technical education | 2017-18 | Ministry of Education |
| Expenditure on Science, Technology and Environment | 2020-21 | STATE GOVT/RBI |
| Expenditure on R&D | 2020-21 | DST |
| NIRF ranking of top 5 universities | 2020-21 | NIRF |

| Market Sophistication | | |
|-----------------------|---------|------|
| Venture capital deals | 2017 | DIPP |
| FDI inflows | 2020-21 | DIPP |

| Knowledge Workers | | |
|--|---------|------------|
| Workforce | | |
| Knowledge-intensive employment | 2019-20 | PLFS |
| Private R&D units in state | 2020-21 | DST |
| NGOs involved in knowledge intensive areas | 2019-20 | NGO-Darpan |
| R & D Institutions funded by States/UT's | 2020-21 | DST |
| Skill development training | 2020-21 | PMKVY |
| % of females employed with advanced degrees out of total employed. | 2019-20 | PLFS |

| Business Environment | | |
|--|---------|---|
| Trade, competition & market scale | | |
| Ease of Doing Business | 2020 | DIPP |
| Common Facility Centers | 2020-21 | MSME |
| Share of manufacturing & services as a % of GSVA | 2020-21 | RBI DBIE |
| Gross capital formation as a % of GSDP/ GVA | 2020-21 | RBI |
| Incubator centers in state | 2020-21 | Startup India |
| Cluster Strength | 2019-20 | PLFS (EAC_PM) |
| Credit | | |
| Number of bank accounts / 100000 population | 2020-21 | RBI |
| Percentage of bank accounts with Aadhar seeding | 2020-21 | Department of Financial Services, Ministry of Finance |
| Domestic credit to private sector, % SDP | 2020-21 | RBI DBIE |
| Micro finance institutions Loan portfolio (MUDRA etc.) | 2020-21 | MUDRA |

| Digital Infrastructure | | |
|--|---------|-----------|
| Internet subscribers | 2020-21 | TRAI |
| Total number of online services transaction / 1000 population | 2020-21 | Etaal |
| No. of services offered online by STATE GOVT./ Other Sources | 2020-21 | Etaal |
| Percentage of villages in state with internet connectivity | 2020-21 | LOK SABHA |
| Percentage of subsidies or benefits transferred through digital platform | 2019-20 | DBT, Gol |

| Safety and Legal Environment | | |
|--|------|-----------------------------|
| Security/Safety Environment | | |
| Information Technology / Intellectual Property related Acts (Rate of offences) | 2020 | NCRB |
| Cyber crime police stations | 2020 | BPRD, MHA |
| Rate of Cognizable Crime | 2020 | NCRB |
| Police personnel/lakh of population | 2020 | BPRD, MHA |
| Social Media Monitoring Cells | 2020 | BPRD, MHA |
| Legal Regulatory Environment | | |
| Pendency of court cases | 2021 | National Judicial Data Grid |
| Charge Sheet Rate | 2020 | NCRB |
| Pendency Percentage- Corruption cases investigation | 2020 | NCRB |

| Performance | Year | Data Sources |
|------------------------|------|--------------|
| Knowledge Output | | |
| Knowledge creation | | |
| Grass root innovations | 2019 | NIF |
| Publications | 2021 | NIRF |

| Knowledge Impact | | |
|--|---------|---|
| Startups in the state | 2021 | Startup India |
| New Businesses- No. of companies registered during previous FY | 2020-21 | MCA |
| GSDP per capita growth rate | 2019-20 | SDG Report - NITI Aayog |
| Environment clearance of proposals/project | 2020 | State Environment Impact Assessment authority |
| Intangible Assets | | |
| Patents filed from state | 2019-20 | IP India, under DPIIT |
| Industrial designs by origin | 2019-20 | DIPP |
| Trademark application filed | 2019-20 | DIPP |

| Knowledge Diffusion | | |
|--|---------|-----------------------|
| Knowledge Dissemination | | |
| High-tech exports as a % of total exports | 2020-21 | DGCIS |
| ICT exports | 2019-20 | STPI |
| High and medium-high-tech manufacturing entities | 2018-19 | DIPP/DGCIS/STATE GOVT |
| Citations | 2021 | NIRF |
| Creative Goods and Services | | |
| GIs registered | 2019-20 | DIPP |
| Circulation by all newspapers/ State population | 2021 | RNI |
| Handicraft sales/gsdp; Handloom sales | 2019-20 | Ministry of Textiles |

Appendix C: III 2022 framework – new indicators

| Pillars/indicators | Definitions |
|--|---|
| Indicators | |
| Investment | |
| Research & Development | |
| Average Revenue of top 3 R&D companies in the state. | Average of Revenue of top 3 R&D companies in the state. |
| Expenditure on providing tertiary education | Average of three years Expenditure on providing tertiary education by state government. Tertiary Education refers to all forms of formal education post-secondary level, and included technical and vocational education, along with higher education |
| GERD financed by private sector | Gross expenditure on R&D performed by private enterprise (in Rs CR) as a percentage of GSDP |

| | |
|--|--|
| Knowledge Workers | |
| Workforce | |
| R&D personnel employed in state | Ratio of total number of R&D personnel employed in state to Total employed population. R&D personnel refer to researchers working under Research institutes , Universities and colleges under Department of higher education , Department of Science and Technology. |
| Knowledge absorption | |
| Grants and subsidies given by the state for GI protection as a % of GSDP | Total Grants and subsidies given by state budget for Geographical Indications protection. Geographical Indications protect signs that indicate that a product originates in a given geographical area and its qualities, reputation, or other characteristics are essentially due to its geographical origin |
| Expenditure support on tech upgradation as a % of GSDP | Technology upgradation would ordinarily mean induction of state-of-the-art or near state-of-the-art technology. It implies the upgradation of existing infrastructure to improve cost-efficiency trade-offs in production. For instance, under manufacturing sector specified units in agro-industry, msme, textile, food processing , pharma , auto components.And in service sector would include software , hardware related machinery in Information Technology & Information Technology enabled Services (IT &ITeS) , Transport , Logistics and financial services which enable innovation across products in a region. |
| Joint ventures with foreign companies | Number of Joint Ventures by state government with foreign companies |

| | |
|--|--|
| High-tech imports | High tech imports as a percentage of total imports in Indian states. High-technology imports contain technical products with a high intensity of R&D, defined by the Eurostat classification, which is based on Standard International Trade Classification (SITC) Revision 4 and the Organisation for Economic Co operation and Development (OECD) definition. Commodities belong to the following sectors: aerospace; computers & office machines; electronics; telecommunications; pharmacy; scientific instruments; electrical machinery; chemistry; non-electrical machinery; and armament. |
| R&D funding in state universities by industry | R&D funding in states universities either by individuals or corporates as a % of GDSP |
| Support to start-ups by state as a percentage of state budgets | Amount of funds allocated in state budget for support to start ups in the state as a percentage of total state budget |

Business Environment

Digital Infrastructure

| | |
|---|--|
| No. of digital payment transactions / 1000 population | No. of digital payment transactions / 1000 population |
| IT spending by state as % of total annual budget | Expenditure by state's department of Information Technology as a percentage of their budget. |
| Closure of R & D businesses | Number of R&D Businesses that were winded down within 5 years. |

Performance

Knowledge Output

Knowledge creation

| | |
|-------------------------------------|---|
| IP Commercialization as a % of GSDP | Intellectual Property (IP) is, in very simple terms, a set of exclusive rights for different types of creations. They include patents, utility models, trademarks, industrial designs, and copyright are among the most important IP rights. IP Commercialisation is the process of bringing the IPRs to the market for them to be exploited in return for business profits and growth. To reap the economic benefits from IPRs, states have to make them available in the market (as sales) , under particular conditions and for a specific return. It can be measured by the revenue generated by no. of IP licenses approved at the central level. States do not file IP data, but it does have IP licensing centres that come under the purview of central authorities. |
|-------------------------------------|---|

| Knowledge Impact | |
|---|--|
| No. of companies getting ISO 14001 environment certificates | Number of companies getting ISO 140001 certification since last year |
| Percentage of state budget spent on awareness and advertisement of innovation efforts and funds | Amount of funds from state budget spent on awareness and advertising as a percentage of state budget |
| No. of companies getting ISO 9001 quality certificates | Number of companies getting ISO 9001 certification since last year |
| Intangible Assets | |
| Copyrights filed | Number of copyright applications filed by indian states (per lakh population) |
| Patents for ICs by state | Patents filled for Integrated circuits state wise (per lakh population) |

| Knowledge Diffusion | |
|--|---|
| Creative Goods and Services | |
| Production of Audio-visual content | Increase in the Number of audio-visual content (feature films, OTT, television programmes) from last year |
| Annual viewership of audio-visual content | Annual viewership of audio-visual content (including television and OTT platforms) |
| Entertainment & media output(cable and satellite penetration statewise)percentage | percentage of population with access to cable and satellite television |
| Regional Books publishing and circulation | Number of books published in fiction+non-fiction category in languages under 8th Schedule of the Indian Constitution; |

Appendix D : Best case and worst case scenarios based on world

| Pillar | Sub pillar | State | Utopia | Dystopia |
|---------------------------------------|-------------------------------|--|-------------|----------|
| Human Capital | School Education | Percentage of school functional computer facility | 100 | 0 |
| | | NAS scores | 58.15 | 0 |
| | | Expenditure on school education as a % of GSDP | 30.15 | 5.4 |
| | | NER in school education | 100 | 68 |
| | | Accolades in STEM Activities/ 1000 Students | 25.26 | 0.16 |
| | | Pupil-Teacher ratio: Primary & Secondary | -8.3 | -69.09 |
| | | Percentage of schools having ATL labs | 100 | 0 |
| | | Secondary school level completion rate | 100 | 0 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 145.37 | 0 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 4985.72 | 0 |
| | | Higher education institutions with NAAC grade A and above % | 87.61 | 0 |
| | | Percentage of Colleges connected through NMEICT | 57.75 | 0 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.20 | 0.00 |
| | | Tertiary mobility | 366.19 | 0 |
| Pupil Teacher Ratio- Higher Education | -4.42 | -37.11 | | |
| Investment | Research & Development | Expenditure on higher and technical education | 76567406.15 | 0.00 |
| | | Expenditure on R&D | 4.76 | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.62 | 0.00 |
| | | NIRF ranking of top 5 universities | 98.98 | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 33.88 | 0.00 |
| | | Venture capital deals | 5.16 | 0.00 |
| Knowledge Workers | Workforce | Knowledge intensive employment | 62.30 | 0.75 |
| | | NGOs involved in knowledge intensive areas % | 17.12 | 0.00 |
| | | Number of private R&D units in the state (per lakh population) | 3.56 | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.63 | 0.00 |
| | | Skill development training PMKVY per lakh population | 12.08 | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 86.98 | 34.03 |

| | | | | | |
|--|-----------------------------------|--|--|---------|---------|
| Business Environment | Trade, competition & market scale | Ease of Doing Business | 86.8 | 20 | |
| | | Incubators per lakh population | 3.55 | 0 | |
| | | Common facility centre per lakh population | 2.14 | 0 | |
| | | Gross capital formation as a % of GVA | 84.79 | 0 | |
| | | Share of manufacturing and services as a percentage of GSDP | 96.46 | 0 | |
| | | Cluster Strength | 94.3 | 12.65 | |
| | Credit | Number of bank accounts per lakh population | 140.45 | 0.42 | |
| | | Percentage of bank accounts with Aadhar seeding | 100 | 0 | |
| | | Domestic credit to private sector, % SDP | 266.61 | 1.92 | |
| | | Micro finance institutions Loan portfolio | 100 | 0 | |
| | Digital Infrastructure | Internet subscribers | 2321.02 | 0 | |
| | | Percentage of villages in state with internet connectivity | 100 | 0 | |
| | | Percentage of subsidies or benefits transferred through digital platform | 100 | 11 | |
| | | No. of services offered online by STATE GOVT./ Other Sources | 100 | 0 | |
| | | Total number of online services transaction / 1000 population | 50743.95 | 0 | |
| | Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0 | -16.3 |
| | | | No. of cyber cells | 0.39 | 0 |
| | | | Rate of Cognizable Crime | 0 | -1808.8 |
| | | | Police personnel/lakh of population | 1621.35 | 100.53 |
| No. of Social Media Monitoring Cells per lakh population | | | 0.13 | 0 | |
| Legal Regulatory Environment | | Pendency rate | 0 | -6.27 | |
| | | Charge sheeting Rate | 0 | -91.7 | |
| | | Pendency Percentage- Corruption cases investigation | 0 | -100 | |

| | | | | |
|---|---------------------|---|---|------|
| Knowledge Output | Knowledge creation | Grass root innovations | 414 | 0 |
| | | Publication | 44.04 | 0 |
| | Knowledge Impact | Startups in the state | 0.11 | 0 |
| | | New Businesses- No. of companies registered during previous FY | 0.01 | 0 |
| | | GSDP per capita growth rate 2019-20 | 8.2 | -10 |
| | | Environment clearance applications approved percent | 100 | 0 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 8.21 | 0 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 379.77 | 1.41 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 47.74 | 0.16 |
| | Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 69.6 |
| Software exports % | | | 57 | 0 |
| High and medium high tech manufacturing entities percentage | | | 85.06 | 0 |
| Citation Score | | | 27.82 | 0 |
| Creative Goods and Services | | GIs registered | 7247 | 1 |
| | | Circulation | 97.82 | 0 |
| | | Handlooms sales as a percentage of GSDP | 7.84 | 0 |

Appendix E : Dimension and Pillar scores

| States | III 2021 | ENABLERS | PERFORMERS | Human capital | Business Environment | Investment | Knowledge workers | Safety and legal environment | Knowledge output | Knowledge diffusion |
|--|----------|----------|------------|---------------|----------------------|------------|-------------------|------------------------------|------------------|---------------------|
| Andaman and Nicobar Islands | 17.29 | 25.77 | 8.82 | 25.92 | 32.32 | 8.77 | 1.34 | 60.50 | 12.92 | 4.71 |
| Andhra Pradesh | 13.32 | 18.66 | 7.99 | 28.97 | 37.06 | 4.48 | 4.04 | 18.74 | 10.94 | 5.03 |
| Arunachal Pradesh | 15.46 | 21.76 | 9.16 | 25.36 | 17.85 | 17.12 | 3.16 | 45.32 | 7.98 | 10.34 |
| Assam | 11.29 | 15.59 | 7.00 | 24.44 | 20.28 | 5.01 | 1.93 | 26.26 | 10.55 | 3.45 |
| Bihar | 11.58 | 14.21 | 8.95 | 13.29 | 27.21 | 2.88 | 1.77 | 25.87 | 14.90 | 3.00 |
| Chandigarh | 27.88 | 28.10 | 27.65 | 33.56 | 33.00 | 4.61 | 22.44 | 46.89 | 41.96 | 13.34 |
| Chhattisgarh | 10.97 | 17.72 | 4.22 | 26.39 | 29.17 | 2.37 | 1.66 | 29.00 | 7.33 | 1.12 |
| Dadra and Nagar Haveli & Daman and Diu | 12.09 | 19.55 | 4.64 | 22.52 | 22.92 | 2.32 | 6.39 | 43.60 | 7.00 | 2.28 |
| Delhi | 27.00 | 26.04 | 27.96 | 29.66 | 39.28 | 11.34 | 14.61 | 35.31 | 39.63 | 16.28 |
| Goa | 14.93 | 20.94 | 8.92 | 28.76 | 33.83 | 7.53 | 9.45 | 25.14 | 13.07 | 4.77 |
| Gujarat | 12.41 | 16.05 | 8.78 | 22.94 | 32.46 | 5.79 | 8.03 | 11.01 | 12.88 | 4.68 |
| Haryana | 16.35 | 22.68 | 10.02 | 25.08 | 32.70 | 7.57 | 8.35 | 39.68 | 16.29 | 3.74 |
| Himachal Pradesh | 14.62 | 19.25 | 10.00 | 29.91 | 27.89 | 5.52 | 9.87 | 23.04 | 12.86 | 7.14 |
| Jammu and Kashmir | 12.83 | 17.36 | 8.30 | 22.70 | 24.21 | 5.77 | 5.82 | 28.28 | 11.94 | 4.66 |
| Jharkhand | 13.10 | 16.38 | 9.81 | 20.26 | 24.99 | 8.40 | 0.78 | 27.45 | 14.78 | 4.85 |
| Karnataka | 18.01 | 22.00 | 14.02 | 29.63 | 33.91 | 19.06 | 8.49 | 18.93 | 16.25 | 11.79 |
| Kerala | 13.67 | 18.17 | 9.17 | 26.75 | 35.79 | 7.85 | 6.15 | 14.33 | 14.17 | 4.16 |
| Ladakh | 5.91 | 11.35 | 0.47 | 12.06 | 11.27 | 0.00 | 6.22 | 27.21 | 0.93 | 0.00 |
| Lakshadweep | 7.86 | 14.40 | 1.32 | 19.69 | 17.66 | 1.76 | 0.16 | 32.75 | 1.36 | 1.28 |
| Madhya Pradesh | 12.74 | 16.20 | 9.29 | 20.36 | 30.74 | 7.87 | 2.64 | 19.38 | 11.34 | 7.23 |
| Maharashtra | 16.06 | 19.97 | 12.16 | 25.75 | 34.86 | 6.76 | 7.49 | 25.00 | 17.55 | 6.76 |

| | | | | | | | | | | |
|---------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Manipur | 19.37 | 28.55 | 10.19 | 25.32 | 21.11 | 11.44 | 12.78 | 72.13 | 11.71 | 8.66 |
| Meghalaya | 16.00 | 22.95 | 9.05 | 27.68 | 17.00 | 1.54 | 4.10 | 64.44 | 12.40 | 5.71 |
| Mizoram | 13.41 | 20.13 | 6.68 | 35.23 | 20.47 | 4.58 | 0.53 | 39.84 | 7.95 | 5.41 |
| Nagaland | 11.00 | 19.69 | 2.31 | 24.55 | 18.82 | 2.15 | 3.02 | 49.93 | 3.01 | 1.61 |
| Odisha | 11.42 | 15.19 | 7.64 | 24.62 | 22.80 | 4.76 | 2.12 | 21.66 | 11.82 | 3.46 |
| Puducherry | 15.88 | 20.86 | 10.89 | 36.80 | 30.30 | 1.47 | 6.84 | 28.91 | 13.47 | 8.31 |
| Punjab | 15.35 | 20.41 | 10.30 | 29.62 | 29.52 | 4.55 | 5.81 | 32.55 | 16.21 | 4.39 |
| Rajasthan | 12.88 | 18.68 | 7.09 | 25.67 | 33.39 | 5.61 | 3.02 | 25.70 | 9.80 | 4.37 |
| Sikkim | 13.85 | 20.83 | 6.87 | 28.83 | 21.32 | 5.88 | 2.53 | 45.60 | 8.12 | 5.62 |
| Tamil Nadu | 15.69 | 18.93 | 12.45 | 30.88 | 36.06 | 9.75 | 6.99 | 10.97 | 18.29 | 6.60 |
| Telangana | 17.66 | 20.08 | 15.24 | 26.96 | 36.54 | 6.49 | 9.17 | 21.24 | 19.61 | 10.86 |
| Tripura | 11.43 | 19.58 | 3.27 | 26.43 | 25.42 | 1.32 | 2.36 | 42.37 | 5.47 | 1.07 |
| Uttar Pradesh | 14.22 | 16.54 | 11.90 | 17.24 | 40.80 | 6.31 | 2.82 | 15.55 | 17.62 | 6.18 |
| Uttarakhand | 17.67 | 22.09 | 13.25 | 29.40 | 25.44 | 11.28 | 8.10 | 36.23 | 16.35 | 10.16 |
| West Bengal | 12.98 | 15.37 | 10.60 | 18.42 | 34.35 | 5.35 | 3.34 | 15.39 | 15.17 | 6.02 |




Appendix F : Peer groups




| State/UT name | Peer 1, Peer 2, Peer 3, Peer 4, Peer 5, Peer 6, Peer 7, Peer 8, Peer 9, Peer 10 |
|--|--|
| Andaman and Nicobar Islands | Arunachal Pradesh, Mizoram, Nagaland, Sikkim, Manipur, Puducherry, Meghalaya, Chandigarh, Tripura, Goa |
| Andhra Pradesh | Rajasthan, Telangana, Delhi, Madhya Pradesh, Kerala, Haryana, West Bengal, Punjab, Odisha, Bihar |
| Arunachal Pradesh | Mizoram, Nagaland, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa |
| Assam | Jharkhand, Chhattisgarh, Uttarakhand, Dadra and Nagar Haveli, Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Bihar, Odisha |
| Bihar | Odisha, Punjab, Haryana, Kerala, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Delhi, Uttarakhand |
| Chandigarh | Meghalaya, Puducherry, Tripura, Manipur, Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Goa, Andaman and Nicobar Islands |
| Chhattisgarh | Jharkhand, Assam, Uttarakhand, Dadra and Nagar Haveli, Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Bihar, Odisha |
| Dadra and Nagar Haveli & Daman and Diu | Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Uttarakhand, Assam, Jharkhand, Chhattisgarh, Goa, Tripura |
| Delhi | Madhya Pradesh, Telangana, Kerala, Haryana, Andhra Pradesh, Rajasthan, West Bengal, Punjab, Odisha, Bihar |
| Goa | Tripura, Chandigarh, Meghalaya, Puducherry, Manipur, Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Andaman and Nicobar Islands |
| Gujarat | Tamil Nadu, Uttar Pradesh, Karnataka, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala |
| Haryana | Kerala, Madhya Pradesh, Delhi, Telangana, Andhra Pradesh, Rajasthan, Punjab, Odisha, Bihar, West Bengal |
| Himachal Pradesh | Jammu and Kashmir, Ladakh, Lakshadweep, Dadra and Nagar Haveli, Goa, Uttarakhand, Tripura, Chandigarh, Meghalaya, Puducherry |
| Jammu and Kashmir | Ladakh, Himachal Pradesh, Lakshadweep, Dadra and Nagar Haveli, Goa, Tripura, Uttarakhand, Chandigarh, Meghalaya, Puducherry |
| Jharkhand | Assam, Chhattisgarh, Uttarakhand, Dadra and Nagar Haveli, Lakshadweep, Himachal Pradesh, Jammu and Kashmir, Ladakh, Bihar, Odisha |
| Karnataka | Uttar Pradesh, Gujarat, Tamil Nadu, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala |
| Kerala | Haryana, Madhya Pradesh, Delhi, Telangana, Andhra Pradesh, Rajasthan, Punjab, Odisha, Bihar, West Bengal |
| Ladakh | Jammu and Kashmir, Himachal Pradesh, Lakshadweep, Dadra and Nagar Haveli, Goa, Tripura, Uttarakhand, Chandigarh, Meghalaya, Puducherry |
| Lakshadweep | Dadra and Nagar Haveli, Himachal Pradesh, Jammu and Kashmir, Ladakh, Uttarakhand, Assam, Jharkhand, Chhattisgarh, Goa, Tripura |
| Madhya Pradesh | Kerala, Haryana, Delhi, Telangana, Andhra Pradesh, Rajasthan, Punjab, Odisha, Bihar, West Bengal |
| Maharashtra | Tamil Nadu, Gujarat, Uttar Pradesh, Karnataka, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh |
| Manipur | Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Puducherry, Meghalaya, Chandigarh, Andaman and Nicobar Islands, Tripura, Goa |
| Meghalaya | Puducherry, Manipur, Sikkim, Chandigarh, Nagaland, Mizoram, Arunachal Pradesh, Tripura, Andaman and Nicobar Islands, Goa |


| | |
|----------------------|--|
| Mizoram | Nagaland, Arunachal Pradesh, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa |
| Nagaland | Mizoram, Arunachal Pradesh, Sikkim, Manipur, Puducherry, Meghalaya, Andaman and Nicobar Islands, Chandigarh, Tripura, Goa |
| Odisha | Punjab, Bihar, Haryana, Kerala, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Delhi, Uttarakhand |
| Puducherry | Meghalaya, Manipur, Sikkim, Chandigarh, Nagaland, Mizoram, Arunachal Pradesh, Tripura, Andaman and Nicobar Islands, Goa |
| Punjab | Odisha, Bihar, Haryana, Kerala, Chhattisgarh, Madhya Pradesh, Jharkhand, Assam, Delhi, Uttarakhand |
| Rajasthan | Andhra Pradesh, Telangana, Delhi, West Bengal, Madhya Pradesh, Kerala, Haryana, Punjab, Odisha, Bihar |
| Sikkim | Manipur, Nagaland, Mizoram, Arunachal Pradesh, Puducherry, Meghalaya, Chandigarh, Andaman and Nicobar Islands, Tripura, Goa |
| Tamil Nadu | Gujarat, Uttar Pradesh, Karnataka, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala |
| Telangana | Andhra Pradesh, Delhi, Rajasthan, Madhya Pradesh, Kerala, Haryana, West Bengal, Punjab, Odisha, Bihar |
| Tripura | Chandigarh, Goa, Meghalaya, Puducherry, Manipur, Sikkim, Nagaland, Mizoram, Arunachal Pradesh, Andaman and Nicobar Islands |
| Uttar Pradesh | Karnataka, Gujarat, Tamil Nadu, West Bengal, Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala |
| Uttarakhand | Assam, Jharkhand, Dadra and Nagar Haveli, Lakshadweep, Chhattisgarh, Himachal Pradesh, Jammu and Kashmir, Ladakh, Goa, Tripura |
| West Bengal | Rajasthan, Andhra Pradesh, Telangana, Delhi, Madhya Pradesh, Kerala, Haryana, Karnataka, Punjab, Odisha |

Appendix G : Indicator data


Andaman and Nicobar Islands




| Pillar | Sub pillar | Indicator | Data |
|--|---|--|---|
|  Human Capital | School Education | Percentage of school functional computer facility | 60.05 |
| | | NAS scores | 39.78 |
| | | Expenditure on school education as a % of GSDP | 9.75 |
| | | NER in school education | 71.30 |
| | | Accolades in STEM Activities/ 1000 Students | 6.55 |
| | | Pupil-Teacher ratio: Primary & Secondary | 10.33 |
| | | Percentage of schools having ATL labs | 0.00 |
| | | Secondary school level completion rate | 106.63 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 3.68 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 762.48 |
| | | Higher education institutions with NAAC grade A and above % | 11.11 |
| | | Percentage of Colleges connected through NMEICT | 14.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | | 22.00 | |
|  Investment | | Research & Development | Expenditure on higher and technical education |
| | Expenditure on R&D as a (% of GSDP) | | 0.00 |
| | Expenditure on Science, Technology and Environment as a % of GSDP | | 0.00 |
| | NIRF ranking of top 5 universities | | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.00 |
| | | NGOs involved in knowledge intensive areas % | 0.53 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 4.31 |




| | | | |
|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 4.64 |
| | | Incubators per lakh population | 2.36 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 29.21 |
| | | Share of manufacturing and services as a percentage of GSDP | 63.92 |
| | | Cluster Strength | 36.00 |
| | Credit | Number of bank accounts per lakh population | 1.01 |
| | | Percentage of bank accounts with Aadhar seeding | 93.26 |
| | | Domestic credit to private sector, % SDP | 35.58 |
| | | Micro finance institutions Loan portfolio | 96.68 |
| | Digital Infrastructure | Internet subscribers | 105.10 |
| | | Percentage of villages in state with internet connectivity | 61.87 |
| | | Percentage of subsidies or benefits transferred through digital platform | 48.60 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 69.00 |
| | | Total number of online services transaction / 1000 population | 10725.90 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 1.00 |
| | | No. of cyber cells | 0.26 |
| | | Rate of Cognizable Crime | 637.10 |
| | | Police personnel/lakh of population | 1080.90 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.26 |
| | Legal Regulatory Environment | Pendency rate | 1.51 |
| | | Charge sheeting Rate | 90.10 |
| | | Pendency Percentage- Corruption cases investigation | 97.10 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 0.00 |
| Knowledge Impact | | Startups in the state | 0.02 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 0.00 |
| | | Environment clearance applications approved percent | 0.00 |




| | | | |
|--|-----------------------------|---|-------|
| Knowledge Output | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.56 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 8.15 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 32.37 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 0.00 |
| | | Circulation | 29.43 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |




Andhra Pradesh


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 35.07 |
| | | NAS scores | 42.10 |
| | | Expenditure on school education as a % of GSDP | 6.56 |
| | | NER in school education | 87.30 |
| | | Accolades in STEM Activities/ 1000 Students | 15.93 |
| | | Pupil-Teacher ratio: Primary & Secondary | 19.03 |
| | | Percentage of schools having ATL labs | 0.74 |
| | | Secondary school level completion rate | 98.59 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 13.52 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 2477.24 |
| | | Higher education institutions with NAAC grade A and above % | 8.32 |
| | | Percentage of Colleges connected through NMEICT | 2.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.00 |
| | | Tertiary mobility | 3.61 |
| Pupil Teacher Ratio- Higher Education | 19.00 | | |

| | | | |
|--|-----------------------------------|--|----------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.31 |
| | | Expenditure on R&D | 0.10 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 47.76 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.22 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.31 |
| | | NGOs involved in knowledge intensive areas % | 0.65 |
| | | Number of private R&D units in the state (per lakh population) | 0.15 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.13 |
| | | Skill development training PMKVY per lakh population | 0.10 |
| | | % of females employed with advanced degrees out of total employed. | 2.25 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 52.40 |
| | | Incubators per lakh population | 0.03 |
| | | Common facility centre per lakh population | 0.06 |
| | | Gross capital formation as a % of GVA | 56.53 |
| | | Share of manufacturing and services as a percentage of GSDP | 49.83 |
| | | Cluster strength | 27.00 |
| | Credit | Number of bank accounts per lakh population | 1.29 |
| | | Percentage of bank accounts with Aadhar seeding | 93.70 |
| | | Domestic credit to private sector, % SDP | 62.62 |
| | | Micro finance institutions Loan portfolio | 96.65 |
| | Digital Infrastructure | Internet subscribers | 92.09 |
| | | Percentage of villages in state with internet connectivity | 88.94 |
| | | Percentage of subsidies or benefits transferred through digital platform | 36.70 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 183.00 |
| | | Total number of online services transaction / 1000 population | 18736.10 |


| | | | |
|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.70 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 452.70 |
| | | Police personnel/lakh of population | 113.68 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.31 |
| | | Charge sheeting Rate | 89.10 |
| Pendency Percentage- Corruption cases investigation | | 97.30 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 7.00 |
| | | Publication | 11.07 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 1.00 |
| | | Environment clearance applications approved percent | 93.72 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.72 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 8.83 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.24 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 30.98 |
| | | Software exports % | 0.11 |
| | | High and medium high tech manufacturing entities percentage | 0.31 |
| | | Citation Score | 11.50 |
| | Creative Goods and Services | GIs registered | 18.00 |
| | | Circulation | 11.55 |
| | | Handlooms sales as a percentage of GSDP | 0.19 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 23.65 |
| | | NAS scores | 36.89 |
| | | Expenditure on school education as a % of GSDP | 7.76 |
| | | NER in school education | 93.50 |
| | | Accolades in STEM Activities/ 1000 Students | 1.43 |
| | | Pupil-Teacher ratio: Primary & Secondary | 10.90 |
| | | Percentage of schools having ATL labs | 0.22 |
| | | Secondary school level completion rate | 87.00 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 77.04 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 365.86 |
| | | Higher education institutions with NAAC grade A and above % | 1.85 |
| | | Percentage of Colleges connected through NMEICT | 12.40 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.03 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | | 28.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 3.68 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.41 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.03 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.02 |
| | | NGOs involved in knowledge intensive areas % | 3.47 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 0.68 |




| | | | |
|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 13.65 |
| | | Share of manufacturing and services as a percentage of GSDP | 42.03 |
| | | Cluster Strength | 33.00 |
| | Credit | Number of bank accounts per lakh population | 0.92 |
| | | Percentage of bank accounts with Aadhar seeding | 64.89 |
| | | Domestic credit to private sector, % SDP | 24.21 |
| | | Micro finance institutions Loan portfolio | 96.48 |
| | Digital Infrastructure | Internet subscribers | 95.39 |
| | | Percentage of villages in state with internet connectivity | 57.72 |
| | | Percentage of subsidies or benefits transferred through digital platform | 11.30 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 53.00 |
| | | Total number of online services transaction / 1000 population | 1740.90 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 2.10 |
| | | No. of cyber cells | 0.07 |
| | | Rate of Cognizable Crime | 164.50 |
| | | Police personnel/lakh of population | 830.31 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.07 |
| | Legal Regulatory Environment | Pendency rate | 1.51 |
| | | Charge sheeting Rate | 52.30 |
| | | Pendency Percentage- Corruption cases investigation | 91.40 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 0.00 |
| Knowledge Impact | | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 0.00 |
| | | Environment clearance applications approved percent | 0.00 |




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|--|-----------------------------|---|------|
| Knowledge Output | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.50 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 1.88 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 0.35 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 2.00 |
| | | Circulation | 2.31 |
| | | Handlooms sales as a percentage of GSDP | 5.23 |




Assam


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 12.70 |
| | | NAS scores | 42.30 |
| | | Expenditure on school education as a % of GSDP | 7.85 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 1.32 |
| | | Pupil-Teacher ratio: Primary & Secondary | 15.40 |
| | | Percentage of schools having ATL labs | 0.27 |
| | | Secondary school level completion rate | 93.34 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 18.03 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 203.52 |
| | | Higher education institutions with NAAC grade A and above % | 3.15 |
| | | Percentage of Colleges connected through NMEICT | 17.60 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 82.19 |
| Pupil Teacher Ratio- Higher Education | 28.00 | | |

| | | | |
|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.08 |
| | | Expenditure on R&D | 0.16 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.02 |
| | | NIRF ranking of top 5 universities | 53.70 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.01 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.07 |
| | | NGOs involved in knowledge intensive areas % | 0.70 |
| | | Number of private R&D units in the state (per lakh population) | 0.05 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.06 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 1.03 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 5.93 |
| | | Incubators per lakh population | 0.02 |
| | | Common facility centre per lakh population | 0.08 |
| | | Gross capital formation as a % of GVA | 19.79 |
| | | Share of manufacturing and services as a percentage of GSDP | 50.97 |
| | | Cluster strength | 24.00 |
| | Credit | Number of bank accounts per lakh population | 0.96 |
| | | Percentage of bank accounts with Aadhar seeding | 11.94 |
| | | Domestic credit to private sector, % SDP | 30.67 |
| | | Micro finance institutions Loan portfolio | 97.21 |
| | Digital Infrastructure | Internet subscribers | 77.07 |
| | | Percentage of villages in state with internet connectivity | 97.57 |
| | | Percentage of subsidies or benefits transferred through digital platform | 19.10 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 90.00 |
| | | Total number of online services transaction / 1000 population | 2179.30 |


| | | | |
|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 8.40 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 349.50 |
| | | Police personnel/lakh of population | 207.49 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.37 |
| | | Charge sheeting Rate | 47.10 |
| Pendency Percentage- Corruption cases investigation | | 95.80 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 31.00 |
| | | Publication | 15.81 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 2.00 |
| | | Environment clearance applications approved percent | 60.81 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.43 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 4.20 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.01 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 3.71 |
| | | Software exports % | 0.01 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 15.83 |
| | Creative Goods and Services | GIs registered | 9.00 |
| | | Circulation | 2.84 |
| | | Handlooms sales as a percentage of GSDP | 0.15 |



| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 13.83 |
| | | NAS scores | 35.24 |
| | | Expenditure on school education as a % of GSDP | 5.17 |
| | | NER in school education | 88.20 |
| | | Accolades in STEM Activities/ 1000 Students | 2.52 |
| | | Pupil-Teacher ratio: Primary & Secondary | 42.20 |
| | | Percentage of schools having ATL labs | 0.04 |
| | | Secondary school level completion rate | 75.20 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 2.59 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 218.09 |
| | | Higher education institutions with NAAC grade A and above % | 1.06 |
| | | Percentage of Colleges connected through NMEICT | 18.20 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.00 |
| | | Tertiary mobility | 3.62 |
| Pupil Teacher Ratio- Higher Education | | 59.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.54 |
| | | Expenditure on R&D | 0.03 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.03 |
| | | NIRF ranking of top 5 universities | 16.03 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.01 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.13 |
| | | NGOs involved in knowledge intensive areas % | 0.52 |
| | | Number of private R&D units in the state (per lakh population) | 0.01 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.04 |
| | | Skill development training PMKVY per lakh population | 0.44 |
| | | % of females employed with advanced degrees out of total employed. | 0.58 |




| | | | |
|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 2.78 |
| | | Incubators per lakh population | 0.01 |
| | | Common facility centre per lakh population | 0.03 |
| | | Gross capital formation as a % of GVA | 44.27 |
| | | Share of manufacturing and services as a percentage of GSDP | 67.27 |
| | | Cluster Strength | 19.00 |
| | Credit | Number of bank accounts per lakh population | 0.97 |
| | | Percentage of bank accounts with Aadhar seeding | 89.99 |
| | | Domestic credit to private sector, % SDP | 34.08 |
| | | Micro finance institutions Loan portfolio | 96.01 |
| | Digital Infrastructure | Internet subscribers | 60.31 |
| | | Percentage of villages in state with internet connectivity | 99.37 |
| | | Percentage of subsidies or benefits transferred through digital platform | 39.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 82.00 |
| | | Total number of online services transaction / 1000 population | 1613.30 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.10 |
| | | No. of cyber cells | 0.07 |
| | | Rate of Cognizable Crime | 211.30 |
| | | Police personnel/lakh of population | 76.20 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.07 |
| | Legal Regulatory Environment | Pendency rate | 5.11 |
| | | Charge sheeting Rate | 73.60 |
| | | Pendency Percentage- Corruption cases investigation | 100.00 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 18.39 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 1.00 |
| | | Environment clearance applications approved percent | 81.80 |




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|--|-----------------------------|---|-------|
| Knowledge Output | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.12 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 3.40 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 4.14 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 16.47 |
| | Creative Goods and Services | GIs registered | 13.00 |
| | | Circulation | 0.01 |
| | | Handlooms sales as a percentage of GSDP | 0.02 |




Chandigarh


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 99.14 |
| | | NAS scores | 42.86 |
| | | Expenditure on school education as a % of GSDP | 3.47 |
| | | NER in school education | 77.30 |
| | | Accolades in STEM Activities/ 1000 Students | 3.52 |
| | | Pupil-Teacher ratio: Primary & Secondary | 16.87 |
| | | Percentage of schools having ATL labs | 3.93 |
| | | Secondary school level completion rate | 99.51 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 94.65 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 1878.57 |
| | | Higher education institutions with NAAC grade A and above % | 29.73 |
| | | Percentage of Colleges connected through NMEICT | 16.30 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 28.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 1.98 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 16.74 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.08 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 2.54 |
| | | NGOs involved in knowledge intensive areas % | 0.19 |
| | | Number of private R&D units in the state (per lakh population) | 2.08 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 8.05 |
| | | % of females employed with advanced degrees out of total employed. | 13.10 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.28 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 12.42 |
| | | Share of manufacturing and services as a percentage of GSDP | 83.88 |
| | | Cluster strength | 43.00 |
| | Credit | Number of bank accounts per lakh population | 2.17 |
| | | Percentage of bank accounts with Aadhar seeding | 83.17 |
| | | Domestic credit to private sector, % SDP | 249.73 |
| | | Micro finance institutions Loan portfolio | 96.51 |
| | Digital Infrastructure | Internet subscribers | 144.96 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 20.30 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 75.00 |
| | | Total number of online services transaction / 1000 population | 7884.60 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.50 |
| | | No. of cyber cells | 0.09 |
| | | Rate of Cognizable Crime | 271.60 |
| | | Police personnel/lakh of population | 649.62 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.09 |
| | Legal Regulatory Environment | Pendency rate | 0.07 |
| | | Charge sheeting Rate | 56.00 |
| | | Pendency Percentage- Corruption cases investigation | 85.70 |
| | | | 36.00 |
|  Knowledge Output | Knowledge creation | Grass root innovations | 15.22 |
| | | Publication | 0.06 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 9.00 |
| | | GSDP per capita growth rate 2019-20 | 78.33 |
| | | Environment clearance applications approved percent | 5.47 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 206.07 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 4.83 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 1.57 |
| High and medium high tech manufacturing entities percentage | | | 0.00 |
| Citation Score | | | 22.39 |
| Creative Goods and Services | | GIs registered | 0.00 |
| | | Circulation | 62.53 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 83.00 |
| | | NAS scores | 36.16 |
| | | Expenditure on school education as a % of GSDP | 6.95 |
| | | NER in school education | 89.50 |
| | | Accolades in STEM Activities/ 1000 Students | 14.03 |
| | | Pupil-Teacher ratio: Primary & Secondary | 18.10 |
| | | Percentage of schools having ATL labs | 0.20 |
| | | Secondary school level completion rate | 90.40 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 5.94 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 428.72 |
| | | Higher education institutions with NAAC grade A and above % | 1.00 |
| | | Percentage of Colleges connected through NMEICT | 8.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.00 |
| | | Tertiary mobility | 66.88 |
| Pupil Teacher Ratio- Higher Education | | 26.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.96 |
| | | Expenditure on R&D | 0.10 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.01 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.27 |
| | | NGOs involved in knowledge intensive areas % | 0.42 |
| | | Number of private R&D units in the state (per lakh population) | 0.08 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.04 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.09 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 28.71 |
| | | Incubators per lakh population | 0.03 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 46.43 |
| | | Share of manufacturing and services as a percentage of GSDP | 47.49 |
| | | Cluster Strength | 14.00 |
| | Credit | Number of bank accounts per lakh population | 1.17 |
| | | Percentage of bank accounts with Aadhar seeding | 87.22 |
| | | Domestic credit to private sector, % SDP | 41.88 |
| | | Micro finance institutions Loan portfolio | 96.16 |
| | Digital Infrastructure | Internet subscribers | 80.13 |
| | | Percentage of villages in state with internet connectivity | 90.56 |
| | | Percentage of subsidies or benefits transferred through digital platform | 35.90 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 104.00 |
| | | Total number of online services transaction / 1000 population | 10894.80 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.50 |
| | | No. of cyber cells | 0.11 |
| | | Rate of Cognizable Crime | 352.90 |
| | | Police personnel/lakh of population | 220.53 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.18 |
| | | Charge sheeting Rate | 81.80 |
| | | Pendency Percentage- Corruption cases investigation | 87.78 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 0.00 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 65.61 |




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|--|-----------------------------|---|------|
| Knowledge Output | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.31 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 9.32 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.23 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 1.16 |
| | | Software exports % | 0.03 |
| | | High and medium high tech manufacturing entities percentage | 0.25 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 6.00 |
| | | Circulation | 7.02 |
| | | Handlooms sales as a percentage of GSDP | 0.08 |




Dadra and Nagar Haveli and Daman and Diu


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 90.45 |
| | | NAS scores | 34.45 |
| | | Expenditure on school education as a % of GSDP | 0.00 |
| | | NER in school education | 86.90 |
| | | Accolades in STEM Activities/ 1000 Students | 4.40 |
| | | Pupil-Teacher ratio: Primary & Secondary | 23.51 |
| | | Percentage of schools having ATL labs | 0.41 |
| | | Secondary school level completion rate | 99.92 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 0.00 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 784.17 |
| | | Higher education institutions with NAAC grade A and above % | 0.00 |
| | | Percentage of Colleges connected through NMEICT | |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.08 |
| | | Tertiary mobility | 0.00 |
| | | Pupil Teacher Ratio- Higher Education | 20.50 |

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|--|-----------------------------------|--|----------|
|  Investment | Research & Development | Expenditure on higher and technical education | 1.35 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 4.16 |
| | | NGOs involved in knowledge intensive areas % | 0.17 |
| | | Number of private R&D units in the state (per lakh population) | 1.36 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.08 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 5.56 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 0.00 |
| | | Share of manufacturing and services as a percentage of GSDP | 0.00 |
| | | Cluster strength | 28.00 |
| | Credit | Number of bank accounts per lakh population | 0.88 |
| | | Percentage of bank accounts with Aadhar seeding | 84.88 |
| | | Domestic credit to private sector, % SDP | 3.95 |
| | | Micro finance institutions Loan portfolio | 96.26 |
| | Digital Infrastructure | Internet subscribers | 132.89 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 47.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 38.00 |
| | | Total number of online services transaction / 1000 population | 33829.30 |


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|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.50 |
| | | No. of cyber cells | 0.17 |
| | | Rate of Cognizable Crime | 51.30 |
| | | Police personnel/lakh of population | 142.02 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.17 |
| | Legal Regulatory Environment | Pendency rate | 1.93 |
| | | Charge sheeting Rate | 71.50 |
| Pendency Percentage- Corruption cases investigation | | 100.00 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 51.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | -2.80 |
| | | Environment clearance applications approved percent | 31.66 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.01 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 34.76 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 7.84 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 25.11 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 1.46 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 1.00 |
| | | Circulation | 7.84 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 93.88 |
| | | NAS scores | 44.73 |
| | | Expenditure on school education as a % of GSDP | 1.89 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 1.54 |
| | | Pupil-Teacher ratio: Primary & Secondary | 29.87 |
| | | Percentage of schools having ATL labs | 0.99 |
| | | Secondary school level completion rate | 97.70 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 96.91 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 554.23 |
| | | Higher education institutions with NAAC grade A and above % | 23.08 |
| | | Percentage of Colleges connected through NMEICT | 20.30 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 64.16 |
| Pupil Teacher Ratio- Higher Education | | 52.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.72 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 69.98 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 4.64 |
| | | Venture capital deals | 0.63 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.10 |
| | | NGOs involved in knowledge intensive areas % | 2.84 |
| | | Number of private R&D units in the state (per lakh population) | 2.37 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.92 |
| | | % of females employed with advanced degrees out of total employed. | 10.59 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 19.17 |
| | | Incubators per lakh population | 0.33 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 16.53 |
| | | Share of manufacturing and services as a percentage of GSDP | 77.03 |
| | | Cluster Strength | 77.00 |
| | Credit | Number of bank accounts per lakh population | 1.83 |
| | | Percentage of bank accounts with Aadhar seeding | 82.64 |
| | | Domestic credit to private sector, % SDP | 223.25 |
| | | Micro finance institutions Loan portfolio | 97.30 |
| | Digital Infrastructure | Internet subscribers | 231.12 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 58.20 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 117.00 |
| | | Total number of online services transaction / 1000 population | 5804.10 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 1.00 |
| | | No. of cyber cells | 0.10 |
| | | Rate of Cognizable Crime | 1309.50 |
| | | Police personnel/lakh of population | 410.26 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.30 |
| | | Charge sheeting Rate | 27.70 |
| | | Pendency Percentage- Corruption cases investigation | 90.50 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 17.29 |
| Knowledge Impact | | Startups in the state | 0.04 |
| | | New Businesses- No. of companies registered during previous FY | 0.01 |
| | | GSDP per capita growth rate 2019-20 | 6.00 |
| | | Environment clearance applications approved percent | 16.62 |




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| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 2.35 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 361.69 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 8.84 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 32.71 |
| | | Software exports % | 0.39 |
| | | High and medium high tech manufacturing entities percentage | 0.17 |
| | | Citation Score | 19.65 |
| | Creative Goods and Services | GIs registered | 1.00 |
| | | Circulation | 97.82 |
| | | Handlooms sales as a percentage of GSDP | 0.01 |




Goa


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 49.87 |
| | | NAS scores | 42.47 |
| | | Expenditure on school education as a % of GSDP | 4.56 |
| | | NER in school education | 91.23 |
| | | Accolades in STEM Activities/ 1000 Students | 3.06 |
| | | Pupil-Teacher ratio: Primary & Secondary | 18.27 |
| | | Percentage of schools having ATL labs | 0.13 |
| | | Secondary school level completion rate | 102.31 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 29.69 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 2193.59 |
| | | Higher education institutions with NAAC grade A and above % | 15.28 |
| | | Percentage of Colleges connected through NMEICT | 14.90 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 15.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 2.00 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.13 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.87 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 4.21 |
| | | NGOs involved in knowledge intensive areas % | 0.21 |
| | | Number of private R&D units in the state (per lakh population) | 1.92 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.07 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 1.90 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 3.33 |
| | | Incubators per lakh population | 0.48 |
| | | Common facility centre per lakh population | 1.43 |
| | | Gross capital formation as a % of GVA | 17.84 |
| | | Share of manufacturing and services as a percentage of GSDP | 77.47 |
| | | Cluster strength | 55.00 |
| | Credit | Number of bank accounts per lakh population | 1.97 |
| | | Percentage of bank accounts with Aadhar seeding | 81.67 |
| | | Domestic credit to private sector, % SDP | 37.94 |
| | | Micro finance institutions Loan portfolio | 94.69 |
| | Digital Infrastructure | Internet subscribers | 182.37 |
| | | Percentage of villages in state with internet connectivity | 91.25 |
| | | Percentage of subsidies or benefits transferred through digital platform | 11.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 98.00 |
| | | Total number of online services transaction / 1000 population | 3641.90 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.80 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 281.10 |
| | | Police personnel/lakh of population | 511.78 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 1.27 |
| | | Charge sheeting Rate | 83.90 |
| | | Pendency Percentage- Corruption cases investigation | 95.50 |
| | | | 19.00 |
|  Knowledge Output | Knowledge creation | Grass root innovations | 19.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.03 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 1.00 |
| | | Environment clearance applications approved percent | 8.42 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.70 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 49.78 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 1.44 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 0.15 |
| High and medium high tech manufacturing entities percentage | | | 0.10 |
| Citation Score | | | 0.00 |
| Creative Goods and Services | | GIs registered | 2.00 |
| | | Circulation | 13.37 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 73.95 |
| | | NAS scores | 36.47 |
| | | Expenditure on school education as a % of GSDP | 3.12 |
| | | NER in school education | 84.10 |
| | | Accolades in STEM Activities/ 1000 Students | 10.41 |
| | | Pupil-Teacher ratio: Primary & Secondary | 28.57 |
| | | Percentage of schools having ATL labs | 0.58 |
| | | Secondary school level completion rate | 88.50 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 12.29 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 843.66 |
| | | Higher education institutions with NAAC grade A and above % | 1.32 |
| | | Percentage of Colleges connected through NMEICT | 14.60 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 5.66 |
| Pupil Teacher Ratio- Higher Education | | 26.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.25 |
| | | Expenditure on R&D | 0.08 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.05 |
| | | NIRF ranking of top 5 universities | 32.86 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 1.49 |
| | | Venture capital deals | 0.11 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.18 |
| | | NGOs involved in knowledge intensive areas % | 0.49 |
| | | Number of private R&D units in the state (per lakh population) | 0.80 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.23 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.35 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 20.19 |
| | | Incubators per lakh population | 0.05 |
| | | Common facility centre per lakh population | 0.06 |
| | | Gross capital formation as a % of GVA | 3.89 |
| | | Share of manufacturing and services as a percentage of GSDP | 63.80 |
| | | Cluster Strength | 52.00 |
| | Credit | Number of bank accounts per lakh population | 1.09 |
| | | Percentage of bank accounts with Aadhar seeding | 82.44 |
| | | Domestic credit to private sector, % SDP | 48.19 |
| | | Micro finance institutions Loan portfolio | 98.43 |
| | Digital Infrastructure | Internet subscribers | 110.87 |
| | | Percentage of villages in state with internet connectivity | 97.13 |
| | | Percentage of subsidies or benefits transferred through digital platform | 64.40 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 168.00 |
| | | Total number of online services transaction / 1000 population | 15623.50 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.60 |
| | | No. of cyber cells | 0.02 |
| | | Rate of Cognizable Crime | 1011.40 |
| | | Police personnel/lakh of population | 122.78 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 2.97 |
| | | Charge sheeting Rate | 97.10 |
| | | Pendency Percentage- Corruption cases investigation | 95.80 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 11.23 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 0.00 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.70 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 43.29 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 2.16 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 24.55 |
| | | Software exports % | 0.24 |
| | | High and medium high tech manufacturing entities percentage | 0.12 |
| | | Citation Score | 12.49 |
| | Creative Goods and Services | GIs registered | 16.00 |
| | | Circulation | 12.29 |
| | | Handlooms sales as a percentage of GSDP | 0.01 |




Haryana


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 52.21 |
| | | NAS scores | 36.47 |
| | | Expenditure on school education as a % of GSDP | 3.08 |
| | | NER in school education | 85.10 |
| | | Accolades in STEM Activities/ 1000 Students | 5.26 |
| | | Pupil-Teacher ratio: Primary & Secondary | 17.47 |
| | | Percentage of schools having ATL labs | 1.46 |
| | | Secondary school level completion rate | 95.66 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 16.43 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 990.89 |
| | | Higher education institutions with NAAC grade A and above % | 2.68 |
| | | Percentage of Colleges connected through NMEICT | 31.50 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 24.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.82 |
| | | Expenditure on R&D | 0.07 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.01 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.93 |
| | | Venture capital deals | 1.50 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.57 |
| | | NGOs involved in knowledge intensive areas % | 0.37 |
| | | Number of private R&D units in the state (per lakh population) | 1.28 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.09 |
| | | Skill development training PMKVY per lakh population | 0.35 |
| | | % of females employed with advanced degrees out of total employed. | 5.37 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 13.24 |
| | | Incubators per lakh population | 0.07 |
| | | Common facility centre per lakh population | 0.21 |
| | | Gross capital formation as a % of GVA | 34.00 |
| | | Share of manufacturing and services as a percentage of GSDP | 64.66 |
| | | Cluster strength | 46.00 |
| | Credit | Number of bank accounts per lakh population | 1.46 |
| | | Percentage of bank accounts with Aadhar seeding | 86.01 |
| | | Domestic credit to private sector, % SDP | 55.04 |
| | | Micro finance institutions Loan portfolio | 97.00 |
| | Digital Infrastructure | Internet subscribers | 130.25 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 55.10 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 104.00 |
| | | Total number of online services transaction / 1000 population | 7926.80 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 2.00 |
| | | No. of cyber cells | 0.12 |
| | | Rate of Cognizable Crime | 658.60 |
| | | Police personnel/lakh of population | 180.19 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.09 |
| | Legal Regulatory Environment | Pendency rate | 0.03 |
| | | Charge sheeting Rate | 47.40 |
| Pendency Percentage- Corruption cases investigation | | 91.80 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 73.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.02 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 7.00 |
| | | Environment clearance applications approved percent | 78.05 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 1.20 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 67.73 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 2.15 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 4.33 |
| High and medium high tech manufacturing entities percentage | | | 0.45 |
| Citation Score | | | 0.00 |
| Creative Goods and Services | | GIs registered | 2.00 |
| | | Circulation | 10.35 |
| | | Handlooms sales as a percentage of GSDP | 0.05 |




| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 33.20 |
| | | NAS scores | 36.30 |
| | | Expenditure on school education as a % of GSDP | 6.17 |
| | | NER in school education | 92.00 |
| | | Accolades in STEM Activities/ 1000 Students | 16.84 |
| | | Pupil-Teacher ratio: Primary & Secondary | 10.43 |
| | | Percentage of schools having ATL labs | 0.33 |
| | | Secondary school level completion rate | 99.52 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 28.03 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 384.49 |
| | | Higher education institutions with NAAC grade A and above % | 0.89 |
| | | Percentage of Colleges connected through NMEICT | 33.10 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 36.51 |
| Pupil Teacher Ratio- Higher Education | | 27.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 2.02 |
| | | Expenditure on R&D | 0.14 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.01 |
| | | NIRF ranking of top 5 universities | 15.52 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.07 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.49 |
| | | NGOs involved in knowledge intensive areas % | 0.47 |
| | | Number of private R&D units in the state (per lakh population) | 0.28 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.42 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.94 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 28.49 |
| | | Incubators per lakh population | 0.03 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 18.07 |
| | | Share of manufacturing and services as a percentage of GSDP | 69.17 |
| | | Cluster Strength | 11.00 |
| | Credit | Number of bank accounts per lakh population | 1.39 |
| | | Percentage of bank accounts with Aadhar seeding | 87.99 |
| | | Domestic credit to private sector, % SDP | 26.44 |
| | | Micro finance institutions Loan portfolio | 92.64 |
| | Digital Infrastructure | Internet subscribers | 160.97 |
| | | Percentage of villages in state with internet connectivity | 97.86 |
| | | Percentage of subsidies or benefits transferred through digital platform | 47.80 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 118.00 |
| | | Total number of online services transaction / 1000 population | 6217.40 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 1.20 |
| | | No. of cyber cells | 0.01 |
| | | Rate of Cognizable Crime | 280.20 |
| | | Police personnel/lakh of population | 240.52 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.17 |
| | | Charge sheeting Rate | 84.70 |
| | | Pendency Percentage- Corruption cases investigation | 95.70 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 15.16 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 6.00 |
| | | Environment clearance applications approved percent | 69.99 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 1.15 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 19.37 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 1.08 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 93.51 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.06 |
| | | Citation Score | 14.77 |
| | Creative Goods and Services | GIs registered | 7.00 |
| | | Circulation | 6.76 |
| | | Handlooms sales as a percentage of GSDP | 0.11 |




Jammu and Kashmir


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 23.68 |
| | | NAS scores | 31.60 |
| | | Expenditure on school education as a % of GSDP | 6.92 |
| | | NER in school education | 74.20 |
| | | Accolades in STEM Activities/ 1000 Students | 10.36 |
| | | Pupil-Teacher ratio: Primary & Secondary | 12.00 |
| | | Percentage of schools having ATL labs | 0.16 |
| | | Secondary school level completion rate | 90.00 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 31.65 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 328.95 |
| | | Higher education institutions with NAAC grade A and above % | 2.38 |
| | | Percentage of Colleges connected through NMEICT | 17.90 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.02 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 35.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 1.05 |
| | | Expenditure on R&D | 0.26 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.03 |
| | | NIRF ranking of top 5 universities | 29.42 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.34 |
| | | NGOs involved in knowledge intensive areas % | 1.11 |
| | | Number of private R&D units in the state (per lakh population) | 0.01 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.19 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 5.83 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 5.00 |
| | | Incubators per lakh population | 0.02 |
| | | Common facility centre per lakh population | 0.14 |
| | | Gross capital formation as a % of GVA | 15.29 |
| | | Share of manufacturing and services as a percentage of GSDP | 60.81 |
| | | Cluster strength | 26.00 |
| | Credit | Number of bank accounts per lakh population | 0.88 |
| | | Percentage of bank accounts with Aadhar seeding | 80.67 |
| | | Domestic credit to private sector, % SDP | 49.73 |
| | | Micro finance institutions Loan portfolio | 97.70 |
| | Digital Infrastructure | Internet subscribers | 90.34 |
| | | Percentage of villages in state with internet connectivity | 97.48 |
| | | Percentage of subsidies or benefits transferred through digital platform | 25.40 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 58.00 |
| | | Total number of online services transaction / 1000 population | 2179.10 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.70 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 216.70 |
| | | Police personnel/lakh of population | 610.25 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.01 |
| | Legal Regulatory Environment | Pendency rate | 0.95 |
| | | Charge sheeting Rate | 81.10 |
| | | Pendency Percentage- Corruption cases investigation | 97.90 |
| | | | 79.00 |
|  Knowledge Output | Knowledge creation | Grass root innovations | 79.00 |
| | | Publication | 7.35 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 2.00 |
| | | Environment clearance applications approved percent | 84.63 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.38 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 10.12 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.06 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 0.00 |
| High and medium high tech manufacturing entities percentage | | | 0.00 |
| Citation Score | | | 10.30 |
| Creative Goods and Services | | GIs registered | 9.00 |
| | | Circulation | 9.82 |
| | | Handlooms sales as a percentage of GSDP | 0.20 |


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 73.39 |
| | | NAS scores | 36.32 |
| | | Expenditure on school education as a % of GSDP | 5.15 |
| | | NER in school education | 92.90 |
| | | Accolades in STEM Activities/ 1000 Students | 5.59 |
| | | Pupil-Teacher ratio: Primary & Secondary | 28.77 |
| | | Percentage of schools having ATL labs | 0.15 |
| | | Secondary school level completion rate | 80.10 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 10.58 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 303.74 |
| | | Higher education institutions with NAAC grade A and above % | 0.74 |
| | | Percentage of Colleges connected through NMEICT | 24.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 36.80 |
| Pupil Teacher Ratio- Higher Education | | 60.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.57 |
| | | Expenditure on R&D | 0.05 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.04 |
| | | NIRF ranking of top 5 universities | 33.40 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 5.54 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.40 |
| | | NGOs involved in knowledge intensive areas % | 0.36 |
| | | Number of private R&D units in the state (per lakh population) | 0.02 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.01 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 1.10 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 29.54 |
| | | Incubators per lakh population | 0.02 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 5.21 |
| | | Share of manufacturing and services as a percentage of GSDP | 62.81 |
| | | Cluster Strength | 21.00 |
| | Credit | Number of bank accounts per lakh population | 1.05 |
| | | Percentage of bank accounts with Aadhar seeding | 90.76 |
| | | Domestic credit to private sector, % SDP | 29.81 |
| | | Micro finance institutions Loan portfolio | 97.53 |
| | Digital Infrastructure | Internet subscribers | 67.02 |
| | | Percentage of villages in state with internet connectivity | 96.12 |
| | | Percentage of subsidies or benefits transferred through digital platform | 33.20 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 83.00 |
| | | Total number of online services transaction / 1000 population | 1798.70 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 2.60 |
| | | No. of cyber cells | 0.05 |
| | | Rate of Cognizable Crime | 166.80 |
| | | Police personnel/lakh of population | 172.18 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.02 |
| | Legal Regulatory Environment | Pendency rate | 1.38 |
| | | Charge sheeting Rate | 66.70 |
| | | Pendency Percentage- Corruption cases investigation | 96.20 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 24.74 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 6.00 |
| | | Environment clearance applications approved percent | 76.96 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.78 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 4.13 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.06 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 6.40 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.04 |
| | | Citation Score | 24.98 |
| | Creative Goods and Services | GIs registered | 0.00 |
| | | Circulation | 1.90 |
| | | Handlooms sales as a percentage of GSDP | 0.09 |




Karnataka


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 46.34 |
| | | NAS scores | 43.64 |
| | | Expenditure on school education as a % of GSDP | 2.77 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 14.72 |
| | | Pupil-Teacher ratio: Primary & Secondary | 17.77 |
| | | Percentage of schools having ATL labs | 0.75 |
| | | Secondary school level completion rate | 95.48 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 24.50 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 1386.83 |
| | | Higher education institutions with NAAC grade A and above % | 3.32 |
| | | Percentage of Colleges connected through NMEICT | 17.60 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 15.42 |
| Pupil Teacher Ratio- Higher Education | 15.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.32 |
| | | Expenditure on R&D | 0.04 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.02 |
| | | NIRF ranking of top 5 universities | 65.33 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 2.69 |
| | | Venture capital deals | 3.44 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.93 |
| | | NGOs involved in knowledge intensive areas % | 0.56 |
| | | Number of private R&D units in the state (per lakh population) | 0.80 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.22 |
| | | Skill development training PMKVY per lakh population | 0.57 |
| | | % of females employed with advanced degrees out of total employed. | 2.08 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 7.82 |
| | | Incubators per lakh population | 0.10 |
| | | Common facility centre per lakh population | 0.26 |
| | | Gross capital formation as a % of GVA | 34.73 |
| | | Share of manufacturing and services as a percentage of GSDP | 72.38 |
| | | Cluster strength | 52.00 |
| | Credit | Number of bank accounts per lakh population | 1.41 |
| | | Percentage of bank accounts with Aadhar seeding | 86.42 |
| | | Domestic credit to private sector, % SDP | 64.86 |
| | | Micro finance institutions Loan portfolio | 98.40 |
| | Digital Infrastructure | Internet subscribers | 110.04 |
| | | Percentage of villages in state with internet connectivity | 98.39 |
| | | Percentage of subsidies or benefits transferred through digital platform | 31.70 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 170.00 |
| | | Total number of online services transaction / 1000 population | 7100.30 |


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|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 16.30 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 225.70 |
| | | Police personnel/lakh of population | 125.95 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.05 |
| | Legal Regulatory Environment | Pendency rate | 1.04 |
| | | Charge sheeting Rate | 78.80 |
| Pendency Percentage- Corruption cases investigation | | 89.50 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 9.00 |
| | | Publication | 16.95 |
| | Knowledge Impact | Startups in the state | 0.02 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 1.00 |
| | | Environment clearance applications approved percent | 0.00 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 1.95 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 29.57 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.83 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 34.87 |
| | | Software exports % | 14.84 |
| | | High and medium high tech manufacturing entities percentage | 0.17 |
| | | Citation Score | 18.42 |
| | Creative Goods and Services | GIs registered | 45.00 |
| | | Circulation | 13.13 |
| | | Handlooms sales as a percentage of GSDP | 0.04 |

| Pillar | Sub pillar | Indicator | Data |
|--|--|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 92.44 |
| | | NAS scores | 40.22 |
| | | Expenditure on school education as a % of GSDP | 4.88 |
| | | NER in school education | 90.60 |
| | | Accolades in STEM Activities/ 1000 Students | 2.99 |
| | | Pupil-Teacher ratio: Primary & Secondary | 20.33 |
| | | Percentage of schools having ATL labs | 0.84 |
| | Secondary school level completion rate | 100.99 | |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 22.46 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 1726.90 |
| | | Higher education institutions with NAAC grade A and above % | 7.25 |
| | | Percentage of Colleges connected through NMEICT | 7.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.00 |
| | | Tertiary mobility | 0.30 |
| Pupil Teacher Ratio- Higher Education | | 18.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.45 |
| | | Expenditure on R&D | 0.03 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.05 |
| | | NIRF ranking of top 5 universities | 48.23 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.07 |
| | | Venture capital deals | 0.67 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.38 |
| | | NGOs involved in knowledge intensive areas % | 0.21 |
| | | Number of private R&D units in the state (per lakh population) | 0.25 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.22 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 5.18 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 1.11 |
| | | Incubators per lakh population | 0.08 |
| | | Common facility centre per lakh population | 0.46 |
| | | Gross capital formation as a % of GVA | 32.45 |
| | | Share of manufacturing and services as a percentage of GSDP | 66.79 |
| | | Cluster Strength | 47.00 |
| | Credit | Number of bank accounts per lakh population | 1.35 |
| | | Percentage of bank accounts with Aadhar seeding | 87.62 |
| | | Domestic credit to private sector, % SDP | 63.47 |
| | | Micro finance institutions Loan portfolio | 98.31 |
| | Digital Infrastructure | Internet subscribers | 133.51 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 27.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 137.00 |
| | | Total number of online services transaction / 1000 population | 30948.80 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 1.00 |
| | | No. of cyber cells | 0.06 |
| | | Rate of Cognizable Crime | 1568.40 |
| | | Police personnel/lakh of population | 152.49 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.17 |
| | | Charge sheeting Rate | 94.90 |
| | | Pendency Percentage- Corruption cases investigation | 87.78 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 10.33 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 10.00 |
| | | Environment clearance applications approved percent | 88.52 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.63 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 30.55 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.43 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 3.03 |
| | | Software exports % | 0.69 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 11.89 |
| | Creative Goods and Services | GIs registered | 31.00 |
| | | Circulation | 13.87 |
| | | Handlooms sales as a percentage of GSDP | 0.04 |




Ladakh


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|-------|
|  Human Capital | School Education | Percentage of school functional computer facility | 31.31 |
| | | NAS scores | 0.00 |
| | | Expenditure on school education as a % of GSDP | 0.00 |
| | | NER in school education | 68.00 |
| | | Accolades in STEM Activities/ 1000 Students | 0.11 |
| | | Pupil-Teacher ratio: Primary & Secondary | 7.20 |
| | | Percentage of schools having ATL labs | 0.00 |
| | | Secondary school level completion rate | |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 0.00 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 0.00 |
| | | Higher education institutions with NAAC grade A and above % | 0.00 |
| | | Percentage of Colleges connected through NMEICT | |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.14 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 15.00 | | |

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|--|-----------------------------------|--|-------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.00 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.00 |
| | | NGOs involved in knowledge intensive areas % | 0.00 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.36 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 0.00 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 0.00 |
| | | Share of manufacturing and services as a percentage of GSDP | 0.00 |
| | | Cluster strength | 12.00 |
| | Credit | Number of bank accounts per lakh population | 1.25 |
| | | Percentage of bank accounts with Aadhar seeding | 81.10 |
| | | Domestic credit to private sector, % SDP | 1.11 |
| | | Micro finance institutions Loan portfolio | 97.88 |
| | Digital Infrastructure | Internet subscribers | 0.00 |
| | | Percentage of villages in state with internet connectivity | 72.88 |
| | | Percentage of subsidies or benefits transferred through digital platform | 0.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 0.00 |
| | | Total number of online services transaction / 1000 population | 0.00 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.00 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 136.10 |
| | | Police personnel/lakh of population | 569.05 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.20 |
| | | Charge sheeting Rate | 88.00 |
| | | Pendency Percentage- Corruption cases investigation | 100.00 |
| | | | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 0.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 2.80 |
| | | Environment clearance applications approved percent | 0.00 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.00 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 0.00 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 0.00 |
| High and medium high tech manufacturing entities percentage | | | 0.00 |
| Citation Score | | | 0.00 |
| Creative Goods and Services | | GIs registered | 0.00 |
| | | Circulation | 0.00 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|-------|
|  Human Capital | School Education | Percentage of school functional computer facility | 97.78 |
| | | NAS scores | 35.22 |
| | | Expenditure on school education as a % of GSDP | 0.00 |
| | | NER in school education | 75.60 |
| | | Accolades in STEM Activities/ 1000 Students | 4.56 |
| | | Pupil-Teacher ratio: Primary & Secondary | 6.83 |
| | | Percentage of schools having ATL labs | 0.00 |
| | | Secondary school level completion rate | 74.08 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 0.00 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 0.00 |
| | | Higher education institutions with NAAC grade A and above % | 0.00 |
| | | Percentage of Colleges connected through NMEICT | 6.30 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | | 12.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 1.02 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.48 |
| | | NGOs involved in knowledge intensive areas % | 0.00 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 0.96 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 13.33 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 0.00 |
| | | Share of manufacturing and services as a percentage of GSDP | 0.00 |
| | | Cluster Strength | 19.00 |
| | Credit | Number of bank accounts per lakh population | 1.13 |
| | | Percentage of bank accounts with Aadhar seeding | 87.67 |
| | | Domestic credit to private sector, % SDP | 0.06 |
| | | Micro finance institutions Loan portfolio | 74.10 |
| | Digital Infrastructure | Internet subscribers | 124.08 |
| | | Percentage of villages in state with internet connectivity | 83.33 |
| | | Percentage of subsidies or benefits transferred through digital platform | 22.70 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 15.00 |
| | | Total number of online services transaction / 1000 population | 23814.20 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 2.90 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 216.20 |
| | | Police personnel/lakh of population | 392.65 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 1.51 |
| | | Charge sheeting Rate | 77.80 |
| | | Pendency Percentage- Corruption cases investigation | 0.00 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 0.00 |
| Knowledge Impact | | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 2.80 |
| | | Environment clearance applications approved percent | 0.00 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.00 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 1.55 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 0.00 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 0.00 |
| | | Circulation | 10.86 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |




Madhya Pradesh


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 13.28 |
| | | NAS scores | 35.32 |
| | | Expenditure on school education as a % of GSDP | 5.75 |
| | | NER in school education | 80.70 |
| | | Accolades in STEM Activities/ 1000 Students | 10.32 |
| | | Pupil-Teacher ratio: Primary & Secondary | 24.63 |
| | | Percentage of schools having ATL labs | 0.26 |
| | | Secondary school level completion rate | 88.58 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 11.63 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 780.73 |
| | | Higher education institutions with NAAC grade A and above % | 2.03 |
| | | Percentage of Colleges connected through NMEICT | 12.10 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 1.65 |
| Pupil Teacher Ratio- Higher Education | 34.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.56 |
| | | Expenditure on R&D | 0.10 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.04 |
| | | NIRF ranking of top 5 universities | 35.59 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.09 |
| | | Venture capital deals | 0.84 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.30 |
| | | NGOs involved in knowledge intensive areas % | 0.66 |
| | | Number of private R&D units in the state (per lakh population) | 0.09 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.06 |
| | | Skill development training PMKVY per lakh population | 0.23 |
| | | % of females employed with advanced degrees out of total employed. | 2.26 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 43.44 |
| | | Incubators per lakh population | 0.04 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 33.65 |
| | | Share of manufacturing and services as a percentage of GSDP | 48.40 |
| | | Cluster strength | 36.00 |
| | Credit | Number of bank accounts per lakh population | 1.04 |
| | | Percentage of bank accounts with Aadhar seeding | 89.41 |
| | | Domestic credit to private sector, % SDP | 49.27 |
| | | Micro finance institutions Loan portfolio | 97.47 |
| | Digital Infrastructure | Internet subscribers | 75.78 |
| | | Percentage of villages in state with internet connectivity | 94.97 |
| | | Percentage of subsidies or benefits transferred through digital platform | 44.90 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 106.00 |
| | | Total number of online services transaction / 1000 population | 2491.60 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.50 |
| | | No. of cyber cells | 0.01 |
| | | Rate of Cognizable Crime | 511.10 |
| | | Police personnel/lakh of population | 120.02 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.39 |
| | | Charge sheeting Rate | 88.10 |
| | | Pendency Percentage- Corruption cases investigation | 94.00 |
|  Knowledge Output | Knowledge creation | Grass root innovations | 13.00 |
| | | Publication | 18.87 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 0.00 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.49 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 13.39 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.17 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 0.14 |
| High and medium high tech manufacturing entities percentage | | | 0.13 |
| Citation Score | | | 19.04 |
| Creative Goods and Services | | GIs registered | 11.00 |
| | | Circulation | 18.44 |
| | | Handlooms sales as a percentage of GSDP | 0.04 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 71.07 |
| | | NAS scores | 38.65 |
| | | Expenditure on school education as a % of GSDP | 3.58 |
| | | NER in school education | 97.80 |
| | | Accolades in STEM Activities/ 1000 Students | 6.19 |
| | | Pupil-Teacher ratio: Primary & Secondary | 24.07 |
| | | Percentage of schools having ATL labs | 0.50 |
| | | Secondary school level completion rate | 98.03 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 10.65 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 1061.76 |
| | | Higher education institutions with NAAC grade A and above % | 6.21 |
| | | Percentage of Colleges connected through NMEICT | 21.10 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 15.22 |
| Pupil Teacher Ratio- Higher Education | | 26.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.08 |
| | | Expenditure on R&D | 0.01 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.02 |
| | | NIRF ranking of top 5 universities | 64.98 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 2.44 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.95 |
| | | NGOs involved in knowledge intensive areas % | 1.16 |
| | | Number of private R&D units in the state (per lakh population) | 1.23 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.09 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.50 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 17.50 |
| | | Incubators per lakh population | 0.05 |
| | | Common facility centre per lakh population | 0.27 |
| | | Gross capital formation as a % of GVA | 35.06 |
| | | Share of manufacturing and services as a percentage of GSDP | 69.12 |
| | | Cluster Strength | 82.00 |
| | Credit | Number of bank accounts per lakh population | 1.10 |
| | | Percentage of bank accounts with Aadhar seeding | 86.12 |
| | | Domestic credit to private sector, % SDP | 117.67 |
| | | Micro finance institutions Loan portfolio | 98.19 |
| | Digital Infrastructure | Internet subscribers | 111.77 |
| | | Percentage of villages in state with internet connectivity | 94.32 |
| | | Percentage of subsidies or benefits transferred through digital platform | 24.50 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 77.00 |
| | | Total number of online services transaction / 1000 population | 2413.90 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.60 |
| | | No. of cyber cells | 0.04 |
| | | Rate of Cognizable Crime | 435.80 |
| | | Police personnel/lakh of population | 174.87 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.04 |
| | Legal Regulatory Environment | Pendency rate | 2.24 |
| | | Charge sheeting Rate | 73.50 |
| | | Pendency Percentage- Corruption cases investigation | 97.70 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 11.96 |
| Knowledge Impact | | Startups in the state | 0.02 |
| | | New Businesses- No. of companies registered during previous FY | 0.01 |
| | | GSDP per capita growth rate 2019-20 | 8.00 |
| | | Environment clearance applications approved percent | 0.00 |




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| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 2.22 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 58.51 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 2.04 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 19.66 |
| | | Software exports % | 4.01 |
| | | High and medium high tech manufacturing entities percentage | 0.14 |
| | | Citation Score | 13.49 |
| | Creative Goods and Services | GIs registered | 33.00 |
| | | Circulation | 17.83 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |




Manipur


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 29.68 |
| | | NAS scores | 37.84 |
| | | Expenditure on school education as a % of GSDP | 8.40 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 2.25 |
| | | Pupil-Teacher ratio: Primary & Secondary | 11.00 |
| | | Percentage of schools having ATL labs | 1.46 |
| | | Secondary school level completion rate | 90.03 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 36.59 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 69.53 |
| | | Higher education institutions with NAAC grade A and above % | 1.48 |
| | | Percentage of Colleges connected through NMEICT | 22.20 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.02 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 23.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.14 |
| | | Expenditure on R&D | 0.81 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.28 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.23 |
| | | NGOs involved in knowledge intensive areas % | 11.42 |
| | | Number of private R&D units in the state (per lakh population) | 0.11 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.07 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.77 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 21.06 |
| | | Share of manufacturing and services as a percentage of GSDP | 63.76 |
| | | Cluster strength | 18.00 |
| | Credit | Number of bank accounts per lakh population | 0.86 |
| | | Percentage of bank accounts with Aadhar seeding | 82.09 |
| | | Domestic credit to private sector, % SDP | 29.65 |
| | | Micro finance institutions Loan portfolio | 95.36 |
| | Digital Infrastructure | Internet subscribers | 82.29 |
| | | Percentage of villages in state with internet connectivity | 81.59 |
| | | Percentage of subsidies or benefits transferred through digital platform | 16.50 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 50.00 |
| | | Total number of online services transaction / 1000 population | 1641.80 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.20 |
| | | No. of cyber cells | 0.35 |
| | | Rate of Cognizable Crime | 95.00 |
| | | Police personnel/lakh of population | 942.93 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.11 |
| | Legal Regulatory Environment | Pendency rate | 0.62 |
| | | Charge sheeting Rate | 18.50 |
| | | Pendency Percentage- Corruption cases investigation | 100.00 |
| | | | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 216.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.02 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 1.00 |
| | | Environment clearance applications approved percent | 0.00 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.58 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 4.10 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.14 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 0.00 |
| High and medium high tech manufacturing entities percentage | | | 0.00 |
| Citation Score | | | 0.00 |
| Creative Goods and Services | | GIs registered | 5.00 |
| | | Circulation | 9.24 |
| | | Handlooms sales as a percentage of GSDP | 1.95 |




| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 13.27 |
| | | NAS scores | 27.67 |
| | | Expenditure on school education as a % of GSDP | 7.33 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 3.00 |
| | | Pupil-Teacher ratio: Primary & Secondary | 14.77 |
| | | Percentage of schools having ATL labs | 0.04 |
| | | Secondary school level completion rate | 82.06 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 29.32 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 74.44 |
| | | Higher education institutions with NAAC grade A and above % | 5.63 |
| | | Percentage of Colleges connected through NMEICT | 21.70 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 244.12 |
| Pupil Teacher Ratio- Higher Education | | 24.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.13 |
| | | Expenditure on R&D | 0.04 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 15.10 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.00 |
| | | NGOs involved in knowledge intensive areas % | 0.34 |
| | | Number of private R&D units in the state (per lakh population) | 0.07 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.20 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 0.91 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 8.06 |
| | | Share of manufacturing and services as a percentage of GSDP | 66.04 |
| | | Cluster Strength | 11.00 |
| | Credit | Number of bank accounts per lakh population | 0.71 |
| | | Percentage of bank accounts with Aadhar seeding | 10.73 |
| | | Domestic credit to private sector, % SDP | 33.49 |
| | | Micro finance institutions Loan portfolio | 97.41 |
| | Digital Infrastructure | Internet subscribers | 78.87 |
| | | Percentage of villages in state with internet connectivity | 74.08 |
| | | Percentage of subsidies or benefits transferred through digital platform | 32.40 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 71.00 |
| | | Total number of online services transaction / 1000 population | 1416.20 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 3.60 |
| | | No. of cyber cells | 0.34 |
| | | Rate of Cognizable Crime | 114.70 |
| | | Police personnel/lakh of population | 455.56 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.13 |
| | Legal Regulatory Environment | Pendency rate | 2.40 |
| | | Charge sheeting Rate | 18.10 |
| | | Pendency Percentage- Corruption cases investigation | 85.70 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 7.51 |
| Knowledge Impact | | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.01 |
| | | GSDP per capita growth rate 2019-20 | 9.00 |
| | | Environment clearance applications approved percent | 0.00 |




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|--|-----------------------------|---|------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.64 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 1.89 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 0.00 |
| | | Software exports % | 0.06 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 8.20 |
| | Creative Goods and Services | GIs registered | 2.00 |
| | | Circulation | 4.08 |
| | | Handlooms sales as a percentage of GSDP | 1.99 |




Mizoram


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 48.04 |
| | | NAS scores | 40.83 |
| | | Expenditure on school education as a % of GSDP | 17.81 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 12.97 |
| | | Pupil-Teacher ratio: Primary & Secondary | 11.10 |
| | | Percentage of schools having ATL labs | 0.15 |
| | | Secondary school level completion rate | 100.28 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 79.02 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 177.01 |
| | | Higher education institutions with NAAC grade A and above % | 5.56 |
| | | Percentage of Colleges connected through NMEICT | 18.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 17.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.45 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.11 |
| | | NIRF ranking of top 5 universities | 13.90 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| Venture capital deals | | 0.00 | |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.00 |
| | | NGOs involved in knowledge intensive areas % | 0.46 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 1.43 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 2.99 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 0.00 |
| | | Share of manufacturing and services as a percentage of GSDP | 46.72 |
| | | Cluster strength | 26.00 |
| | Credit | Number of bank accounts per lakh population | 0.79 |
| | | Percentage of bank accounts with Aadhar seeding | 76.71 |
| | | Domestic credit to private sector, % SDP | 23.15 |
| | | Micro finance institutions Loan portfolio | 94.48 |
| | Digital Infrastructure | Internet subscribers | 125.77 |
| | | Percentage of villages in state with internet connectivity | 70.74 |
| | | Percentage of subsidies or benefits transferred through digital platform | 52.80 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 75.00 |
| | | Total number of online services transaction / 1000 population | 3306.80 |


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|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.70 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 189.60 |
| | | Police personnel/lakh of population | 674.54 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.09 |
| | Legal Regulatory Environment | Pendency rate | 0.18 |
| | | Charge sheeting Rate | 65.30 |
| Pendency Percentage- Corruption cases investigation | | 92.60 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 185.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 12.00 |
| | | Environment clearance applications approved percent | 0.00 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.61 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 3.74 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 0.00 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 6.00 |
| | | Circulation | 18.59 |
| | | Handlooms sales as a percentage of GSDP | 1.66 |




| Pillar | Sub pillar | Indicator | Data |
|--|--|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 42.39 |
| | | NAS scores | 32.03 |
| | | Expenditure on school education as a % of GSDP | 8.94 |
| | | NER in school education | 78.30 |
| | | Accolades in STEM Activities/ 1000 Students | 1.98 |
| | | Pupil-Teacher ratio: Primary & Secondary | 10.10 |
| | | Percentage of schools having ATL labs | 0.18 |
| | Secondary school level completion rate | 86.85 | |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 29.16 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 101.22 |
| | | Higher education institutions with NAAC grade A and above % | 4.82 |
| | | Percentage of Colleges connected through NMEICT | 30.30 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | | 18.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.27 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.06 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.00 |
| | | NGOs involved in knowledge intensive areas % | 1.67 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.05 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 3.23 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.05 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 2.34 |
| | | Share of manufacturing and services as a percentage of GSDP | 57.75 |
| | | Cluster Strength | 17.00 |
| | Credit | Number of bank accounts per lakh population | 0.58 |
| | | Percentage of bank accounts with Aadhar seeding | 77.64 |
| | | Domestic credit to private sector, % SDP | 0.00 |
| | | Micro finance institutions Loan portfolio | 92.30 |
| | Digital Infrastructure | Internet subscribers | 83.90 |
| | | Percentage of villages in state with internet connectivity | 89.71 |
| | | Percentage of subsidies or benefits transferred through digital platform | 23.10 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 57.00 |
| | | Total number of online services transaction / 1000 population | 2209.50 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.40 |
| | | No. of cyber cells | 0.05 |
| | | Rate of Cognizable Crime | 69.40 |
| | | Police personnel/lakh of population | 1300.93 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.05 |
| | Legal Regulatory Environment | Pendency rate | 1.08 |
| | | Charge sheeting Rate | 60.30 |
| | | Pendency Percentage- Corruption cases investigation | 85.70 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 0.00 |
| Knowledge Impact | | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 0.00 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.00 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 1.42 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 37.01 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 3.00 |
| | | Circulation | 1.47 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |




Odisha


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 25.46 |
| | | NAS scores | 39.68 |
| | | Expenditure on school education as a % of GSDP | 4.89 |
| | | NER in school education | 76.80 |
| | | Accolades in STEM Activities/ 1000 Students | 10.55 |
| | | Pupil-Teacher ratio: Primary & Secondary | 16.17 |
| | | Percentage of schools having ATL labs | 0.24 |
| | | Secondary school level completion rate | 91.09 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 7.97 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 1152.07 |
| | | Higher education institutions with NAAC grade A and above % | 2.09 |
| | | Percentage of Colleges connected through NMEICT | 17.00 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 48.53 |
| Pupil Teacher Ratio- Higher Education | 25.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.29 |
| | | Expenditure on R&D | 0.04 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.02 |
| | | NIRF ranking of top 5 universities | 51.02 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.02 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.23 |
| | | NGOs involved in knowledge intensive areas % | 0.61 |
| | | Number of private R&D units in the state (per lakh population) | 0.09 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.07 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 1.00 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.05 |
| | | Common facility centre per lakh population | 0.15 |
| | | Gross capital formation as a % of GVA | 3.97 |
| | | Share of manufacturing and services as a percentage of GSDP | 60.11 |
| | | Cluster strength | 17.00 |
| | Credit | Number of bank accounts per lakh population | 1.10 |
| | | Percentage of bank accounts with Aadhar seeding | 85.73 |
| | | Domestic credit to private sector, % SDP | 34.89 |
| | | Micro finance institutions Loan portfolio | 98.31 |
| | Digital Infrastructure | Internet subscribers | 79.83 |
| | | Percentage of villages in state with internet connectivity | 87.21 |
| | | Percentage of subsidies or benefits transferred through digital platform | 36.50 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 89.00 |
| | | Total number of online services transaction / 1000 population | 3925.70 |


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|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 1.60 |
| | | No. of cyber cells | 0.08 |
| | | Rate of Cognizable Crime | 295.20 |
| | | Police personnel/lakh of population | 129.31 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 5.00 |
| | | Charge sheeting Rate | 70.90 |
| Pendency Percentage- Corruption cases investigation | | 98.70 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 72.00 |
| | | Publication | 15.13 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 6.00 |
| | | Environment clearance applications approved percent | 64.67 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.56 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 4.46 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.19 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 0.27 |
| | | Software exports % | 0.61 |
| | | High and medium high tech manufacturing entities percentage | 0.07 |
| | | Citation Score | 16.78 |
| | Creative Goods and Services | GIs registered | 17.00 |
| | | Circulation | 0.19 |
| | | Handlooms sales as a percentage of GSDP | 0.16 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 88.53 |
| | | NAS scores | 37.07 |
| | | Expenditure on school education as a % of GSDP | 5.46 |
| | | NER in school education | 72.80 |
| | | Accolades in STEM Activities/ 1000 Students | 8.35 |
| | | Pupil-Teacher ratio: Primary & Secondary | 13.30 |
| | | Percentage of schools having ATL labs | 0.81 |
| | | Secondary school level completion rate | 102.18 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 40.71 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 3323.82 |
| | | Higher education institutions with NAAC grade A and above % | 6.98 |
| | | Percentage of Colleges connected through NMEICT | 38.50 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 83.15 |
| Pupil Teacher Ratio- Higher Education | | 13.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.17 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.01 |
| | | NIRF ranking of top 5 universities | 14.82 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.01 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.73 |
| | | NGOs involved in knowledge intensive areas % | 0.96 |
| | | Number of private R&D units in the state (per lakh population) | 1.20 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 6.36 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 2.22 |
| | | Incubators per lakh population | 0.08 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 15.79 |
| | | Share of manufacturing and services as a percentage of GSDP | 69.69 |
| | | Cluster Strength | 48.00 |
| | Credit | Number of bank accounts per lakh population | 1.57 |
| | | Percentage of bank accounts with Aadhar seeding | 89.88 |
| | | Domestic credit to private sector, % SDP | 53.27 |
| | | Micro finance institutions Loan portfolio | 99.00 |
| | Digital Infrastructure | Internet subscribers | 89.75 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 94.90 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 55.00 |
| | | Total number of online services transaction / 1000 population | 5405.30 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.80 |
| | | No. of cyber cells | 0.08 |
| | | Rate of Cognizable Crime | 512.60 |
| | | Police personnel/lakh of population | 225.28 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 6.27 |
| | | Charge sheeting Rate | 57.10 |
| | | Pendency Percentage- Corruption cases investigation | 37.50 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 13.45 |
| Knowledge Impact | | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 66.10 |




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| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 2.36 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 18.43 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.24 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 82.26 |
| | | Software exports % | 1.01 |
| | | High and medium high tech manufacturing entities percentage | 0.13 |
| | | Citation Score | 15.23 |
| | Creative Goods and Services | GIs registered | 2.00 |
| | | Circulation | 17.31 |
| | | Handlooms sales as a percentage of GSDP | 0.07 |




Punjab


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 56.89 |
| | | NAS scores | 38.03 |
| | | Expenditure on school education as a % of GSDP | 3.20 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 5.53 |
| | | Pupil-Teacher ratio: Primary & Secondary | 20.40 |
| | | Percentage of schools having ATL labs | 0.54 |
| | | Secondary school level completion rate | 100.75 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 32.44 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 766.65 |
| | | Higher education institutions with NAAC grade A and above % | 5.25 |
| | | Percentage of Colleges connected through NMEICT | 15.20 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 166.41 |
| Pupil Teacher Ratio- Higher Education | 17.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.17 |
| | | Expenditure on R&D | 0.15 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 48.90 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.17 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.94 |
| | | NGOs involved in knowledge intensive areas % | 0.18 |
| | | Number of private R&D units in the state (per lakh population) | 0.32 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.08 |
| | | Skill development training PMKVY per lakh population | 0.76 |
| | | % of females employed with advanced degrees out of total employed. | 6.32 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 7.61 |
| | | Incubators per lakh population | 0.04 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 28.43 |
| | | Share of manufacturing and services as a percentage of GSDP | 59.26 |
| | | Cluster strength | 35.00 |
| | Credit | Number of bank accounts per lakh population | 1.47 |
| | | Percentage of bank accounts with Aadhar seeding | 85.11 |
| | | Domestic credit to private sector, % SDP | 59.01 |
| | | Micro finance institutions Loan portfolio | 96.89 |
| | Digital Infrastructure | Internet subscribers | 130.41 |
| | | Percentage of villages in state with internet connectivity | 100.00 |
| | | Percentage of subsidies or benefits transferred through digital platform | 65.40 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 92.00 |
| | | Total number of online services transaction / 1000 population | 4807.40 |


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|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.80 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 274.60 |
| | | Police personnel/lakh of population | 286.50 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.09 |
| | Legal Regulatory Environment | Pendency rate | 0.06 |
| | | Charge sheeting Rate | 70.40 |
| Pendency Percentage- Corruption cases investigation | | 92.80 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 16.00 |
| | | Publication | 11.05 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 5.00 |
| | | Environment clearance applications approved percent | 66.12 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 3.47 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 41.24 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.88 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 17.94 |
| | | Software exports % | 0.14 |
| | | High and medium high tech manufacturing entities percentage | 0.07 |
| | | Citation Score | 13.44 |
| | Creative Goods and Services | GIs registered | 1.00 |
| | | Circulation | 11.59 |
| | | Handlooms sales as a percentage of GSDP | 0.00 |

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 44.21 |
| | | NAS scores | 43.16 |
| | | Expenditure on school education as a % of GSDP | 4.77 |
| | | NER in school education | 86.80 |
| | | Accolades in STEM Activities/ 1000 Students | 9.43 |
| | | Pupil-Teacher ratio: Primary & Secondary | 16.07 |
| | | Percentage of schools having ATL labs | 0.29 |
| | | Secondary school level completion rate | 97.12 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 15.83 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 324.01 |
| | | Higher education institutions with NAAC grade A and above % | 0.67 |
| | | Percentage of Colleges connected through NMEICT | 18.40 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 72.84 |
| Pupil Teacher Ratio- Higher Education | | 29.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 0.07 |
| | | Expenditure on R&D | 0.04 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 48.13 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.20 |
| | | Venture capital deals | 0.54 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.76 |
| | | NGOs involved in knowledge intensive areas % | 0.42 |
| | | Number of private R&D units in the state (per lakh population) | 0.14 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.06 |
| | | Skill development training PMKVY per lakh population | 0.16 |
| | | % of females employed with advanced degrees out of total employed. | 3.33 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 25.92 |
| | | Incubators per lakh population | 0.04 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 31.32 |
| | | Share of manufacturing and services as a percentage of GSDP | 53.50 |
| | | Cluster Strength | 42.00 |
| | Credit | Number of bank accounts per lakh population | 1.09 |
| | | Percentage of bank accounts with Aadhar seeding | 88.15 |
| | | Domestic credit to private sector, % SDP | 51.17 |
| | | Micro finance institutions Loan portfolio | 98.50 |
| | Digital Infrastructure | Internet subscribers | 95.06 |
| | | Percentage of villages in state with internet connectivity | 97.82 |
| | | Percentage of subsidies or benefits transferred through digital platform | 100.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 103.00 |
| | | Total number of online services transaction / 1000 population | 7228.50 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.90 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 331.20 |
| | | Police personnel/lakh of population | 122.36 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 1.29 |
| | | Charge sheeting Rate | 54.20 |
| | | Pendency Percentage- Corruption cases investigation | 96.00 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 12.57 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 4.00 |
| | | Environment clearance applications approved percent | 0.00 |




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|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.40 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 19.44 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.30 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 11.14 |
| | | Software exports % | 0.18 |
| | | High and medium high tech manufacturing entities percentage | 0.09 |
| | | Citation Score | 14.51 |
| | Creative Goods and Services | GIs registered | 14.00 |
| | | Circulation | 11.42 |
| | | Handlooms sales as a percentage of GSDP | 0.01 |




Sikkim


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 60.38 |
| | | NAS scores | 37.46 |
| | | Expenditure on school education as a % of GSDP | 4.82 |
| | | NER in school education | 80.10 |
| | | Accolades in STEM Activities/ 1000 Students | 13.83 |
| | | Pupil-Teacher ratio: Primary & Secondary | 8.73 |
| | | Percentage of schools having ATL labs | 0.31 |
| | | Secondary school level completion rate | 108.40 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 67.15 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 940.92 |
| | | Higher education institutions with NAAC grade A and above % | 0.00 |
| | | Percentage of Colleges connected through NMEICT | 15.00 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | 34.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 2.27 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.08 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 4.07 |
| | | NGOs involved in knowledge intensive areas % | 0.33 |
| | | Number of private R&D units in the state (per lakh population) | 0.16 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.00 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 2.00 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.00 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 4.93 |
| | | Share of manufacturing and services as a percentage of GSDP | 69.83 |
| | | Cluster strength | 17.00 |
| | Credit | Number of bank accounts per lakh population | 1.20 |
| | | Percentage of bank accounts with Aadhar seeding | 90.15 |
| | | Domestic credit to private sector, % SDP | 16.32 |
| | | Micro finance institutions Loan portfolio | 97.41 |
| | Digital Infrastructure | Internet subscribers | 160.50 |
| | | Percentage of villages in state with internet connectivity | 97.65 |
| | | Percentage of subsidies or benefits transferred through digital platform | 17.20 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 44.00 |
| | | Total number of online services transaction / 1000 population | 2755.60 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.10 |
| | | No. of cyber cells | 0.16 |
| | | Rate of Cognizable Crime | 100.40 |
| | | Police personnel/lakh of population | 851.27 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 0.07 |
| | | Charge sheeting Rate | 61.20 |
| | | Pendency Percentage- Corruption cases investigation | 100.00 |
| | | | 172.00 |
|  Knowledge Output | Knowledge creation | Grass root innovations | 172.00 |
| | | Publication | 0.00 |
| | Knowledge Impact | Startups in the state | 0.00 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 72.47 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.36 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 11.14 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.33 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 0.11 |
| High and medium high tech manufacturing entities percentage | | | 0.00 |
| Citation Score | | | 0.00 |
| Creative Goods and Services | | GIs registered | 1.00 |
| | | Circulation | 19.65 |
| | | Handlooms sales as a percentage of GSDP | 0.04 |



| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 76.55 |
| | | NAS scores | 36.70 |
| | | Expenditure on school education as a % of GSDP | 3.43 |
| | | NER in school education | 84.60 |
| | | Accolades in STEM Activities/ 1000 Students | 6.86 |
| | | Pupil-Teacher ratio: Primary & Secondary | 15.93 |
| | | Percentage of schools having ATL labs | 1.29 |
| | | Secondary school level completion rate | 99.51 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 42.50 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 2779.33 |
| | | Higher education institutions with NAAC grade A and above % | 6.69 |
| | | Percentage of Colleges connected through NMEICT | 12.50 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.00 |
| | | Tertiary mobility | 49.55 |
| Pupil Teacher Ratio- Higher Education | | 17.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 1.11 |
| | | Expenditure on R&D | 0.06 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 68.04 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.57 |
| | | Venture capital deals | 0.74 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.72 |
| | | NGOs involved in knowledge intensive areas % | 0.45 |
| | | Number of private R&D units in the state (per lakh population) | 0.76 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.13 |
| | | Skill development training PMKVY per lakh population | 0.58 |
| | | % of females employed with advanced degrees out of total employed. | 3.41 |




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|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 13.61 |
| | | Incubators per lakh population | 0.10 |
| | | Common facility centre per lakh population | 0.49 |
| | | Gross capital formation as a % of GVA | 29.04 |
| | | Share of manufacturing and services as a percentage of GSDP | 67.58 |
| | | Cluster Strength | 73.00 |
| | Credit | Number of bank accounts per lakh population | 1.32 |
| | | Percentage of bank accounts with Aadhar seeding | 84.16 |
| | | Domestic credit to private sector, % SDP | 76.78 |
| | | Micro finance institutions Loan portfolio | 98.88 |
| | Digital Infrastructure | Internet subscribers | 109.97 |
| | | Percentage of villages in state with internet connectivity | 99.67 |
| | | Percentage of subsidies or benefits transferred through digital platform | 31.90 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 145.00 |
| | | Total number of online services transaction / 1000 population | 8986.60 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.80 |
| | | No. of cyber cells | 0.01 |
| | | Rate of Cognizable Crime | 1808.80 |
| | | Police personnel/lakh of population | 148.54 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.03 |
| | Legal Regulatory Environment | Pendency rate | 1.17 |
| | | Charge sheeting Rate | 91.70 |
| | | Pendency Percentage- Corruption cases investigation | 93.30 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 14.77 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 1.00 |
| | | Environment clearance applications approved percent | 91.45 |




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| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 2.77 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 26.72 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 1.16 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 20.17 |
| | | Software exports % | 3.16 |
| | | High and medium high tech manufacturing entities percentage | 0.13 |
| | | Citation Score | 16.13 |
| | Creative Goods and Services | GIs registered | 38.00 |
| | | Circulation | 12.29 |
| | | Handlooms sales as a percentage of GSDP | 0.17 |




Telangana


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|---------|
|  Human Capital | School Education | Percentage of school functional computer facility | 35.34 |
| | | NAS scores | 39.01 |
| | | Expenditure on school education as a % of GSDP | 3.75 |
| | | NER in school education | 94.80 |
| | | Accolades in STEM Activities/ 1000 Students | 4.44 |
| | | Pupil-Teacher ratio: Primary & Secondary | 15.23 |
| | | Percentage of schools having ATL labs | 0.63 |
| | | Secondary school level completion rate | 99.25 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 15.65 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 1644.52 |
| | | Higher education institutions with NAAC grade A and above % | 3.78 |
| | | Percentage of Colleges connected through NMEICT | 28.00 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 4.77 |
| Pupil Teacher Ratio- Higher Education | 17.00 | | |

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|--|-----------------------------------|--|----------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.19 |
| | | Expenditure on R&D | 0.05 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.00 |
| | | NIRF ranking of top 5 universities | 56.44 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.75 |
| | | Venture capital deals | 0.44 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.31 |
| | | NGOs involved in knowledge intensive areas % | 0.44 |
| | | Number of private R&D units in the state (per lakh population) | 1.44 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.13 |
| | | Skill development training PMKVY per lakh population | 0.53 |
| | | % of females employed with advanced degrees out of total employed. | 3.29 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 48.60 |
| | | Incubators per lakh population | 0.13 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 34.07 |
| | | Share of manufacturing and services as a percentage of GSDP | 69.84 |
| | | Cluster strength | 35.00 |
| | Credit | Number of bank accounts per lakh population | 1.39 |
| | | Percentage of bank accounts with Aadhar seeding | 88.82 |
| | | Domestic credit to private sector, % SDP | 84.86 |
| | | Micro finance institutions Loan portfolio | 98.45 |
| | Digital Infrastructure | Internet subscribers | 119.01 |
| | | Percentage of villages in state with internet connectivity | 98.49 |
| | | Percentage of subsidies or benefits transferred through digital platform | 31.30 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 169.00 |
| | | Total number of online services transaction / 1000 population | 15692.20 |


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|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.90 |
| | | No. of cyber cells | 0.01 |
| | | Rate of Cognizable Crime | 393.00 |
| | | Police personnel/lakh of population | 130.88 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.01 |
| | Legal Regulatory Environment | Pendency rate | 0.44 |
| | | Charge sheeting Rate | 83.90 |
| Pendency Percentage- Corruption cases investigation | | 98.80 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 16.00 |
| | | Publication | 16.42 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.01 |
| | | GSDP per capita growth rate 2019-20 | 4.00 |
| | | Environment clearance applications approved percent | 74.27 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 1.91 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 33.48 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.58 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 86.92 |
| | | Software exports % | 8.87 |
| | | High and medium high tech manufacturing entities percentage | 0.23 |
| | | Citation Score | 16.87 |
| | Creative Goods and Services | GIs registered | 14.00 |
| | | Circulation | 9.86 |
| | | Handlooms sales as a percentage of GSDP | 0.05 |


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  <p>Human Capital</p> | School Education | Percentage of school functional computer facility | 15.08 |
| | | NAS scores | 33.68 |
| | | Expenditure on school education as a % of GSDP | 7.46 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 5.37 |
| | | Pupil-Teacher ratio: Primary & Secondary | 15.90 |
| | | Percentage of schools having ATL labs | 0.40 |
| | | Secondary school level completion rate | 95.82 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 16.74 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 219.01 |
| | | Higher education institutions with NAAC grade A and above % | 62.12 |
| | | Percentage of Colleges connected through NMEICT | 0.00 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.02 |
| | | Tertiary mobility | 0.00 |
| Pupil Teacher Ratio- Higher Education | | 36.00 | |
|  <p>Investment</p> | Research & Development | Expenditure on higher and technical education | 0.54 |
| | | Expenditure on R&D | 0.00 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.01 |
| | | NIRF ranking of top 5 universities | 0.00 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.00 |
| | | Venture capital deals | 0.00 |
|  <p>Knowledge Workers</p> | Workforce | Knowledge intensive employment | 0.02 |
| | | NGOs involved in knowledge intensive areas % | 1.03 |
| | | Number of private R&D units in the state (per lakh population) | 0.00 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.08 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 0.77 |




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|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 0.00 |
| | | Incubators per lakh population | 0.03 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 25.31 |
| | | Share of manufacturing and services as a percentage of GSDP | 49.04 |
| | | Cluster Strength | 11.00 |
| | Credit | Number of bank accounts per lakh population | 1.18 |
| | | Percentage of bank accounts with Aadhar seeding | 93.15 |
| | | Domestic credit to private sector, % SDP | 28.22 |
| | | Micro finance institutions Loan portfolio | 98.22 |
| | Digital Infrastructure | Internet subscribers | 86.28 |
| | | Percentage of villages in state with internet connectivity | 96.41 |
| | | Percentage of subsidies or benefits transferred through digital platform | 85.50 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 67.00 |
| | | Total number of online services transaction / 1000 population | 2047.30 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.90 |
| | | No. of cyber cells | 0.03 |
| | | Rate of Cognizable Crime | 115.10 |
| | | Police personnel/lakh of population | 568.07 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.03 |
| | Legal Regulatory Environment | Pendency rate | 1.05 |
| | | Charge sheeting Rate | 69.20 |
| | | Pendency Percentage- Corruption cases investigation | 0.00 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 0.00 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 3.00 |
| | | Environment clearance applications approved percent | 0.00 |




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| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.50 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 2.53 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.00 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 0.13 |
| | | Software exports % | 0.00 |
| | | High and medium high tech manufacturing entities percentage | 0.00 |
| | | Citation Score | 0.00 |
| | Creative Goods and Services | GIs registered | 1.00 |
| | | Circulation | 3.97 |
| | | Handlooms sales as a percentage of GSDP | 0.31 |




Uttar Pradesh


| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 17.70 |
| | | NAS scores | 0.00 |
| | | Expenditure on school education as a % of GSDP | 5.04 |
| | | NER in school education | 91.60 |
| | | Accolades in STEM Activities/ 1000 Students | 2.86 |
| | | Pupil-Teacher ratio: Primary & Secondary | 27.90 |
| | | Percentage of schools having ATL labs | 0.29 |
| | | Secondary school level completion rate | 87.05 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 11.89 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 448.84 |
| | | Higher education institutions with NAAC grade A and above % | 8.14 |
| | | Percentage of Colleges connected through NMEICT | 30.00 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 35.44 |
| Pupil Teacher Ratio- Higher Education | 40.00 | | |

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|--|-----------------------------------|--|---------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.03 |
| | | Expenditure on R&D | 0.03 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.01 |
| | | NIRF ranking of top 5 universities | 63.94 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.15 |
| | | Venture capital deals | 0.44 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.33 |
| | | NGOs involved in knowledge intensive areas % | 0.78 |
| | | Number of private R&D units in the state (per lakh population) | 0.11 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.02 |
| | | Skill development training PMKVY per lakh population | 0.46 |
| | | % of females employed with advanced degrees out of total employed. | 3.21 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 50.09 |
| | | Incubators per lakh population | 0.02 |
| | | Common facility centre per lakh population | 0.02 |
| | | Gross capital formation as a % of GVA | 35.84 |
| | | Share of manufacturing and services as a percentage of GSDP | 60.09 |
| | | Cluster strength | 61.00 |
| | Credit | Number of bank accounts per lakh population | 1.31 |
| | | Percentage of bank accounts with Aadhar seeding | 86.89 |
| | | Domestic credit to private sector, % SDP | 43.50 |
| | | Micro finance institutions Loan portfolio | 96.29 |
| | Digital Infrastructure | Internet subscribers | 1547.35 |
| | | Percentage of villages in state with internet connectivity | 99.67 |
| | | Percentage of subsidies or benefits transferred through digital platform | 63.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 89.00 |
| | | Total number of online services transaction / 1000 population | 3327.20 |


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|---|--|---|---|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 4.10 |
| | | No. of cyber cells | 0.00 |
| | | Rate of Cognizable Crime | 287.40 |
| | | Police personnel/lakh of population | 133.85 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 4.84 |
| | | Charge sheeting Rate | 76.90 |
| | | Pendency Percentage- Corruption cases investigation | 98.60 |
| | | | 82.00 |
|  Knowledge Output | Knowledge creation | Grass root innovations | 82.00 |
| | | Publication | 15.91 |
| | Knowledge Impact | Startups in the state | 0.02 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 6.00 |
| | | Environment clearance applications approved percent | 82.63 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 1.01 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 11.26 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.18 |
| |  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports |
| Software exports % | | | 1.72 |
| High and medium high tech manufacturing entities percentage | | | 0.08 |
| Citation Score | | | 17.90 |
| Creative Goods and Services | | GIs registered | 28.00 |
| | | Circulation | 10.72 |
| | | Handlooms sales as a percentage of GSDP | 0.12 |



| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 34.65 |
| | | NAS scores | 38.77 |
| | | Expenditure on school education as a % of GSDP | 20.10 |
| | | NER in school education | 96.90 |
| | | Accolades in STEM Activities/ 1000 Students | 6.89 |
| | | Pupil-Teacher ratio: Primary & Secondary | 16.73 |
| | | Percentage of schools having ATL labs | 0.20 |
| | | Secondary school level completion rate | 93.67 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 54.21 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 829.81 |
| | | Higher education institutions with NAAC grade A and above % | 0.10 |
| | | Percentage of Colleges connected through NMEICT | 0.00 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.01 |
| | | Tertiary mobility | 34.29 |
| Pupil Teacher Ratio- Higher Education | | 27.00 | |
|  Investment | Research & Development | Expenditure on higher and technical education | 4.66 |
| | | Expenditure on R&D | 0.26 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.02 |
| | | NIRF ranking of top 5 universities | 22.82 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.05 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 1.85 |
| | | NGOs involved in knowledge intensive areas % | 1.05 |
| | | Number of private R&D units in the state (per lakh population) | 0.22 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.26 |
| | | Skill development training PMKVY per lakh population | 0.00 |
| | | % of females employed with advanced degrees out of total employed. | 5.59 |




| | | | |
|---|---|--|------------------------|
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 19.72 |
| | | Incubators per lakh population | 0.04 |
| | | Common facility centre per lakh population | 0.00 |
| | | Gross capital formation as a % of GVA | 13.44 |
| | | Share of manufacturing and services as a percentage of GSDP | 72.82 |
| | | Cluster Strength | 21.00 |
| | Credit | Number of bank accounts per lakh population | 1.33 |
| | | Percentage of bank accounts with Aadhar seeding | 83.80 |
| | | Domestic credit to private sector, % SDP | 28.32 |
| | | Micro finance institutions Loan portfolio | 96.12 |
| | Digital Infrastructure | Internet subscribers | 14.10 |
| | | Percentage of villages in state with internet connectivity | 97.29 |
| | | Percentage of subsidies or benefits transferred through digital platform | 39.20 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 71.00 |
| | | Total number of online services transaction / 1000 population | 4184.40 |
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 2.10 |
| | | No. of cyber cells | 0.13 |
| | | Rate of Cognizable Crime | 506.80 |
| | | Police personnel/lakh of population | 188.16 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.13 |
| | Legal Regulatory Environment | Pendency rate | 0.56 |
| | | Charge sheeting Rate | 78.80 |
| | | Pendency Percentage- Corruption cases investigation | 93.00 |
| |  Knowledge Output | Knowledge creation | Grass root innovations |
| Publication | | | 28.16 |
| Knowledge Impact | | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 8.00 |
| | | Environment clearance applications approved percent | 91.32 |

| | | | |
|--|-----------------------------|---|-------|
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 1.05 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 24.73 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.43 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 21.10 |
| | | Software exports % | 0.08 |
| | | High and medium high tech manufacturing entities percentage | 0.15 |
| | | Citation Score | 29.25 |
| | Creative Goods and Services | GIs registered | 2.00 |
| | | Circulation | 36.17 |
| | | Handlooms sales as a percentage of GSDP | 0.06 |

West Bengal

| Pillar | Sub pillar | Indicator | Data |
|--|-------------------------------|--|--------|
|  Human Capital | School Education | Percentage of school functional computer facility | 13.66 |
| | | NAS scores | 0.00 |
| | | Expenditure on school education as a % of GSDP | 5.47 |
| | | NER in school education | 100.00 |
| | | Accolades in STEM Activities/ 1000 Students | 1.22 |
| | | Pupil-Teacher ratio: Primary & Secondary | 25.13 |
| | | Percentage of schools having ATL labs | 0.17 |
| | | Secondary school level completion rate | 96.11 |
| | Tertiary and Higher education | Enrolment in PhD per lakh of population | 14.06 |
| | | Enrolment in engineering and technology (at UG, PG & Diploma level) per lakh of population | 395.00 |
| | | Higher education institutions with NAAC grade A and above % | 2.65 |
| | | Percentage of Colleges connected through NMEICT | 33.80 |
| | | Enrolment in vocational education or skill development courses / lakh of population | 0.00 |
| | | Tertiary mobility | 34.12 |
| Pupil Teacher Ratio- Higher Education | 33.00 | | |

| | | | |
|--|-----------------------------------|--|----------|
|  Investment | Research & Development | Expenditure on higher and technical education | 0.07 |
| | | Expenditure on R&D | 0.04 |
| | | Expenditure on Science, Technology and Environment as a % of GSDP | 0.02 |
| | | NIRF ranking of top 5 universities | 65.87 |
| | Market Sophistication | FDI inflow as a percentage of state GDP | 0.17 |
| | | Venture capital deals | 0.00 |
|  Knowledge Workers | Workforce | Knowledge intensive employment | 0.43 |
| | | NGOs involved in knowledge intensive areas % | 0.68 |
| | | Number of private R&D units in the state (per lakh population) | 0.28 |
| | | Number of R&D Institutions funded by the state (per lakh population) | 0.03 |
| | | Skill development training PMKVY per lakh population | 0.57 |
| | | % of females employed with advanced degrees out of total employed. | 2.06 |
|  Business Environment | Trade, competition & market scale | Ease of Doing Business | 22.85 |
| | | Incubators per lakh population | 0.01 |
| | | Common facility centre per lakh population | 0.07 |
| | | Gross capital formation as a % of GVA | 29.22 |
| | | Share of manufacturing and services as a percentage of GSDP | 66.38 |
| | | Cluster strength | 60.00 |
| | Credit | Number of bank accounts per lakh population | 1.21 |
| | | Percentage of bank accounts with Aadhar seeding | 85.69 |
| | | Domestic credit to private sector, % SDP | 54.72 |
| | | Micro finance institutions Loan portfolio | 98.76 |
| | Digital Infrastructure | Internet subscribers | 87.31 |
| | | Percentage of villages in state with internet connectivity | 99.98 |
| | | Percentage of subsidies or benefits transferred through digital platform | 13.00 |
| | | No. of services offered online by STATE GOVT./ Other Sources | 209.00 |
| | | Total number of online services transaction / 1000 population | 13343.10 |

| | | | |
|---|------------------------------|---|--------|
|  Safety and Legal Environment | Security/ Safety Environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.30 |
| | | No. of cyber cells | 0.04 |
| | | Rate of Cognizable Crime | 186.60 |
| | | Police personnel/lakh of population | 100.53 |
| | | No. of Social Media Monitoring Cells per lakh population | 0.00 |
| | Legal Regulatory Environment | Pendency rate | 5.81 |
| | | Charge sheeting Rate | 89.40 |
| Pendency Percentage- Corruption cases investigation | | 100.00 | |
|  Knowledge Output | Knowledge creation | Grass root innovations | 11.00 |
| | | Publication | 18.72 |
| | Knowledge Impact | Startups in the state | 0.01 |
| | | New Businesses- No. of companies registered during previous FY | 0.00 |
| | | GSDP per capita growth rate 2019-20 | 0.00 |
| | | Environment clearance applications approved percent | 66.85 |
| | Intangible Assets | Number of patent applications filed in the state (per unit of GSDP) | 0.78 |
| | | Number of trade mark applications filed in Indian states (per lakh population) | 12.05 |
| | | Number of designs contained in industrial design applications filed (per lakh population) | 0.93 |
|  Knowledge Diffusion | Knowledge Dissemination | High-tech exports as a % of total exports | 6.08 |
| | | Software exports % | 0.91 |
| | | High and medium high tech manufacturing entities percentage | 0.06 |
| | | Citation Score | 20.23 |
| | Creative Goods and Services | GIs registered | 21.00 |
| | | Circulation | 8.26 |
| | | Handlooms sales as a percentage of GSDP | 0.52 |

Appendix H : Weightage of Indicators

| Sub pillar | Indicator | weights | Indicator weights out of 1 |
|----------------------|---|---------|----------------------------|
| Human capital | Schools with functional computer facility | 0.07659 | 0.05 |
| | NAS scores | 0.10076 | 0.07 |
| | Expenditure on school education as(a % of GSDP) | 0.11996 | 0.08 |
| | NER in school education | 0.05587 | 0.04 |
| | Accolades in STEM Activities | 0.11085 | 0.07 |
| | Pupil-Teacher ratio: Primary & Secondary | 0.07466 | 0.05 |
| | Percentage of schools having (ATL) labs | 0.1491 | 0.10 |
| | Secondary school level completion rate | 0.07588 | 0.05 |
| | Enrolment in PhD | 0.12652 | 0.08 |
| | Enrolment in engineering and technology | 0.12695 | 0.08 |
| | Higher education institutions- NAAC grade A and above | 0.12643 | 0.08 |
| | Percentage of Colleges connected through NMEICT | 0.09916 | 0.06 |
| | Enrolment in vocational education or skill development courses / lakh of population | 0.10427 | 0.07 |
| | Tertiary mobility | 0.12144 | 0.08 |
| | Pupil Teacher Ratio- Higher Education | 0.07495 | 0.05 |
| Business Environment | Ease of Doing Business | 0.10685 | 0.07 |
| | Incubators per lakh population | 0.11624 | 0.08 |
| | Common facility centre per lakh population | 0.11736 | 0.08 |
| | Gross capital formation as a (% of GVA) | 0.12137 | 0.08 |
| | Share of manufacturing and services as a (%of GSDP) | 0.09127 | 0.06 |
| | Cluster Strength | 0.11389 | 0.08 |
| | Number of bank accounts per lakh population | 0.12991 | 0.09 |
| | Bank accounts with Aadhar seeding | 0.07598 | 0.05 |
| | Domestic credit to private sector, % SDP | 0.11322 | 0.08 |
| | Micro finance institutions (MUDRA) | 0.06511 | 0.04 |
| | Internet subscribers | 0.12423 | 0.08 |
| | Villages with internet connectivity | 0.07273 | 0.05 |
| | Subsidies or benefits transferred through DBT | 0.0792 | 0.05 |
| | No. of services offered online by state govt | 0.06583 | 0.04 |
| | Online service transaction | 0.10211 | 0.07 |

| | | | |
|------------------------------|--|---------|------|
| Investment | Expenditure on higher and technical education | 0.17901 | 0.15 |
| | Expenditure on R&D | 0.24056 | 0.20 |
| | Expenditure on Science, Technology and Environment as a % of GSDP | 0.20514 | 0.17 |
| | NIRF ranking of top 5 universities | 0.12076 | 0.10 |
| | FDI inflow as a percentage of state GDP | 0.24136 | 0.20 |
| | Venture capital deals | 0.21336 | 0.18 |
| Safety and Legal environment | Information Technology / Intellectual Property related Acts (Rate of offences) | 0.1207 | 0.08 |
| | No. of Cyber Cells per lakh of population | 0.2624 | 0.17 |
| | Rate of Cognizable Crime | 0.16188 | 0.11 |
| | Police personnel/lakh of population | 0.25526 | 0.17 |
| | No. of Social Media Monitoring Cells per lakh population | 0.24309 | 0.16 |
| | Pendency rate | 0.12236 | 0.08 |
| | Charge sheeting Rate | 0.23719 | 0.16 |
| | Pendency Percentage- Corruption cases investigation | 0.12328 | 0.08 |
| Knowledge worker | Knowledge intensive employment | 0.21990 | 0.19 |
| | NGOs involved in knowledge intensive areas % | 0.18823 | 0.16 |
| | Number of private R&D units in the state (per lakh population) | 0.17067 | 0.15 |
| | Number of R&D Institutions funded by the state (per lakh population) | 0.15175 | 0.13 |
| | Skill development training PMKVY per lakh population | 0.20411 | 0.18 |
| | % of females employed with advanced degrees out of total employed. | 0.22339 | 0.19 |
| Knowledge worker | Grass root innovations | 0.09216 | 0.07 |
| | Publication | 0.14076 | 0.11 |
| | Startups in the state | 0.18829 | 0.15 |
| | New Businesses- No. of companies registered during previous FY | 0.18001 | 0.14 |
| | GSDP per capita growth rate | 0.03946 | 0.03 |
| | Environment clearance approved | 0.07473 | 0.06 |
| | Patent filed in the state (per unit of GSDP) | 0.17876 | 0.14 |
| | Trade mark filed | 0.17399 | 0.14 |
| Knowledge diffusion | High-tech exports as a % of total exports | 0.07465 | 0.06 |
| | Software exports % | 0.22615 | 0.19 |
| | High and medium high tech manufacturing entities percentage | 0.23011 | 0.19 |
| | Citation Score | 0.09869 | 0.08 |
| | GIs registered | 0.23028 | 0.19 |
| | Circulation | 0.16898 | 0.14 |
| | Handlooms sales as a percentage of GSDP | 0.18859 | 0.15 |



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