

**AN INDIA ECONOMIC  
STRATEGY TO 2035**

NAVIGATING FROM POTENTIAL TO DELIVERY



**SCIENCE AND  
INNOVATION  
SECTOR  
SNAPSHOT**

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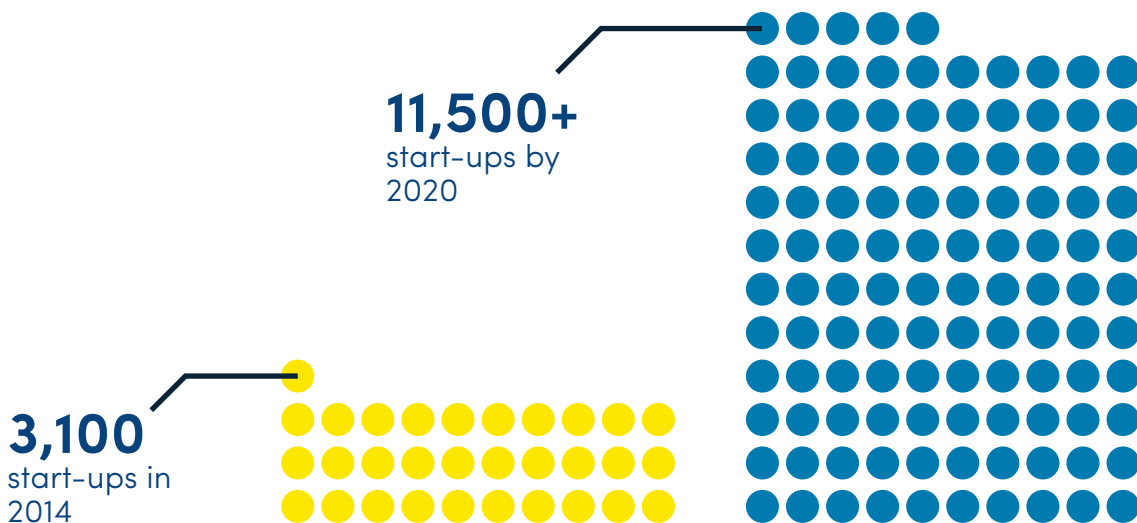


#IES2035

## OVERVIEW

- Science and innovation will be crucial to India maintaining its economic growth out to 2035.
- India is emerging as a global hub for research and development. Close to 800 leading global companies have set up research and development centres in India.
- Despite relatively low domestic funding levels, India is making significant advances on innovation and performs well relative to its GDP per capita.
- India's public spending on research has been stagnant at around 0.8 per cent of GDP for over a decade. In 2015, the spend was 0.9 per cent of GDP, compared to 1.9 per cent in China, 2.7 per cent in the United States and 0.6 per cent in Australia.
- India benefits from a large talent pool, several world-standard technology clusters, start-up ecosystems, low wages and proximity to regional markets.
- India has been ranked as the top innovation destination in Asia and is the third-largest destination for imported R&D.
- Its vibrant entrepreneurial scene is producing affordable innovations, including the world's cheapest tablet computer (Aakash) and affordable medical diagnostic devices. India was home to 3,100 start-ups in 2014 and is projected to climb to more than 11,500 by 2020.
- This progress is, at least in part, the product of regulatory and policy changes by the Indian Government to accelerate innovation growth.

## THE GROWING NUMBER OF INDIAN START-UPS



## OPPORTUNITIES FOR PARTNERSHIP

Australia has much to gain from engaging with India in science and innovation. Science and innovation cuts across the whole economy, including to advance productivity and maintain economic growth. Scientific collaboration enhances Australia's reputation, plays a soft diplomacy role and strengthens our credentials as a quality education provider.

The Strategy recommends Australia build on successful research collaborations and seek to promote engagement between our start-up networks.

Pairing Australia's R&D base with India's scale and frugal innovation could be a productive partnership. For Australian innovators, India offers an additional pathway to attract investment and gain access to regional and global markets.

Australian expertise in agri-tech, health-tech, water management, energy efficiency and renewables could be paired with Indian expertise in data analytics, biotech and mobile applications.

Government support, including through the highly successful Australia India Strategic Research Fund, is often crucial to success, especially in a time-consuming and challenging environment like India.



**Australian  
R&D**

### OPPORTUNITIES FOR PARTNERSHIP



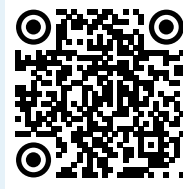
**India's scale  
and frugal innovation**

## CONSTRAINTS AND CHALLENGES

- The United States and Europe remain top choices for collaboration for Indian scientists, although Australia has recognised areas of expertise (including around water, coal and conservation agriculture).
- Australia's venture capital sector continues to develop but remains small in comparison to other developed economies, making it harder to go from research to commercialisation.
- Although Indian law provides protection for IP rights, there are concerns over enforcement. A major source of concern is bureaucratic delay, with a backlog of cases in both civil and criminal courts. There is also a lack of transparency, particularly at a local level. Damages are routinely awarded in cases involving copyright and trademark infringement, but are less common in patent cases. The risk of IP loss may be mitigated by partnering with major Indian companies or multinationals, who have an interest in protecting IP.
- According to World Intellectual Property Organisation data, the average time for a patent application to be actioned in India is six years from the date the applicant requests examination.
- While some Indian states are research or start-up intensive, India lacks a well-functioning national ecosystem for start-ups.
- India's education sector suffers from limited international collaborations, and a weak focus on research.



PROFESSOR VEENA SAHAJWALLA, A LEADING RESEARCHER AND PIONEERING INNOVATOR AND FORMER AISRF PROJECT MANAGER, IN HER LAB. [UNIVERSITY OF NEW SOUTH WALES]



**EXPLORE  
INDIAN STATE  
ECONOMIES  
IN-DEPTH**

## WHERE TO FOCUS

Given the enabling nature of science and innovation across the economy, engagement should be targeted at each of our priority sectors across the ten priority Indian states. At the same time, several cities stand out, given that 66 per cent of start-ups are concentrated in three cities: Mumbai, Bengaluru and New Delhi. Hyderabad, Chennai and Pune are the next largest centres for start-up ecosystems.

### MUMBAI

- Mumbai's proximity to global capital flows and India's investors supports an emerging startup ecosystem, particularly for business to business innovations.
- As India's fintech capital, fintech is driving Mumbai's startup economy.

### BENGALURU

- The IT sector in Bengaluru is two decades old and has a high level of maturity.
- Bengaluru hosts the largest technology cluster in India and the fourth-largest technology cluster in the world, spread across sectors including IT and IT-enabled services, pharmaceuticals and biotechnology, defence, aerospace and agri-tech.
- The majority of Fortune 500 companies have research and development centres in Bengaluru, searching for innovative products and solutions. Bengaluru is also home to India's space program.

### HYDERABAD

- Hyderabad is becoming a global destination for tech business and entrepreneurs. Telangana provides a state focus on innovation through a formal innovation policy.
- T-Hub, a state government backed start-up incubator, is bringing together Hyderabad's established start-up ecosystem, academics and corporates.

### DELHI NATIONAL CAPITAL REGION (NCR)

- Delhi NCR captures the most startup funding of any Indian city.
- The capital region's start-up scene is strengthened by the presence of firms with easy access to foreign investors, government agencies and seed funding.
- The city has leading education, research and scientific institutions and a skilled workforce. It is a major hub for information technology enabled services, e-commerce, business process outsourcing and design work.

### CHENNAI

- Chennai's emergence as a hub for start-ups is supported by its good governance and well-functioning public service. Known as the 'Detroit of India' it is the centre of Indian automobile manufacturing, home to ample engineering talent and increasing numbers of angel investors.

### PUNE

- Maharashtra's second largest city just 150km from Mumbai, Pune, is an industrial powerhouse in its own right and is emerging as a start-up hub with increasing funding capacity, mentoring opportunities and high quality tech talent.

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SECTOR REPORT**



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