

# MAKING IT IN INDIA

Launched in September 2014 by Prime Minister Narendra Modi, the 'Make in India' programme aims to transform India into a global design and manufacturing hub



**“India is one of the most important strategic growth markets for Rolls-Royce and we continue to build on our distinguished legacy and long-standing partnership. We are already leveraging the vast engineering talent pool and playing a leading role in the government’s ‘Make in India’ initiative.”**

**- KISHORE JAYARAMAN,  
ROLLS-ROYCE, PRESIDENT  
(INDIA AND SOUTH ASIA)**

The aim of the initiative is to boost manufacturing in India to 25% of GDP by 2022 and create 100 million new jobs, contributing to the alleviation of poverty. The arguments in favour of investing in India are convincing. As the world’s largest democracy with a huge human resource base of 1.2 billion citizens, India’s potential is obvious. ‘Make in India’ is intended not only to stimulate economic growth, but also to foster higher levels of education among young Indians. In December 2015, the Indian Government and the World Bank announced a \$50 million investment in the ‘Nai Manzil: Education and Skills Training for Minorities Project’, which aims to help young people from minority communities complete their education and gain from market-driven training programmes with the aim of improving their employment outcomes<sup>174</sup>.

Aerospace is one of the sectors to take advantage of this investment push from India. Leading manufacturers Pratt & Whitney, GE Aviation, Rolls-Royce and Honeywell all run operations in India. The reasons for their confidence in India are numerous, not only based on workforce availability.

The Asia-Pacific region is undoubtedly an aviation hub, meaning that investing in facilities in India allows engineering R&D providers to collaborate with manufacturers on the ground and provide local engineering support. However, the willingness of the Indian government to host foreign companies is certainly a major consideration and is, indeed, the central principle of the ‘Make in India’ campaign. The financial incentives provided in India benefit not only the manufacturers, but Indian engineers and the wider community too.



## Rolls-Royce

British technology company Rolls-Royce has a rich history in India. Having operated in the country for over 80 years, Rolls-Royce has an established presence in a number of manufacturing fields, with the first aircraft for both the Indian Air Force and the Navy being powered by Rolls-Royce engines.

The company has been investing heavily in India in recent years: economically through their civil aerospace wing, but also, more widely, in social terms, as Rolls-Royce. More than 1,000 highly qualified engineers and managers work exclusively for Rolls-Royce through partners, TCS and QuEST, providing high quality engineering solutions and services across the entire product development life-cycle.

Rolls-Royce's base in Bengaluru fosters Indian talent, providing prospective engineers with a broad training programme with experienced Rolls-Royce engineers. The aim of the company is to realise the ambition of Bengaluru becoming a major aviation hub. By 2017, Rolls-Royce's Bengaluru new engineering centre will employ 500 additional people to support their civil aerospace business. Through a joint venture with another manufacturer, HAL International Aerospace, Rolls-Royce is manufacturing high-tech components for the Trent family of jet engines.

Rolls-Royce is also helping to foster Indian talent by sponsoring the Chevening Rolls-Royce Science and Innovation Leadership Programme, a scholarship programme for high potential, mid-career Indian professionals to Said Business School, University of Oxford. The company also helps develop STEM skills in children from local economically disadvantaged communities.



Jet engine manufacturer, GE Aviation, has had a presence in India for a number of years, with an established technology centre in Bengaluru employing 4,000 experts, as well as engineering centres in Hyderabad, Chennai and Mumbai, which collectively employ over 700 engineers. These engineers are focused on supporting the engineering sciences, product engineering centre, engineering tools, aviation systems and digital solutions. The Indian engineering branches work on a range of different GE products, including the GENx and GE9X engines, as well as the LEAP engine, which GE produces as part of CFM International alongside French technology company Safran Aircraft Engines. In the avionics field, GE also produces components for the Airbus A350 wing in India.

**“India is a growth engine for Asia, and we see huge potential for the country in the manufacturing space.”**

**- JEFF IMMELT, CHAIRMAN AND CEO OF GE**

In 2015, GE opened a brand new multi-modal manufacturing facility in Pune, which will produce components for a number of GE jet engines. The advanced manufacturing plant covers 67 acres and will employ 1,500 workers who will share production lines, support infrastructure and equipment such as 3D printers and laser inspection technology. The hope is that, by 2020, \$20 million in engine parts will be produced from the facility.

GE describes the facility as a ‘brilliant factory’, meaning that the factory equipment and computers talk to each other over the ‘industrial internet’ in real time, share information, and make decisions to preserve quality and prevent downtime.

“Make in India is at the heart of Honeywell’s strategy in the country and that has been for 40 years.”

- ARIJIT GHOSH,  
PRESIDENT, HONEYWELL  
AEROSPACE INDIA



## Honeywell

Honeywell has an 80-year history in India with more than 15,000 employees in 50 cities across the country. More than 6,000 engineers work on innovative technologies every day, helping tackle some of India’s and the world’s toughest challenges in energy efficiency, safety, security and customer productivity. Honeywell has five engineering and technology development centres and seven manufacturing facilities in the country. More than 3,000 products, solutions and applications have been engineered in India.

On the aerospace side specifically, Indian employees are critical contributors to many of the company’s leading-edge technologies that are advancing the science of flight and meeting the needs of Honeywell customers everywhere in the world. Products produced by Honeywell in India range from technologies for the smallest turboprop aircraft to the largest commercial jets.

Honeywell technologies developed and manufactured in India contribute to improving the safety and efficiency of commercial and business aviation.

Honeywell also cooperates with resident Indian companies, such as Hindustan Aeronautics and Tata Power’s Strategic Engineering Division. In September

2014, Honeywell and Tata Power signed a technology-sharing agreement for Honeywell’s TALIN inertial navigation system. This agreement allows India to co-produce its first locally produced advanced navigational system, supporting the Indian government’s ‘Make in India’ campaign.

To help support its host country, Honeywell has been investing heavily in the next generation of Indian aerospace engineers and pilots. Its Technology Solutions engineering arm, based in Bengaluru, has close connections with schools and universities and is committed to training young Indian engineers in, among other things, aerospace. This investment in Indian people’s skills is a prime example of how the ‘Make in India’ initiative is helping the country develop in ways other than strict economic growth.

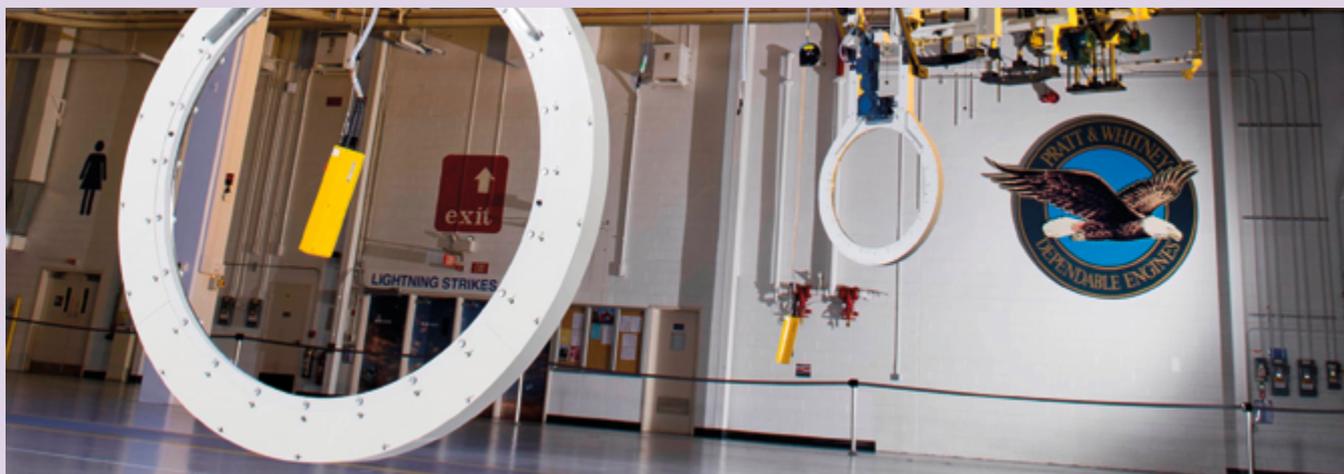


Since Boeing began supplying aircraft to Tata Airlines over 75 years ago, the American manufacturer has had commercial ties with India. Now, with the ‘Make in India’ campaign in full flow, Boeing is playing its part in supporting the initiative.

Shortly before Prime Minister Modi officially launched the drive to attract foreign investment into manufacturing in India, Boeing formed a joint venture with Tata Advanced Systems Limited to collaborate in producing aerospace integrated systems solutions. Indian workers now play a crucial role in building components for a number of Boeing aircraft through TAL Manufacturing Solutions, for example, the complex floor beams used in the 787-9.

A significant aspect of ‘Make in India’, alongside manufacturing itself, is ensuring that the investment from abroad is focused on developing Indian talent. This nurturing of talent is often realised through partnerships with universities and research organisations, something that Boeing has been active in doing, well before ‘Make in India’ was officially launched, having had a research and development presence in India since 1995.

In 2005, Boeing entered into a strategic partnership with IISc Bangalore, which conducts research on materials and sciences for structural alloys, as well as smart materials and structures, making it only one of ten universities worldwide that enjoys such a relationship with Boeing. The company also encourages the professional development of young engineers through various skill-based initiatives, working alongside colleges and universities and providing vocational training.



In September 2015, Pratt & Whitney opened a new customer training centre in the Indian city of Hyderabad. At the facility, aircraft engineers and technicians will be trained on all models of Pratt & Whitney engines, both existing and new ones. Over 300 aircraft based in India are powered by Pratt & Whitney engines, and this number is set to increase with many new Geared Turbofan engines projected to enter service in India in the coming years. Having a dedicated customer training centre in the country is the best way for the technology company to ensure that its airline customers are well versed in their use.

As Hyderabad is a key location for many aircraft operators in India, setting up shop in the city was the logical choice, making the facility Pratt & Whitney's third global training centre, alongside their East Hartford and Beijing locations.

Pratt & Whitney has, however, had previous connections to India. In 2013, Pratt & Whitney took up residence at the Indian Institute of Science in Bengaluru to conduct advanced research into gas turbine jet engine technology in India, as well as research aimed at making these engines more efficient and environmentally friendly.

The office supports a full-time professor in gas turbine engineering. In the longer term, Pratt & Whitney hopes that its presence at the research centre will attract engineering talent to the gas turbine engine field, promoting the skills of Indian students.



European aircraft manufacturer, Airbus, has had a presence in India since the 1980s, when it began partnering with Hindustan Aeronautics Limited to produce passenger doors for the A320 aircraft, an arrangement that still exists today.

In recent years, Airbus has been scaling up its activities in India through its subsidiary, Airbus India Operations. Established in 2013, this branch of Airbus unifies the company's engineering activities in the country, including Emerging Technologies and Concepts, strategy and international cooperation. Airbus, like many other players in the aerospace industry recognises the strategic importance of the vast subcontinental country and has made a long-term commitment to playing its part in developing the Indian aerospace sector.

Over 400 engineers are already employed at the Airbus facility in Bengaluru and, in keeping with the goals of the 'Make in India' campaign, there are plans to increase the company's contribution to the Indian economy. In the coming years, Airbus aims to make further investment in India and create over 10,000 highly skilled jobs in a range of aerospace activities.

In March 2016, the company announced plans to invest \$40 million to set up a pilot and maintenance training centre in the Delhi area, which will house four A320 full-flight simulators and will have the capacity to train over 8,000 pilots and 2,000 engineers over ten years from 2018 onwards.

Airbus has also been investing in untapped talent in India through the Airbus Bizlab initiative, which helps start-up companies develop engineering ideas from concept to thriving businesses. In March 2016, Airbus selected four separate start-ups based in Bangalore in India, which will be granted access to a large number of Airbus coaches, experts and mentors, helping them get their ideas off the ground.

**“This customer training facility marks a major milestone for Pratt & Whitney. We will continue to invest in talent and infrastructure to support the industry's growth here.”**

**- PALASH ROY CHOWDHURY, COUNTRY MANAGER INDIA, PRATT & WHITNEY**