

# Why German automakers have massive tech centres in India

As vehicles become more software driven, Indian talent is becoming critical

Avik.Das1@timesgroup.com

The modern car is not just about engines, chassis and the fuel tank. It's more and more a software product on wheels – software for driver assistance, for autonomous driving, for infotainment. And as that trend intensifies, India's technology talent is becoming invaluable for global automakers.

The German ones have taken the most advantage of India. Bosch, Continental, Mercedes-Benz, and ZF all have large technology centres here doing cutting edge work for their parent companies. But there are others too, notably Harman, Ford, General Motors, Volvo, Piaggio, Delphi, and Renault Nissan.

"Automotive is expected to be 60% software driven by 2030, from about 40% now," says KS Viswanathan, vice president of industry initiatives at Nasscom.

The \$50-billion Continental's tech centre in Bengaluru supports R&D in all its automotive divisions. The centre, which started in 2009, is a global software centre of excellence, is the headquarters of its Software Academy, and is the Asia application hub for some markets and businesses. Mercedes-Benz R&D India is the biggest R&D operation of Daimler outside Germany. For Robert Bosch Engineering & Business Solutions (RBEI), 20,000 of its 23,000 employees globally are in India.

The country has a cost advantage.

## LIKE PHONES, CARS TOO WILL BE REFRESHED BY SOFTWARE



"A phone is refreshed by a software update. We intend to have cars too get a digital lease of life. And if software dictates the new world, then cars all over the world will have a lot more of India in them"

Manu Saale | MD, MERCEDES-BENZ R&D INDIA



"Cost may open the door but that is not all and it is not always sustainable. In these (India tech) centres, you are measured against the best, and so quality needs to be there"

Alexander Klotz | VP, TECHNICAL CENTRE INDIA, CONTINENTAL

Nitika Goel of consultancy firm Zinnov, which closely tracks MNC tech centres in India, says if a good engineer in a niche skill commands a package of \$200,000 in the US, a similar engineer could be hired in India for below \$60,000.

But there are more important reasons for choosing India. "We have a large, readily available talent pool. And along with it comes the hunger to make it big," says Manu Saale, MD of MBRDI.

Alexander Klotz, who heads Continental's R&D centre in Bengaluru, says cost may open the door, but that is not all and it is not always sustainable. "In these centres, you are measured against the best, and so quality needs to be there. Besides, if you need 100 engineers, it takes time abroad. But if you want to scale from nothing to 500, India is the country to go to," he says.

Continental has about 4,000 people

in Bengaluru working on areas such as advanced safety technologies, autonomous driving technologies, and connected mobility. The German firm recently unveiled a technology feature called transparent hood, which makes the bonnet transparent to allow a clear view of the terrain under the front of the car so that the driver is better aware. The technology related to processing data from the camera and the radar was built by the ADAS (advanced driver-assistance systems) team in India.

Every car that Continental serves has a traffic signal recognition system provided by the team in Bengaluru. "For some products like these, the buck stops here," says Klotz.

RBEI works on engineering of safety, infotainment and body electronics products in collaboration with centres in Vietnam and Mexico. "Every product that goes into

Automotive is expected to be 60% software driven by 2030, from about 40% now. While Chennai is a hub of automakers, Bengaluru has emerged as the auto tech hub, with about 50,000 employees

KS Viswanathan | VP, INDUSTRY INITIATIVES, NASSCOM

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Tanmoy Nayak | PROJECT LEAD, ZINNOV

"Every product that goes into cars and trucks has an engineering footprint in India in areas of autonomous driving, driver assistance and electric vehicles"

Dattatri Salagame | MD, ROBERT BOSCH ENGINEERING & BUSINESS SOLUTIONS

cars and trucks has an engineering footprint in India in areas of autonomous driving, driver assistance and electric vehicles," says Dattatri Salagame, MD at RBEI, the largest software and technology centre of Bosch, outside of Germany. The unit also has a centre for artificial intelligence, one of the three in the world – the others are in Stuttgart and the Bay Area. It has 200 people and works on computer vision, and application of automation in domains like autonomous vehicles.

"We have a team of engineers who work closely with the business unit in Germany on a driver assistance programme which includes object detection on the platform," says Jacob Peter Kidangath, senior VP at RBEI.

The Mercedes centre, one of the oldest of the auto tech centres in India, is involved with the entire development chain of making cars,

including aspects of mechanical engineering, body, engine, chassis development, content of electronic software, and new age digital analytics. "If you drive autonomous in California, there is some Indian software in it. If you drive electric in China, there is Indian software," says Saale.

MBRDI has 6,000 people, with hundreds of mechanical engineers working on improving the design of the next Mercedes. Another hundred work on the electronic control unit (ECU) which controls the door module, wipers, lighting, seat movement and clutch movement. The teams here worked on the control units for the electric drive-train of the e-Citaro, the all-electric city bus plying in Germany.

For every rear seat occupant in the Mercedes car line, the safety mandate is in India. The latest S-Class model has contributions from India such as the MBUX Interior Assist (including gesture control), and the software algorithm development for driving assistance functions like emergency start-stop and lane departure.

All these centres employ engineering undergraduates, post graduates, PhDs and specialists in mathematics, physics and statistics. "We need people who are able to architect hyper-scale full stack platforms at the cloud and device level," says RK Shenoy, senior vice president of engineering at Bosch's RBEI. Continental hires C++ engineers, and experts in Autosar software, cyber security and radar technology.

Tanmoy Nayak, project lead at Zinnov, says the centres are hiring many radar and lidar engineers because a lot of work here is around vision technology and perception systems. Perception technologies enable vehicles to identify objects around and help understand the right way to respond. "Perception algorithms are being worked on by leveraging Indian talent in AI and computer vision," he says.