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Carmakers switch lanes to bring more software engineers on board

Trend leads to more women being employed on vehicle assembly lines

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As cars evolve into computers, generating and processing enormous amounts of data every second, the automotive industry is witnessing a fundamental shift in its recruitment strategy.

Apart from mechanical engineers and manufacturing specialists, carmakers are increasingly recruiting electronics engineers, coders, data scientists, cybersecurity and artificial intelligence (AI) experts. More importantly, this technological revolution is leading to an increase in the number of women employed at these companies, even paving the way for women-only shop floors.

The shift, which began about five years ago and has gained pace since, is already visible in hiring patterns at leading automakers. At Tata Motors, more than 60 per cent of engineering hires are now from electrical, electronics, software and embedded systems. “This reflects the increasing convergence of traditional automotive engineering with digital technologies,” said Sitaram Kandi, chief human resources officer, Tata Motors.

The change across the sector — comprising passenger vehicles, commercial vehicles, and two- and three-wheelers — is visible throughout the value chain as the industry embraces digital technologies to improve efficiency. Features such as advanced driver-assistance systems (ADAS) and vehicle connectivity have positioned technology and mobility skills at the forefront of hiring priorities.

“As vehicles become increasingly connected, electrified and software-defined, software engineering has emerged as one of the fastest-growing talent categories,” Kandi said.

Hyundai Motor India is witnessing a similar trend. “We are seeing a growing need for talent in electrical, electronics, software, and embedded systems, especially in product planning, connectivity, mobility, procurement, and manufacturing engineering domains,” said Natwar Kadel, associate vice president and vertical head, human resources, Hyundai Motor India.

Unlike a decade ago, software engineers are now involved right from the vehicle design stage, working alongside mechanical engineers to develop connected features, ADAS, over-the-air updates and battery management systems.

“Vehicle development today follows an integrated engineering model where software, electronics and mechanical engineers collaborate right from the concept stage. This enables faster development, tighter hardware-software integration and greater agility in delivering advanced vehicle technologies,” Kandi said.

The other transition visible on shop floors is the increase in the share of women employees. For instance, Tata Motors has more than 6,500 women shop-floor technicians across its operations and an all-women workforce of around 3,000 at its facility in Pune that assembles SUVs.

Indeed, across companies, there has been an increase in the number of women. Hero MotoCorp already has an all-women assembly line and is targeting an increase in the share of women employees from around 20 per cent at present to 30 per cent by 2030. At MG Motor India, women account for over a third of its workforce. Even commercial vehicle maker Ashok Leyland has an all women assembly line in Hosur, Tamil Nadu. In fact, the share of women employees in the sector is expected to rise well beyond the current 15 per cent to over 20 per cent in the next few years, experts said.

The increasing role of software is also changing how value is created in vehicles. According to Tata Motors, software now contributes around 40 per cent of overall vehicle value, up from 10 per cent five years ago.

“The growing demand for embedded software, ADAS, automotive cybersecurity, and software-defined vehicle capabilities indicates that automakers are investing in future-ready talent alongside their traditional engineering workforce,” said Aditya Narayan Mishra, managing director and chief executive officer of CIEL HR.

This isn’t a case of one set of roles replacing another, Mishra added. “We are seeing a more balanced talent mix emerge, where future growth will be driven by the ability to integrate mechanical engineering with digital and software skills.”

Thanks to tailwinds like the rise in sales of electric and connected vehicles and the rationalisation of the goods and services tax (GST) hiring in the sector is set to increase by 8 per cent in financial year 2026-27 (FY27), according to a report by AI-powered talent fulfilment and recruitment process outsourcing (RPO) firm Taggd and Confederation of Indian Industry.

However, the shift has also thrown up some challenges. The drive toward software-defined vehicles has created an acute shortage of talent skilled in embedded systems, AI, cybersecurity and vehicle connectivity. As a result, less than half of Indian original equipment manufacturers (OEMs) and suppliers were able to scale digital initiatives in 2025, the report added.

The transition is happening at a time when the EV industry alone is expected to create 50 million jobs by 2030. Considering the strong demand, analysts expect strong hiring activity.

“Such hiring is likely to increase in the coming years as mechanical engineering processes become more efficient and vehicles continue to have more software and electronics embedded. Moreover, automation is rising on the shop floor, increasing demand for more software/electronics engineers as we move to Industry 4.0,” said Anurag Singh of consultancy firm Primus Partners.

Kandi believes in the future hiring will be increasingly multidisciplinary. “The future is less about one discipline replacing another and more about the convergence of mechanical, electrical and software engineering. Tomorrow’s vehicles will require increasingly multidisciplinary engineering teams,” he said.