

How India can build a safe and sound electric vehicle ecosystem to increase safety, adoption, and awareness

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Electric vehicles are going to be the future of mobility. Concerns about the environment and climate are motivating more buyers, especially younger ones, to choose electric vehicles over those run by fossil fuels. Vehicles run using traditional fuels will not completely phase out, at least not in the foreseeable future, but electric vehicles will gain a greater market share. From \$1.4 billion in 2021, the Indian electric vehicle market is expected to exceed \$15 billion by 2027, projecting annual growth of 47%. Automobile manufacturers and policymakers are naturally gung ho about the future of electric vehicles and the electric vehicle revolution, but the immediate and bigger challenge for India is to build a safe and sound electric vehicle ecosystem, in which the component supply chain will be a key.

In fact, as I write this, safety concerns are the most pressing challenge before electric vehicles, especially two-wheelers. In recent months, there has been a spate of incidents of electric scooters catching fire, giving rise to serious question marks over their safety. There have been reports that many buyers have cancelled their plans to buy electric vehicles because of the incidents of fire. This may be an overreaction and a temporary one, but it stresses the importance of safety in the electric vehicle ecosystem.

The projected growth in demand for 'electric vehicles presents an immense opportunity for vehicle manufacturers as well as Original Equipment Manufacturers (OEMs). Already, we have seen a number of manufacturers line up aggressive model launches in an attempt to gain the early mover advantage.

While higher cost is the key reason for the low penetration of electric vehicles in India, the lack of a charging ecosystem is another. Many people want to buy an electric vehicle but are concerned about the absence of charging infrastructure. The government is pushing for setting up electric vehicle charging kiosks across the country to bridge the gap. Many large corporates, including several public sector units, are also investing in the electric vehicle-charging ecosystem.

Another key challenge before the electric vehicle industry is the absence of a component manufacturing ecosystem or supply chain, which forms the backbone of any industry. There are no supply chain or component experts in the industry today. This is of course a given considering the nascent stage of the industry in India, but it is the need of the hour to focus our energies on building a thriving component manufacturing infrastructure if we want domestic component manufacturing for electric vehicles to flourish.

The Industry and the government need to focus more on developing and facilitating a proper supply chain of core components of electric vehicles such as motors, controllers, battery management systems, batteries, required electronics, and more. Developing a local self-reliant component manufacturing ecosystem will also hold the key to making electric vehicles affordable.

It is heartening to note that steps are already being taken in that direction. The central government recently came out with a Production-Linked Incentive (PLI) for the electric vehicle component sector. The scheme is aimed at boosting the domestic manufacturing of key electric vehicle components such as hydrogen fuel components, flex-fuel kits, high voltage connectors and connectors and cables, electric motor components, etc. The scheme reflects the government's commitment to supporting the industry by incentivizing local investments and manufacturing and can help India in emerging as a hub of high-end auto components manufacturing.

The scheme is expected to go a long way in streamlining the component supply chain by strengthening the domestic manufacturing ecosystem and building a self-sustaining framework for the e-mobility industry. This can contribute to the Atmanirbhar Bharat initiative, by reducing dependence on imports. This will also be important to ensure availability of high-quality components for electric vehicles at affordable rates, a must in a price-sensitive country like ours.

Attention is also needed to support new Original Equipment Manufacturers and startups in the electric vehicle space. Besides the government, the support must come from legacy automobile manufacturers and existing OEMs, who stand to gain from the electric vehicle boom, and even large investors. The electric vehicle industry is taking baby steps in India. Nurturing startups and young entrepreneurs will allow for the introduction of new ideas and technologies in the industry. It is a given that not all ideas and technologies may work, and in fact, a majority of them won't, but even if a handful of ideas click, they could give a big boost to India's ambitions to emerge as a leading manufacturer of environmentally cleaner, sustainable, advanced and more efficient electric vehicles, and put India in a unique position to lead the global electric vehicle revolution.