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Catalysing E-Mobility

Solutions to Support India's Startups and Innovators

Report / November 2022

Micelio Mobility

Micelio Mobility has been on the forefront of strengthening the future of e-mobility by building a clean mobility ecosystem in India and enabling the mass adoption of clean mobility solutions and removing specific entry level barriers that startups may face while navigating this landscape. With an aim to create and build an ecosystem that can nurture existing talent and maximise impact, Micelio Mobility, the first-of-its-kind catalyst in the electric mobility value curve, is on its way to powering a comprehensive clean mobility platform for India. Our initiatives include capital funding through Micelio Fund, testing facilities through Micelio Discovery Studio, community building, and knowledge sharing.

Striving towards our vision to catalyse an ecosystem which enables the mass adoption of clean mobility solutions, we forge partnerships with government and semi-government bodies, academia, think tanks, and nongovernmental organisations and facilitate stakeholder engagement and cooperation. Till date, we have conducted a plethora of stimulating events and facilitated 500+ connections amongst the community to enhance collaborative efforts. To further enable the ecosystem, Micelio Mobility is fostering innovation through research and development and upskilling activities.

NSRCEL, IIM Bangalore

NSRCEL is IIM Bangalore's startup hub and incubation centre. NSRCEL's mission is to support ventures in the startup ecosystem that demonstrate potential to innovate, implement, and create economic and societal impact. NSRCEL has been bringing together entrepreneurs, academicians, and industry experts to create an impact in the startup ecosystem. In 2021–22 alone, NSRCEL engaged with 1,195 ventures across 22 states in the country, through 12 unique programme tracks.

RMI India Foundation

RMI Energy Solutions India Foundation's ("RMI India Foundation") mission is to support the transformation of India's economy into a clean, thriving, and inclusive energy future. This mission is in line with the country's bold ambition to achieve a net-zero emissions economy by 2070. We aim to drive impact on the ground through deep research and rigorous analysis, which inform the development of sustainable clean energy policies and programmes across the country to enhance the lives and livelihoods of all Indians.

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About This Report

Introduction

Mobility is fundamental to urban and rural life, but mobility with internal combustion engines (ICEs) is also contributing to greenhouse gas emissions and local air pollution. In India, the transportation sector is responsible for 13.5% of energy-related carbon dioxide (CO_2) emissions, with the majority from road transport.[1]

Adopting cleaner vehicle technologies and specifically electric vehicles (EVs) is an important lever to mitigate rising emissions in India, in addition to reducing demand for vehicular transportation through better city design, promoting nonmotorised transit (e.g., walking and cycling), and increasing the mode share of mass transit (e.g., bus and rail). Governments, businesses, and civil society are seizing the environmental, economic, and social potential of EV deployment, including:

- **Climate:** Electrification of transport will be critical to achieving the target India set at the 2021 United Nations Climate Change Conference (COP26) of net-zero emissions by 2070. Vehicles subsidised by the Government of India's Faster Adoption and Manufacturing of Electric Vehicles Phase II (FAME II) alone can abate over 7.4 million tonnes of CO_2 over their lifetimes.[2] As India's renewable electricity penetration increases, emissions will further reduce.

- **Energy security:** The avoided petrol, diesel, and compressed natural gas due to EV adoption can result in oil import savings and enhanced resilience from existing energy supply chains. The EVs subsidised by FAME II, for example, are estimated to save INR 17.2 thousand crores (US$2.3 billion) over their lifetimes in terms of oil expenditure.[3]

- **Public health:** EVs have zero tailpipe emissions, helping reduce local air pollution and improving public health. In Delhi, the nearly 500,000 vehicles aimed to be subsidised under the state's EV policy can avoid 159 tonnes of fine particulate matter (PM2.5) emissions over their lifetimes.[4]

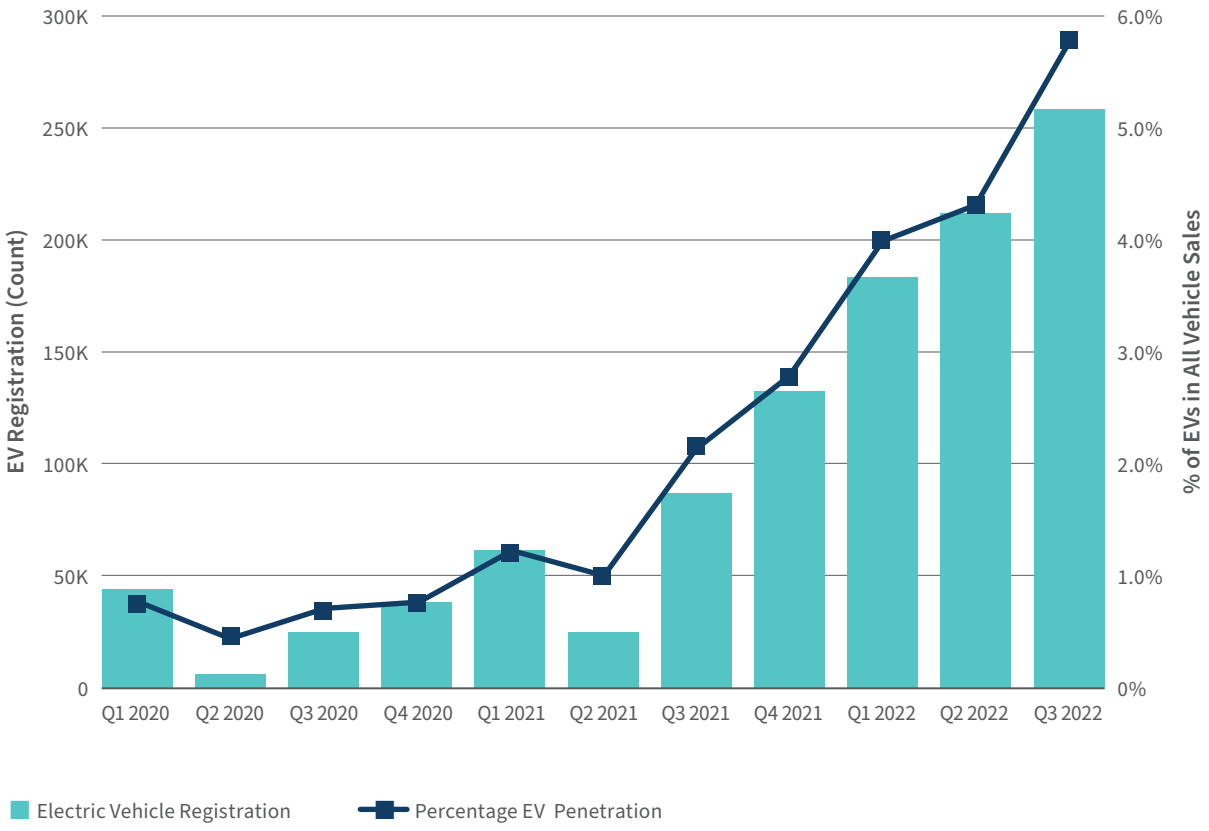
- **Improved economics:** EVs are more economical to operate than ICE vehicles and in some use-cases have lower total cost of ownership (TCO). For example, electric two-wheelers used for urban delivery already have lower TCOs than comparable ICE vehicles in Delhi.[5] Electric three- and four-wheelers are projected to reach TCO parity with their ICE counterparts before 2024.[6]

Overall, the investment opportunity presented by EVs, charging infrastructure, and batteries is an estimated INR 19.7 lakh crore (US$266 billion) between 2020 and 2030.[7] With a north star of EV30@30 — 30% EV sales penetration by 2030 — the central government has allocated INR 0.6 lakh crores (US$7.5 billion) to catalyse EV supply and demand across its flagship FAME II and Production Linked Incentive (PLI) schemes (for advanced

chemistry cell [ACC] batteries and automotive manufacturing). State governments are likewise taking action, with 21 of 36 states and union territories having notified EV policies to incentivise EV purchases, charging infrastructure, and manufacturing. Key investment announcements by corporations exceeded INR 48,000 crores (US$6.5 billion) in 2021.[8]

This strong public and private commitment is starting to pay off — EV adoption is accelerating rapidly (see Exhibit 1). Recently, through FAME II, five major Indian cities announced tendering for 5,450 electric buses and discovered lowest-ever prices.[9] Quarterly EV sales reached 5.7% in September 2022, up from less than 1% only two years earlier in 2020.[10]

Exhibit 1 **Quarterly EV Registration and Sales Penetration, January 2020 to September 2022**



Source: Vahan Dashboard

Although incentives and investment have provided a springboard for this transition, startups developing innovative technologies suited to the local context (e.g., climatic and road conditions, market dynamics, price sensitivity) have been leading the charge.

Select Examples of E-Mobility Innovation by Indian Startups

The value chain of EV technologies and services has several examples of startups innovating and supporting deployment, for example:

Manufacturing: While legacy original equipment manufacturers (OEMs) are starting to create business lines focused on EVs, early product development and innovation in segments like two- and three-wheelers are led by startups. For example, in 2021, more than 65% of all electric two-wheelers sold in India were manufactured by startups.[11]

Business models and financing: Startup OEMs are helping enhance the consumer experience by testing alternative business models such as leasing and battery swapping. Fintech startups are likewise implementing concepts such as GPS and artificial intelligence to fill in critical EV financing market gaps.

Marketing: Consumer awareness and large-scale marketing of EVs is being led by startups; for example, two startups are key sponsors of the Indian Premier League.

The Need for Collaborative Solutions

While startups are already catalysing the e-mobility market, the ecosystem can realise its full potential by increasing dialogue among stakeholders and codeveloping solutions to existing barriers. To this end, Micelio Mobility, NSRCEL, and RMI India Foundation designed Catalysing E-Mobility: India Innovators Forum to provide a process for open dialogue among startups and relevant stakeholders such as academia and venture funds.

The Innovators Forum was inaugurated on 21 September 2022 with a one-day workshop that saw more than 35 participants from 25 startups work together to generate and detail 10 solutions across several thematic areas. The workshop was designed through an extensive research process and focused on system-level challenges that, when overcome, will advance the entire ecosystem.

This report details, at a high level, the state of the ecosystem in terms of innovation, funding, and emerging challenges and the solutions generated at the workshop.

> **As the e-mobility ecosystem is still nascent, all companies — from bootstrapped startups to larger organisations — exhibit a "startup DNA." The Innovators Forum is designed to bring all such players together to develop impactful solutions for the benefit of the broader e-mobility ecosystem, and ultimately the citizens of India who desire safe, clean, and affordable transportation.**
>
> — Akshima Ghate, Director, RMI India Foundation

Context

About the Startup and Innovator Ecosystem

India's e-mobility innovator ecosystem is large, diverse, and evolving. In 2012, India's Department for Promotion of Industry and Internal Trade had recognised less than 15 EV-related startups.[12] As of September 2022, the number has grown to 535 across the ideation, validation, early traction, and scaling phases and across product or service offerings.[13]

Key Statistics on India's E-Mobility Startup Ecosystem

Areas of innovation: Over 60% of startups are OEMs focusing on manufacturing (vehicles and components), predominantly for two-, three-, and four-wheelers. Charging infrastructure and battery solutions consist of a further 25% of startups, with the balance being electric mobility-as-a-service and enabling innovations such as financing.[14]

Funding flows: An estimated 43 e-mobility startups have raised funds in 2022 totalling INR 5.6 thousand crore (US$673 million), up from 47 startups raising INR 4.7 thousand crore (US$570 million) in 2021 and 16 startups raising INR 1.6 thousand crore (US$195 million) in 2020.[15] Among climate tech, 40% of all deals and 59% of all funding flows in India are tied to startups working on sustainable mobility solutions, though capital tends to flow to a few top players.[16]

Funding type: Traditionally active venture capital (VC) funds have had limited participation in EV startups thus far. In their absence, smaller, more boutique funds have planned investments and dedicated rounds in e-mobility.[17]

Startup stages: A majority of the funding deals are series A and B, with a clear gap visible at the seed stage where product development typically occurs.[18] Moreover, only 6 of 43 deals in 2022 have been later-stage, growth equity investments intended to fund scale.[19]

Startup geographies: Bengaluru and Delhi-National Capital Region accounted for 70% of startups raising funding in 2022.[20]

Key Challenges

Despite the leadership taken by startups and innovators in pushing India's e-mobility transition forward, several challenges persist as they move from ideation to scaling their product or service. These challenges exist across key thematic areas that interact with each other through the innovation process (see Exhibit 2, below, and Exhibit 3, next page).

Exhibit 2 Key Thematic Areas for Startups and Innovators

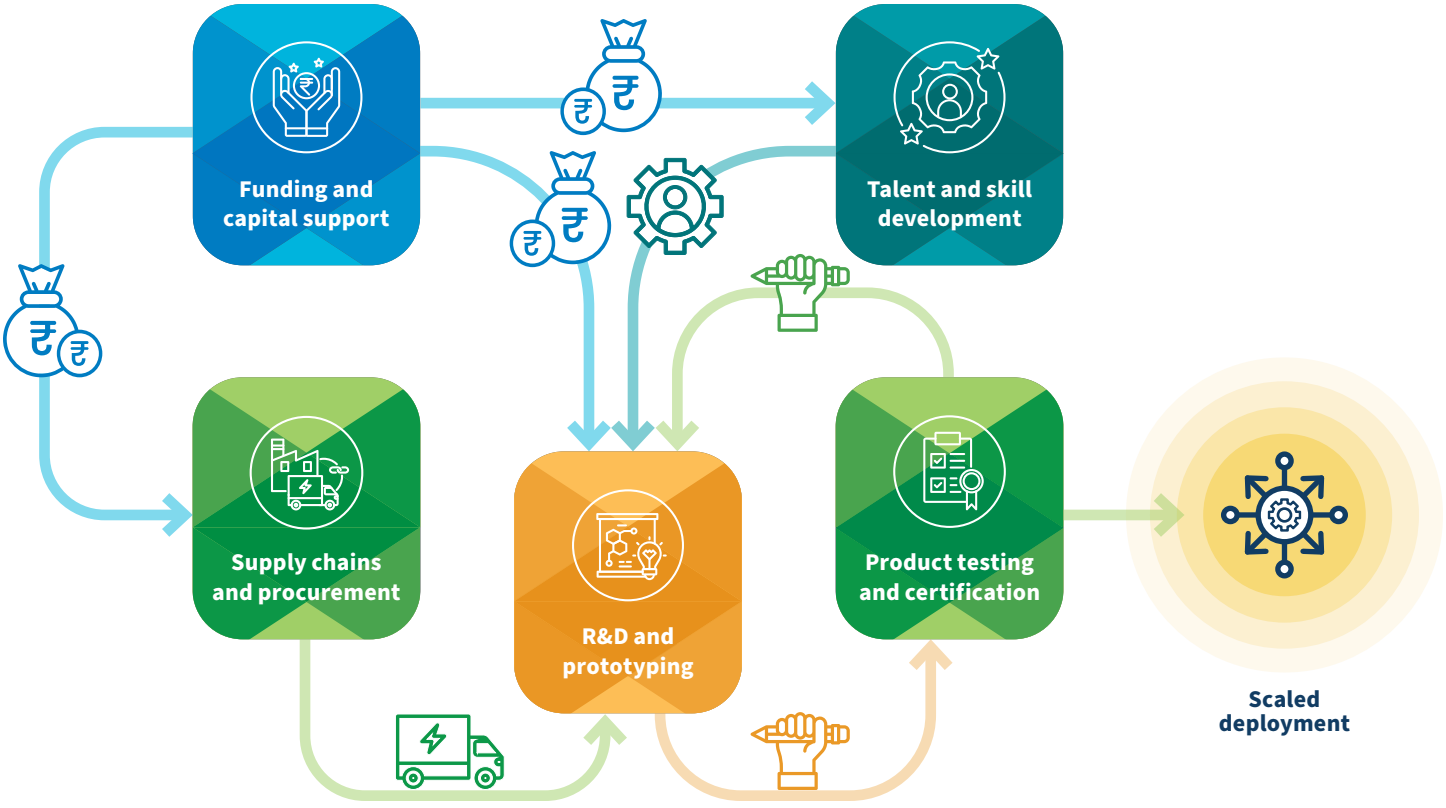


Exhibit 3 Challenges in the Startup and Innovator Ecosystem

Thematic area	Challenges
R&D and prototyping	**1. Government role and support availability** ▪ Startups are often unaware of government-based support available because there is a lack of clarity on entities responsible for supporting R&D at startups. **2. Inconsistent policy implementation** ▪ Agencies with directives to support startups can be uncertain about their own mandates and are not familiar with new technologies, resulting in a lack of uniformity in implementation of policy and regulation, along with slow approvals and long time lines to deployment for startups. **3. Nascency of prototyping ecosystem** ▪ Advanced R&D requires sophisticated design data, which is lacking. ▪ Pre-homologation testing facilities are few across the country and startups are not incentivised to use existing ones, limiting startups' ability to rapidly iterate on prototypes and often leading to high prototyping or certification costs.[i] ▪ Navigating intellectual property rights can be a complex task with limited support offered to startups.
Product testing and certification	**1. Limited testing facilities equipped for EV and component testing** ▪ Existing labs lack technology and trained staff to perform tests specifically for startups developing EVs and components. This lack of EV-specific support limits the testing options available for startups, and can make testing a time-consuming and expensive process. **2. Complex, non-streamlined homologation** ▪ Standard setting and safety policies often find it hard to keep pace with evolving technology, making testing and certification complex.
Supply chains and procurement	**1. Customisability and procurement constraints** ▪ Supply chains are often tuned for scale, with high minimum order quantities and low customisability. For startups at the early deployment stage, convincing component manufacturers to operate at a smaller scale is a challenge. **2. Supply chain risks** ▪ With limited domestic supply chains, startups rely on global vendors and commonly experience challenges with raw material availability, import delays, and price shifts. Because startups are reliant on unit economics, cash flow, and timely availability of materials, these challenges lead to complications in product development.

i Pre-homologation (or pre-certification) labs provide services for a subset of common tests performed for formal certification. Pre-certification testing can help startups quickly assess product performance and identify potential problem areas during early stages of product development and before formal certification. With this, they can rapidly iterate on product design and streamline the process of certification.

Exhibit 3 Challenges in the Startup and Innovator Ecosystem (continued)

Thematic area	Challenges
Talent and skill development	**1. Attracting innovators** ▪ Retaining talent and preventing brain drain is a concern at different career stages, at informal as well as professional levels. ▪ E-mobility is cross-disciplinary and current degrees are not integrative enough nor aligned with industry needs, resulting in long upskilling and reskilling programmes for new hires. This can leading to attrition. ▪ Diversity of hiring is low and the EV ecosystem tends to be inaccessible to many — i.e., innovators are not aware of job opportunities. **2. Availability of skill development** ▪ Infrastructure for training and skill building at universities and schools is limited. ▪ Standardised training and certifications for skills is lacking, and employers often do not have the resources to offer training.
Funding and capital support	**1. Funding needs** ▪ Startups require high working capital and liquid assets, but debt is costly, limiting their access to affordable financing. ▪ Investors are struggling to price risk and prove which business models or technologies scale. In the absence of established metrics on time lines, market sizing, environmental/social impact, and so on, perceived risk is greater. **2. Capital access** ▪ Although funding sources are available, startups are often not aware of these resources. Growth equity, venture debt, revenue-based financing, and philanthropic capital have potential but remain relatively unexplored. ▪ Ease of access to capital at different stages varies, with gaps at the seed stage (where product development occurs) and at series C onwards, where scale can be achieved.

Source: Informational interviews performed with stakeholders and literature review

Supporting the Ecosystem

Encouraging innovation and empowering startups has emerged as a priority of governments and the private sector. The focus thus far has been promoting a startup culture — lowering the risk for exploring new disruptive ideas. This has been amplified through several fundamentals of government support, including hand-holding and streamlining, funding support, and incubation (see Exhibit 4, next page).

Exhibit 4 Select Platforms in India Providing Support to E-Mobility Startups

Platform	Overview
Startup India	• Startup India, launched in 2016, is a flagship initiative of the Government of India to build a strong ecosystem for entrepreneurship and innovation. It enables easier compliance and legal support, including patent filing, an improved regulatory environment, and tax incentives. It also has a website hub offering a range of resources and opportunities for stakeholders, including incubators, innovation labs, events, competitions, and grants. It has made INR 10,000 crore (US$1.2 billion) available as a funding pool for startups to help raise equity and debt capital. In 2021, it announced an INR 1,000 crore (US$121 million) seed fund for startups.[21]
ASPIRE (Automotive Solutions Portal for Industry Research and Education)	• The International Centre for Automotive Technology's ASPIRE e-portal facilitates the Indian auto industry, including EV startups, to align on R&D, technology development and advancement, processes, and so forth. It also provides resources and convenes events for startups to connect with industry.[22]
LetsVenture EV Innovation Lab	• Inaugurated in 2019, the LetsVenture EV Innovation Lab facilitates dialogue between stakeholders, develops the market and investment readiness of startups, and provides access to market and industry experts. It brings together partners from government, venture capital, business, and nongovernmental organisations for startup success.[23]
TechNovuus	• The Automotive Research Association of India (ARAI)'s TechNovuus is a multi-domain collaborative platform designed to unlock the potential of new technologies and innovations to shape the future of mobility. TechNovuus promotes indigenous technology development by enabling collaborations between innovators, universities, academia, MSMEs, startups, and research institutes, with its UpTech initiative offering technology upleveling support specifically to sustainable mobility startups.[24]

Dedicated e-mobility support (or e-mobility support via larger clean energy/climate tech) is picking up. Building on existing efforts, convening the ecosystem and strategically channelling support to key challenge areas can advance the ecosystem as a whole.

About Catalysing E-Mobility: India Innovators Forum

Background and Context

Micelio Mobility, NSRCEL, and RMI India Foundation created the Catalysing E-Mobilty: India Innovators Forum to support e-mobility startups in catalysing the domestic manufacturing of EVs and components, and deploying EVs rapidly in personal, commercial, and public use cases in India. The Innovators Forum was inaugurated during a one-day workshop hosted on 21 September 2022 in Bangalore.

The Innovators Forum was conceived under the aegis of the Urban Mobility Lab.[25] The Urban Mobility Lab is a platform and process that creates a supportive ecosystem for a shared, clean, and citizen-centric mobility future by supporting the development of effective policy and regulations and accelerating the deployment of mobility solutions in cities. The Urban Mobility Lab was announced by NITI Aayog in 2017 and is led by RMI.

The Forum Process

The Innovators Forum's multistep process includes:

Conducting a needs assessment to understand the startup ecosystem in India, including the current state of the ecosystem in terms of innovation, funding, and emerging challenges.

Hosting a multistakeholder workshop to codevelop solutions that address challenges common to the entire ecosystem. In this, solutions support progress for all e-mobility startups.

Facilitating the implementation of solutions with stakeholders, including monitoring to capture and share lessons learned to support the scaling of impactful interventions.

Needs Assessment Process

The needs assessment process helped inform the design of the workshop and develop impactful approaches to advance the work of stakeholders and the ecosystem following the workshop. It consisted of:

- **A review of literature** to develop a high-level understanding of the ecosystem, including knowledge of the policy and regulatory environment (including existing policies, schemes, and initiatives); the state of the market with respect to size, funding, and innovation; existing challenges and potential opportunities; and key stakeholders and decision makers.

- **Informational interviews and surveys** with key stakeholders to understand their perspectives on challenges and opportunity areas, and to understand the reality on the ground.

In addition to a literature review and informational interviews, Micelio Mobility and NSRCEL hosted several monthly meetups for startups around specific focus areas for a deep dive and to foster collaboration.

Multistakeholder Workshop

Catalysing E-Mobility: India Innovators Forum, held on 21 September 2022, convened more than 25 startups from around India representing eight sectors. Working together, the participants:

- Identified key policy, regulatory, and other system-level challenges faced by startups across product stages.

- Codeveloped policy and market-based solutions with implementation plans to overcome system-level challenges.

- Identified recommendations for government, industry, and civil society organisations to scale the solutions across India.

Participants were organised into four multistakeholder working groups, with each group focusing on a thematic area identified in the needs assessment. The thematic areas were:

- Streamlining product testing and certification to facilitate R&D and prototyping
- Developing talent and upleveling skill for ecosystem needs
- Building robust and resilient e-mobility supply chains
- Improving access to funding and support for capital

The workshop process had several key components, including:

- **Identifying common, i.e., system-level, barriers** that stakeholders are experiencing and must overcome to advance the ecosystem.
- **Assessing the forces that both support and inhibit progress** to understand what is being done and what needs to be done for solutions to have the most potential for impact.
- **Codeveloping solutions and detailing action plans** to support solution implementation to move the ecosystem forward.

Proposed Solutions

During the workshop, participants identified potential solutions across each of the thematic areas. The solutions as detailed in Exhibit 5 reflect a synthesis of the insights participants shared during the workshop and in informational interviews performed during the needs assessment.

> **It's exciting to witness the level of collaboration among startups working to codevelop solutions. With co-opetition, startups can share knowledge and resources to lower costs and accelerate innovation.**
>
> — Anand Sri Ganesh, Chief Operating Officer, NSRCEL, IIM Bangalore

Exhibit 5 Summary of Proposed Solutions by Thematic Area

Streamlining product testing and certification to facilitate R&D and prototyping	• Develop a comprehensive testing ecosystem to increase access to testing centres and information, and to streamline the testing process. • Develop an online platform specific to e-mobility, linking startups with testing labs and providing easy access to critical information.
Developing talent and upleveling skill for ecosystem needs	• Develop a holistic, e-mobility-specific platform hosted by a neutral organisation to link job seekers with employers, and to provide relevant training and upskilling courses. • Increase access to training and upskilling courses by developing an online knowledge-sharing platform. • Develop EV-specific curriculum for skill development.
Building robust and resilient e-mobility supply chains	• Develop platforms and processes to support collaboration among stakeholders in the e-mobility ecosystem. • Create common warehousing facilities for use by EV startups. • Develop a one-stop resource, for example, an online platform, with information on suppliers and their products, including availability and location to help startups source components.

Exhibit 5 Summary of Proposed Solutions by Thematic Area (continued)

Improving access to funding and support for capital	• Help innovators discover and access funds through a curated database and matchmaking platform. • Enhance the technical capacity of investors to evaluate new technologies and price risk, hence enhancing investment flows. • Set up a dedicated funding initiative to channel alternative equity, debt, and grants to e-mobility startups.

Source: Summary of insights from workshop participants on 21 September 2022

Streamlining Product Testing and Certification to Facilitate R&D and Prototyping

Throughout product development, from R&D to prototyping to larger-scale manufacturing, hardware startups need to invest in testing and homologation, both of which can be expensive and time-consuming.

Exhibit 6 Solutions to Streamline Product Testing and Certification to Facilitate R&D and Prototyping

Proposed Solutions	Key Activities and Considerations
Develop a comprehensive testing ecosystem to increase access to testing centres and information, and to streamline the testing process	• Startups, incubators, and other stakeholders coordinate and work with the National Accreditation Board for Testing and Calibration Laboratories to increase the number and distribution of government-certified testing labs for e-mobility. • Consultations between central government and the industry to develop protocols and establish standard operating procedures for labs. • Develop an online platform for booking and to share important information on testing labs, including their processes; the online platform can include a review function for labs and suppliers of certified components. • Industry to work with government agencies to explore incentives for startups to encourage use of pre-certification labs. Pre-certification testing can help startups quickly assess product performance and identify problem areas during product development and before formal certification. With this, startups can rapidly iterate product design and streamline the process of certification. • Central government, nongovernmental organisations, and industry develop an open-source library on component testing to provide design-useful performance data. • Explore the potential for a virtual validation lab concept, leveraging virtual resources to perform testing.

Exhibit 6 Solutions to Streamline Product Testing and Certification to Facilitate R&D and Prototyping (continued)

Proposed Solutions	Key Activities and Considerations
Develop an online platform specific to e-mobility, linking startups with testing labs and providing easy access to critical information	As per the recommendation on developing a comprehensive testing ecosystem, an online platform can be developed to provide startups with key information and processes to streamline the testing process. The online platform can include the following features and information: **Features** • Booking system to schedule testing • Review system for labs and components (system to be moderated by a neutral, third-party organisation) • Information database **Information** • Existing policies and standards relevant to component/product testing • Testing protocols • Lab details

Source: Summary of insights from workshop participants on 21 September 2022

Developing Talent and Upleveling Skill for Ecosystem Needs

E-mobility is a nascent ecosystem and relatively new entrant into India's labour market. Finding and equipping skilled workers is critical to high-quality innovation.

The central government has several initiatives to develop talent, including the Skill Council for Green Jobs, which has a mission to provide skills development initiatives with industry and has earmarked funds for creating green jobs in e-mobility. Additionally, several states' EV policies explicitly include skill development as a priority.

In addition to government initiatives, developing platforms to link job seekers with employers and providing access to key training can increase the pipeline of diverse and skilled workers with the appropriate skill sets and level of knowledge for e-mobility startups. Through coordination, startups can leverage each other's resources to expand their networks and increase stakeholders' general awareness about the needs and opportunities in the e-mobility ecosystem.

Exhibit 7 Solutions to Develop Talent and Uplevel Skill for Ecosystem Needs

Proposed Solutions	Key Activities and Considerations
Develop a holistic, e-mobility-specific platform to link job seekers with employers, and to provide relevant training and upskilling courses	• Talent acquisition teams at e-mobility companies can expand the available pool by defining flexible job profiles, for example, hiring mid-career professionals from related sectors with transferable skills, attracting seasonal professionals/consultants for expert mentorship, and considering diversity. • A platform can be developed and piloted to consolidate job postings and provide a mechanism to perform skill gap assessments, recommend trainings, and facilitate communication. The platform can also create talent pipelines by helping startup founders and professionals leverage student and alumni networks.
Increase access to training and upskilling courses by developing an online knowledge-sharing platform	• An open-source knowledge-sharing platform can be developed to facilitate the sharing of knowledge among stakeholders. This platform can also provide information and access to relevant courses and certifications, and online degrees.
Develop EV-specific curriculum for skill development	• E-mobility firms can (1) collaborate with government industrial training institutes and universities to codesign degrees, diplomas, and school vocational training programmes, and (2) develop skill-specific training programmes for employees of their companies to support upskilling.

Source: Summary of insights from workshop participants on 21 September 2022

Building Robust and Resilient E-mobility Supply Chains

Startups require robust and flexible supply chains tuned to their scale to ensure timely access to components and to keep costs low. As India seeks to boost domestic manufacturing, startups remain reliant on global supply chains for many of their required components, thus exposing them to import costs and delays. Building partnerships to facilitate purchasing components at scale (i.e., startups aggregating demand and performing bulk procurement) and increasing information on and access to critical components can help startups develop more resilient supply chains and lower costs and time required to acquire components.

Exhibit 8 Solutions to Build Robust and Resilient E-Mobility Supply Chains

Proposed Solutions	Key Activities and Considerations
Develop platforms and processes to support collaboration among stakeholders in the e-mobility ecosystem	• Coordination among startups and legacy players can help aggregate demand and facilitate cooperative buying to increase volume and lower unit cost.
Create shared manufacturing and warehousing facilities for use by EV startups	• Shared manufacturing and warehousing facilities can aggregate manufacturing demand of startups, share the price of space and other elements (e.g., technology), streamline inventory management by providing expertise, have flexible space and lease terms to meet growth, and reduce costs.
Provide a one-stop resource, e.g., an online platform, with information on suppliers and their products, including availability and location to help startups source components	• Startups require high-quality components to build complete systems. • By creating an online, open-source catalogue detailing the components, startups can gain knowledge of and access to key components.

Source: Summary of insights from workshop participants on 21 September 2022

Improving Access to Funding and Support for Capital

Funding and capital are essential to helping startups innovate. Government efforts such as the FAME II and PLI schemes and state policies show commitment to enabling the ecosystem through capital subsidies, and new forms of funding (e.g., philanthropy, carbon markets) are emerging. Early movers are proving the utility of their innovations, creating trust in the market and space for new startups to emerge.

VC has aided the ecosystem growth thus far, but important capital types needed to scale (e.g., growth equity, venture debt) remain inaccessible or unaffordable for startups. Innovators and investors can work together to leverage these factors through discovery platforms and hand-holding, such that more startups can access capital and diverse forms of finance can be unlocked.

Exhibit 9 Solutions to Improve Access to Funding and Support for Capital

Proposed Solutions	Key Activities and Considerations
Help innovators discover and access funds through a curated database and matchmaking platform	• Create a database with information on investors, available instruments (e.g., equity, debt, grants), ticket sizes, and fundraising guidance. • Complementary to this, a monetised matchmaking platform could be set up between innovators and investors to allow new ideas to come to light and get funded. The platform could include discussions and host challenges/hackathons to channel funding to capital providers' priorities.
Enhance the technical capacity of investors to evaluate new technologies and price risk leading to enhanced investment flows	• Research on market sizing, opportunity assessment, success stories, technical specifications, and so forth on e-mobility can build the capacity of investors in formulating key performance indicators and conducting due diligence and exit strategies, allowing them confidence to invest.
Set up a dedicated funding initiative to channel alternative equity, debt, and grants to e-mobility startups	• A privately led fund (with government as a limited partner) can aggregate sources like corporate venture capital, corporate social responsibility, high-net-worth individuals, clean mobility bonds, and carbon credits to create innovative structures for startups to tap into. • This structure would allow for investors to diversify their exposure to higher-risk instruments (e.g., venture debt, grants, revenue-based financing) while also giving innovators access to capital that best suits their need. • The fund can also amplify its efforts by advocating for supplementary government support through the PLI scheme, the Reserve Bank of India's priority sector lending guidelines, and other key initiatives.

Source: Summary of insights from workshop participants on 21 September 2022

Key Takeaways and Insights

In addition to the thematic-specific solutions for each working group, several cross-cutting insights emerged, including:

- **Develop partnerships and platforms (e.g., EV forums, working groups, or other convening formats) to increase collaboration among stakeholders.** For startups, developing ecosystem partnerships and global networks can facilitate knowledge sharing, resource sharing, and access to qualified and experienced professionals with expertise in specific areas (e.g., technology, patents, regulation, and finance), and mitigate supply chain issues. Increasing collaboration with the government can support the development of informed policy.

- **Design government tenders, schemes, and programmes with more inclusive eligibility requirements to help startups apply for tenders and incentives.** Stakeholders noted that while generic startup support from the government (e.g., credit guarantee scheme for startups) helps in procuring business loans, they are often unable to benefit from EV-specific policy incentives, including for manufacturing. For example, the PLI scheme for automobiles/auto components and ACC batteries focus on scale and thus support established manufacturers. The FAME scheme, which initially had funds allocated to R&D, removed this allocation in phase II.

  Also, startups do not often meet eligibility requirements, such as prior experience or turnover, to win government tenders.[26] Though Startup India has set conditions to exempt startups from prior experience and turnover, the practical application of these conditions is not always consistent and startups and tendering companies would benefit from more clarity on eligibility to bid for projects.

  More inclusive eligibility requirements will allow startups to compete with larger companies based on cost and technical requirements, resulting in the same high-quality product for the government at competitive costs.

  State governments can look to existing startup policies, like those of Delhi, Karnataka, and Maharashtra, for guidance on creating an inclusive environment for startups without compromising on quality. Another consideration is to allow a consortium of startups to apply to tenders to meet requirements through collective volume and experience.[27] The latter approach can be tested with a pilot.

- **Develop single-window processes for city-level governance and set requirements for nodal contacts to be designated across government systems.** The government launched the Startup India Hub in 2015 to enhance ease of doing business and allow startups to operate more easily. However, the current regulatory environment remains complex. Complications occur in many areas, such as registration, taxation, and exit. Single-window clearance can expedite processes in these areas. Capacity building for government staff on new technologies can ensure consistent implementation of progressive policy measures and allow startups to benefit from them. Establishing a nodal contact for government agencies can facilitate communication between startups and government.

- **Regularly publish research and host capacity-building workshops or other forums, such as webinars on the e-mobility sector, to help decision makers and investors gain more knowledge about the sector.** With limited presence of standards and taxonomy, general capacity building can help decision makers and investors better understand the technologies that startups are developing, and support them in performing due diligence and evaluation, potentially leading to more investment in the sector.

Path Forward

The startup ecosystem in India is critical to the realisation of the country's clean mobility goals. Designed as a neutral and open forum, the Catalysing E-Mobility: India Innovators Forum plans to host important conversations among stakeholders to bring forward impactful and timely solutions that can accelerate India's transition to a clean mobility future.

To build on the work already being done and to further develop actionable plans and pathways for implementation, Micelio Mobility, NSRCEL, and RMI India Foundation plan to support the ecosystem by:

1. **Tracking and reporting on progress** to understand the state and growth of the ecosystem and the challenges and opportunities, and to socialise lessons learned with businesses, policymakers, and civil society. Insights from existing community initiatives (e.g., Micelio Discovery Studio, NSRCEL incubation programmes on mobility with Maruti Suzuki and sustainability with Alstom, and Shoonya — Zero Pollution Mobility campaign) can be leveraged for more effective decision-making.

2. **Hosting stakeholder consultations** to identify key policy and market recommendations, and to refine existing and new solutions to the most pressing challenges the ecosystem is facing. Interfacing regularly with key players across the ecosystem can ensure a constant-feedback loop is in process between ideation and implementation of actionable opportunities.

3. **Collating and disseminating critical knowledge** from a network of serial entrepreneurs, accelerator, and incubation ventures (e.g., NSRCEL and Micelio Mobility), ecosystem experts, and other sources to provide innovators with contextualised advice. Knowledge can be documented in a repository for easy access and to support startups in their journey, from getting to market through achieving scale.

4. **Facilitating progress on solutions** generated at the workshop and through ongoing engagement by coordinating with relevant stakeholders on implementation activities, network building, and monitoring progress over time.

> **"Startups can be catalysts for the clean energy transition — they are nimble, understand the local market, and are capable of rapid innovation. We're excited to work with the startup ecosystem to accelerate the deployment of new technologies and services that can help India realise a clean, equitable, and efficient mobility future."**
>
> — Shreyas Shibulal, Founder and Director, Micelio Mobility

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