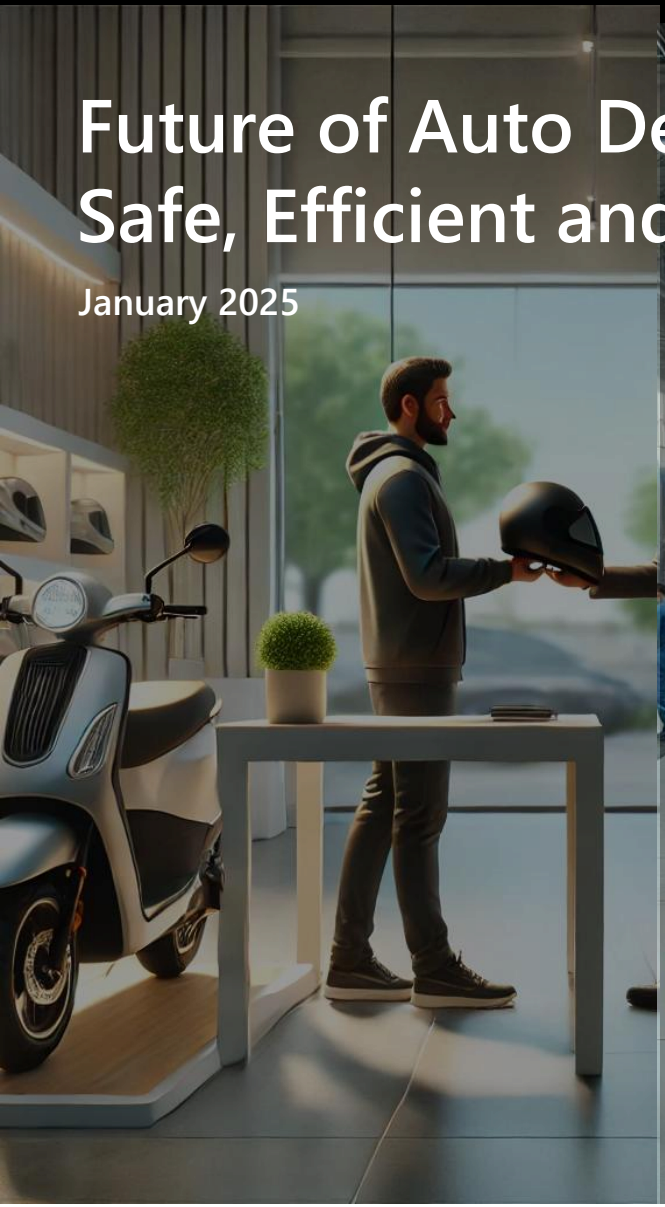
Future of Auto Dealerships: Safe, Efficient and Sustainable

January 2025



NRI
Nomura Research Institute Consulting & Solutions India Pvt. Ltd.

FADA
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Foreword

Dear Friends,

It is with great pride and enthusiasm that I present to you this whitepaper on the *Future of Auto Dealerships: Safe, Efficient, and Sustainable*. As the President of the FADA and, above all, a fellow Dealer, I deeply recognize the significance of embracing change and preparing for the challenges and opportunities that lie ahead in our ever-evolving automotive industry.

This whitepaper provides valuable insights into the critical areas that will shape the future of our dealerships. From enhancing operational safety and efficiency to adopting sustainable practices, the recommendations outlined here are designed to help us adapt to the demands of a modern marketplace while **ensuring long-term success and growth.** I encourage each one of you to reflect on the strategies presented in this whitepaper and actively incorporate them into your operations. Together, by committing to innovation and sustainability, we can create a dealership ecosystem that not only meets customer expectations but also contributes positively to our society and environment.
Let us continue to lead the way in shaping a brighter future for the automotive retail industry.

Sincerely,
C S Vigneshwar
President, FADA

Dear Reader,

As the automotive landscape continues to evolve with rapid technological advancements, shifting consumer preferences, and growing environmental concerns, it is imperative for dealerships to embrace a future that is *safe, efficient, and sustainable*.

This whitepaper, collaboratively developed by NRI Consulting and FADA, explores the emerging trends shaping the dealership ecosystem in India and offers actionable strategies to ensure long-term success in this dynamic environment.

Our analysis highlights the importance of **adopting innovative practices** to enhance safety, streamline operations for greater efficiency, and align with sustainability goals. By integrating these pillars into their business models, dealerships can create value not only for their customers but also for the broader community and environment.

We trust that the insights and recommendations shared here will empower you to build stronger customer relationships, optimize your operations, and lead the industry toward a brighter, more sustainable future. Thank you for investing your time in reading this whitepaper.

Sincerely,
Harshvardhan Sharma
Head, Automotive Retail Consulting Practice
Nomura Research Institute Consulting

About FADA and Nomura Research Institute

About FADA India, Founded in 1964, Federation of Automobile Dealers Associations (FADA), is the apex national body of Automobile Retail Industry in India engaged in the sale, service and spares of 2 & 3 Wheelers, Passenger Cars, UVs, Commercial Vehicles (including buses and trucks) and Tractors. FADA India represents over 15,000 Automobile Dealerships having over 30,000 dealership outlets including multiple Associations of Automobile Dealers at the Regional, State and City levels representing the entire Auto Retail Industry. Together we employ ~5 million people at dealerships and service centres. FADA India, at the same time also actively networks with the Industries and the authorities, both at the Central & State levels to provide its inputs and suggestions on the Auto Policy, Taxation, Vehicle Registration Procedure, Road Safety and Clean Environment, etc. to sustain the growth of the Automobile Retail Trade in India.

To learn more, please visit :

www.fada.in

About NRI, Established in 1965, with a footprint across 24 Global Offices in 13 Countries with more than 10,000 employees worldwide, Nomura Research Institute is a Global Think Tank and Consulting Firm. Automotive Industry is the core industry vertical within the Consulting Division in which The GPG (Global Practice Group) for Automotive with more than 100 Management consultants engaged in the Automotive space, help clients in developing winning strategies and their implementation across the value chain.

Automotive Retail and CASE (Connected Autonomous Shared Electric) are our key expertise areas where NRI delivers bespoke engagements for clients and acts as a think tank helping industry associations and government bodies in developing policies in India.

To learn more, please visit :

https://india.nri.com/industries/automotive/

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While we help clients across the entire auto value chain, our focus is on downstream (Marketing Transformation, CX and CRM) & New Biz (xEV) themes

		Strategy	Implementation
Upstream	Corporate Strategy & Planning	▪ Alliance Strategy, New Market Entry Support ▪ Corporate Strategy Planning & Review	▪ Partnership Support, PMO ▪ Org/Culture Transformation, Derivative Projects
	R&D/ Policy / Product Dev	▪ Policy Forecasting; R&D Benchmarking ▪ Tech Roadmap, Product Portfolio Planning	▪ Networking, Whitepapers, Conferences ▪ Tech Benchmarking, Product Planning, ESO Use
Midstream	Manufacturing	▪ Bottomline Improvement (Cost Reduction) ▪ S&OP Diagnostics & Improvement Roadmap	▪ Cost Reduction / Profitability Improvement ▪ Supply Chain Optimization Pilots (Digital)
	Supply Chain (Proc., Logistics)	▪ Regional Procurement Strategy & Optimization ▪ Benchmarking & Cost Optimization	▪ Supplier Search & Development (EV, Safety) ▪ Spare Parts Logistics Improvement
Downstream	CTP (Sales, Service, CR, Used Car, Fin)	▪ CX & CRM Strategy, Customer FB Improvement ▪ Sales/Service Strategy, & Ops Improvement	▪ CX Improvement, Digital Marketing ▪ Dealer Transformation, Profitability Improvement
	Marketing, Media (Digital) & Branding	▪ Corporate, Category & Product Brand Strategy ▪ Marketing & Media Strategy	▪ 4P Translation (Product/Pricing Clinics) ▪ TG, Media Creative Planning and Review
	New Biz (EV, Connected, Shared)	▪ Policy & Ecosystem Maturity Analysis ▪ Strategy, Roadmap & Alliance Planning	▪ Feasibility Study, PoC Support ▪ Due Diligence, Partnership & Fundraising

Top-line impact → Bottom-line impact

Agenda

- ➔Executive Summary and Dealer Voice
- ➔Sector Overview
- ➔Safety
- ➔Efficiency
- ➔Sustainability
- ➔About Authors

Summary

Resilient Auto-Dealership Business

Safe

- **Sensitising customers:**
  - ADAS driven safety features are becoming norm in 4W . CVs also integrating video telematics, driving monitoring
  - Road Infra, measures like Bharat NCAP improving safety
  - Customers to be sensitised about safety and emergency first aid ,defensive driving and post incident dos and don'ts
- **Safety measures for EVs**
  - Measures for handling new and used batteries across lifecycle (including disposal)
  - Practices for safe charging and operations
  - **Commercial Vehicles** : Collaborating with body builders for ensuring better safety

Efficient

- Practices for higher value from **digitalisation**
  - Dealers need re-think & align processes to extract value from digital solution, prevent burdening of employees
  - AI/Digital tools evolving rapidly in customer acquisition/personalisation & CRM which can be capitalised
  - OEMs needs to provide better APIs for DMS for dealers to adopt different suites as per needs.
- Continuous upskilling of team
  - Utilising support from programs like ASDC to enhance manpower
- Managing inventory across revenue streams
  - Careful monitoring around **spares inventory not just cars**

Sustainable

- Operations:
  - Use renewable energy sources like solar panels and energy-efficient systems (e.g., LEDs, HVAC).
  - Implement water recycling systems for car washes and reduce water usage in operations.
  - Transition to digital processes to minimize paper use and optimize energy monitoring.
  - Use recycled or sustainable materials in dealership design and operations.
  - Support circular practices by recycling end-of-life vehicles, parts, and materials (e.g., tires, batteries).
- Community and Outreach
  - Invest in carbon offset programs and support local environmental development

Executive Summary: Safe

Dealers play a key role in sensitizing consumers about benefits of safety norms

Market Overview

India's automotive safety landscape is transforming with segment-specific requirements:

- Passenger vehicles adopting ADAS features
- Commercial vehicles focusing on standardized body codes and AC cabin compliance
- Growing concerns towards dealers becoming ready for the EV adoption trend in India
- Increasing Government mandates towards pedestrian safety and post-trauma response

Suggestions for Dealers

Safety Education & Maint. Hub

- Introduce periodic inspection programs (similar to Japan's 'Shaken' model)
- Inform customers about new safety features and their importance

EV Service Solutions

- Develop EV charging infrastructure
- Create better battery recycling solutions

Commercial Vehicle Compliance Support

- Ensure awareness of telematics
- Facilitate OEM-builder coordination
- Inform customers about importance of regulations

Commercial Vehicle Dealer

"While regulatory guidelines push for safer body construction & features, we're still seeing **widespread use of wooden bodies & non-compliance with codes**, largely because operators are trying to balance safety investments against rising logistics costs. To address this, we're **highlighting how sensors & accident prevention** can improve the bottom line through better product protection & operational efficiency."

"At our dealerships, we extensively **coach customers on defensive driving practices**, from basic habits like seatbelt use to proper ADAS operation, using **collaborative training materials developed with OEMs**, but we've found that while dealer-OEM-FADA partnerships can promote these safety measures, u**ltimate success depends on customer** willingness to adopt these practices."

Passenger car dealer

Executive Summary: Efficient

Indian auto dealerships have realized the need for advanced tools & latest tech to optimize operations & margins; need to align challenges around DMS with OEMs

Market Overview

Indian dealerships are targeting increased efficiency in operations for better margins:

- Increasing recognition of benefits of adopting latest tech such as AI, predictive maintenance and CRM.
- Dealerships are beginning to implement tools such as virtual showrooms, AI-powered chatbots to improve customer engagement and satisfaction.
- DMS adoption is on the rise but faces challenges due to lack of alignment with dealer needs and limited control

Suggestions for Dealers

Leverage Advanced technologies

- Implement AI-Powered CRM to automate customer interactions.
- Use AI for sales forecasting and adjust strategies accordingly.

Invest in Employee Training

- Educate employees on new systems to maximize efficiency.
- Train staff to understand and utilize analytics for better decision-making.

Enhance Digital Presence

- Strengthen online platforms & utilize online sales tools for lead generation.
- Communicate your needs to OEMs for better use of DMS software.

Commercial Vehicle Dealer

System integration across operations requires strengthening to create a more cohesive digital ecosystem. Service tracking and training platforms enhance operational efficiency and staff development..

Silly notion of OEMs where they don't let dealers manage their own DMS. OEMs need to improve the servicing aspect in addition to sales. Manpower and bays are required to service more vehicles.

Passenger car dealer

Source: NRI Analysis

Executive Summary: Sustainable

Auto dealerships are adopting sustainable business measures by integrating renewable energy, novel waste mgmt. techniques and higher EV uptake

Market Overview

India's automotive dealerships are rapidly adopting sustainable practices for running efficient business and going green :

- Integration of renewable energy (roof top solar) in dealerships
- Adoption of dry wash technique for massive water conservation
- Lucrative business opportunities with advent of EVs (Servicing, Upskilling & Financing Business)

Suggestions for Dealers

Adopt Renewable Energy Solutions

- Install solar panels to power showrooms, workshops, and administrative spaces
- Implement energy-efficient HVAC & LED lighting systems to reduce electricity consumption

Implement Sustainable Waste Management Practices

- Set up recycling programs
- Partner with certified recycling vendors for safe disposal
- Encourage customers to return used batteries and components

Promote and Support Electric and Alternative Fuel Vehicles

- Install EV charging stations at dealership premises to support test drives
- Train staff to educate customers on the benefits of electric and hybrid vehicle
- Collaborate with OEMs to offer incentives

Commercial Vehicle Dealer

“Currently CV dealerships are looking into **solar energy**, as it is an easy **starting point because of the large rooftops of CV dealerships**. Unless the state government allows CV dealerships to sell power outside, there isn’t a lot of benefit in installing extra solar panels as **net metering is not offered by some state governments**”

“All our dealerships are **powered by solar and wind energy**. For large workshops, automated car wash is adopted. This has been implemented to conserve water where only **80-90 liters of water are used for car wash as compared to 350+ liters in past**. All these **processes have proved to be commercially viable as well**”

Passenger car dealer

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- ➔**Sector Overview**
- ➔Safety
- ➔Efficiency
- ➔Sustainability
- ➔About Authors

Industry Overview : Customer Preference Evolution

There is a shift in the preferences of customers to becoming more connected and digitally evolved creating a need for new sales methodologies

1 **Shift to Online For 4W**

With the increasing penetration of Digitalization, consumers are becoming open to shifting various parts of their car buying process online including vehicle research, delivery etc.

2 **Penetration of HEV/ EVs**

Consumer interest in EV centers on lower fuel costs, environmental consciousness, and better driving experience. However, driving range and lack of charging infrastructure remain barriers to adoption

3 **Increased "willingness to Pay"**

Younger consumers are willing to pay extra for modern technologies due to cross sector (due to experience in white goods / CPG / non auto) harmonization

4 **Subscription Model**

Subscription models are becoming prominent not just in B2B, but in B2C / P2P segment as well owing to uptake in "short term lease" and growth of digital channels.

5 **Micro-mobility Shift**

As people grow environmentally conscious & vary of traffic congestion, **"micromobility" may gain popularity in urban areas**

6 **In-Person experience**

Most customers still prefer to buy a car from a dealership. However, a perception of improved convenience and ease of use will favor the expansion of virtual processes

Source: NRI Analysis, Secondary Research, News Reports, Customer Survey

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- ➔**Safety**
- ➔Efficiency
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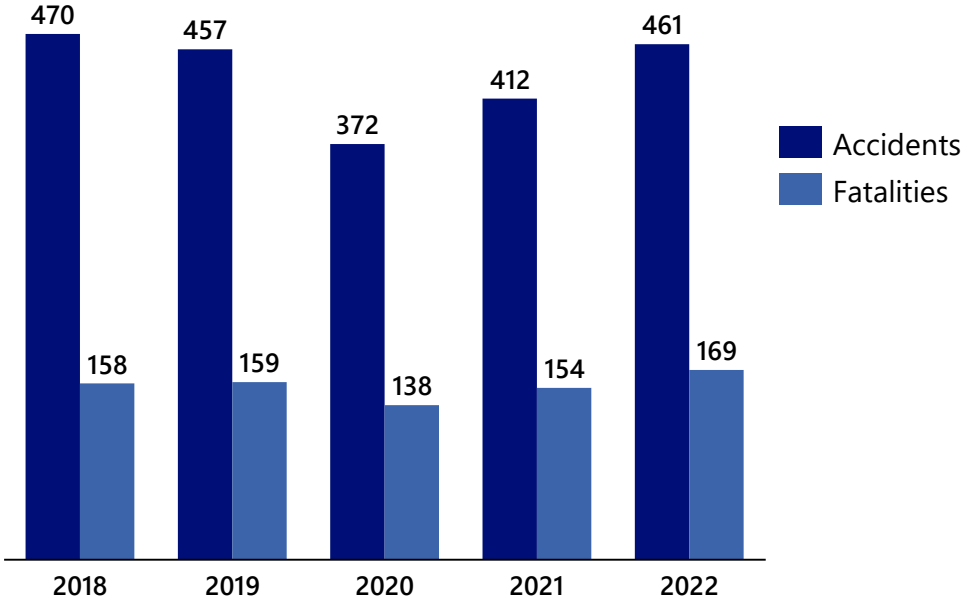
- ➔About Authors

Road Accidents and fatality rates have been almost constant over the years, with majority of accidents happening on Highways

Road Accidents & Fatalities in India (in Thousands; FY)



80% People feel **unsafe** on Indian Roads

Insights on Road Accidents (FY 2022)

55% Accidents in India happened on Highways

67% Accidents happened on straight roads

44.5% Fatalities in accidents were 2W drivers'

Source: MoRTH Report, Save Life Foundation Survey 2020

Growing public concerns and proactive government policies have driven significant improvements in road infrastructure development

Customer Outlook on Road Infrastructure (CY20)

81% People feel **that the quality of roads in their city/town is poor and unsafe**

54% People feel **that poor condition of roads and faulty road design** contributes to road crashes

74% People stated **that road contractors and engineers should be held responsible** for deaths and injuries of people due to faulty roads

Increasing public demand to improve road infrastructure

Government Policies and Initiatives (FY14 and FY24)

91K km — There has been a **55% increase in National Highway Length** in India in the **past 10 years** *(as mentioned in MoRTH FY24 report)* — 141K km

19K km — **Pradhan Mantri Gram Sadak Yojna** has played a key role in **increasing rural roads length**, increasing connectivity of 99% of rural areas — 25K km

0 km — **Bharatmala Pariyojana, launched in 2015,** has focused on **economic & inter-corridor devt.,** along with border & coastal connectivity — 17K km

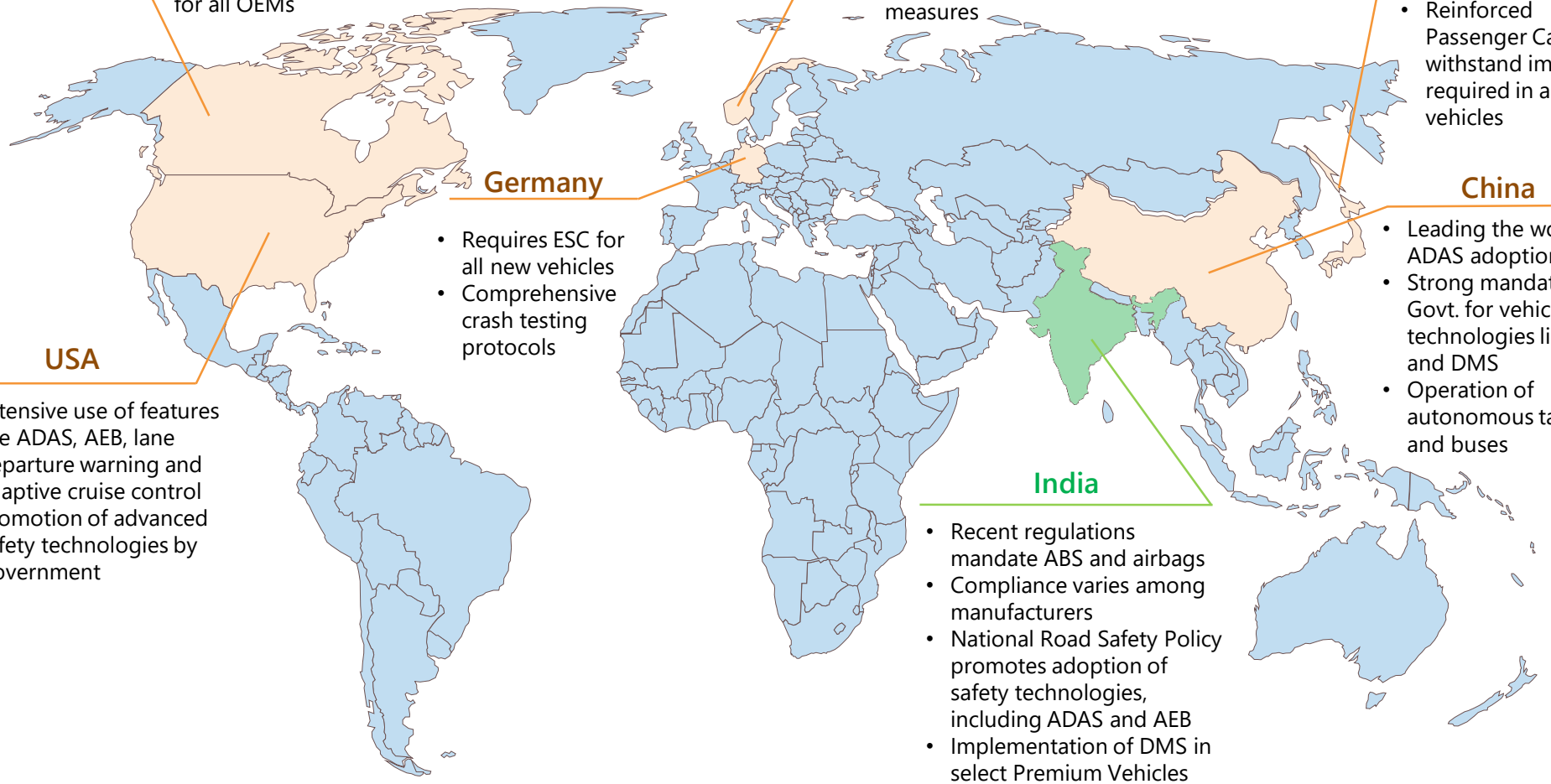
These new initiatives, along with previously formed committees like IRC and NHIDCL have helped in ensuring Indian citizens feel increasingly safe

"Road safety cannot be achieved without integrating advanced engineering solutions, enforcement of laws, and the adoption of cutting-edge technologies like AI." – Hon. Minister of Road Transport and Highways, Sh. Shri Nitin Gadkari Ji

Source: MoRTH Report, Save Life Foundation Survey 2020

IRC: Indian Roads Congress | NHIDCL: National Highway & Infrastructure Devt. Corp. Ltd.

Safety | Vehicle Safety Global Norms



Canada

- Canada Motor Vehicle Safety Standards mandates ABS, TPMS, Side Impact Protection in all vehicles
- Pedestrian Protection Features, are also required for all OEMs

Norway

- AEB and lane-keeping assist mandated in many models
- High adoption rate of ADAS due to strict road safety measures

Japan

- Vehicle Inspection System (Shaken) every 2 years
- Reinforced Passenger Cabin to withstand impacts, required in all vehicles

Germany

- Requires ESC for all new vehicles
- Comprehensive crash testing protocols

China

- Leading the world in ADAS adoption
- Strong mandates by Govt. for vehicle safe technologies like AEB and DMS
- Operation of autonomous taxis and buses

USA

- Extensive use of features like ADAS, AEB, lane departure warning and adaptive cruise control
- Promotion of advanced safety technologies by Government

India

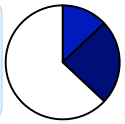
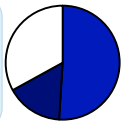
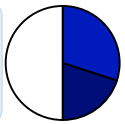
- Recent regulations mandate ABS and airbags
- Compliance varies among manufacturers
- National Road Safety Policy promotes adoption of safety technologies, including ADAS and AEB
- Implementation of DMS in select Premium Vehicles

ABS: Automatic Braking System | TPMS: Tire Pressure Monitoring System | ESC: Electronic Stability Control
ADAS: Advanced Driver-Assistance System | AEB: Automatic Emergency Braking | DMS: Driver Monitoring System

Vehicle hardware safety is highly prioritized by the Government of India through significant mandates and initiatives aimed at reducing fatalities

Vehicle Hardware Features

Vehicle Components

Airbags		Fatality Reduction by **13-37%**, with **21.6%** importance score given to it by customers
Seatbelt & Seat Belt Reminder (SBR)		Fatality Reduction by **51-67%**, & assists in major reduction in mortality & injury severity
Electronic Stability Control (ESC)		Fatality Reduction by **30-50%**, & also reduces single-vehicle crashes by **70%**
Automatic Braking System (ABS)		Fatality Reduction by **6-12%**, & also reduces collision on wet roads by **~12-37%**

Government Norms and Initiatives

- **Jan 2022**: Requirement for dual front airbags
- **Oct 2023:** Mandate for six airbags in all M1 passenger vehicles
- **Sep 2022**: MoRTH mandated seatbelts for all front-facing passengers, including rear seat (effective from **Apr 1, 2023**)
- **2022 - 2023**: Plans to mandate ESC and AEB in new vehicles, mandating ESC specifically for busses as well
- **Apr 1, 2019**: ABS was mandated for all passenger vehicles

Testing

72% of consumers that they would want to know the **safety star rating** of different cars available in the market

48% Of car owners stated that if the safety star rating of their car comes out to be low, **they are likely to ensure speed and safety belt compliance**

- The **Bharat New Car Assessment Program (BNCAP)** aims to evaluate the safety performance of passenger cars sold in India. It was launched in Aug 2022, and **effective from Oct 2023.**
- It follows a star rating system, from 1 to 5.

Source: Survey by LocalCircles

AEB: Autonomous Emergency Braking

India's automotive safety standards are rapidly catching up to global benchmarks through phased implementation of ADAS features

So Far	Current	Future Direction
Till 2023	2024	By 2030
India mandates essential safety features like child restraints, front airbags and ABS but there was a **high lag when compared to developed nations**	**India has started mandating Level 1 ADAS** features like seatbelt reminders and **the lag when compared to developed nations has reduced significantly**	**More L1 ADAS features like ESC** **Select L2 ADAS features will be made mandatory** **By 2026, all OEMs will offer Electronic Stability Programme (ESP) as a standard.**

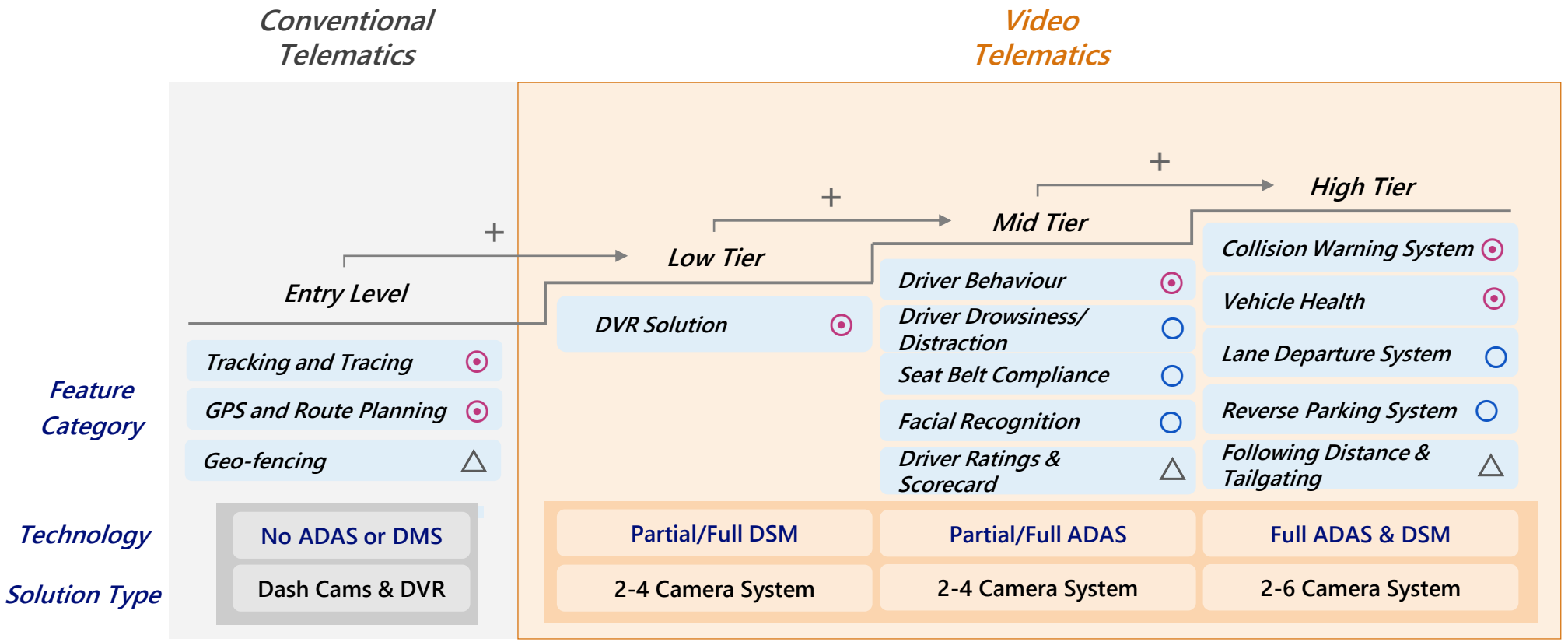
- Auto Emergency Brakes
- Blind Spot Assistance
- Collision Warning
- Lane Related Warnings
- Driver Monitoring

L2 ADAS features with high mandate potential

***BNCAP** with its stricter crash testing norms is laying the groundwork for ADAS becoming a mandatory requirement in the future*

Source: Mordor intelligence, NRI analysis

Growing importance of video telematics & upcoming GoI mandates puts dealers in an important position to guide CV owners towards adoption of such features



Indian Commercial Vehicles have **ADAS features since 2022**, primarily containing the **2-camera system**, although compliance is an issue

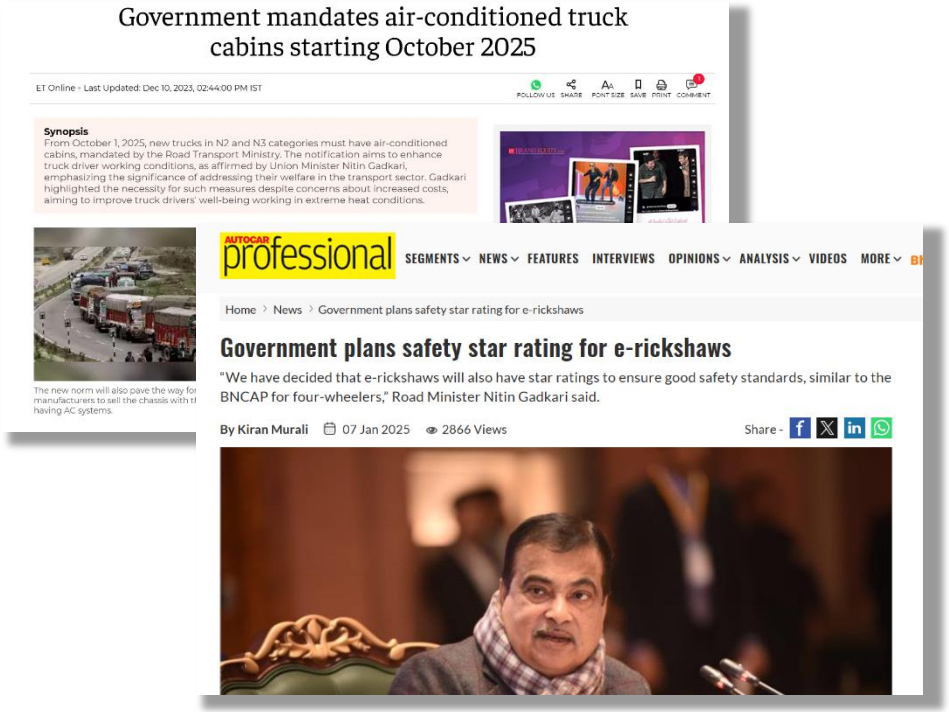
GoI has announced its plans to mandate ADAS in CVs including systems like electronic stability control, automated emergency braking, & **driver drowsiness detection**

SUGGESTIONS FOR DEALERS

- Dealers can integrate safety features into primary pitch sales with focus on financial benefits of accident prevention
- Video Telematics can be promoted to fleet owns by highlighting sensor capabilities for enhanced safety monitoring

Feature Demand → ⊙ High ○ Medium △ Low

Dealers will be crucial in helping customers understand why India's auto sector is becoming more organized, driven by government initiatives and industry needs



Government mandates air-conditioned truck cabins starting October 2025

ET Online - Last Updated: Dec 10, 2023, 02:44:00 PM IST

Synopsis

From October 1, 2025, new trucks in N2 and N3 categories must have air-conditioned cabins, mandated by the Road Transport Ministry. The notification aims to enhance truck driver working conditions, as affirmed by Union Minister Nitin Gadkari, emphasizing the significance of addressing their welfare in the transport sector. Gadkari highlighted the necessity for such measures despite concerns about increased costs, aiming to improve truck drivers' well-being working in extreme heat conditions.

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Government plans safety star rating for e-rickshaws

"We have decided that e-rickshaws will also have star ratings to ensure good safety standards, similar to the BNCAP for four-wheelers," Road Minister Nitin Gadkari said.

By Kiran Murali 07 Jan 2025 2866 Views Share -

CV Dealer

New body code regulations, especially fire protection systems for buses, initially caused industry confusion. Though these changes improved safety, **they've pushed customers toward factory-built vehicles over custom options**. More customers are opting for factory-built buses and trucks.

IMPACTS ON INDUSTRY

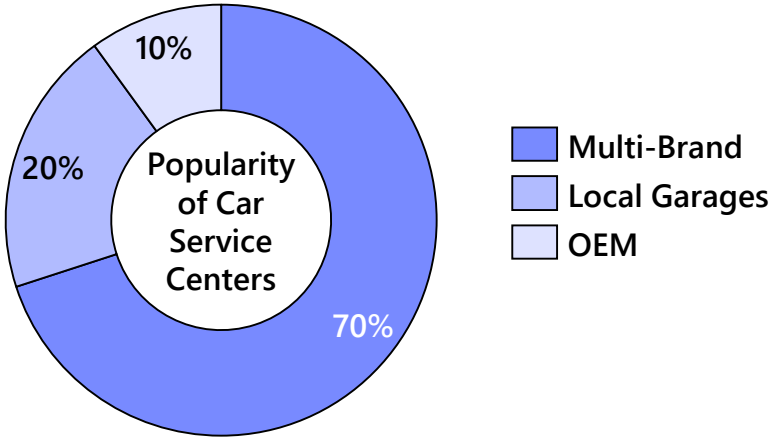
- GoI has showcased a growing interest in safety in auto sector, specifically towards commercial vehicles
- New trends such as AC cabin mandate, telematics mandates, and e-Rickshaw safety has led to more customers leaning towards pre-built products
- This has reduced dependence on 3rd party developers, and showcased a push towards OEMs

IMPLICATIONS FOR DEALERS

- As industry leans more towards OEMs, dealers will be responsible for ensuring customers understand the importance of these safety features
- Dealers will also be required to play a key role in supporting these initiatives by the Government, as we see a shift towards a more organised sector

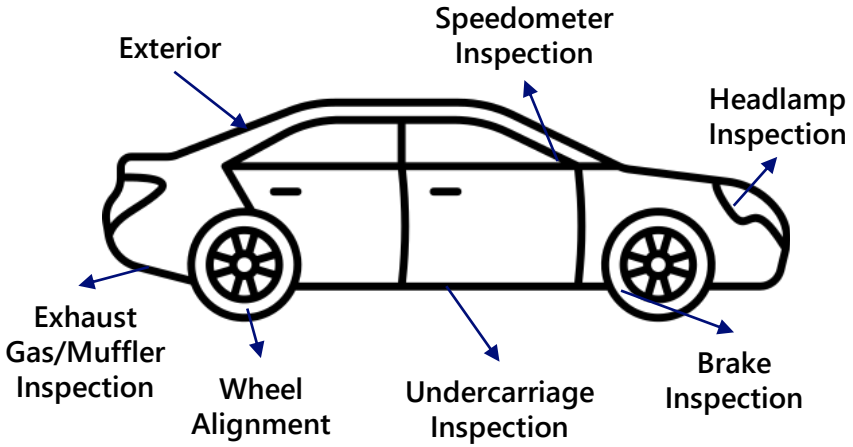
India has forecasted a significant revenue growth in vehicle service, which can further be increased to benefit dealers (Example : Shaken model Japan)

Indian Outlook of Car Service



The car servicing market in India is expected to have a **CAGR of 36.4%** between FY20-FY25, and a forecasted **revenue of INR 70,000 Crores**

Japan's Shaken Model of Inspection



Mandatory inspection of PV **every 2 years**, and CV **once annually**

Estimated Price for Shaken Inspection: **~ INR 11,000**

CURRENT INDIAN SERVICE SCENARIO

- Mandatory vehicle inspections for CVs and ageing PVs
- With advancements in technology, India might see stricter regulations in inspection, & may see a pivot towards IoT to monitor vehicle health

SUGGESTIONS FOR DEALERS

- Dealerships should digitalise efficiently to undertake more servicing requirements, and advocate for policy changes
- They can also inform customers of the benefit of regular inspections, how it enhances safety of vehicle and offer OEM-independent services

Source: NRI Analysis

As India's Electric Vehicle market expands, dealerships can enter independently through EV charging infrastructure and safe battery recycling solutions

EV Charging Infrastructure at Dealership

Setting up an **EV charging station is license-free** for an individual in India.

OEMs are starting to install their **own charging infrastructure** at dealerships

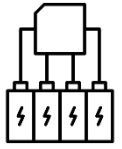
Dealerships can also independently install EV chargers to **increase sales, attract new customers, and** initiate new stream for **revenue generation**

Factors to take care of while installing EV chargers

Charging Speed & Power Output	Number of Charging Ports	User-Friendly Interface	Costs and ROI
Smart Charging Features	Scalability & Future-Proofing	Compliance & Standards	

Battery Recycling at Dealership

As more EVs are sold to consumers, more dealerships will start playing a critical role in ensuring **safe battery collection and disposal**



Li-ion batteries are **theoretically infinitely recyclable**, and their safe disposal means **safety is ensured at dealerships** as well

EV Dealer

"EV battery disposal practices in India remain dangerously unregulated, with some **OEMs advising dealers to bury lithium batteries in pits**, highlighting the urgent need for proper recycling infrastructure"

SUGGESTIONS FOR DEALERS

- Incorporate charging infrastructure with or without OEM support for alternate stream for revenue generation and safe EV promotion
- **Possible Collaborations with recycling startups** for safe battery recycling:

ATTERO ZIPTRAX ADVANCED CLEANTECH LOHUM

GoI has launched various initiatives to ensure road safety and fast and secure post-trauma response, but to reduce accidents, drivers need to be cooperate

2W Dealer

As a dealer, while we're **mandated to provide helmets with two-wheeler purchases** in certain states, investing time in comprehensive safety consultations, explaining features like disc brakes both before and after the sale, significantly enhances our customers' safety awareness

CV Dealer

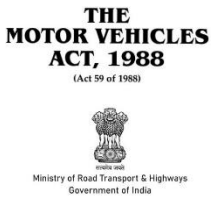
While we're seeing impressive new safety features being rolled out – ADAS modifications - the **real challenge lies in enforcement**, as many operators continue using non-compliant vehicles due to weak monitoring

PV Dealer

We're taking a **collaborative approach to safety education**, working with OEMs to deliver comprehensive training through videos and presentations, though at the end of the day, while FADA and OEMs support these initiatives, we still **struggle with getting customers to consistently adopt these safety practices**

Government Initiatives and Norms

The **Motor Vehicles Act 1988 protects Good Samaritans** who assist road crash victims, from any civil or criminal action



In **2017,** the GoI established a **National Injury Surveillance Trauma Registry and Capacity Building Centre** for collection, compilation, analysis, and dissemination of injury related data to the general community

In **2018**, the GoI launched a **toll-free emergency highway helpline number, 1033,** along with a **mobile app** that would allow road users to report crashes

National Highways Authority of India (NHAI) also **provides ambulances for every 50 kilometers** of the National Highway network.

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Rise of generative AI can support in multiple aspects of dealership and OEM operations ranging from demand forecasting to vehicle inspection

	1 Demand Forecasting using ML	2 Marketing and Sales Support with GenAI	3 Customer Support Operations with GenAI	4 Vehicle Inspection by Image/Video Analytics	5 Purchase Modelling
Use Case Details	Utilizing machine learning algorithms to predict future demand	Leveraging generative AI to create personalized marketing content and strategies	Using generative AI for automating customer support through chatbots and virtual assistants	Applying image and video analytics to inspect vehicle condition accurately	Implement an analytics solution that measures returning service user propensity
Potential Benefits	- Accurate inventory management - Optimized resource allocation - Better understanding of market trends	- Increased engagement Efficient targeting. - Enhanced customer acquisition and retention	- 24/7 customer support - Reduced workload Improved response time	- Objective vehicle assessment - Enhanced trust and transparency - Faster processing time	- Increase returning customers - Cross-sell opportunities
Technology Used	- Machine Learning algorithms - Predictive Analytics - Data Mining tools	- Generative AI models. - Natural Language Processing (NLP) - Data Analytics	- Generative AI. - NLP for understanding and responding to customer queries	- Computer Vision. - Image and Video Processing algorithms. - AI-based damage detection and feature recognition	- Web Analytics - Data Analytics

Source: NRI Analysis

Use of technology in dealer operations can help optimize margins & operations & also address key issues such as unplanned downtime & overstocking of inventory

Key Statistics

49% of new car leads are originating from the internet and dealership websites

33% Reduction in average service turnaround time from 2015 to 2023 for dealerships using preventive maintenance tools

1 out of 5 Vehicles on Indian roads will have connectivity features by end of 2025

Leveraging Technology to Optimize Dealer Operations

Predictive maintenance & Remote diagnostics

1. Advancement in telematics & IoT has enabled predictive maintenance
2. Dealerships can proactively reach to customers to schedule maintenance

Optimising inventory management

1. AI & ML can help optimize inventory management by predicting demand
2. Having right product at right time minimizes cost of excess inventory

AI Powered Sales & Customer Analytics

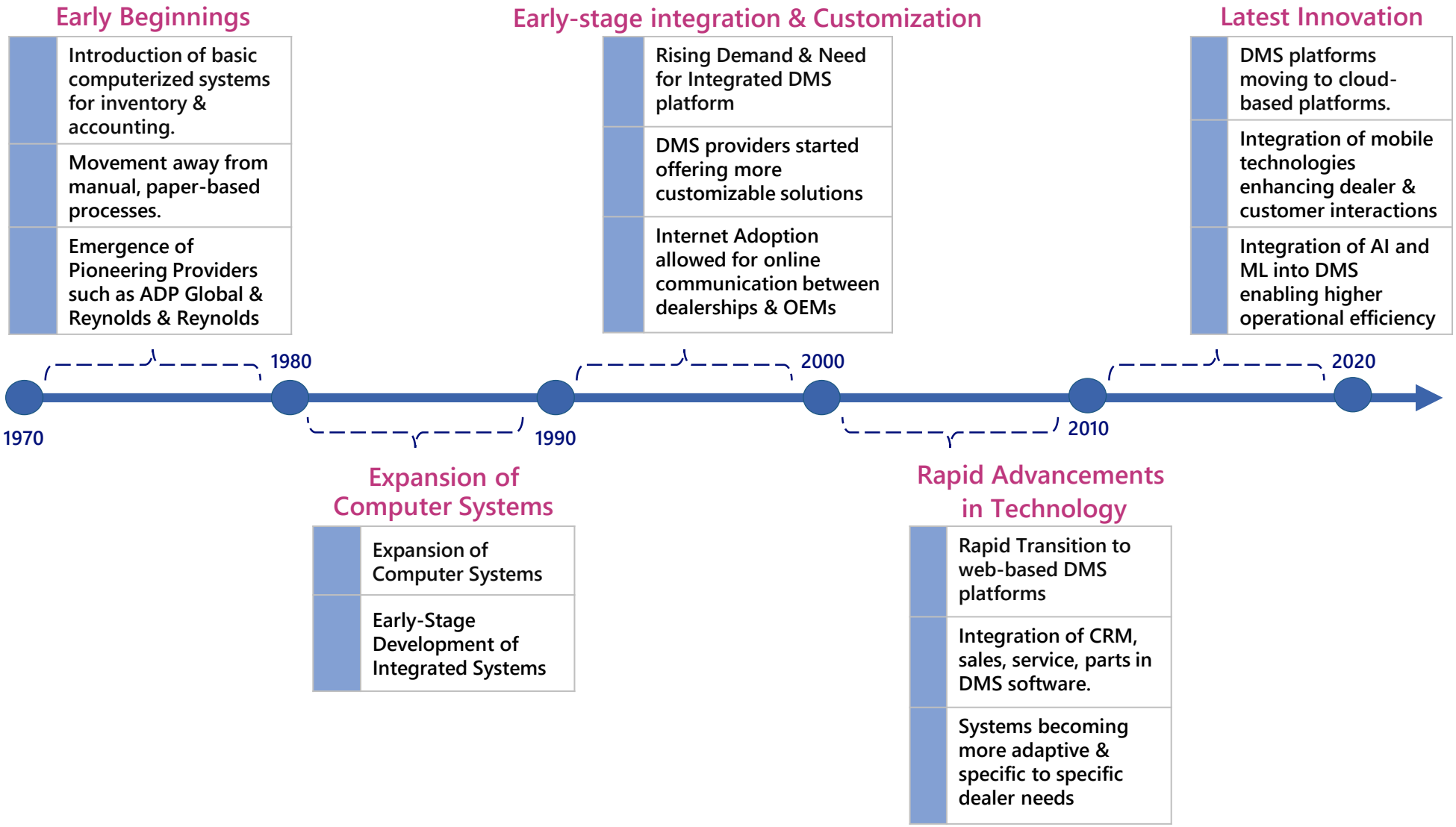
1. Uses AI to predict sales for various models aiding in stock management
2. Helps analyze customer data & customize deals for different buyers

Virtual Reality (VR) Showrooms

1. VR showrooms offer buyers an immersive car experience, without physically entering the vehicle
2. It also eliminated the need for massive physical showrooms and upfront investment

Source: NRI Analysis

Dealerships in USA benefitted from early-stage adoption of DMS platforms; late 1990s saw rapid integration of tech into web-based DMS software



Source: NRI Analysis

Indian dealerships face significant challenges due to lack of autonomy in operations & maximum control to OEMs leading to reduced efficiency & margins

The Indian journey: Caught in the OEM Web

Market Context	Challenges	Impact
○ Fragmented Dealer Landscape	○ Limited Customization	○ Lower Productivity
○ Strong OEM Influence	○ Focus on OEM Compliance	○ Higher Manpower Needs
○ Technology Adoption barriers	○ Higher Operational Costs	○ Reduced Profitability
○ Cost Sensitivities	○ Reduced Dealer Efficiency	○ Operational Inefficiencies

Root Cause Analysis

Fragmented Dealership Landscape

- Many dealerships in India are small, family-run businesses with limited resources & with their individual bargaining power with OEMs and technology providers is weak.

Traditional Business Practices & Limited Awareness of Benefits

- Dealerships may not fully recognize the potential efficiency gains and profitability improvements from advanced DMS.

Source: NRI Analysis

Indian Auto Dealerships lack behind US & Global standards in terms of sales productivity & efficiency; solution involves adoption of prevalent DMS practices

Current State in India

OEM Controlled Systems

Limited Customization

- Rigid one-size-fits-all approach preventing dealers from adapting systems to local market needs.

Focus on OEM Compliance

- Priority given to manufacturer reporting requirements over dealership operational efficiency.

Higher Operational Costs

- Increased digital infrastructure expenses without corresponding reduction in operational overheads.

Reduced Dealer Efficiency

- Lower productivity metrics with Indian dealers managing fewer sales per employee compared to global standards.

Global Benchmark

US Automotive Retail

Customization Flexibility

- Modular DMS platforms allowing dealers to configure features based on specific market needs.

Dealer Centric Architecture

- Systems designed with dealership operations at the core, enabling business-focused decision making.

Integrated Performance Analytics

- Real-time tracking of KPIs across sales, service, and inventory management driving operational excellence.

Superior Sales Productivity

- Industry benchmark of 13-15 vehicles per salesperson monthly, driven by optimized digital workflows.

Future Opportunities

Opportunities for Indian DMS Evolution

Customizable Workflow Solutions

- Flexible system architecture allowing market-specific adaptations and process automation capabilities.

Dealer Driven Ownership

- Shifting system control to dealerships enabling autonomous decision-making and strategic alignment.

Integrated Financial Intelligence

- Real-time profitability tracking, cost analytics, and financial performance dashboards for informed decisions.

Performance Optimization Tools

- Advanced metrics tracking for sales efficiency, inventory turnover, and resource utilization benchmarking

Source: NRI Analysis

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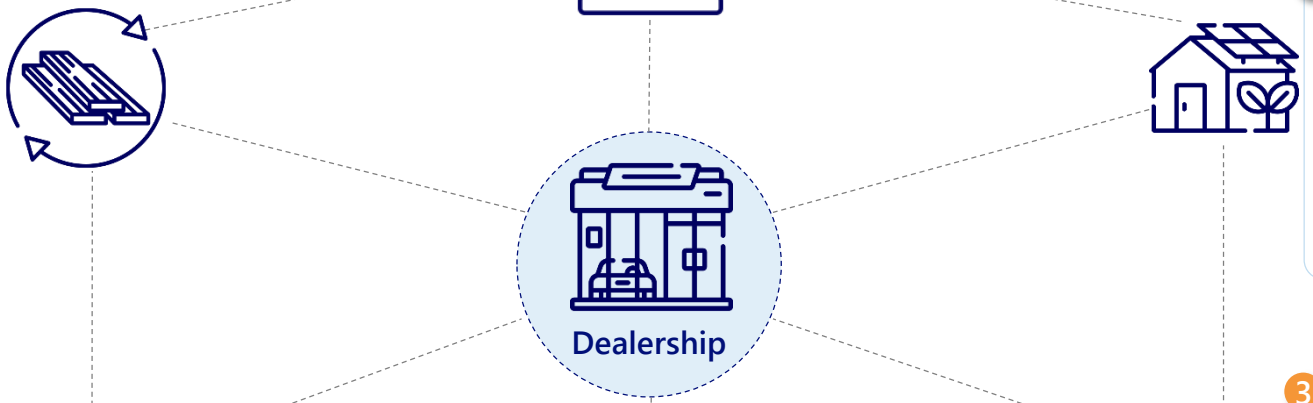
Key Sustainability Measures

Automotive dealerships are adopting sustainability by incorporating eco-friendly design principles, energy-efficient systems & construction material



1 **Green Building Design**
- Natural Lighting
- Passive Ventilation

2 **Renewable Integration**
- Solar Panels
- Battery Energy Storage
- Onsite Wind Turbines

3 **Waste Management**
- Recycling Programs: (Scrap metal, tires, batteries, and office waste.)
- Composting: Manage organic waste sustainably

4 **Energy Efficiency**
- LED Lighting
- Smart Building Systems
- Energy-Efficient HVAC Systems

5 **Water Management**
- Rainwater Harvesting Systems
- Greywater Recycling
- Low-Flow Fixtures
- Vehicle Dry Wash

6 **Sustainable Materials**
- Recycled and Locally Sourced Materials
- Low VOC Paints and Finishes
- Green Roofs and Vertical Gardens

State-Wise Sustainability Trends | Dealership POV

Dealerships have started to focus more on renewable integration (solar) and recycling of materials by adopting newer technologies & forming partnerships

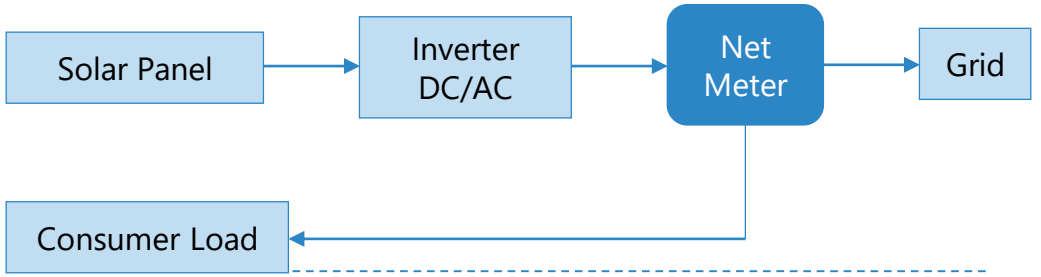
State	Electricity Procurement	Water Management	Waste Management	Battery Management	Recycling of Materials
Karnataka	• **100% renewable energy** utilization through **solar panels and wind projects**	• **89% reduction in freshwater usage** through recycling and rainwater harvesting	• **96% recycling rate for end-of-life vehicles**	• Recycling of lithium-ion batteries **through partnerships**	• Use of recycled materials in manufacturing
Maharashtra	• Adoption of green energy initiatives but varies by dealership	• Innovative measures to **conserve and reuse water**	• Implementation of **waste segregation** and recycling practices	• Used **oil collection and recycling initiatives**	• Efforts to promote recycling among suppliers
Gujarat	• Focus on **solar energy** and energy-efficient practices	• Water recycling initiatives in urban areas	• Focus on waste-to-energy and composting	• Focus on recycling and **safe disposal of batteries**	• Adoption of **circular economy principles**
Tamil Nadu	• Increased use of **solar energy** in dealerships	• Efforts to **reduce water usage in vehicle cleaning**	• Adoption of waste management practices but varies by dealership	• Battery recycling initiatives in **collaboration with manufacturers**	• Increased focus on using recycled materials
Delhi	• Mixed practices; some dealerships use renewable sources	• Water scarcity issues; some dealerships adopt water-saving technologies	• Mixed practices; some dealerships follow strict waste management protocols	• Limited initiatives; varies by dealership.	• Some dealerships promote recycling, but not widespread

Net metering and gross metering allow renewable energy from consumers to be sold to grid which can leveraged by mid-large scale automotive dealerships

Net metering

Net metering is a billing mechanism that credits solar energy system owners for the electricity they add to the grid.

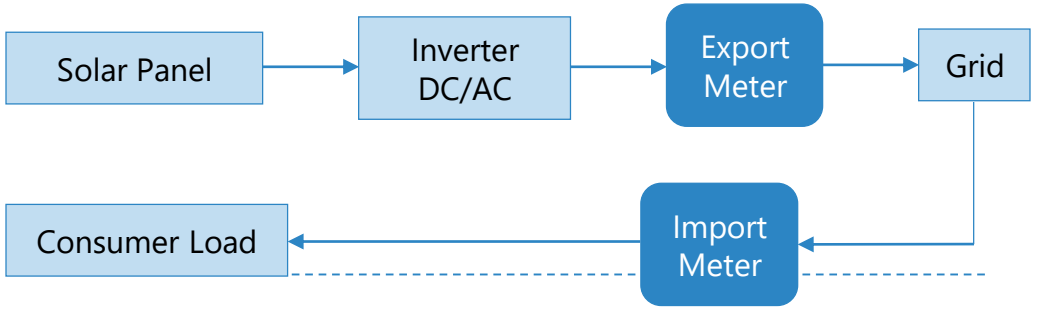
For example, if a residential customer has a PV system on their roof, it may generate more electricity than the home uses during daylight hours.



Gross metering

In gross metering, total electricity generated by the solar system is injected into the grid, and consumer imports electricity from the grid for consumption at retail tariff.

At the end , consumer is compensated for the electricity exported to the grid at Feed-in-Tariff (FiT)



Key Considerations for Net Metering in Different States

System Size Limits

The **system size typically ranges from 1 kW to 1 MW**, but states like **Haryana and Uttar Pradesh allow systems up to 2 MW**

Carryover of Credits

Most states **allow consumers to carry forward their energy credits for up to one year**. However, some states may settle the credits monthly or annually

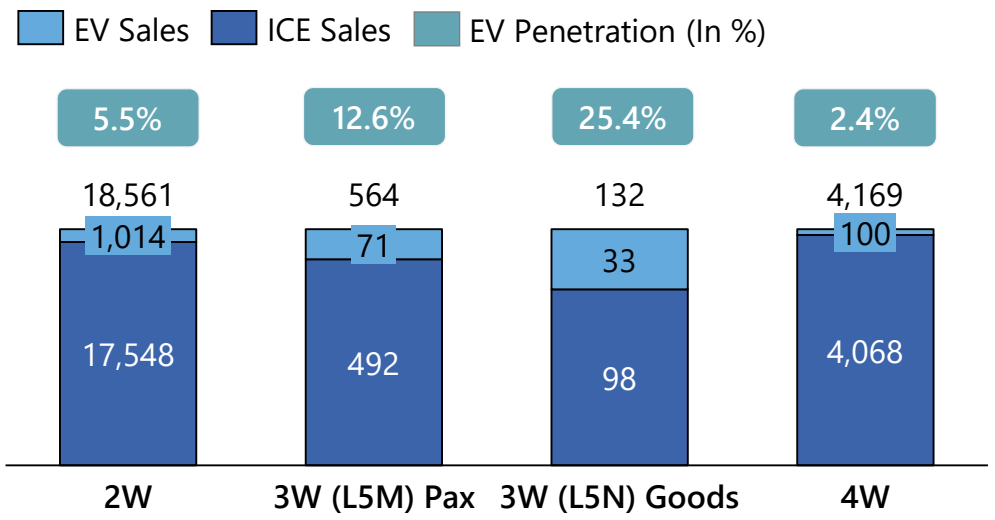
State Incentives

In addition to **net metering**, several states offer **additional incentives and subsidies for installing rooftop solar systems**

EV Penetration Across Automotive Segment

3W segment continues to have the highest EV penetration followed by 2W at 5.5% and 4Ws at 2.4%. 3W L5N segment grew the highest from 17.5% to 25.4%

Automotive Overall Sales (In '000 Units)



EV Penetration Growth (In %)

Segment	Penetration (FY22-23)	Penetration (FY23-24)
2W	4.6%	5.5%
3W (L5M)	4.6%	12.6%
3W (L5N)	17.5%	25.4%
4W	1.4%	2.4%

2W EV Growth

Rapid Rise in EVs

Significant growth in EV adoption, with **1000k+ EVs sold in FY24**; Future growth may be impacted due to **reduction in FAME II subsidy** (40% → 15%)

3W EV Growth

Significant EV Penetration

Highest EV penetration across segments, with **~104K EVs sold in FY23-24**

Turning Existing Fleets to EV

State governments policies facilitate to convert existing fleets into EVs with better finance availability

4W EV Growth

Nascent EV Penetration

Moderate uptake in 4W EVs (~100K EVs sold in FY23-24) due to limited choices, concerns around favorable EV ecosystem

Sources: EV Reporter, NRI Analysis

Dealership Opportunity in EV Business

3W, 4W & CV dealerships will benefit the most from higher EV uptake in India

	Business Opportunity with Higher EV Uptake			Overall Potential
2W	Lower Vehicle Service Volume due to local on-road servicing	No/Lower fees charged from Labourers for Upskilling	EV Charging Solutions	○
3W	High Vehicle Service Volume due to complex powertrain	Fees charged from Labourers for Upskilling	Financing and Leasing Service Packages	⊙
4W	High Vehicle Service Volume due to complex powertrain	Fees charged from Labourers for Upskilling	Financing and Leasing Service Packages	⊙
CV	High Vehicle Service Volume due to complex powertrain	Fees charged from Labourers for Upskilling	Financing and Leasing Service Packages	⊙
Tractors	Emerging area			△

Overall Potential: ⊙ High ○ Medium △ Low

End of Life Vehicle EPR obligations for OEMs (1/2)

Proposed draft ELV management rules 2024 introduces onus of vehicle recycling on OEMs in contrast vehicle scrappage rules 2021

Responsibility of Stakeholders in Draft End-of-Life Vehicles (Management) Rules, 2024

Owners

- After declaration of ELV by Automated Testing Stations **must transfer it to Collector/RVSF**
- Must **produce certificate of deposit for ELVs**

RVSF

- Must **treat, process & transfer** the segregated material to processors
- **Generate EPR Certificates** against processed Steel scrap;
- **Declare records** of steel processed & waste produced

ERP Certificate

- Generated on the basis of **Steel recovered (in KG)**
- **Non-Transferable between OEMs**

- Verification of EPR certificates
- Registration of RVSFs, producers on online portal

Penalty

- In case of shortfall, producers will need to bear **Environmental Compensation (EC)**

- Must obtain EPR Certificates from RVSFs or trading portal*
- Should deploy schemes to ensure ELVs in the recycling ecosystem

Producers

As per Draft End-of-Life Vehicles(ELV) (Management) Rules, 2024, OEMs need to fulfill EPR for Steel used in the "vehicles put in use" in previous years

End of Life Vehicle EPR obligations for OEMs (2/2)

Under draft ELV management policy, OEMs need to fulfil EPR obligation starting with FY 26; obligations defined on vehicle sales from FY'14 for CV

Producer Recycling Obligations in case of commercial vehicles

Year	Description
Sales Year	• Amount of steel required to be recycled determined from sales year
Obligation Year (OY)	• In the obligation year (OY), min. quantity of steel based on "vehicles placed in use" must be recycled
Subsequent Years	• For the following 14 years, additional 3% of the steel from vehicles placed in use in initial year must be recycled

Segment	Sales Year
CV (3W + 4W Cargo)	OY – 12

Obligation Years	Obligation Year Target	Subsequent Targets
FY26-FY30	10% of steel used*	For subsequent 14 years, 3% of steel used; PV: 3% of (OY-21)+3% of (OY-22)+3% of (OY-23)…
FY31-FY35	20% of steel used*	
FY35-FY55	30% of steel used*	

The policy will result in increasing EPR obligation for OEMs starting from 10% in FY 26 to 30% in FY 35 and thus OEMs need to focus on developing strategies to meet these obligations

The new Battery Waste Management Rules, 2022 are applicable to all types of batteries (including EV batteries) and introduce transactable EPR certificates

Battery (Management and Handling) Rules, 2001

Overview: Rules for stakeholders involved in manufacture, processing, sale, purchase and use of batteries or its components
Scope: Responsibilities and registration for Manufacturers, Importers, Assemblers and Re-conditioners **primarily of Lead Acid Batteries**
Limitations: Few SPCBs complied with the rules, lack of credible data on sales and recycling, chemistries other than Li-ion not included

Battery Waste Management Rules, 2022

SCOPE

ENTITIES INVOLVED

- **Producers, dealers, consumers, collectors, segregators, transporters, re-furbishers and recyclers** of waste batteries

TYPES OF BATTERIES

- **All types of batteries** regardless of chemistry, shape, volume, weight, composition or use

KEY POINTS

- **Transactable Extended Producer Responsibility certificates** for producers for environmentally sound mgmt. of waste batteries
- **Environmental Compensation** based on polluter pays principle
- **New definitions** - EV battery, cells and battery packs
- Prohibitions, labelling requirements and EPR targets

EPR certificates are generated for recyclers and refurbishers based on quantities assigned and Environmental Compensation is imposed on non-fulfilment of EPR

EPR certificates

[FOR RECYCLERS/REFURBISHERS]

Factors for certificate generation

1. Weight of batteries processed
2. % fulfilment of material recovery targets for the year
3. Geographical source of batteries

Formula for calculation of EPR certificates:

EPR certificates (kg) = % battery material recovery x qty. of batteries processed (kg) x

A=0 for waste batteries generated domestically
A=0.2 for waste batteries sourced through imports allowed under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Environmental Compensation

Imposition and collection of environment compensation from producers, and refurbishers and recyclers of waste batteries, in case of non-fulfilment of EPR obligations

Entity	Levying body
Recyclers/Refurbishers	SPCB
Producers (for OEMs)	CPCB

Unfulfilled EPR obligations will be carried forward up to three years. In case, the shortfall is addressed within three years, the environmental compensation levied shall be returned as below:

Duration of addressing	% levy returned
Within 1 year of levying	75%
Within 2 years of levying	60%
Within 3 years of levying	40%
After 3 years of EC due date	0%

Recycling ecosystem in the country is mostly unorganized especially for 2/3W; however major 4W PV OEMs are have JVs, group companies for EPR readiness

Recycling Players	Current set-up	Current challenges
Unorganized sector	End Users → Unorganized agents → Unorganized Recycling Centres ▪ Vehicles are either abandoned by roadside or given to nearby mechanics ▪ Vehicles left with mechanics who extract valuable spare parts from hull ▪ Cover more than 90% of the vehicle recycling market	**Pollution and disposal** ▪ Unorganized recyclers are unregulated, often improperly disposing **Pricing** ▪ Unorganized recyclers are able to pay more to customers, and take bulk of ELV volume **Traceability** ▪ No set guidelines are followed for recycling, which reduces traceability of vehicles
Organized sector	End User → ELV collection centres / Informal service centres → RVSFs ▪ **RVSFs source vehicles from ELV brokers & dealers, as well as vehicle hulls from unorganized sector** ***Prominent OEM RVSFs***: Mahindra CERO; JV of MSIL & Toyota Tsusho; Tata Motors recycling	**Feedstock** ▪ RVSFs are struggling to source adequate feedstock to ensure optimum plant utilization **Spare parts sales** ▪ Most independent RVSFs are unable to fully monetize spare parts from ELV, which are main drivers of profitability **Lower recovery rate** ▪ Due to low capacities and throughput, RVSFs are unable to invest in shredders, limiting their recycling recovery to ~XX%

States with Net Metering (1/2)

Multiple states in India have implemented net metering policies, although roof top solar witnessed limited growth due to the poor implementation of policies

States	Year of release of Net Metering policies	Gross / Net Metering	Specifications on capacity			Specifications for grid integration (electricity or power)		
			Range allowed	Max. capacity w.r.t sanctioned load	Limitations on transformer capacity	Export of electricity	Billing period	Compensation period for surplus
Maharashtra	2015	Net	1 kW–1 MW	100%	40%	Above 100%	Monthly	Yearly
Uttar Pradesh	2019	Both	1 kW–2 MW	100%	25%	Above 100%	Monthly	Yearly
Rajasthan	2015	Net	1 kW–1 MW	80%	30%	Above 100%	Monthly	Yearly
Karnataka	2016	Both	1 kW–1 MW	100%	80%	Above 100%	Monthly	Monthly
Haryana	2014	Both	1 kW–1 MW	100%	30 % for LT and 15% for HT	90%	Monthly	Yearly
Tamil Nadu	2019	Net	Consumers under Low Tension category except Hut and Agricultural category of tariff – Not sure	100%	90%	90%	Bi-monthly	Yearly
Delhi	2014	Net	1 kW – NA; for group / virtual metering 5 kW – 5 MW	100%	20%	Above 100%	Monthly	Yearly
Telangana	2016	Both	1 kW–1 MW	Residential: 100% Others: 80%	80%	Above 100%	Monthly	Half-yearly
Gujarat	2016	Both	1 kW–1 MW	Residential- Above 100%; Non- residential 50 % (for initial two years)	65%	Above 100%	Monthly	Yearly

States with Net Metering (2/2)

Multiple states in India have implemented net metering policies, although roof top solar witnessed limited growth due to the poor implementation of policies

States	Year of release of Net Metering policies	Gross / Net Metering	Specifications on capacity			Specifications for grid integration (electricity or power)		
			Range allowed	Max. capacity w.r.t sanctioned load	Limitations on transformer capacity	Export of electricity allowed	Billing period	Compensation period for surplus
Andhra Pradesh	2015	Both	1 kW–1 MW	100%	80 %	Above 100%	Monthly	Quarterly
West Bengal	2013	Net	5 kW–not specified	NA	NA	90%	Monthly	Yearly
UTs – Andaman & Nicobar, Chandigarh, Dadar and Nagar Haveli, Daman & Diu, Lakshadweep, Puducherry	2019	Both	NA–500 kWp; for group/ virtual net metering 5 kWp–NA	100%	75%	Above 100%	Monthly	Yearly
Madhya Pradesh	2015	Net	NA–1 MW	100%	30%, as per amendment in 2017	Above 100%	Monthly	Yearly
Punjab	2015	Net	1 kW–1 MW	80%	30%	90%	Monthly	Yearly
Jammu and Kashmir	2015	Net	1 kW–1 MW	50%	20%	90%	Monthly	Yearly
Orissa	Amended in 2018	Net	Up to sanctioned load	100%	75%	90%	Monthly	Yearly
Kerala	2014	Net	1 kW–1 MW	NA	80%	Above 100%	Monthly	Yearly
Assam	2015	Both	1kW–1 MW	80%	20%	90%	Monthly	Yearly
Jharkhand	2015	Both	1 kW–2 MW	100%	100%	Above 100%	Monthly	Yearly

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About the Authors

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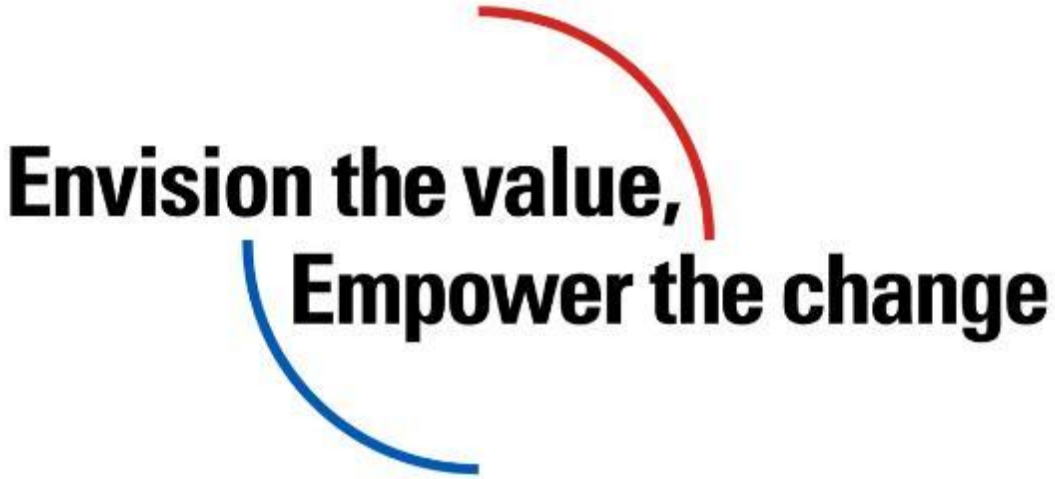

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