

A blurred background image of a city street scene. In the center, a yellow taxi cab is visible, moving from left to right. The background is out of focus, showing other vehicles and city buildings. The overall color palette is dominated by the yellow of the taxi and the blue and grey tones of the city.

**PARATRANSIT / POPULAR
TRANSPORTATION**

DAY

Transforming Transportation 2024

SESSION TWO:
**Case Studies in Improving and Decarbonizing
Popular Transportation**

Paratransit / Popular Transportation Day
at Transforming Transportation 2024

Thursday, March 21, 2024

**SESSION TWO | Paratransit / Popular Transportation Day:
Case Studies in Improving and Decarbonizing Popular Transportation**

Financing the Electrification of Paratransit Modes: A 3-Wheeler Case Study from India

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Thursday, March 21, 2024 | World Bank Headquarters, Washington D.C.

Regulatory & Financing Mechanisms for Accelerating Paratransit Electrification: 3Ws in India

Mansha Sehgal | Chaitanya Kanuri

NEED FOR THE TRANSITION



Passenger auto-rickshaws
comprise **76%** of all 3Ws

Daily
Utilization

100 to 150 KM



5%

(E-auto registrations in
2022)

80%

2030 Target
(GoI)

53 gCO₂e

GHG / vehicle km

Difference in lifecycle GHG
emissions / vehicle km between
a CNG 3W and an e-3W

ENVIRONMENTAL BENEFITS



**Zero Tailpipe
emissions**



**Lower noise
emissions**



**Better air
quality**

SOCIO-ECONOMIC BENEFITS



**Lower
energy/
maintenance
costs**



**Govt.
Incentives/
Subsidies**

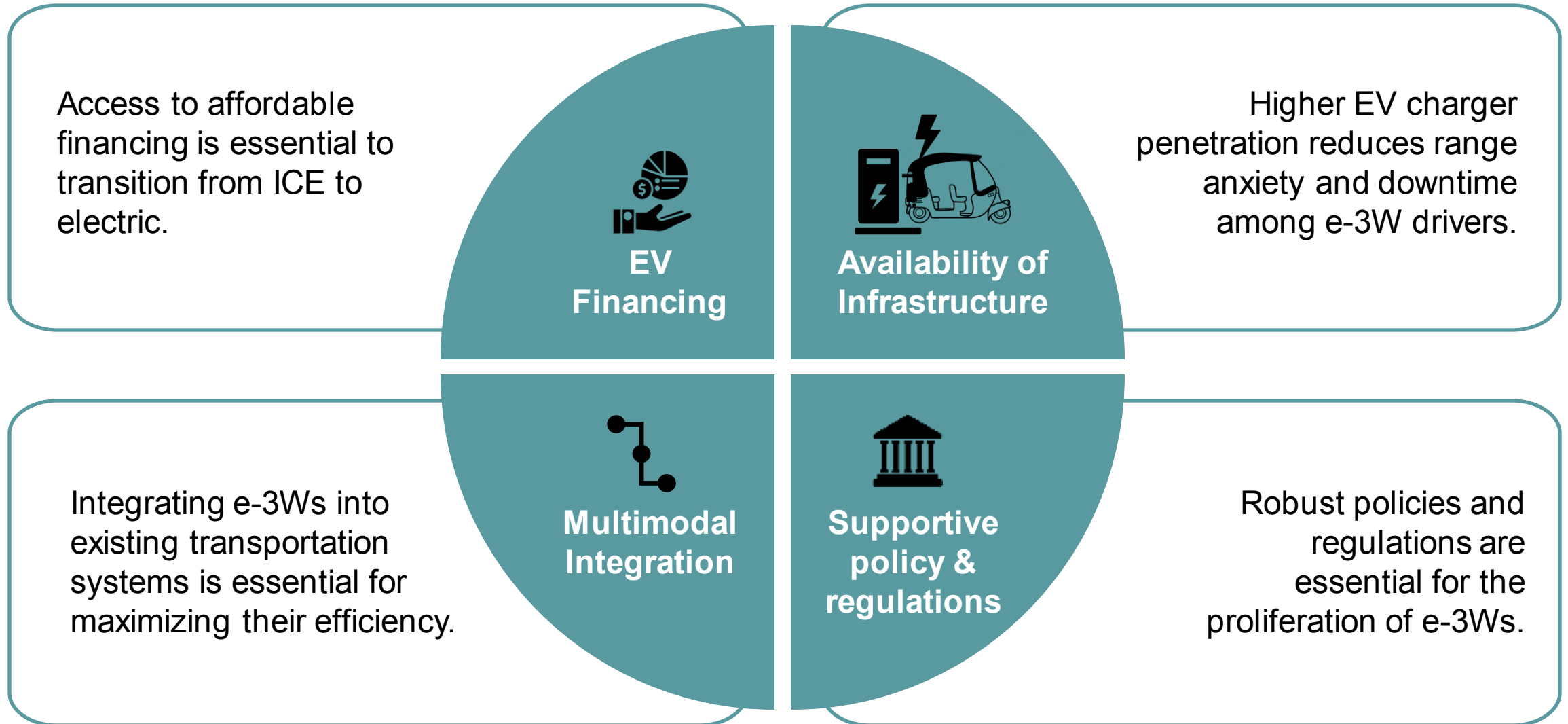


**Improved
livelihoods &
income growth**



**Easier/
Convenient
to drive**

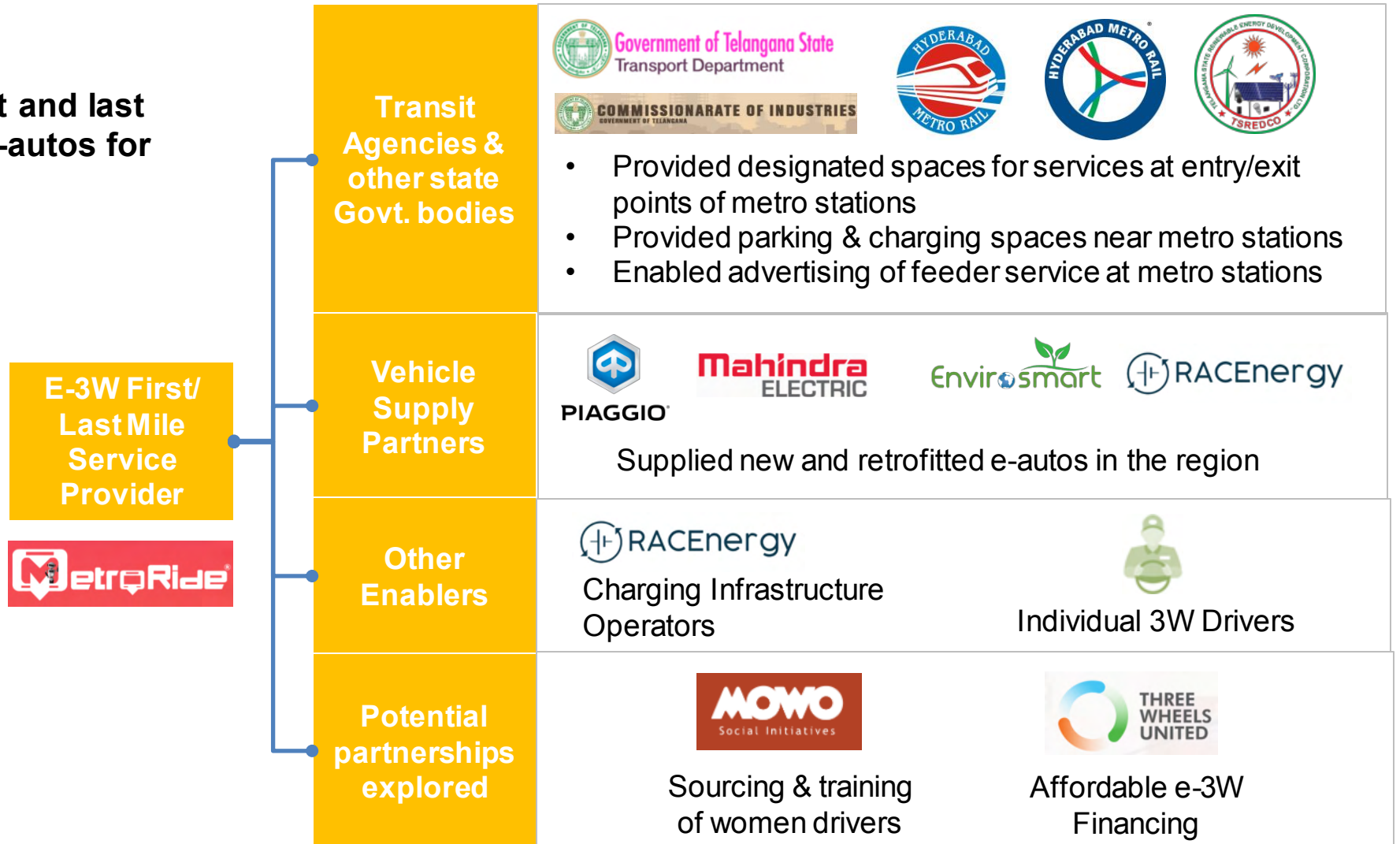
KEY ENABLERS FOR E-3W GROWTH



3I MOBILITY – FIRST/LAST MILE CONNECTIVITY TO THE METRO

A PPC demonstration for first and last mile feeder services, using e-autos for clean, end-to-end mobility.

-  Accessibility & affordability
-  First & last-mile connectivity
-  Pathway for businesses
-  Low carbon footprint



POLICY AND REGULATORY MECHANISMS

	Purchase subsidies	Interest subvention scheme	Priority/ Open permits	Permits for fleet operators	Permit reservation for women	Scrapping / Retrofit subsidies
Andhra Pradesh						
Assam						
Bihar						
Chandigarh						
Delhi						
Goa						
Gujarat						
Haryana						
Karnataka						
Kerala						
Madhya Pradesh						
Meghalaya						
Maharashtra						
Orissa						
Punjab						
Rajasthan						
Tamil Nadu						
Telangana						
Uttar Pradesh						
West Bengal						







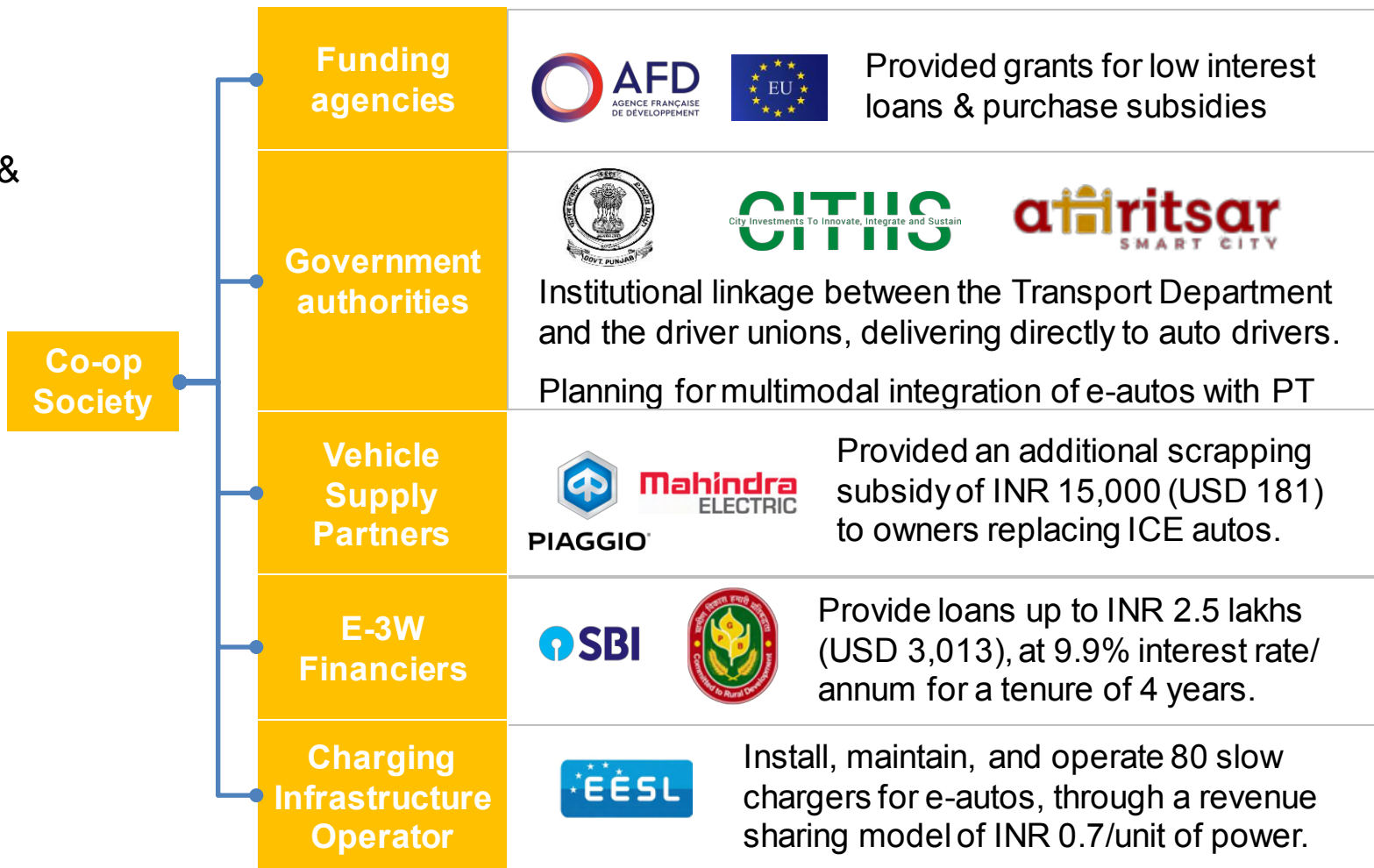
The project worked closely with the Telangana Transport Department to formulate the revised guidelines for the e3W permits in the state allowing **fleet operators to bulk purchase and own permits** for up to 500 e-autos within the GHMC limits and 19,000 e-autos outside GHMC limits.



RAAHI PROJECT – ELECTRIFYING AUTO-RICKSHAWS IN AMRITSAR

Electrifying the 3W sector by organizing existing auto unions into a co-op society & replacing diesel autos with e-autos.

-  Financial assistance for ICE auto replacement
-  Skill development for women
-  NMT infrastructure & first/ last mile connectivity
-  Charging infrastructure

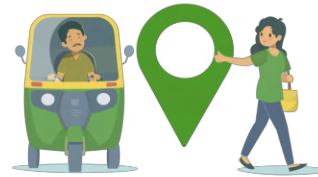


As of August 2023, about 210 e-autos have been delivered on a DCO model in the city.

DIGITIZATION AS LEVER: NAMMA YATRI

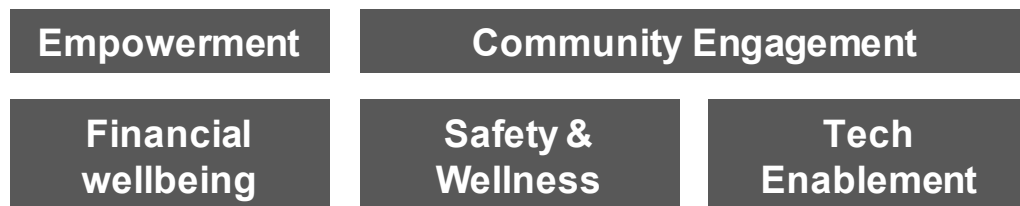


A Direct-to-Driver app (by drivers) with no commission and nominal subscription fee model for drivers.



0.26 million	Total registered drivers
5.5 million	Total users
31.24 million	Total trips completed
USD 56.4 million	Total drivers' earnings

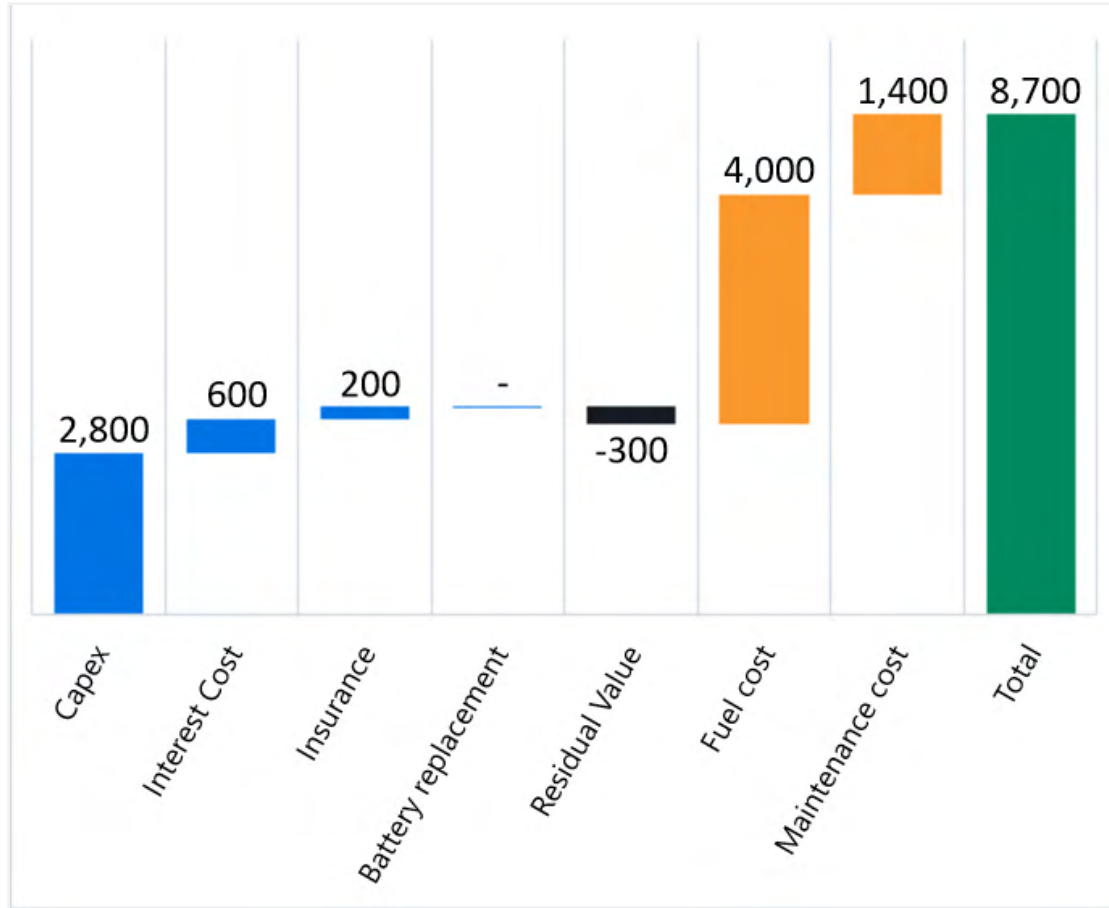
Focus areas of driver enablement



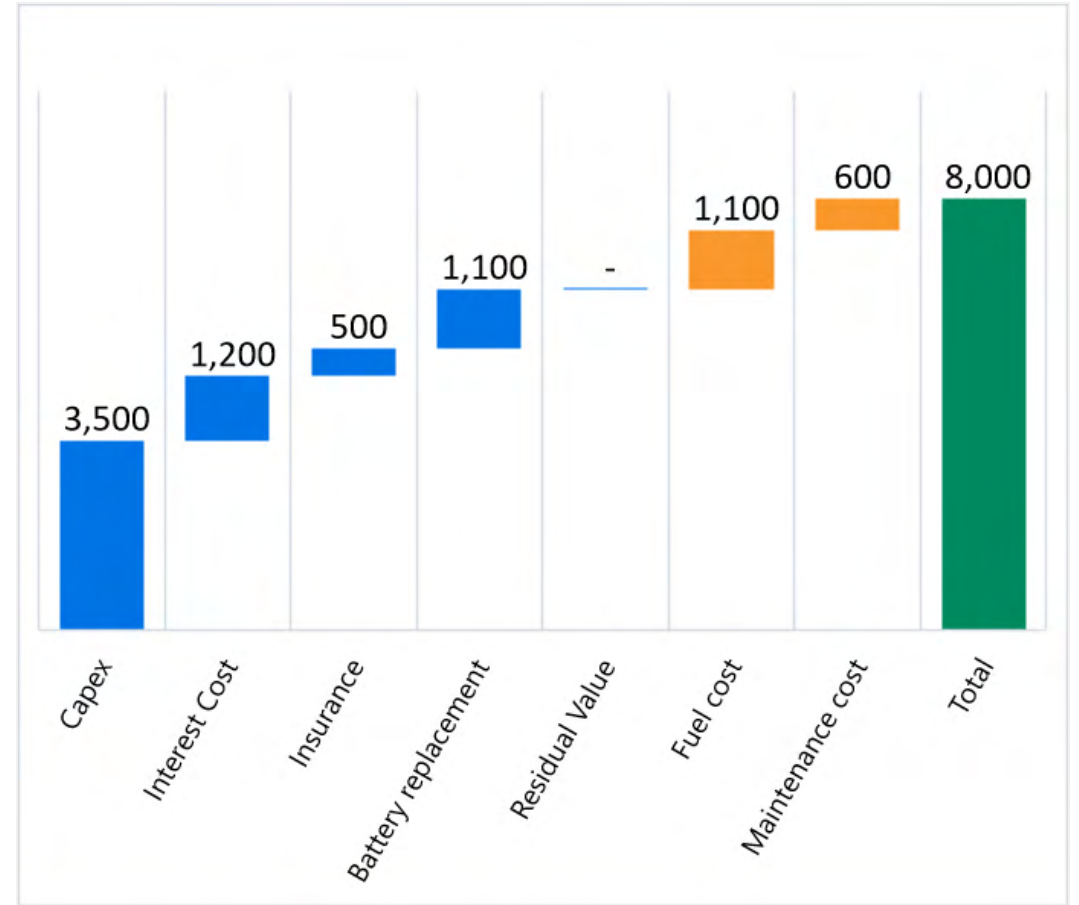
<p>India's first Zero Commission ride hailing app</p> <p>You pay less, Driver earns more</p>	<p>Rate Card</p> <p>Daytime Charges</p> <p>Min. Fare upto 2 km ₹30</p> <p>Rate above Min. Fare ₹15 /km</p> <p>Driver Pickup Charges ₹10</p> <p>Additional Fare* upto ₹20</p> <p>1% of Daytime charges applicable at night from 8PM to 6AM</p> <p>*Total fare may change due to change in route</p> <p>*Driver can charge an additional fare upto ₹20</p> <p>100% Transparency in Fares</p>	<p>Real Time, Open Data</p>	<p>Enhanced Safety Features</p> <p>24x7 self serve feature. SOS option also available for emergency support</p> <p>SOS</p> <p>Press the button on emergency</p> <p>Upon SOS Namma Yatri safety team will be notified</p> <p>Emergency Contacts can follow/raise emergency response actions on Namma Yatri</p>
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WHY FINANCING IS NECESSARY

Financing costs adds **10% premium** to the high upfront cost of e-3Ws



ICE 3W in fleet use-Total cost over 6 years (USD)



E-3W in fleet use-Total cost over 6 years (USD)

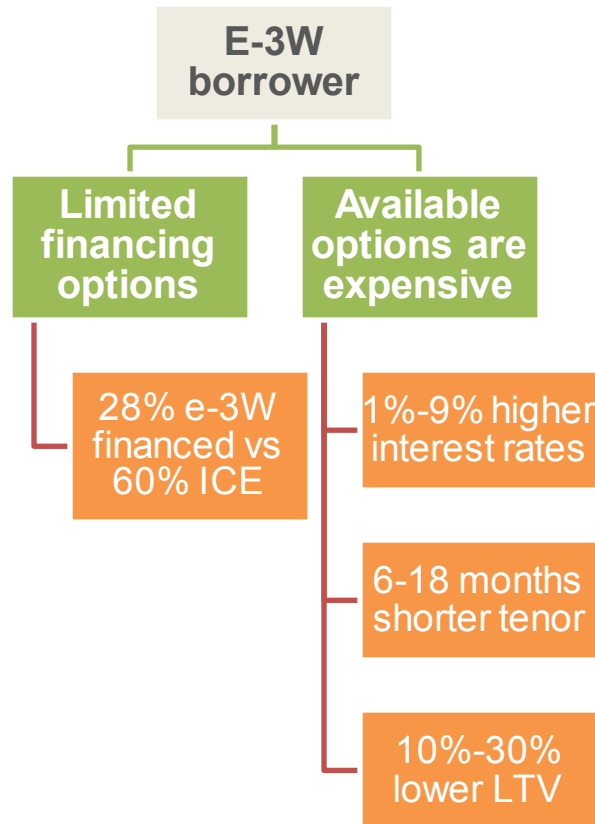


FINANCING EXPENSIVE FOR E-3WS

Limited financing access/unfavorable terms prevent conversion of economic advantage into uptake

Constraints in e-3W financing

Actual and perceived risks limit finance scale-up and lead to unfavorable terms



Product Risk

- Nascent technology, OEM and products
- Fire safety concerns
- High battery replacement cost (25%-30%)

Counter Party Risk

- (considering larger loan size required)
- New to credit customers
 - Fleet operators with low profitability

Operations Risk

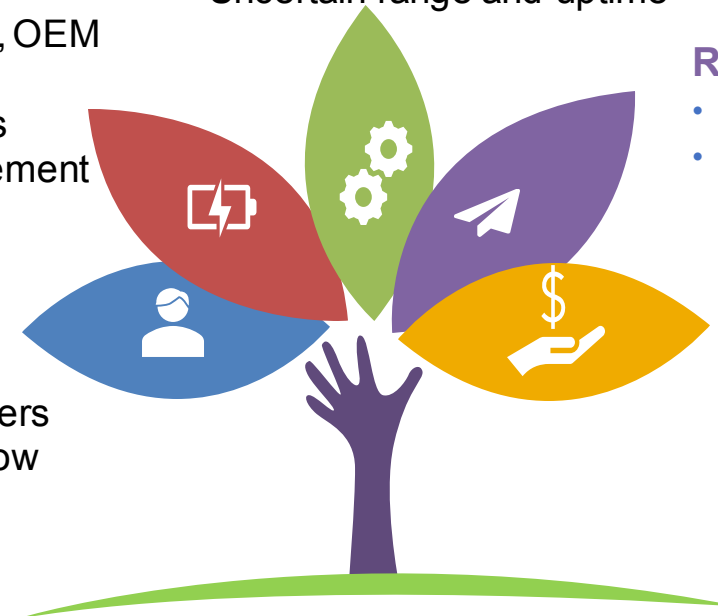
- New OEMs with limited experience
- Limited-service networks
- Uncertain range and uptime

Repossession Risk

- Rapid depreciation
- Risk of deep discharge of batteries

Residual Value Risk

- Limited secondary market for EVs
- Unknown residual value of batteries



FINANCIERS ARE STILL VERY CAUTIOUS

EV related challenges

- Evolving technology- lack of underwriting experience
- Asset itself is not sufficient collateral- negligible secondary market value



Borrower- MSME

- New to credit customer
- Lack of capacity to offer collateral
- Lack of business/ earnings history



Commercial Banks

- Do not understand EVs-treat them as white goods and not vehicle loans
- Limited product trust-new OEMs, high battery costs with replacement needs, limited product warranties
- Need long-term good credit history of borrower
- Need history of stable income or revenue sources (inexistent tax filings)
- High operations cost of EMI collection (on ground personnel) for a small amount

Loans offered to

- Profitable fleet operators



NBFC-BBB+

- Financing available only for empaneled OEMs/ products
- Need high credit score (CIBIL above 700 required) for loan
- Need B2B tie-ups with contract guarantees over loan tenors
- Only captive financing available (Mahindra finance doesn't offer to EVs manufactured by other OEMs)

Loans offered to

- Drivers with good credit score
- Profitable fleet operators



**NBFC-BBB-/
unrated**

- Financing available only for empaneled OEMs/ products
- Need a guarantor for offering loans
- Undertake field investigation- verification from neighbors or associated businesses
- Available contingent to collection ability (only for a limited distance from dealer)

Loans offered to

- New to credit customers
- New fleet businesses



WORLD BANK GROUP



WRI INDIA

IMPROVING LENDING TERMS OF E-3WS

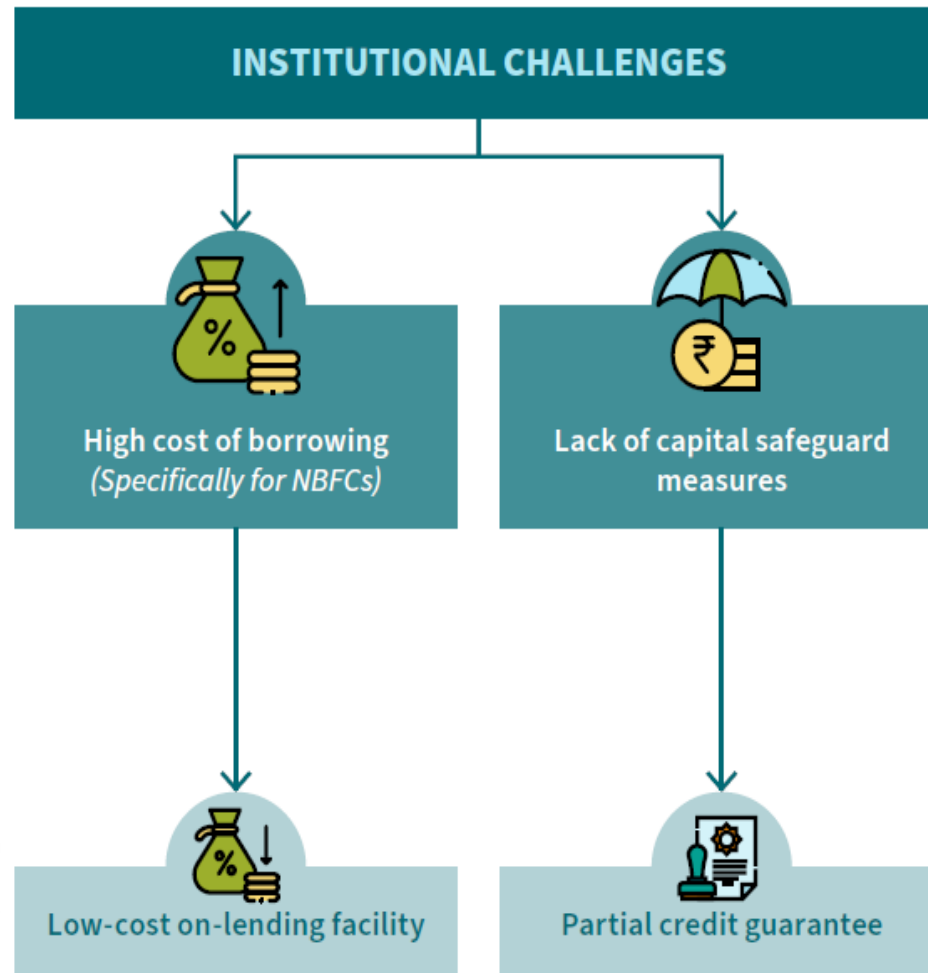
Affordable access to financing with credit loss guarantee reduces financier's risk



De-risking measures reduce perceived risk to EV lending and increase market confidence



Affordable lending for e-3Ws



Source: De-Risking Lending for a Brisk EV Uptake: A Practical Guide on De-Risking Measures for Electric Two- and Three-Wheelers in India, NITI Aayog, SIDBI, RMI, 2024.

CASE EXAMPLES OF DE-RISKING IN INDIA



Telematics device on each financed vehicle- improved credit underwriting, vehicle maintenance and informing collections



AMU Leasing uses AI and ML for risk assessment and mitigation. The tools assess expenditure behavior and affordable loan repayment for customer.



Analysis of driver behavior and vehicle usage patterns with ring-fenced escrow account to facilitate collections from drivers.



SIDBI with Shell Foundation is launching a second loss facility with lending institutions bearing initial 3% loss and get risk coverage of 75% for the next 10% of losses.



THANK YOU!

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co-presented and organized by
the Africa Transport Program (SSATP)
Center for Sustainable Urban Development at Columbia's Climate School (CSUD)
UNFCCC Climate Champions (CCT)
Digital Transportation for Africa (DT4A)
Global Network for Popular Transportation (GNPT)
International Transport Forum (ITF)
International Transport Workers Federation (ITWF)
Shared-Use Mobility Center (SUMC)
Volvo Educational and Research Foundations (VREF)
the World Bank (WB)
and WRI Ross Center for Sustainable Cities (WRI)