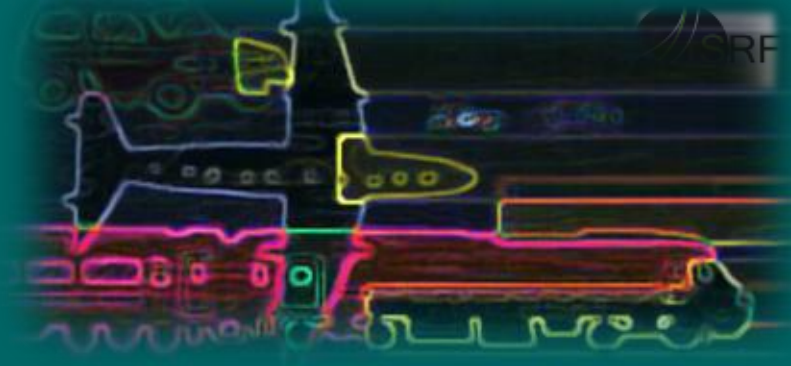
EV EcoSystem in India



- policy
- market
- issues
- opportunities
- costs
- trends

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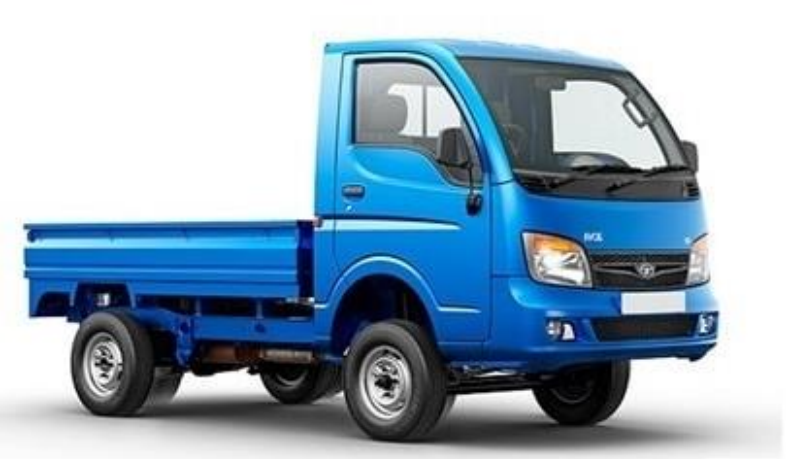
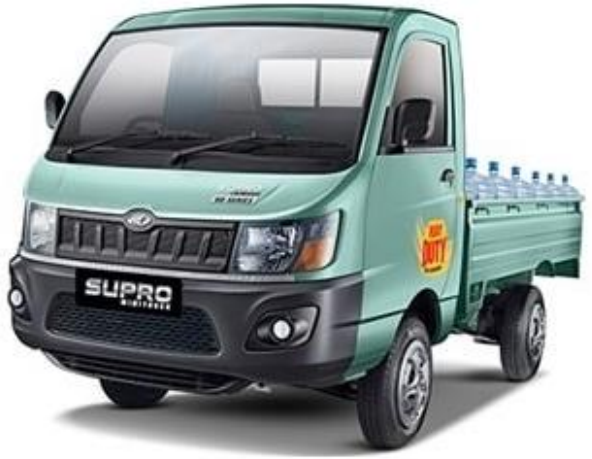
1. Market, segments and volumes.
2. Expected time of Vehicle Price Proximity & TCO parity.
3. Policy & EcoSystem.
4. eLogistics in India- some ideas for the way forward
5. The Technical Challenges

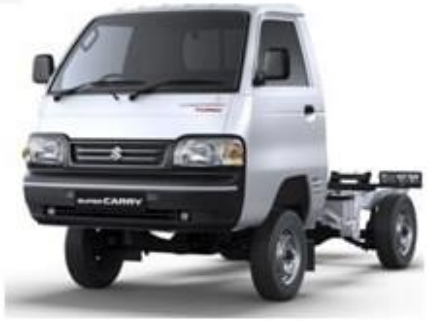
ALMOST ENTIRELY NON-TECHNICAL

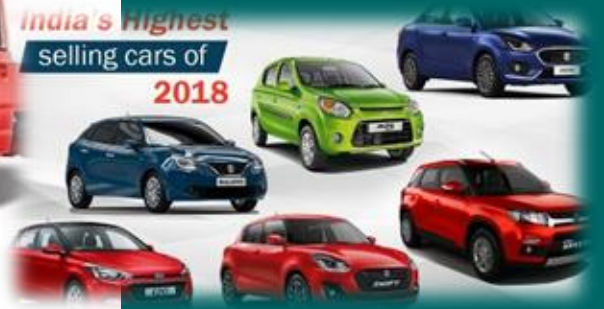




LCVs

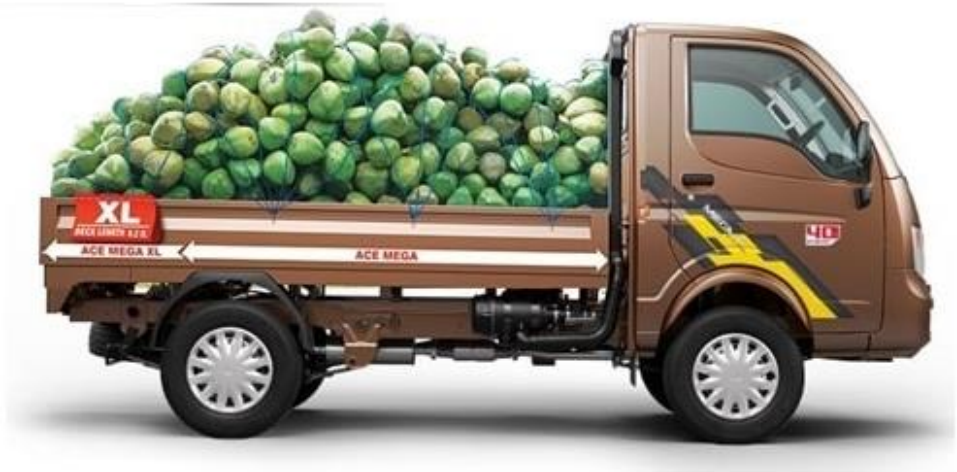
Market is 700,000
eLCV is less than 5,000





Cars

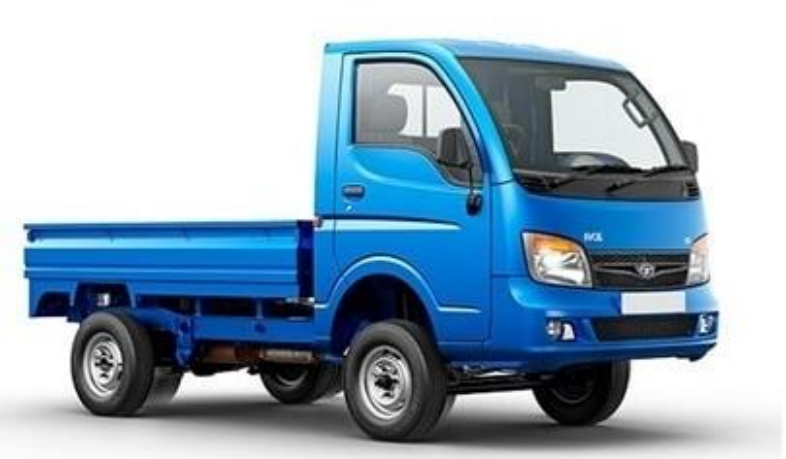
year.
00 eCars this year.

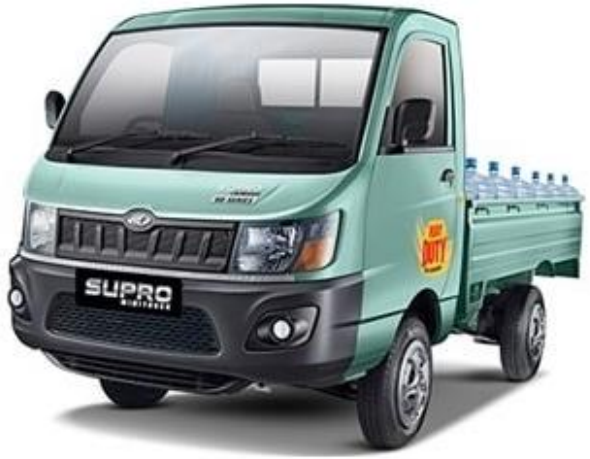


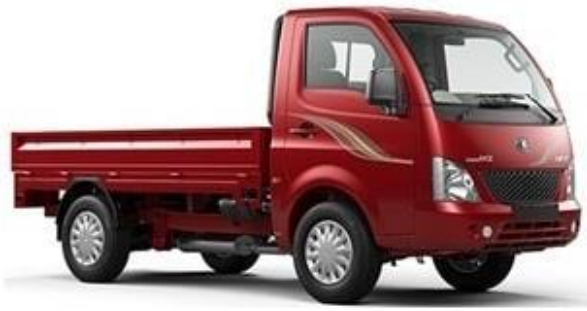
Trucks

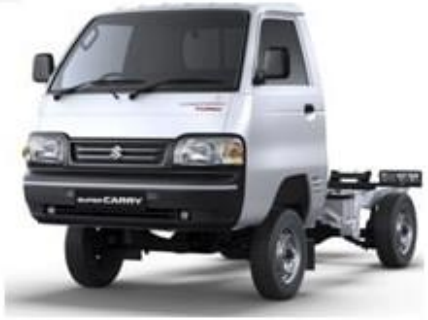
3. 130,000 ~ 700,000/ year.

1. Market is about 150,000 ~ 250,000
2. Mainly Rigids & Tippers
3. NIL electrification









	Cars	~2030		2030	50km/ day

REMARKS
About 40km/ day Loan Tenure- 5 years
Doing well already
120km/ day Loan Tenure- 7 years
Peri Urban- 450km/day City Transit- 200km/day Staff & School- 70km/day
150km/ day
Repeat return routes.

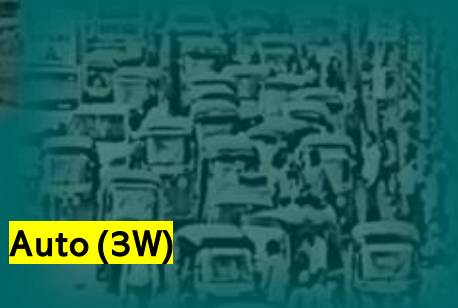
Policy & EcoSystem

2W

1. Massive increase in subsidies earlier this year.
2. Good many startups- some with significant capacities!!!
3. Demand aggregation being attempted.

eRiks

1. Trying to bring in controls for the sake of safety and traffic management.
2. Eating into eAuto Passenger Market.



Auto (3W)

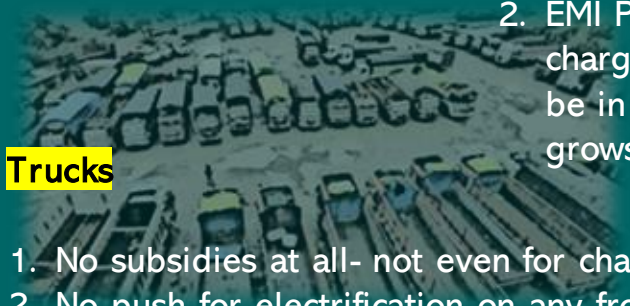
1. Limited subsidies- rapid migration going on.
2. Growth is sensitive to Charging Infrastructure.
3. Eating into eLCV market rapidly.
4. Demand aggregation being attempted.

Buses

1. Massive subsidies in place- only for State Govt. services.
2. Demand aggregation being tried.
3. Regulatory mandates likely in a few years for some applications.

LCVs

1. Limited subsidies in place that are not yet viable.
2. Regulatory pressures likely in some applications like eCommerce.
3. Growth is sensitive to Charging Infra



Trucks

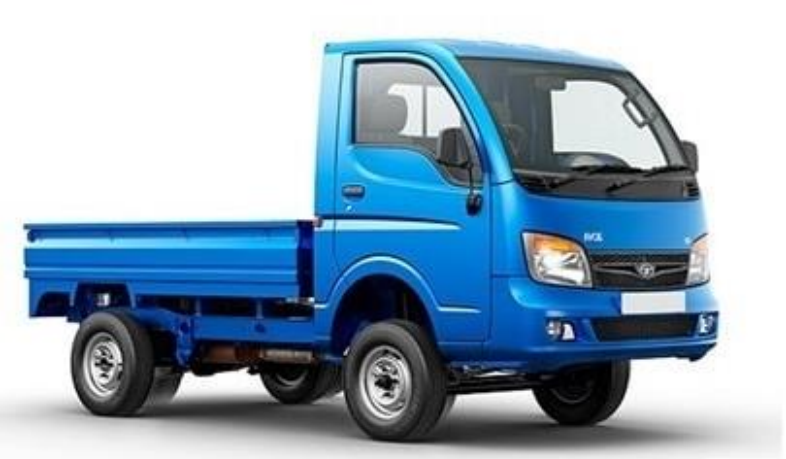
1. No subsidies at all- not even for charging.
2. No push for electrification on any front.
3. Hydrogen being discussed
   - but Feasibility and Viability are suspect

Cars

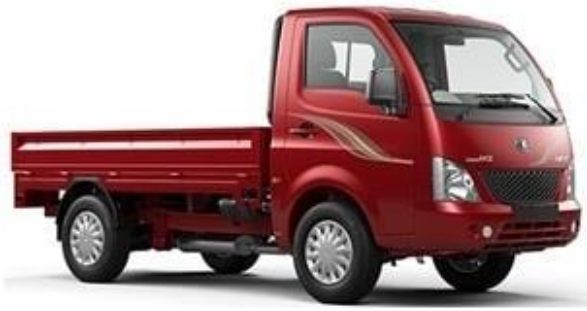
1. Limited subsidies in place that simply do not make an impact.
2. EMI Parity & Highway charging infra both need to be in place before volume grows.

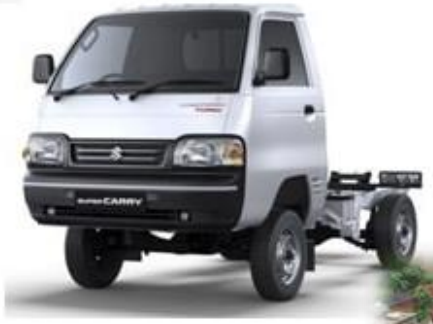
Other aspects of Policy & EcoSystem

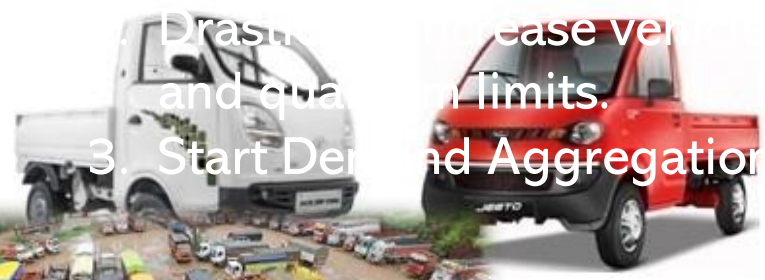
1. Innovative, India-centric Interoperable Standards being released.
2. To enable local supply chains, subsidies are tied to PMP (Phased Manufacturing Plan) milestones.
3. Charger density and 100% grant funding for the same are committed but not yet operationalised.
4. Norms released for eVehicle parking slots for buildings- apartments, offices, etc. Compliance and enforcement is yet to start.
5. To enable local supply chains, Production-Linked Incentives have been announced and response is good.
6. Academia has just started responding with eMobility-specific programs.
7. R&D has been disconnected with Industry and Business. No actions are being discussed.
8. Local supply chain and capabilities will continue to be mediocre for another 3 or 4 years.
9. New technologies continue to come from abroad.

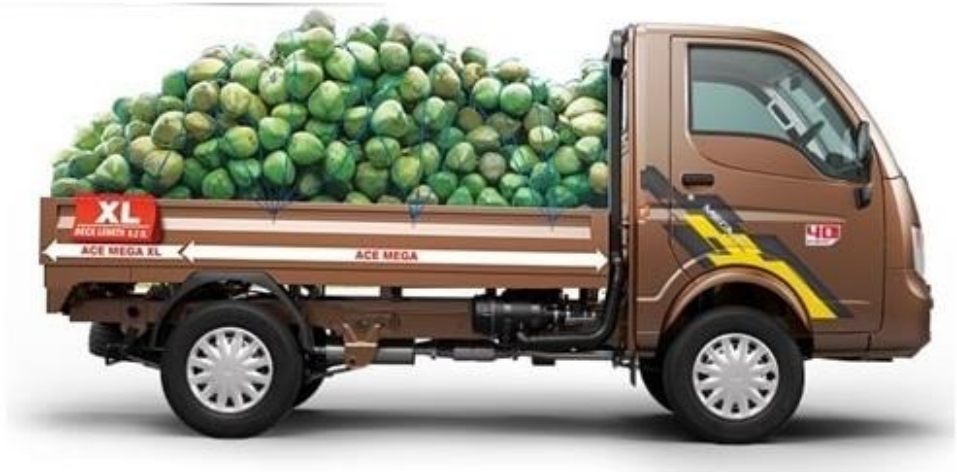


LCVs

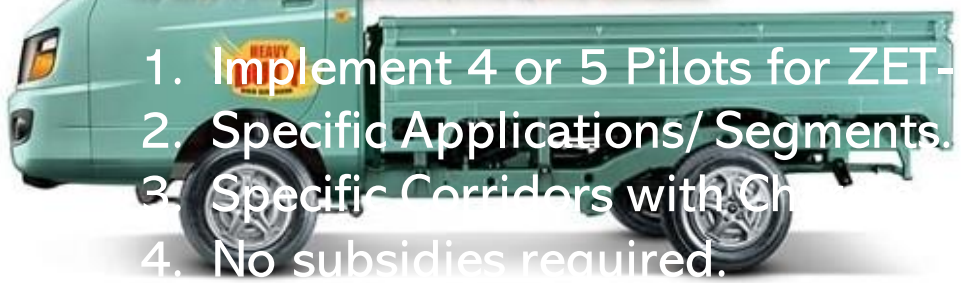








Trucks



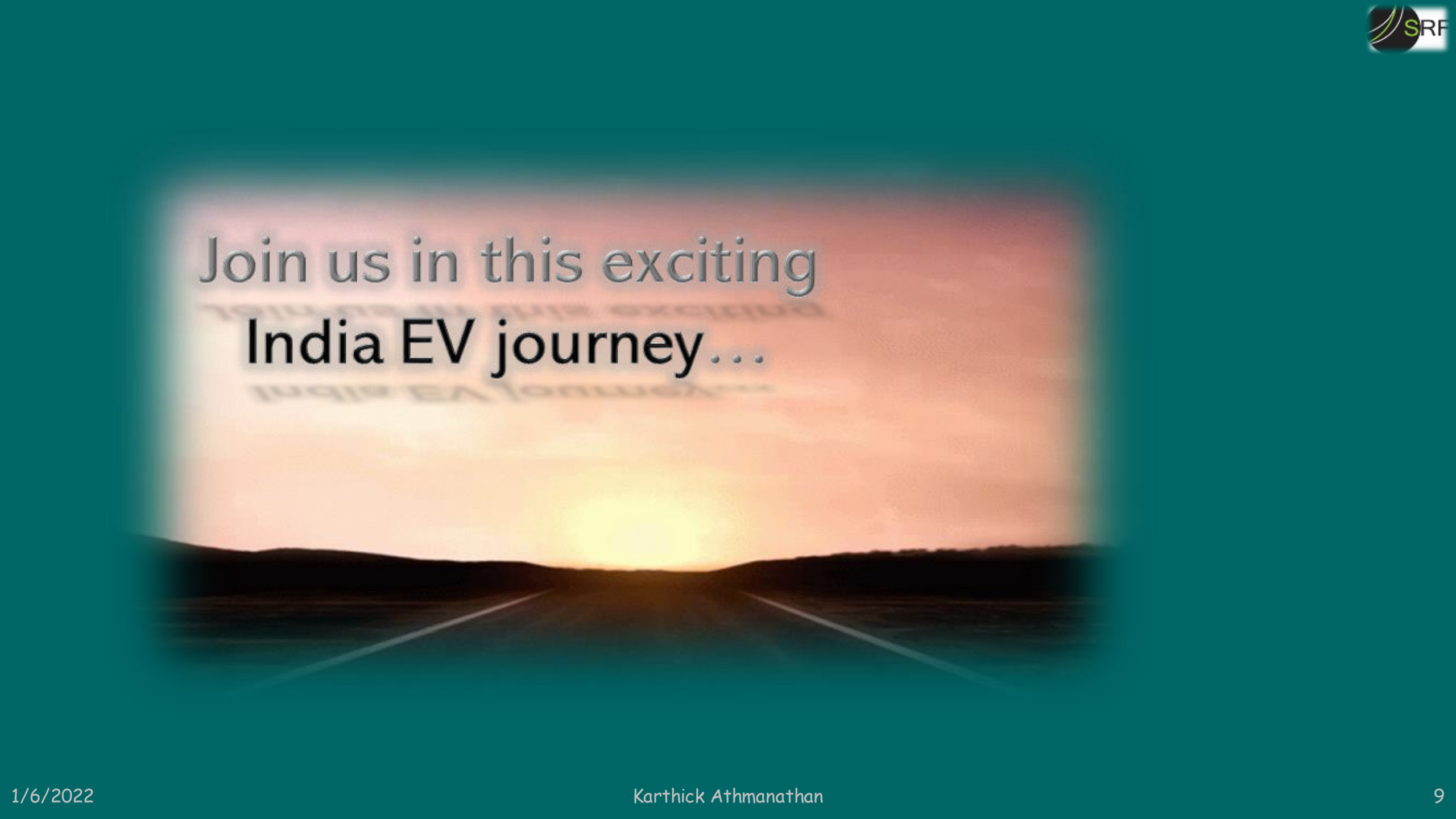
- Implement 4 or 5 Pilots for ZET- 200 trucks each.
- Specific Applications/ Segments.
- Specific Corridors with Ch ra.
- No subsidies required.
- Long Term funding required.

- s.
- subsidies with time
- Drast ease Ver
- and qua limits.
- Start Der d Aggregation

eLogistics- the Technology & Engg side...

- Monsoon Downpour
- Frequent Flooding
- Dust storms
- Humidity
- City Traffic
- Inching traffic up Fly Overs with Overloads
- Some road/ terrain quality

1. Derisk Supply Chain- Sodium Ion Cells.
2. Derisk Supply Chain- Motors- SRM, SyRM, Variable Flux, etc.
3. Tropical conditions- low cost Titanate cells.
4. Build Competence- with people and not just facilities.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