

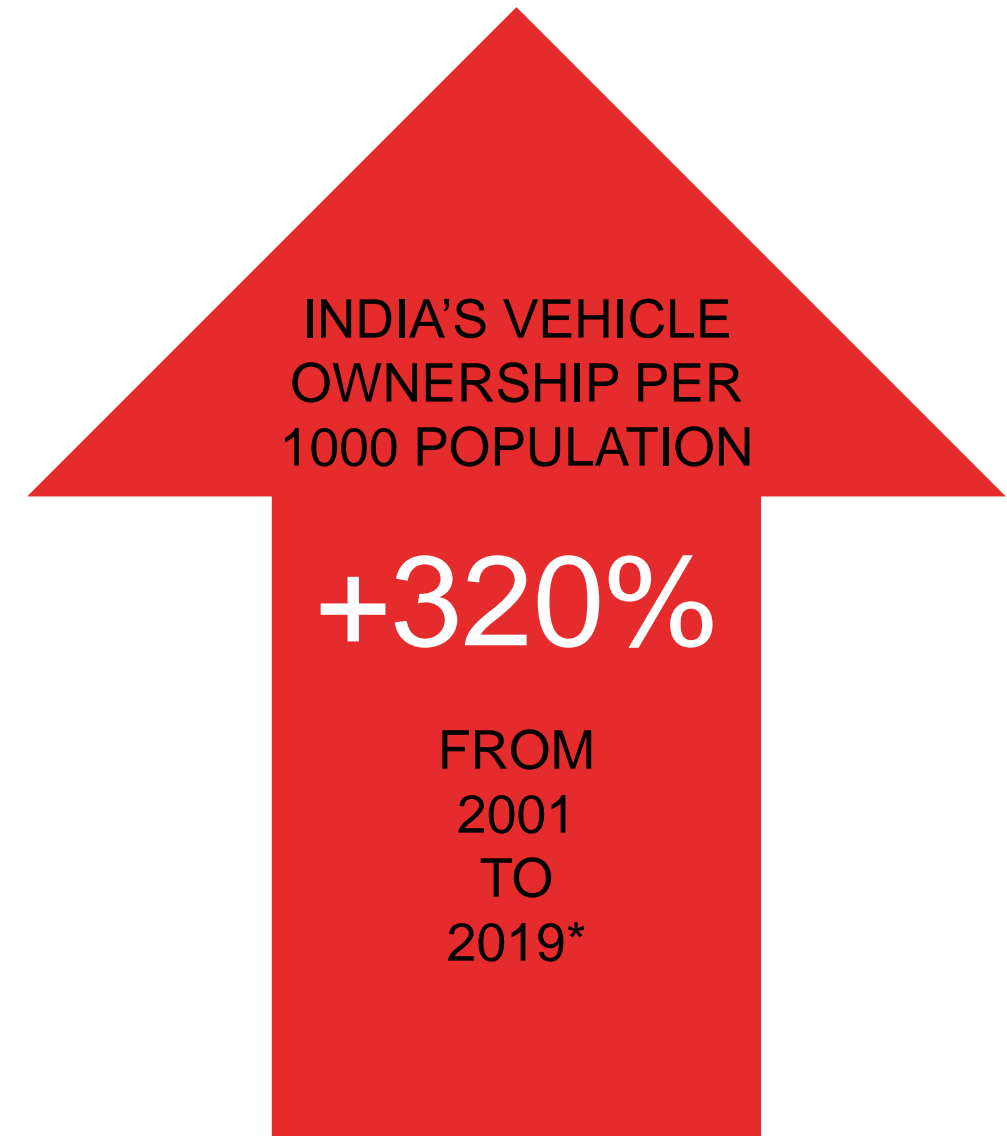
Collaboration Between Government & Technology
Startups to Make EV City Buses
Successful in India

AICTSL'S EXPERIENCE



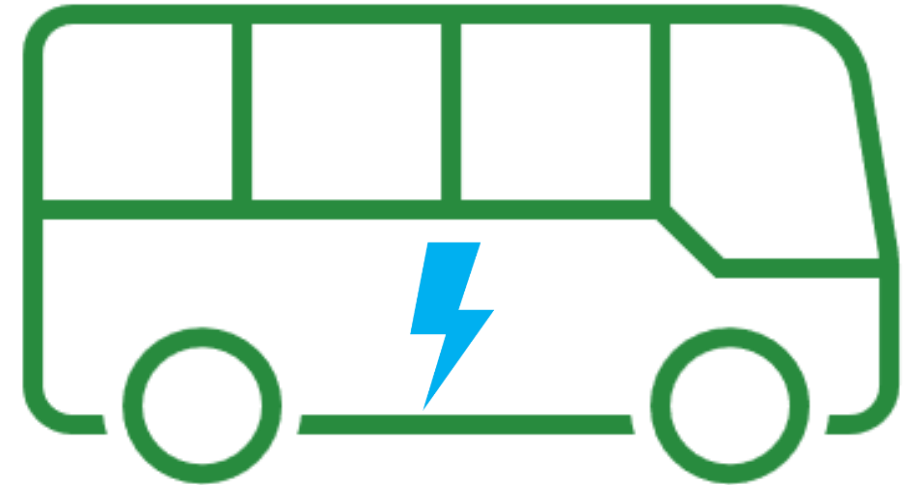
We Need Buses in India, ASAP

- 70 million passengers use 150,000 buses everyday[#]
- Require 100,000 more city buses today to cater to demand
- By 2031, demand will be of 200,000 city buses
- Without public buses, private vehicles increase
- Rising private vehicles produce congestion & pollution



We Need **ELECTRIC** Buses in India, ASAP

- Hon' PM has announced
 1. By 2047 : India will be energy independent
 2. By 2070 : India will have net zero emissions
- E-buses fit the bill perfectly
 1. Provide mass transport option
 2. Reduce GHG emissions by
 - i. Reducing #private vehicles on road
 - ii. Produce 0 tail pipe emissions



Challenge

1. High CAPEX cost
2. Dearth of funds at State and Center level
3. Low trust in new tech
4. Low local manufacturing capacity
5. Reliance on other countries for batteries
6. Supply chain issues disrupt ecosystem development



Challenge

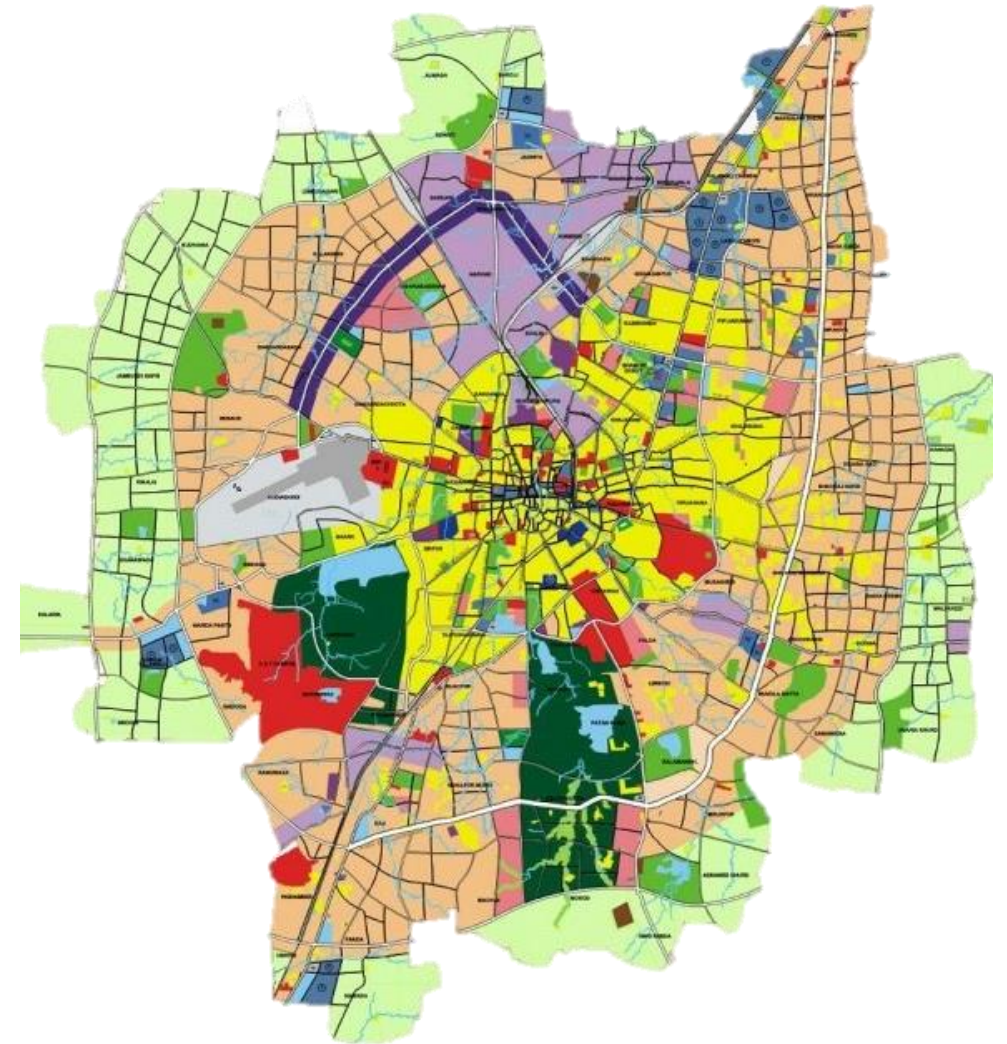
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- Difference in CAPEX & OPEX for ICE and eBus is large
 - Tier I cities can afford to pay the difference
 - Tier II cities fall short and opt for ICE buses

- AICTSL collaborates with operators
- Bridges the financial gap with tech and contracts
- Provides Sustainability Prospects
- Provides Support System

About Indore

- Population: ~3.5 million
- Commercial hub of central India
- 6 consecutive “Cleanest City of India” award winner
- First 7 Star city
- Largest fleet of Intracity & Intercity Buses : 700
- Best BRT in country : 11.4 km, closed system
- Passengers : ~2.5 Lakh/ Day
- Bus Mode Share: ~21%



About AICTSL



Incorporated in
December 2005



Focus on **Public Private
Partnership**



Six members on
Board of Directors



Operation and
management of
Indore's PT system



An ISO 9001:2008
company

Designation in AICTSL	Designated Post of Member
Chairperson	Mayor of Indore
Vice - Chairperson	Chairman, IDA
Director	Collector, Indore
Managing Director	Municipal Commissioner, Indore
Director	CEO, IDA
CEO	Addl. Collector, Indore

Most Tier II cities do not have such an
established SPV for PT

Supporting operators becomes easy
with this structure

Promoting PPP

Prioritizing PPP in
MoA of AICTSL

Bring **Private
Expertise** in bus
operations Under
Govt. Control.

MINIMIZE govt.
expenditure in PT
sector

AICTSL developed several PPP
financial models for bus
operations over the years

M.P: Early Adopter of EV

1. Amongst first adopters of Electric Vehicles in Central India
2. M.P. State EV Policy first drafted by ACITSL in 2018
 - **Tax waiver** : ~29,000 vehicles will pay 1% of MV tax
 - **Registration fee**: ~52,000 vehicles will be free from registration fee
 - **Bye-law change**: Add EV charging spaces in public & private infra projects
 - **Permit Exemption**: 1,500 e-buses can operate without permit

AICTSL Innovates for E-Buses

- Indore chosen amongst only 5 cities under FAME 1

- Capex share for scheme



- Operator: Chartered Speed Pvt. Ltd.
- Innovative financial model for sustaining 40 e-bus operations
 1. AICTSL made route cluster
 - 20 Indore-Bhopal Luxury Bus + 40 Intra-city e-buses
 2. Premium from Indore-Bhopal route waived off by AICTSL



Cushion for Operator

- Intercity premium used by operator to cross-subsidize intracity buses
- AICTSL provided the operator
 1. Land for depot
 2. Charging infrastructure at bus depot
 - Total 18 Fast Chargers
 3. Cost of electricity borne by IMC



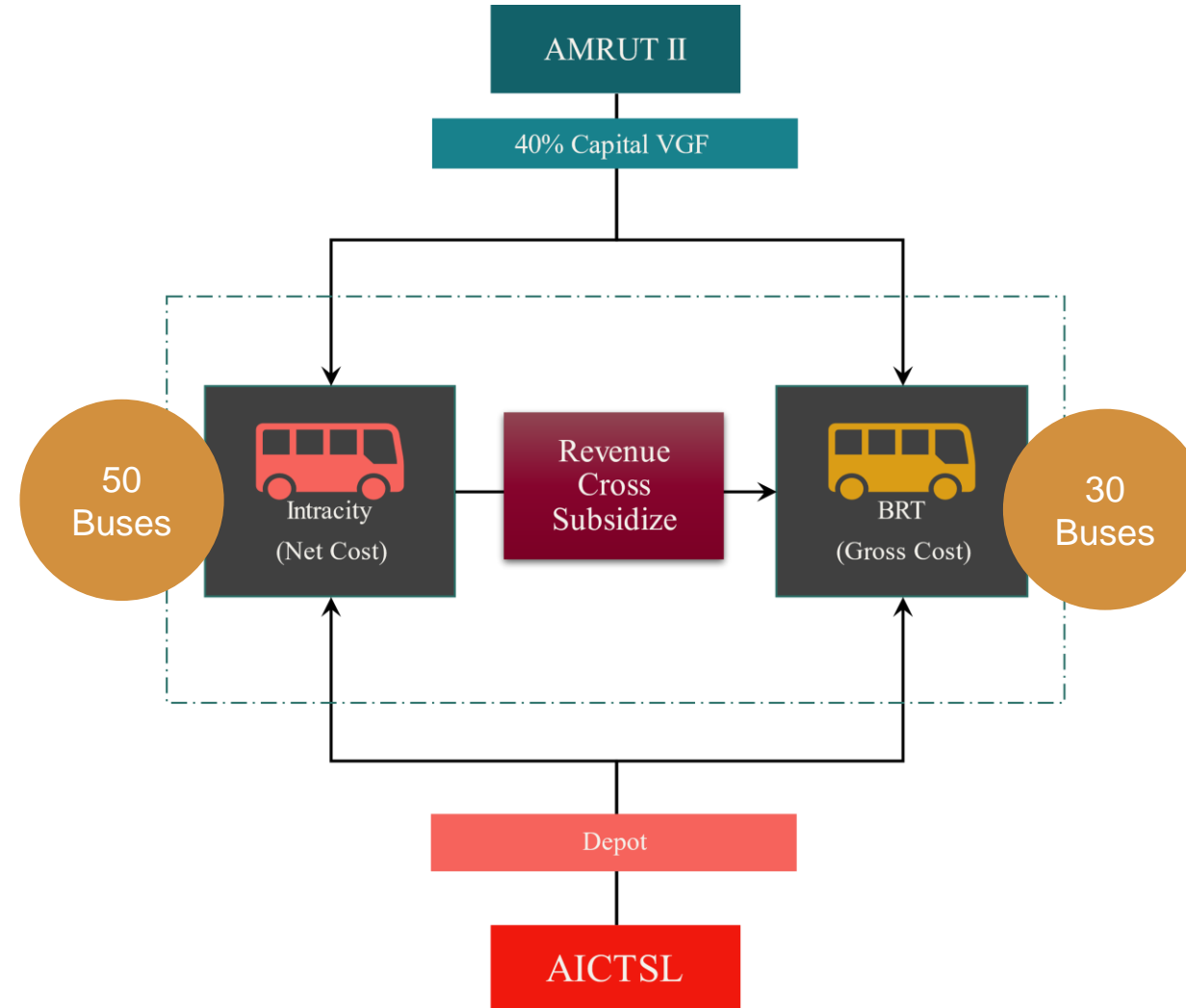
Outcome of Collaborative Strategy

- As a result, 40 e-buses running successfully
- Avg. daily ridership 17,000+
- EPKM : ~₹30

Savings on 40 Intra-city Buses	Amount (Rs)
Difference in Earning and Costs (Rs per KM)	-30
Yearly Cost to Govt under GCC for 40 Buses (Rs)	-7,88,40,000
Yearly Electricity Cost + VGF to AICTSL for 40 Buses under NCC (Rs)	78,00,000
Total Savings on 40 Electric buses for 10 Year project (Rs)	71,04,00,000

Net Cum Gross Model for 80 E-buses

- New 80 e-Buses to be run on Net-cum-Gross (NcG) model
- 40% capital subsidy for provided in AMRUT
- Operator: Zop-hop Technologies Pvt. Ltd.
- 50 Intracity bus : Net Cost Model
- 30 BRTS bus : Gross Cost Model (₹75/km)
- Premium from intracity bus **CROSS-SUBSIDIZE** BRT operations
- Ad rights provided to operator
- Liberty in fare revision
- Introduced
 1. Passenger app (12 lakh downloads)
 2. e-passes
 3. digital ticketing
 4. Tap-in, Tap-out facility



REDUCING GAP IN EPKM AND CPKM

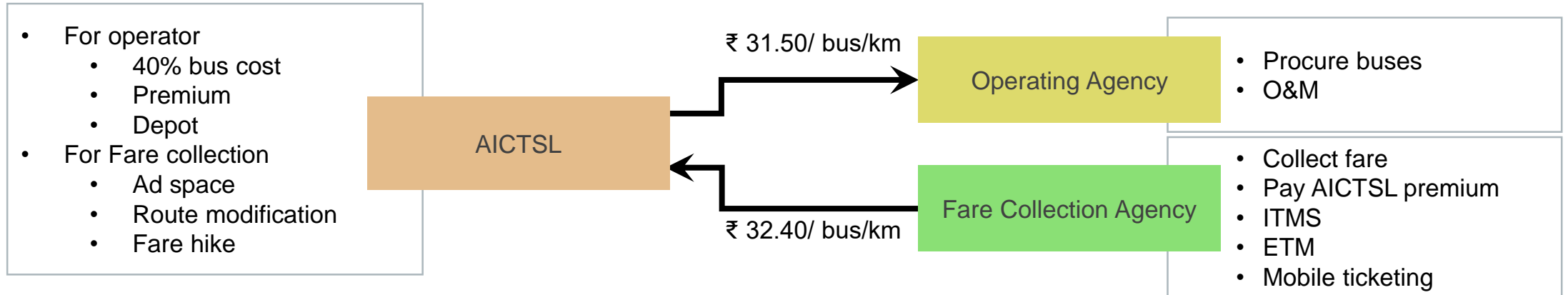
Reducing the Gap	Amount (Rs)
Cost per KM (CPKM) for an Electric Bus	60
Earnings per KM (EPKM) from Fare Revenue	30
Difference in Earning and Costs (Rs per KM)	30
10% Pilferage Reduction by Digital Ticketing (Rs 30 - Rs 3)	27
20% Ridership increase with Mobile App to live track the buses, CMC, digital passes (Rs 27 - Rs 6)	21
Advisement revenue of Rs 3 per KM to Operator (Rs 21 - Rs 3)	18

SAVINGS OF PROJECT

Savings on 50 Intra-city Buses (NCC)	Amount (Rs)
Viability Gap in Earning and Costs (Rs per KM)	-29.9
Previous Cost of Running per Bus per year (Rs)	-19,64,430
Previous Total Project Cost for 12 Years for 50 Buses (Rs)	-1,17,86,58,000
Cost of Running Buses as per New Tender: NCC (Rs)	0
Total Savings on 50 Electric buses in the New Project (Rs)	1,17,86,58,000

Savings on 30 BRTS Buses (GCC)	Amount (Rs)
BRTS Diesel Bus per KM payout (Rs)	79.2
New Electric Bus per KM Payout (Rs)	77.7
Savings in 1 Year per Bus (Rs)	95,904
Total Savings on 30 BRTS Buses in 12 Years (Rs)	3,45,25,440
Total Project Saving (GCC + NCC) (Rs)	121,31,83,400

400 BIO-CNG BUSES: WASTE TO WEALTH

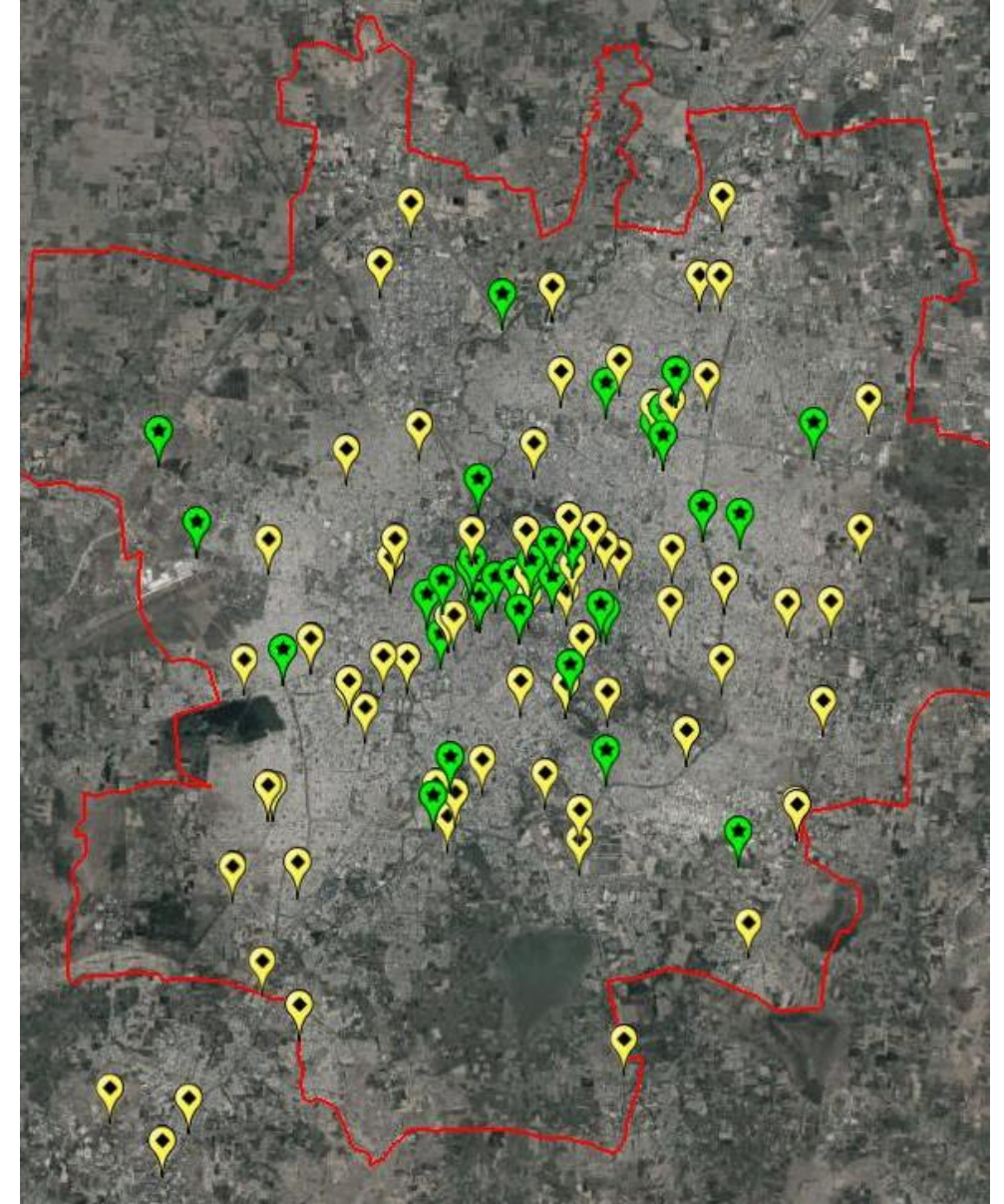


Per KM Rate for Bus Operator	₹ 31.50 / KM
Per KM Rate for Revenue Collection Agency	₹ 32.40 / KM
Difference in Rate	₹ 0.90 / KM
Per Bus Revenue to AICTSL @ 180 KM for Contract Term of 7 years	₹ 4,13,910 / Bus

Advantage: With investment of ₹ 46.40 Cr only, introduction of 400 Intracity buses for 7 years Earning ₹16.32 Cr

Innovative Charging Infra Contract

1. AICTSL provided MOST VIABLE locations for chargers
 2. High concessionaire period: 12years
 3. Arranged NOC's from all departments for the vendor
 4. Advertisement rights/ kiosks for charging stations to cover initial losses
- Currently 3 (REIL, NTPC, Road Grid) companies establishing ~200 charging stations
 - Promoting new tech to come in Indore



Additional Support by AICTSL

Administrative Support

- Fully Operational Electric Bus Depots
- Upstream Charging Infra
- Free Electricity for Bus Charging to Operator under FAME 1
- Advertisement rights on Buses
- Route Planning, Introduction and Optimization

Financial Support

- 40% Subsidy on Capex
- Subsidized plans and passes
- Reduced pricing on Digital programs/tickets (Tap-in Tap-out buses)

Policy Support

- First 1500 electric buses to be charged 1% motor vehicle tax
- No Permits for first 1500 Electric Buses
- 25 KM route extension beyond city limits to Sub-Urban Areas
- Annual Fare Revision Policy

Marketing Support

- Deployment of Informative charts
- Various subsidized plans (Super Saver Plans)
- Permissions for off-board ticketing
- Faster sales of Common Mobility Cards through city wide outlets

Achievements from AICTSL's Collaborative Steps



Advantage to AICTSL

Minimal public fund infusion for new services
Operators/ agencies increased from 2013 to 2022

Ridership increase due to

- Introduction of new service: Support of AICTSL ecosystem
- Stringent SLA enforcement on bus operator



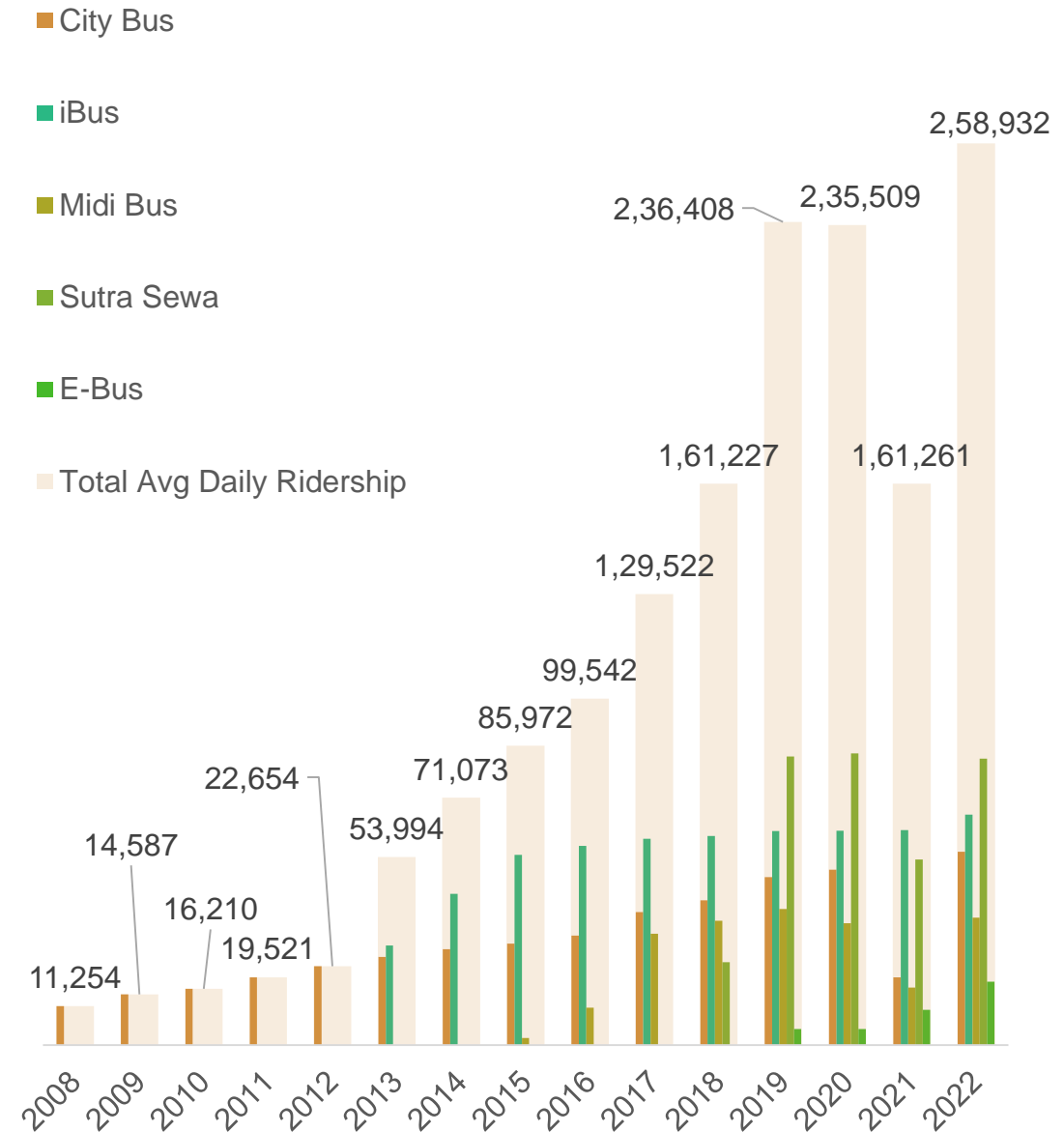
Interstate & Intercity Buses

150 interstate/intercity buses operate under AICTSL with ~10 operators

~70,000 passengers served daily

Outcomes

- **Bus Ridership increasing**
- **Chartered** started with 2 buses and now operates over 400 buses
- Many new startups have come up in the city like **Lootel, Mybyk, i-Ride, NS**
Publicity
- Improved customer experience with Tap-in, Tap-out, 100% Digital Buses (**Chalo**)



Growing Start-up's/Companies with AICTSL's Collaboration



Assistance given to Start-up

Incubator for startups

Chalo: Operates 400 Midi-BioCNG buses

Will operate 80 e-buses

EVUrja: Battery swapping tech provider



Successful PBS (MyBYK)

Indore introduced PBS service in March 2022

1,000 bicycles and 100 stations deployed 3 months before deadline

Now bringing 100 e-bikes in Indore

Growing Start-up's/Companies with AICTSL's Collaboration



E-Rickshaw

100 e-rickshaws operating in
Indore



New Charger Infra Providers

New start-ups attracted
No. of e-chargers for public
increased from 46 to ~200

THANK
YOU

