SUSTAINABLE PPP IN BUS TRANSPORT

PPP PROJECT MANAGEMENT PRACTICES

C. K. GOYAL

SENIOR VICE PRESIDENT

DELHI INTEGRATED MULTI MODAL TRANSIT SYSTEM (DIMTS) LTD.

A JV OF GOVERNMENT OF NATIONAL CAPITAL TERRITORY OF DELHI & IDFC FOUNDATION

15th Urban Mobility India Conference & Expo 2022

Reform Journey of Public Transport in Delhi

31.03.2001:

- **Entire City Fleet steadily converted to CNG**

(Hon'ble SC Orders in case of M. C. Mehta & Ors)

- **F.Y. 2007-2008: Revamping of Private bus operation under Public- Private Partnership Model (PPP) - 50% Fleet**

Current Plan:

- Introduction of **Pure Electric Buses** in Delhi
- Implementation **of PTx2 Strategy** for doubling the market share of public transport with target fleet of 11000 Buses

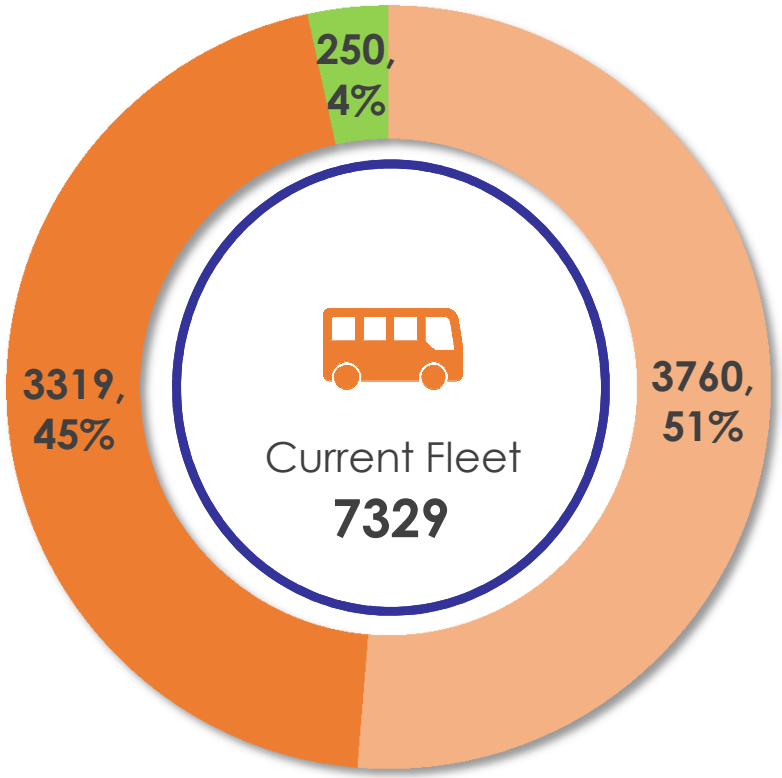
Bus will continue to be the Principal Mode of public transport system in Delhi due to flexibility, low cost etc.

Requirement of Buses/Case Study of Delhi

Level of service	Year	Population in lakh	Extent of Supply Availability of Public Transport-Per 1000 Person (MoHUA)	No. of Buses required for Delhi	Remarks
At Present	**2022**	**207.45**		**7,320**	**Level III- 0.35**
I	2022	207.45	>=.6	>12447	
II	2022	207.45	0.4-0.6	8,298-12,447	
III	2022	207.45	0.2-0.4	4,149 -8,298	
IV	2022	207.45	<0.2	2,074-4,149	

Growth of Electric Buses in Delhi under GCC Model

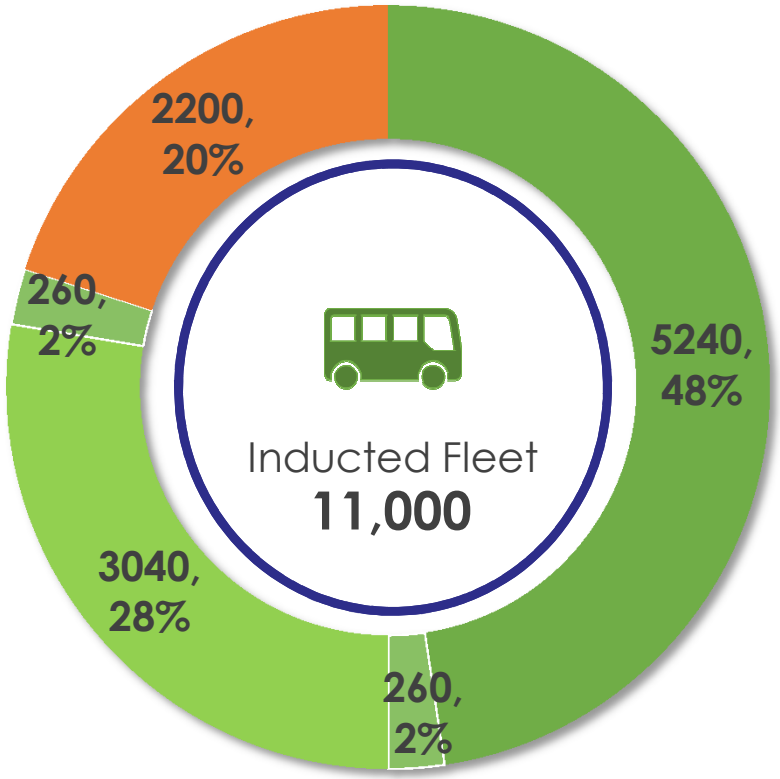
CURRENT FLEET STATUS IN F.Y. 2022-23



- **DTC** 3760 CNG
  250 Electric
- **Cluster** 3319 CNG

4% to 80%

Fleet status in F.Y. 2024-25



- **DTC** 5240 Electric
  260 Electric (Option Clause)
- **Cluster** 5240 [3040 Electric+2200 CNG]
  260 Electric (Option Clause)

15th Urban Mobility India Conference & Expo2022

Objective

To optimize the **efficiency** of City bus transport services with **improved processes** in rapidly growing Indian cities for a Sustainable transport and better environment which make cities liveable.

Performance improvement of City Bus Transport leads to:

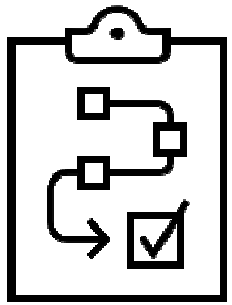
- Modernisation of Transport system by making scientific decision making using of technology and **data analytics**
- Improving economic & financial efficiency
- Improved **user satisfaction**
- Improving **monitoring system** and capacity building

Project Structure: Need for GCC (Opex Model) in Buses

- The project structure must mirror the technical and operational challenges.
- **Vehicle specifications**: Specifications can be functional or more technical. In GCC contracting option, the focus is on a functional specification which gives following advantages to the Authority:

Functional specifications provide **more flexibility** for the manufacturers.

Functional specifications leave the technical responsibility completely with the manufacturers.



- Transfer of complete **operating risk** on the Operator.

OPEX MODEL -Key considerations for Sustainable PPP

- Bundling/ Aggregation of demand both for augmentation and in lieu of **retiring fleet** in next three years to get economy of scale
- Facilities provided by Authorities- **Depot infra with upstream power infra** with sanctioned power load provided by Authority in depot
- Concession Period-**12 years**
- **Assured kilometerage (urban bus)** @ 70,000 per bus per annum
- Commitment of amount of upfront capital subsidy (Demand Incentive) at parity with FAME-2 Scheme of DHI by state Govt.
- Payment Security Mechanism with provision of Escrow Account
- Annual Revision of Fees based on index value for **manpower cost and other consumables. Electricity at actual tariff of state with cap based on efficiency criteria**

E-Bus Specs for Integrated Technology Solution: Driving range on single charge

- Shift changeover window of **60 minutes in depot/ terminal** versus 20/ 30 minutes.
- Operational Requirement: Minimum **200kms/ bus/ day** autonomy on single charge to have operational flexibility and lower operating cost.

Key for induction of EVs is
Charging Infrastructure

Use of Technology in Cluster Buses in Delhi

GPS Device

- Vehicle Utilization Report
- Vehicle Trip Detail
- Missed Bus Stops
- Vehicle Bunching Report
- Route Deviation Report
- Overspeed Report
- Idle Report
- Panic Alert /Panic Button Report etc.

CCTV

- Live View status .
- Depot wise Online & Off line status.
- Inside Vehicle Observation through CCTV

AFCS

- Passenger Profiling with Origin & Destination
- Passenger Profiling Route wise & Bus wise
- ETM Revenue Details
- Shift Details/Trip Details
- Earning Statement
- Route & Bus Wise Earning
- DMRC Earning

Contactless Ticketing through Chartr App

Upgradation based NCMC Compliant Digital Tickets Solutions in pipeline

Responsibility of Authority towards Management of Cluster Buses under GCC Model

PLANNING AND SCHEDULING

- Selection of Route
- Time Tabling with differential scheduling
- Demand based optimization

ENSURING COMPLIANCE

- Standards and Technical specifications
- SLAs
- Drivers empanelment

SERVICE-TRIP VALIDATION

PERFORMANCE ADJUSTMENTS.

PAYMENT TO Concessionaire with audit trail

MONITORING

- Timely departures
- Bunching of buses of the same route plying in the same direction.
- Route deviation
- Driver quality/ performance Monitoring.
- Incident/Accident Management.

REALTIME DATA

- ETA, seat availability, details of route and time table
- App based

To manage Govt. receipts/ expenditure in the designated account

Key Performance Parameters – Monitoring mechanism

Bus quality & presentability: Daily Checking of **100% buses** at depot gate.

Operational aspects: Overspeeding, Bunching, Route deviation, service gaps during peak hour and peak direction on trunk and primary routes.

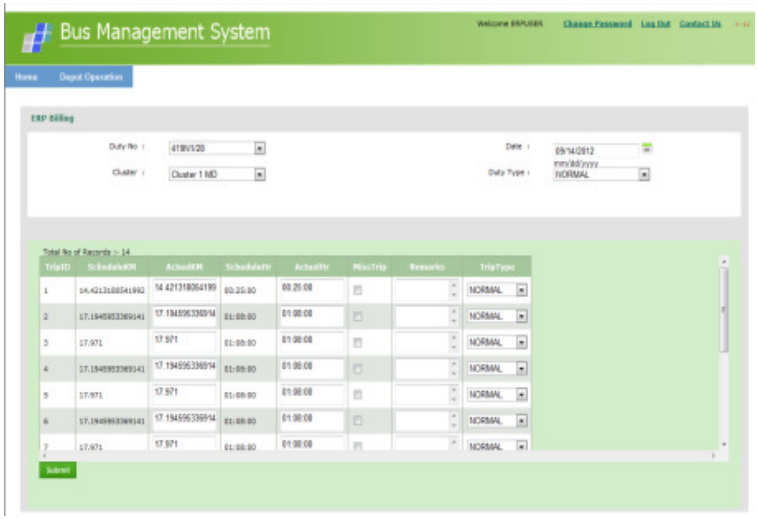
Service Trip Validation: using trip wise mapped GPS data and trip-wise revenue data on web based Application Software (BMS Application) with evidence mapping/ audit trail.

Additional checks: Trip departures as per Unified Time Table (**zero tolerance** for early departure), Stoppage at designated bus stops, Route adherence, Actual service kms as per GPS.

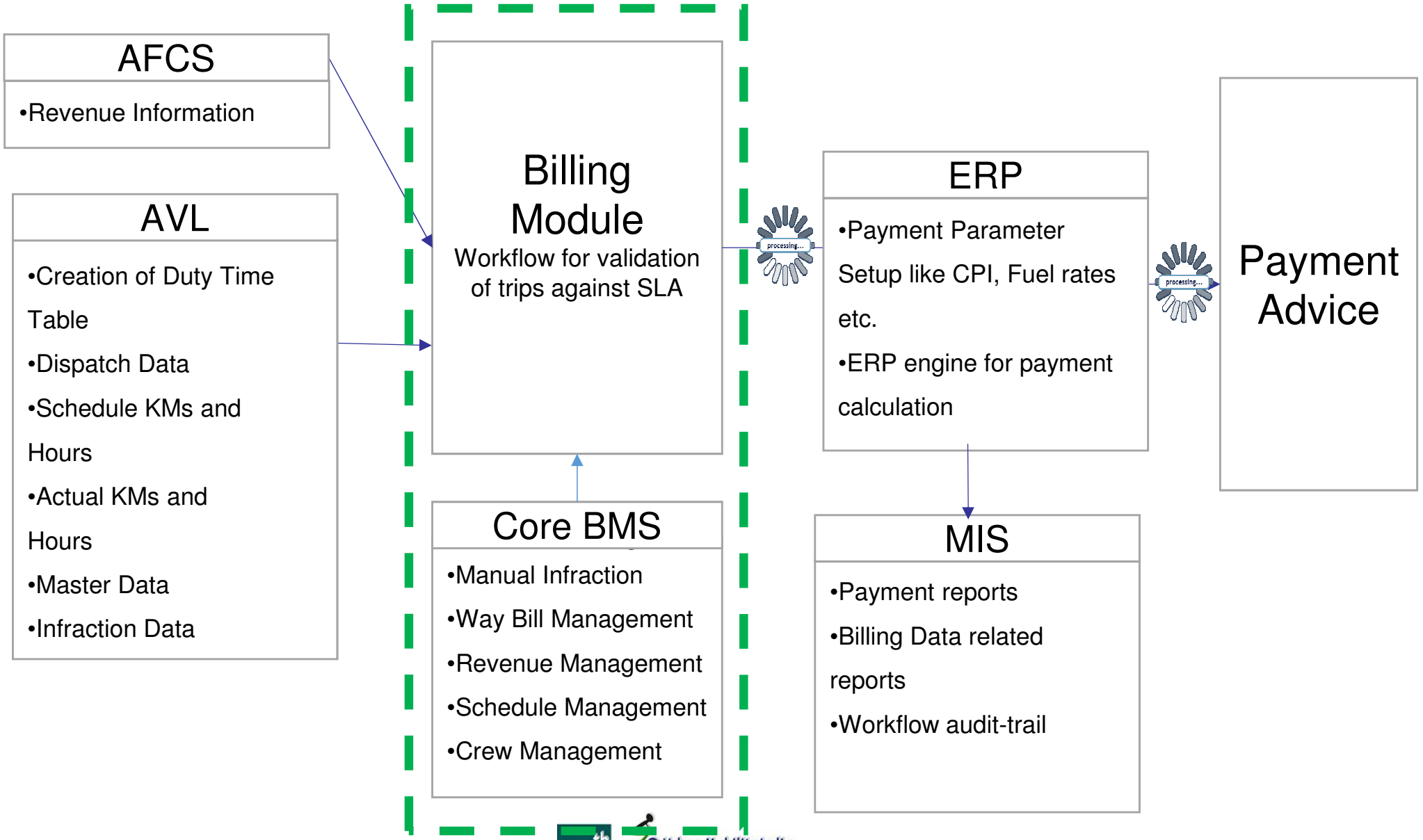
*Payment processing using ERP Software without **any human intervention***

Bus Management System (BMS)

The service trip-wise integrated feed of GPS based AVLS System and AFCS System- primary input to BMS Application based on auto captured data

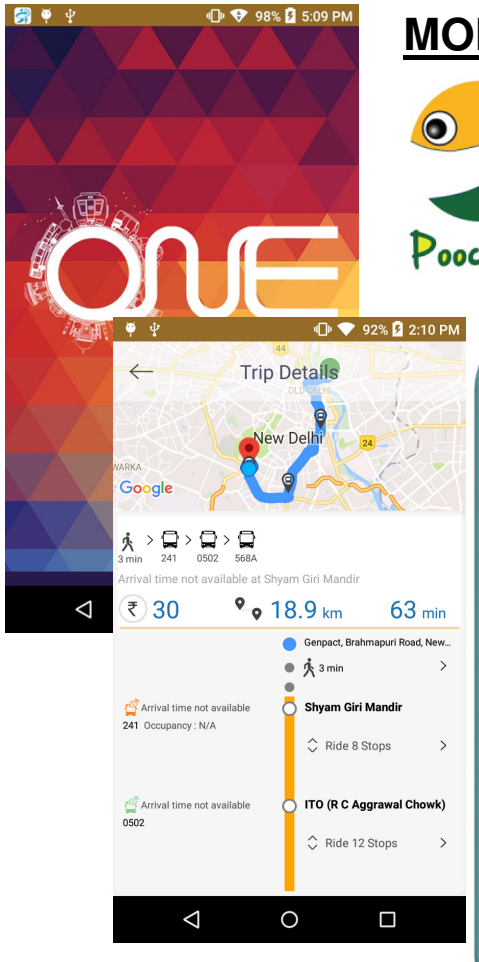


Concession Management – Process



Real Time Information for the Commuter

ONLINE INTERFACE



MOBILE INTERFACE

Poochh-O

- ETA at Bus Stops
- Seat Availability
- Trip Planner
- Route Details
- Feedback
- Developed inhouse

User Friendly Systems

15th Urban Mobility India Conference & Expo2022

Approach for Planning & Procurement of EVs by PTAs/ STUs

- Assessment of requirement of EVs (e-Buses) in next 3 years with e-Bus type/ size.
- Earmarking depot(s)/ depot (s) space for e-Bus Depots with capacity.
- Feasibility Assessment of power load with cost and timelines with Discoms.
- Selection of Routes.
- Mapping of routes with depot based on least dead mileage.
- Decision on operating model (Capex, Opex-wet lease/ dry lease).
- Provision of capital funds for construction of depot with power load infra & capital subsidy.

THANK YOU!