

TRANSPORTATION



DIMTS - Specialized Company in Urban Transport Space

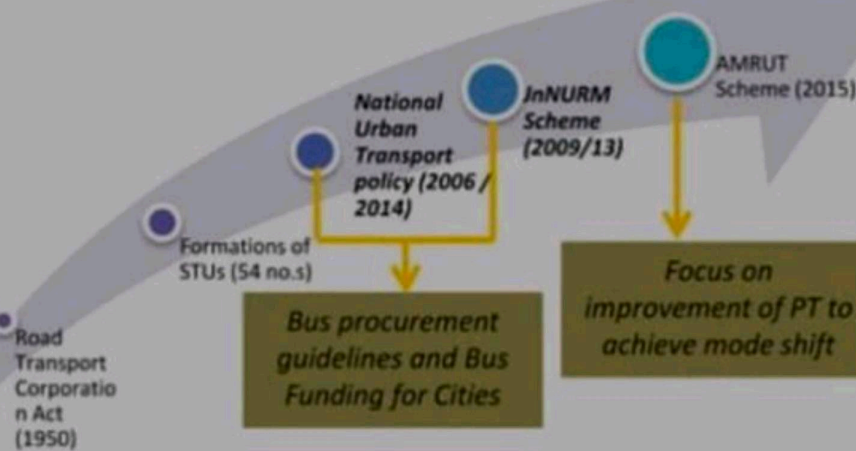
Delhi Integrated Multi-Modal Transit System Ltd. (DIMTS) is an *urban transport* and *infrastructure development* company set up in 2007 with a sharp focus on **improvement initiatives in urban transport infrastructure**

Equal equity partnership of
Government of National Capital Territory of Delhi (GNCTD)
IDFC Foundation (a not-for-profit initiative of IDFC Ltd.)

Transport Planning	Advisory Services	Engineering	Operations	Transport Technologies
<ul style="list-style-type: none">Comprehensive mobility planningUrban Mass Transit Corridor Planning and DesignTraffic modelling and simulationPublic transit route planning, scheduling	<ul style="list-style-type: none">Feasibility AnalysisProject StructuringPPP AdvisoryBid documentationBid process management	<ul style="list-style-type: none">DesignProject ManagementConstruction SupervisionIndependent Engineering Services <p>Railways</p> <ul style="list-style-type: none">Alignment and Track designSignaling	<ul style="list-style-type: none">Bus Concession ManagementBRT Corridor ManagementOperations Control CentreSmart card resource management	<ul style="list-style-type: none">Automatic Vehicle LocationElectronic TicketingPassenger Information SystemsMobile ApplicationsIntelligent Signaling and Traffic management systems



City Bus Service in India



Status of City bus service in India:

- Unable to meet the requirements of the majority of the public due to inefficient Bus transport in Cities in India.



Inefficient City Bus Transport in cities leading to:

- Imbalance in modal shift (Public preferring private mode - TWs & Cars).
- Environmental issues – Increase of energy requirements and Pollution.
- Higher costs – Improper Bus transport planning leads to higher operations costs & thereby losses.

Old Traditional methods of bus operation & management

Inadequate Service / Fleet Capacity

Low maintenance /irregular maintenance

Unreliable Service & Irregular Frequency

Poor Route Network Coverage & Inadequate stoppages

Excessive Fares

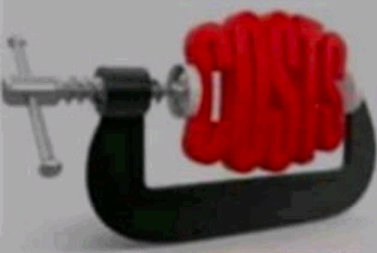
Willingness to pay

No Profitability & Viability

Poor Quality of vehicles & Poor customer satisfaction

Considering this situation, Shakti Sustainable Energy Foundation has taken up this initiative to identify policy road map for improvement of city bus system in various cities.

Use of Data in Public Transport Operations



Route Planning
and Route
Rationalisation

Concession
Development &
Award

Service
Deployment and
Optimisation

Service
Monitoring

Service Delivery
and Maintaining
Level of Service



Vehicle & Crew



Users



Infrastructure

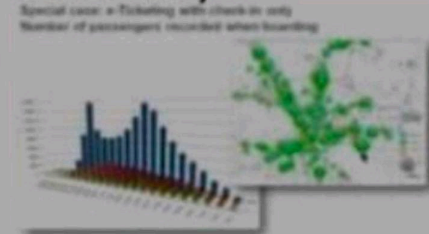


Use of Data in Public Transport Operations

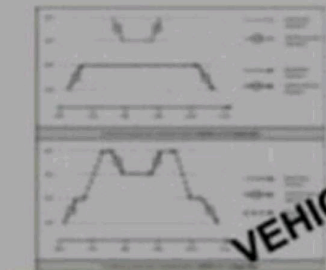
Service Deployment and Optimisation
Time Table Optimisation
(GPS Run Time)



Frequency Optimisation (E ticket data)



Fleet Optimisation(Interlining)

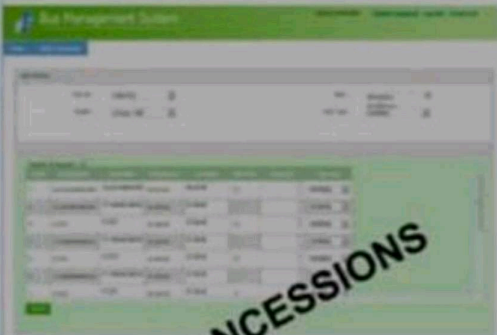


VEHICLES

Service Monitoring & Payments



Monitoring KPI in concession Agreement from GPS data and making payment



CONCESSIONS

Service Delivery & LOS



- Excess Wait Time
- Occupancy / Crowding
- Public Transport Accessibility

USERS

Route Planning Practices – Various Cities

Ahmedabad

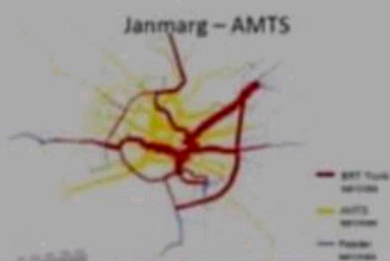
- ❑ Ahmedabad also developed a trunk – feeder bus scheme but could not implement it entirely due to public opinion on direct routes
- ❑ Jan-Marg also developed “Feeder Route system based on passenger “Origin – Destination “ data for BRT system as well planning for route extensions in non – BRT segments

Bangalore

- Bangalore used passenger profiles and bus route network to develop Trunk – Feeder Bus Network named “BIG - 10” which is implemented

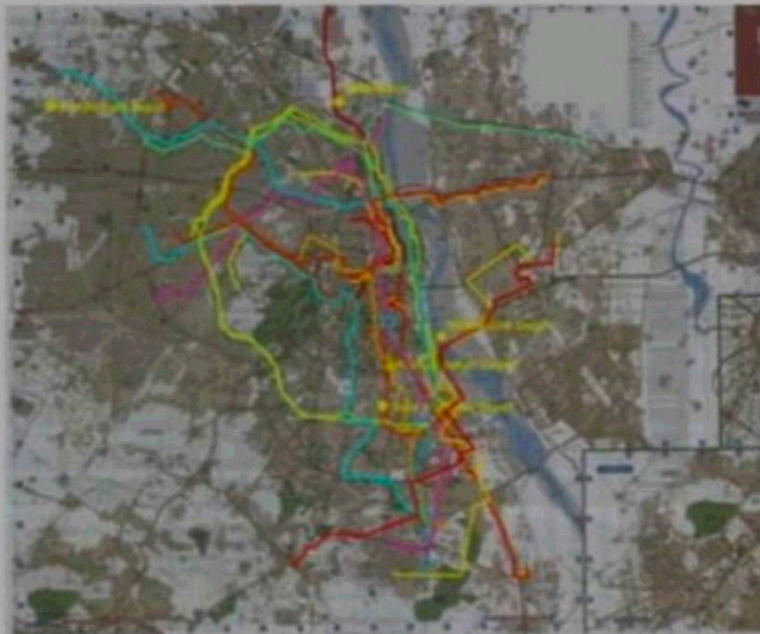
Raipur

- Raipur is also carrying out a route planning and service planning exercise for starting operation of BRT based on passenger profiles & related data



Concession Development/Route Clusters – Various Cities

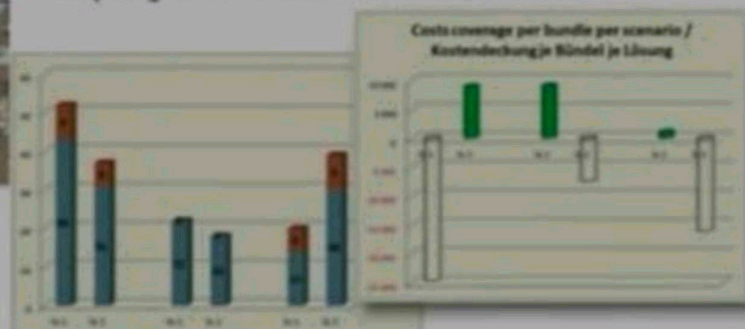
- ❑ Development of Route Clusters for Private concessions was done based on data and analysis in Delhi Cluster Scheme. Though it was done with limited database it helped to develop balanced cluster scheme



- ❑ Most of Cities use judgement, local knowledge and limited data for route award to private concessions.
- ❑ Use of data provides information on likely profitability, number of buses, dead kilometres etc

EVALUATING LINE BUNDLES

Comparing detailed indicators of different solutions



- ❑ By use of proper data, private concessions could be awarded in more rationally in our cities. **Delhi Cluster Scheme designed using Data & Network of city**

Service Delivery and Maintaining Level of Service for Users

- Information System Like Journey Planner, Mobile App

Most of the cities are in the process of developing Mobile App.
Delhi is having App “Poochho” which gives data on “Seat Availability”



- Analysis of Excess Wait Time

None of the city is doing it. However, some cities are conducting user satisfaction surveys

- Occupancy and Crowding

None of the city is doing it. However, some cities are conducting user satisfaction surveys

- Transfers

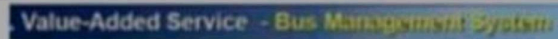
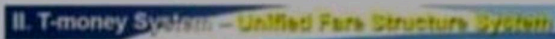
None of the city is doing it.

Bus Management System Seoul

Global positioning system ("GPS") in bus & Smart Card use allow a central bus control centre to monitor all Operations and provide information.

- Conducted **Extensive Route Rationalisation** based on scientific data
- Bus locations and speeds monitoring to **enhance the punctuality**
- **Optimize service distribution** : by adjusting bus assignments and scheduling as per travel demands on different parts of bus network
- **Extra buses put during peak hours** for popular routes to reduce crowding & shorten waiting time

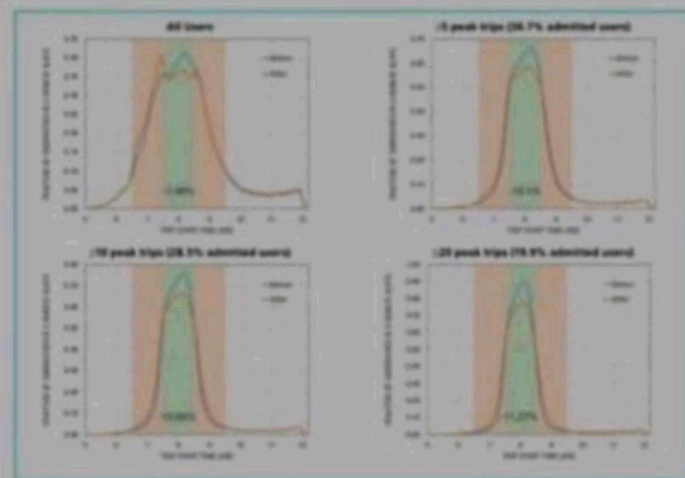
7851
Buses

429
Routes

Using ITS Data to influence Transit user behavior

Singapore incentivizing Transit users to travel off-peak, through

- Tracking/analyzing people's trips by smart card reading
- Providing random rewards, social influence, (commuters are compared to their friends), and personalized offers



Result:

>10 % peak-hour travelers shift their trips to non peak-hour.

Cost:

7 Singapore dollar per participants in one year

Conclusions

- ❑ Most of the Urban Bus Agencies are **implementing GPS & ETM solutions** and will have good data available in coming years
- ❑ **There clear benefits recorded** that use of Data in operation helps in improving Efficiency.
- ❑ Data Analytics will be very important for decision making of
 - ❑ Understand user profile & Planning
 - ❑ Time Table & Fleet Optimisation
 - ❑ Improving Service Delivery to users
 - ❑ Implementing KPI & Payments to Concessionaires
- ❑ **Need to better customise IT solutions** to local conditions and with understanding of operations to enhance benefits

Thank You