



Building a Smart City From a Smart Card or a Smartphone

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DIMTS Overview

DIMTS is a 50:50 Joint Venture between the Government of National Capital Territory of Delhi (GNCTD) and IDFC Foundation (US\$ 10 Billion assets under management; banking, power, highways, ports, etc.)

Vision

To Create an environment where the majority of trips take place by public transport in preference to personal motorized Transport.

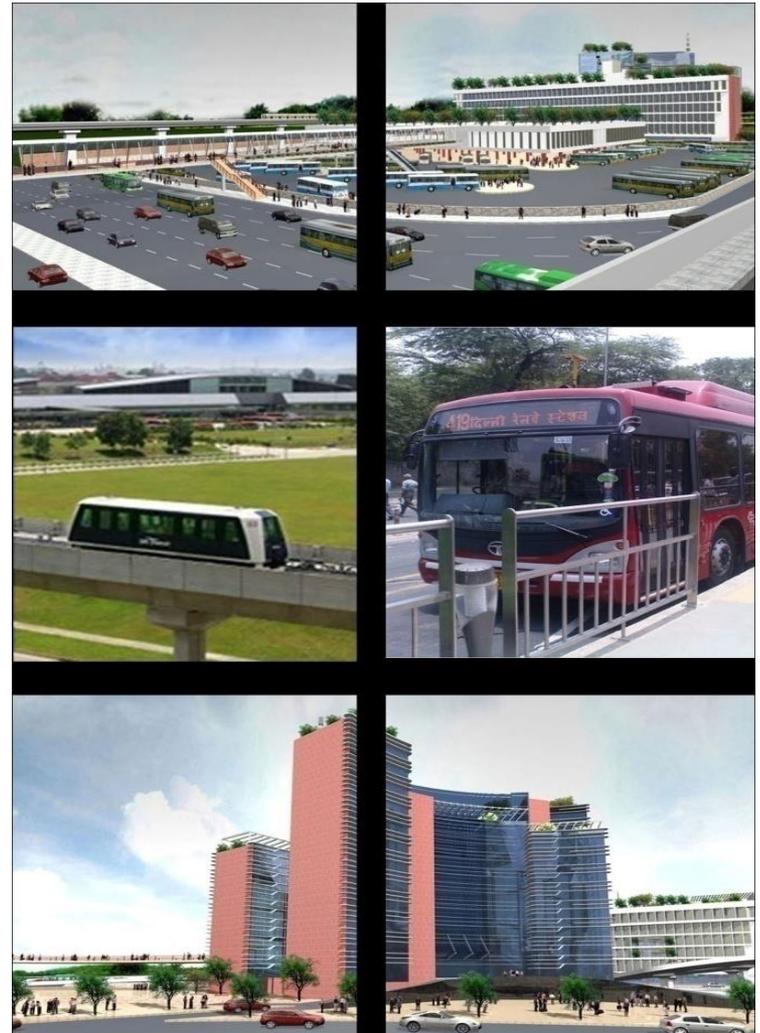
Mission

To provide reliable, safe, accessible, user - friendly and sustainable public transport within walking distance for commuters and set up a mechanism to deliver public Transport that keeps pace with growth in demand .

Core Competence

DIMTS is a knowledge based entity with expertise in urban and transport development.

An advocacy and think tank for best practices in public transport, working with private sector flexibility but solely to further public interest.



DIMTS' expertise, including in Digitalizing Transit Payments

End to End Solutions for Land Based Transportation Systems

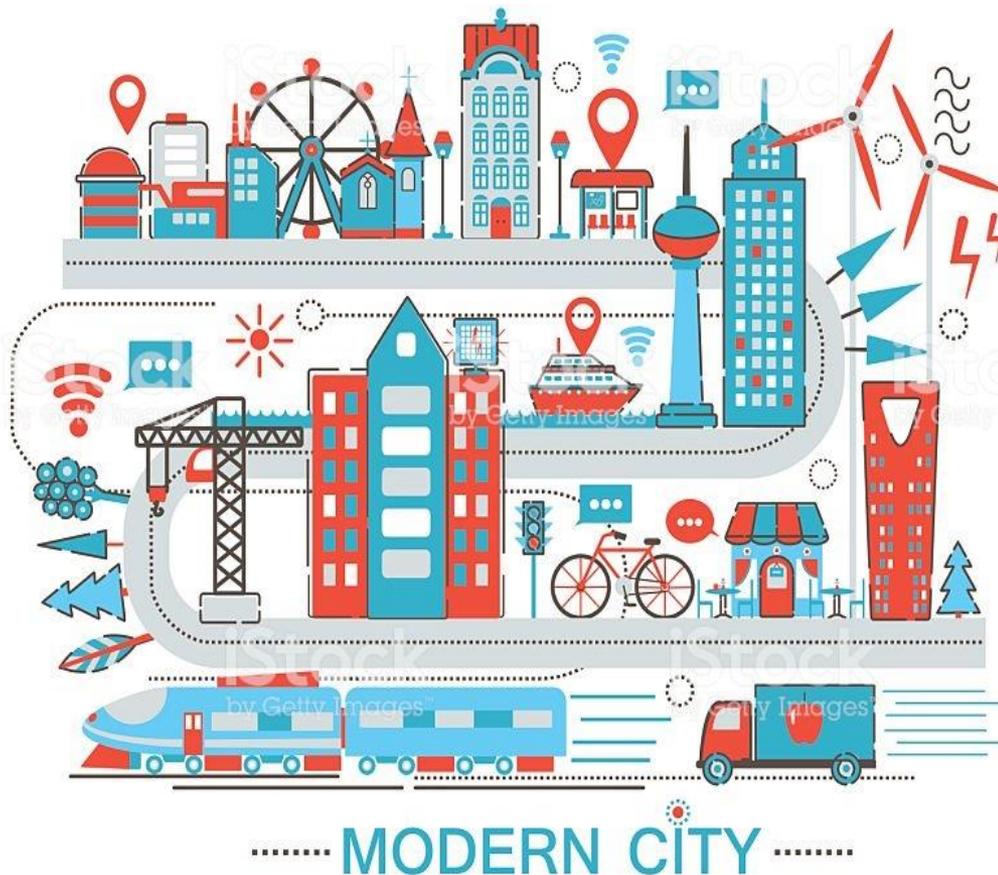
Plan-Design-Supply-Install-Test-Commission-Operate

Advisory Services	Transport Planning	Engineering	Transport Technologies	Operations
<ul style="list-style-type: none"> • Policy Advisory • Feasibility Analysis • Project Structuring • PPP Advisory • Bid Documentation • Bid Process Management 	<ul style="list-style-type: none"> • Comprehensive Mobility Planning • Urban Mass Transit Corridor Planning and Design • Traffic Simulation • Route Rationalization • Planning of pedestrian and NMV Infrastructure • Parking 	<ul style="list-style-type: none"> • Design • Project Management • Independent Engineering Services <p>Road</p> <ul style="list-style-type: none"> • ISBTs • Depots • Bus Queue Shelters <p>Railways</p> <ul style="list-style-type: none"> • Alignment and Track design • Railway Siding • Signaling 	<ul style="list-style-type: none"> • Vehicle Tracking, PIS, PAS • Electronic Ticketing & Automatic Fare Collection System • Electronic Toll Collection • Bus Fleet and Depot Management System • Smart Phone applications • Data Analytics & BI • E-Governance • Intelligent Signaling 	<ul style="list-style-type: none"> • Bus Concession Management • BRT Corridor Management • Smart-card Issuance Management • Parking Management • Terminal/ Depot Management

MOU with NPCI



Setting up a Smart Transportation System



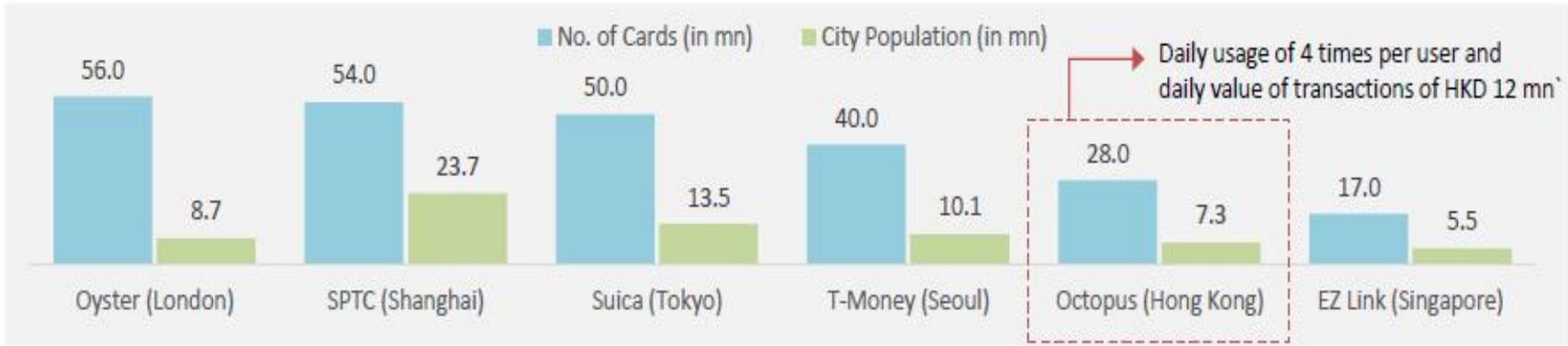
- *The improvement of the passenger public transport and of the quality of this service is a key factor for achieving sustainable urban development from the social, economic and environmental points of view.*
- *A public transport that the citizens would appreciate and use without thinking about the individual alternative can be obtained by different means depending on the local context, financial resources and national and local policies.*

So, what are the Smart Transportation Systems?



- Smart transportation systems include intelligent traffic management systems, smart charging for EVs and intelligent public transportation systems, smart payments etc.
- While all these systems are crucial in urban environments, M2M communication, data sharing between different types of mass transit and the immediate customer experience are key success factors.
- And one key way to enhance customer experience is through seamless transit payments.

Leading Digital Fare Collection implementations across the globe



- Most leading global implementations are based on Open Loop or Semi-closed Loop Cards, in Urban Transit and in case of on-board ticketing
- Mobile as a form factor is gaining traction in Intercity and in case of off-board ticketing

A Smart City should offer integrated multimodal digital ticketing



- Integrated ticketing solutions to reduce the hassles/ time of multiple fare payment
- Tickets and payment facilities should be widely available, e.g. ticket vending machines, kiosks, Internet and on mobiles.
- Integrated ticketing and tariff policies between different public transport operators (public bus service and the Metro, or even autos/ bike taxis e.g.)
- Easy and attractive payment methods e.g. the NCMC or QR code based payments for contactless payment of integrated fares.
- The ease and convenience of the purchase permitted by innovative ticketing systems in a city should attract more public transport passengers, resulting in fewer private cars entering the urban area. The accessibility of public transport in general is enhanced with the introduction of a ticket valid for all types of services and vehicles.



Open Loop: Multi-mode | Multi-Channel | Multi-Form: Higher adoption

Form Factor



Contact & Contactless Card



Wearable Devices



Mobile Wallets



Transit – Tap and Go



Other Cases – Taxi, Museum, Parking, Tolling



E-Wallet: In Store and On Line



Ration shops

DTH/ Mobile bills

Government and Utility Payment



A Snapshot of Transit Cards in India, and some challenges

Open Loop: Projects Launched

City	Bank	Status
Ahmedabad	ICICI Bank	Launched on June 24th, 2017
Kochi	Axis Bank	Launched on June 17th, 2017
Bangalore	Axis Bank	Launched on June 17th, 2017

Projects In Progress

City	Bank
Surat	ICICI Bank
Bhubaneswar	ICICI Bank
Nagpur	SBI
Noida	SBI

Upcoming Projects

City	Bank
MMRDA (Mumbai)	TBD
Raipur	TBD

- Ecosystem readiness:
 - Device and Host certification
 - RuPay qSPARC v2.0
 - Choice of devices
 - In-bus ITMS infra
 - The devil is in the details!
- Commercial model:
 - MDR & processing fees
 - This is leading to a quasi-Closed Loop situation in most deployments
 - Need to pare costs and there comes in UPI

Closed Loop System NFC Cards



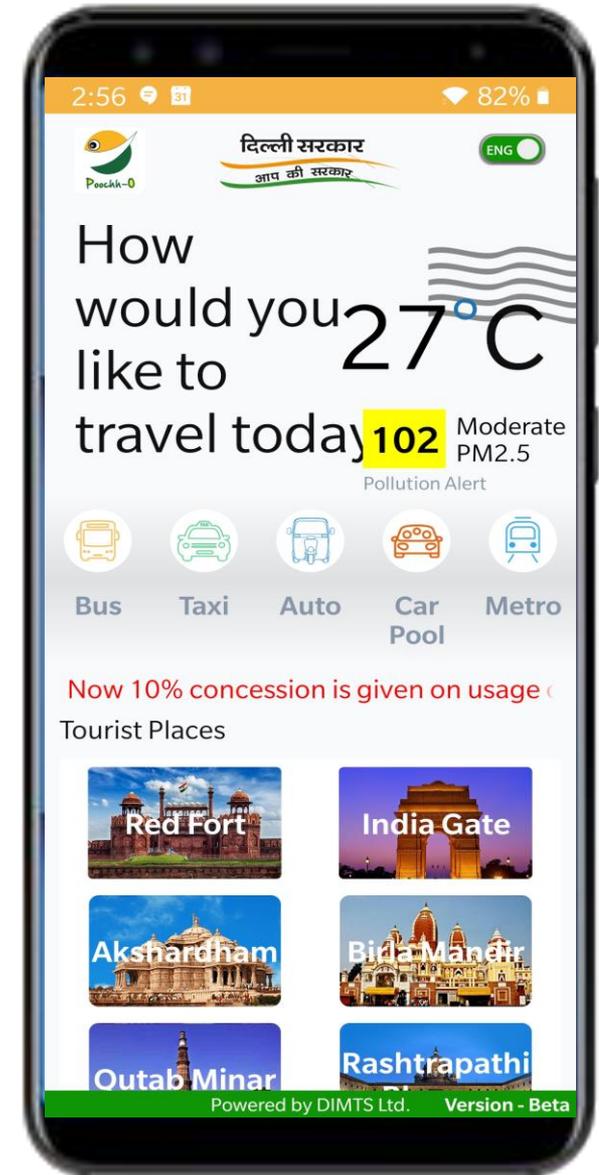
Semi Closed Loop Card



NFC Contactless Open Loop Prepaid Cards

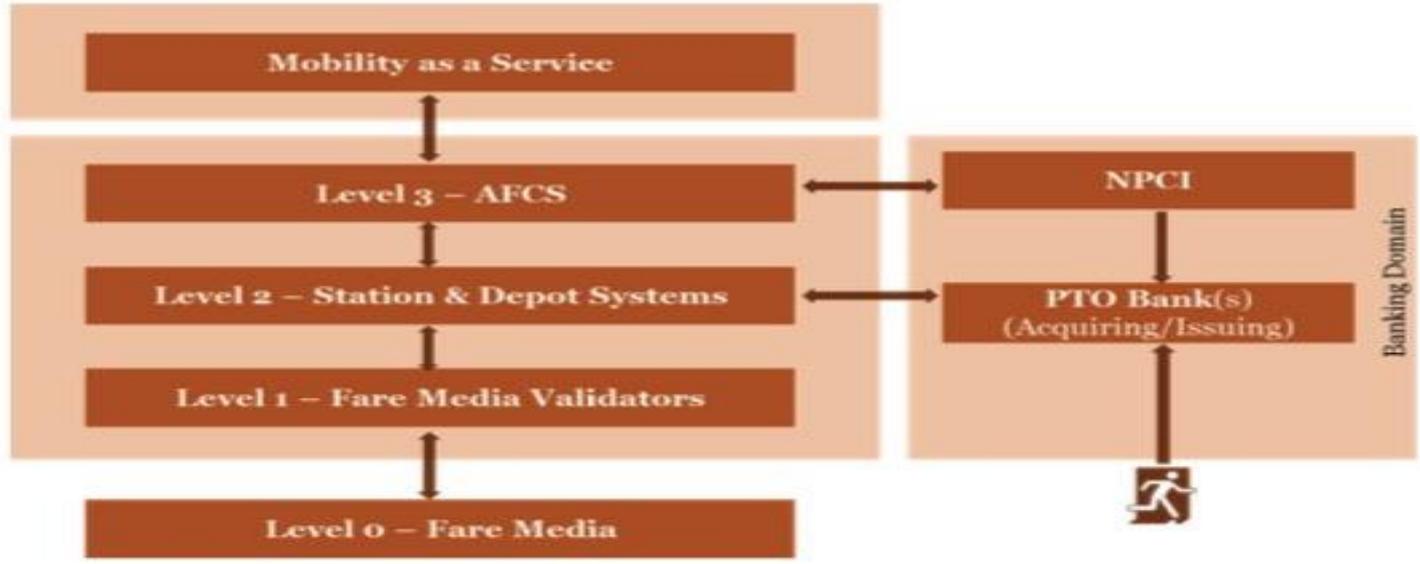


The first true Common Mobility Solution in India (Semi Closed)

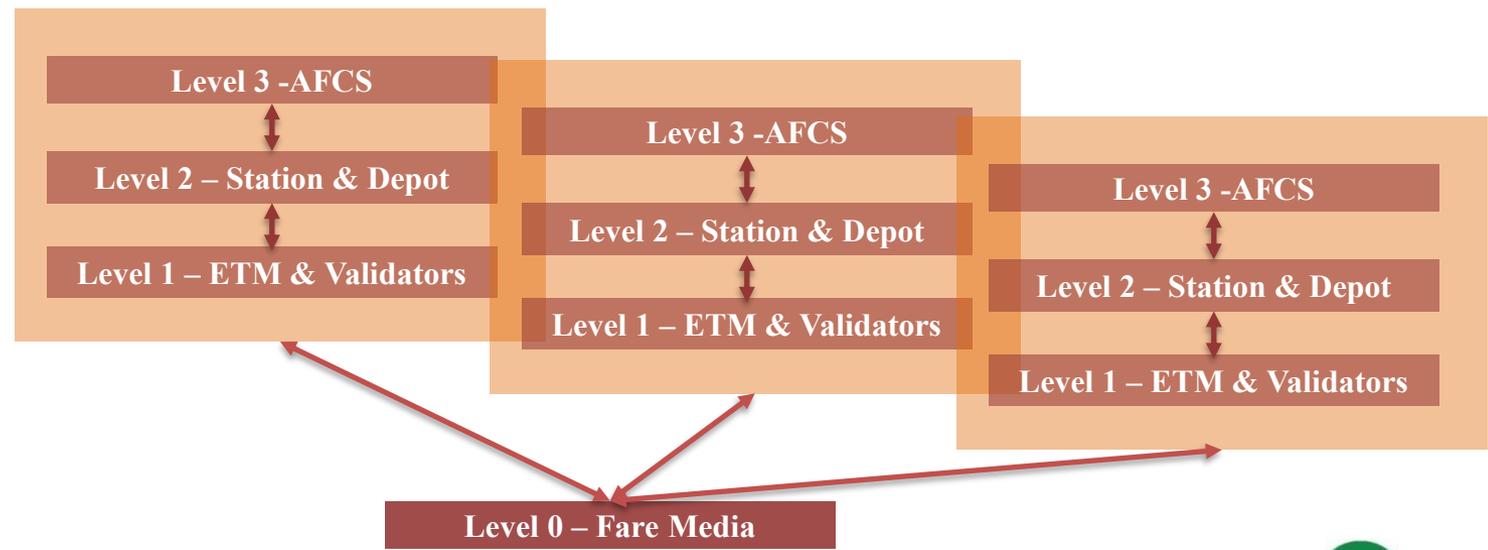


Multimodal Fare and Payment Integration Models: Examples

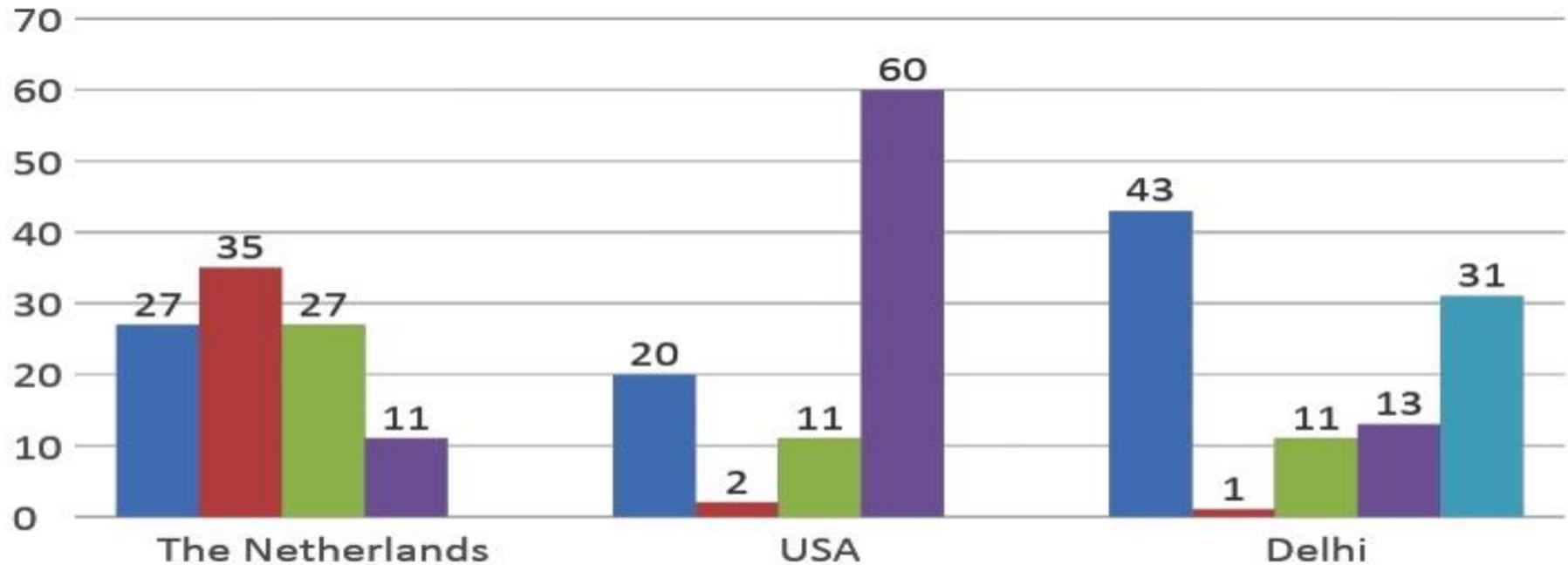
Model 1: MMRDA NCMC Open Loop



Model 2 : Delhi Semi Closed Loop



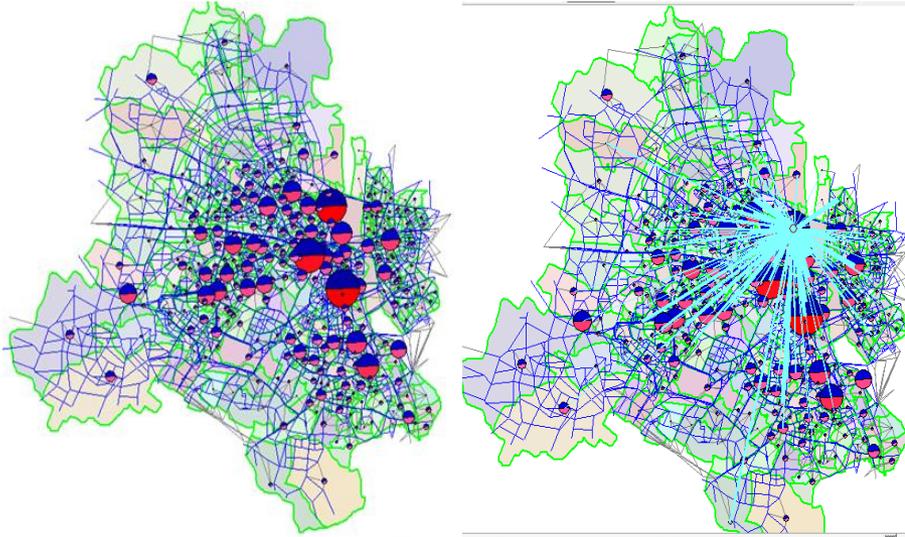
The Last Mile, but not the Least!



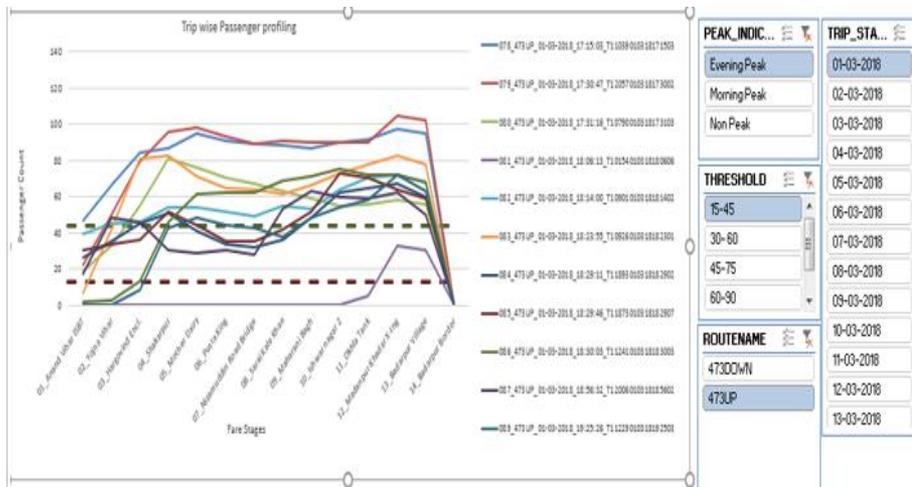
Source: WRI India: 2017 ■ Walking ■ Bicycling ■ Bus ■ Car/2W ■ IPT

- Regions like South America, India, China and South East India, with low credit card penetration, required unique solutions.
- This has led to in-app wallet solutions like Alipay (China) and Paytm, PhonePe (India) etc.

Plan Better: Analytics and Route Rationalization



- Data from AVL and Digital Ticketing can be analysed in modelling software and used for
 - Development of Origin – Destination matrices and planning of new routes
 - Existing Bus Route rationalization including frequency adjustment
 - Bus Route overlap analysis and rationalisation of services
 - Deciding on Bus Sizing with reference to various routes/corridors
 - Identification of congested Bus Route sections and development of bus priority proposals
 - Multimodal Integration by integration of services in Rural areas
 - Interchange and adequate BQS and bus infrastructure planning





Thank You!

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