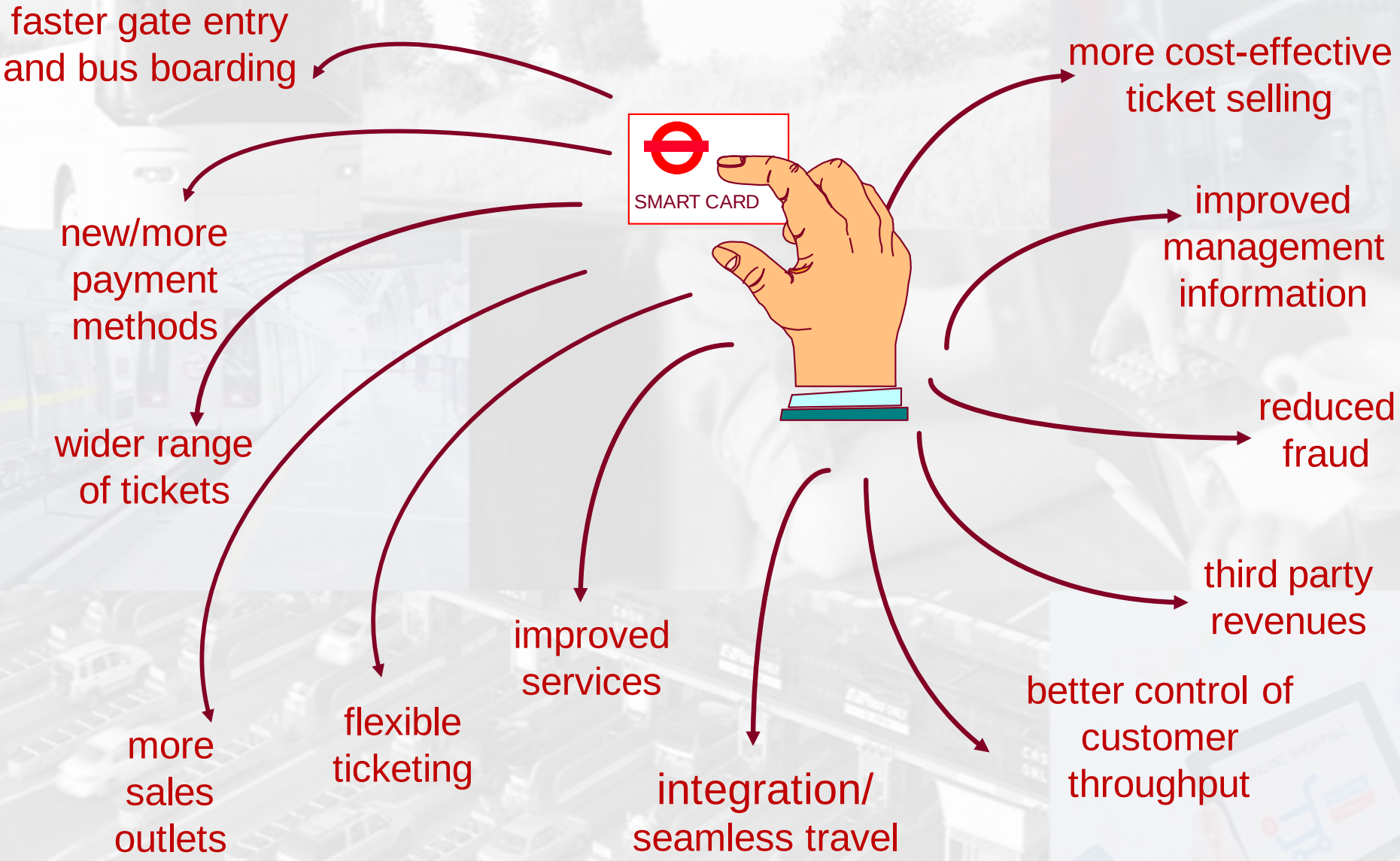
Smart Transport Ticketing in India

Drivers for Introducing Smart Card Ticketing



Global Trends & Practices - On Board Ticketing

NPCI
भारतीय राष्ट्रीय भुगतान निगम
NATIONAL PAYMENTS CORPORATION OF INDIA

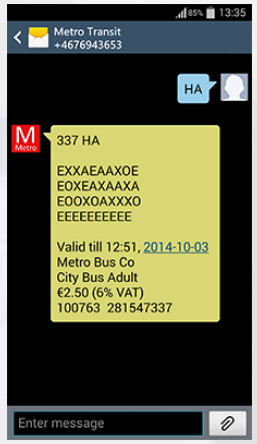
Paper Tickets

Tap-in

Tap-out

Global Trends & Practices – Off Board Ticketing

Ticket Media



Validation

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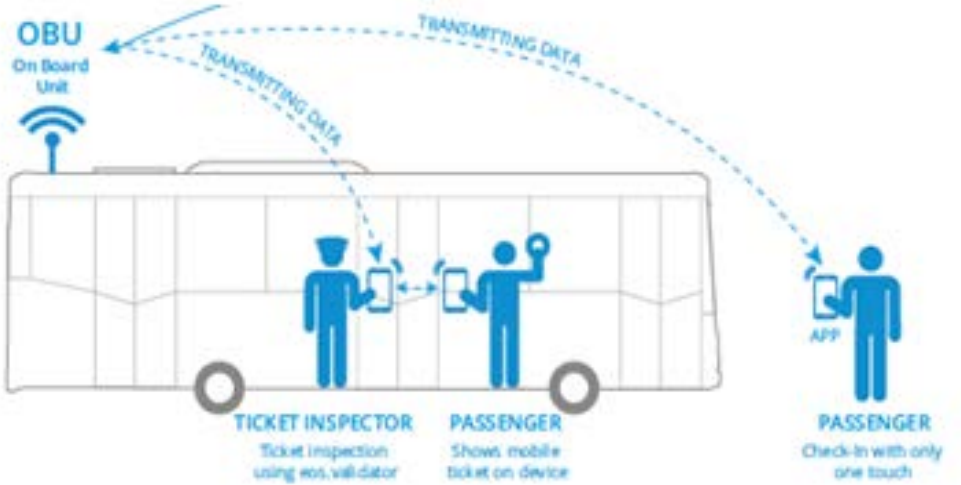


Overall Observations from the Global Case Studies

- Most leading implementations are currently over closed loop / semi closed loop model. However all of these deployments have reached a saturation point and customers are reluctant to block money in various balances
- In the context of above third party closed loop systems are gaining strength since it allows customers to manage these payments through a single balance
- To arrest the above trend transport operators deploying technologies in a effort to move towards an Open Loop model so that customers can pay using existing accounts without creating fresh balances
- Card based fare collection is the most prevalent technology with on-board ticketing and largely used for urban transport
- Mobile based fare collection gaining some traction based on off board ticketing concept and largely gaining traction in intercity travel

Current Digital Fare Collection Media

Arrangements for fare collection	Cash	Closed Loop	Open Loop
In-house fare collection management	✓	X	X
Fare collection management in association with System Integrator	✓	✓ Cash Card	X
Fare collection management in association with System Integrator and Financial Institution	✓	✓ Hybrid Card	✓ NCMC

Closed Loop System NFC Cards

Delhi Metro

Mumbai Metro

Closed Loop System NFC + EMV Debit Cards

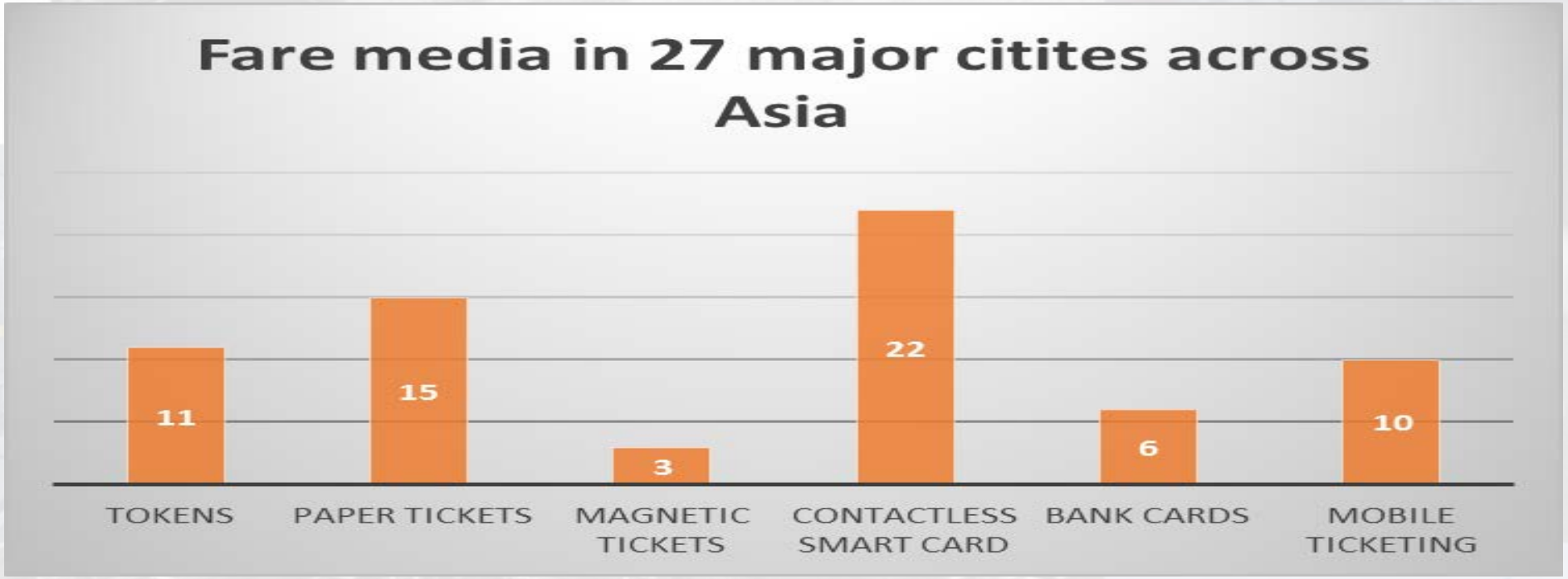
UPSRTC (Uttar Pradesh)

NFC Contactless Open Loop Prepaid Cards

BMTC (Bangalore)

Kochi Metro

Public Transport System In Asia



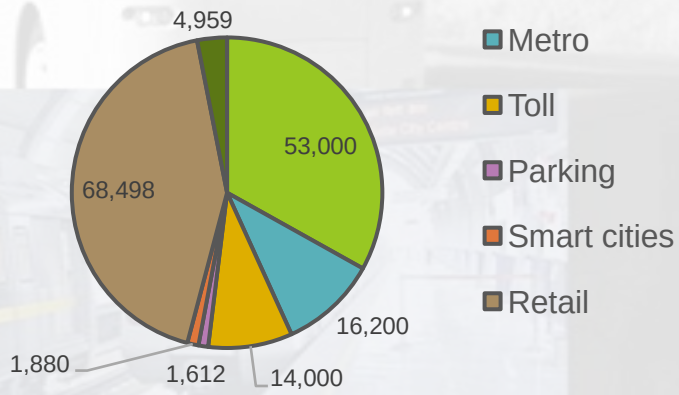
Source: GMT Research

22 out of 27 cities have adopted contactless smart card across transport modes and operators.

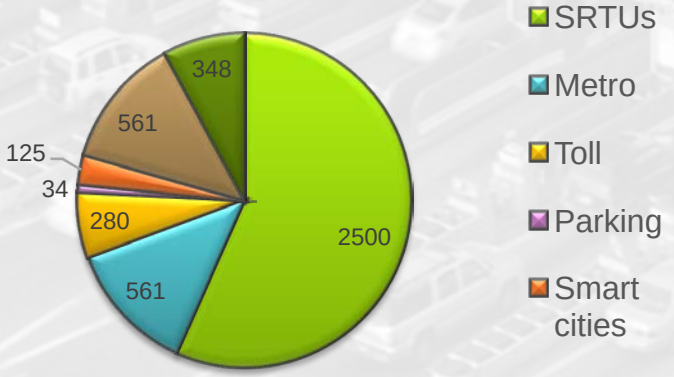
Opportunities

Business Potential

Transaction Value per annum (in INR, Cr)



Transaction Count per annum (in Cr)



Use Cases

Key Considerations – Fare Media

- Should be Easy & Convenient to use by Commuters so as to enable deeper demographic penetration of the system among the masses
- Should be a Cost-effective solution for the Commuter
- Must have all necessary Security features to ensure safety of data and money
- Must be Inter-operable across Wide avenues of usage – vision of single fare media for use across multiple modes of transit, parking, Tolling as well as retail purchases

Stored Value – Open Loop vs Closed Loop?

Feature/Specifications	Closed Loop	Open Loop
Card issuance	Issued by Operators on the Spot	Bank issued cards (Debit/Credit/Prepaid) both at the Spot and through Bank
Card Top-up	Cash, Online and Auto Top-up	Cash, Online and Auto Top-up
Limit on storage value	Prepaid instrument with maximum limit as per RBI guidelines	Stored value provision as per RBI guidelines; the actual card can be standard debit or credit card
Interoperability and acceptance	Closed loop card acceptance only at select proprietary outlets	Work in all Open loop POS terminals, ATMs and E-commerce as Contact/Contactless
Fare media cost	Card cost borne by PTOs; Smart Card lifecycle management by PTO	Bank issued cards for customers; Card lifecycle management by Banks
Transaction Cost to PTOs	Low since no other entity involved except system Integrator	Standard MDR charge as agreed by industry for various transit types
Payment system Maintenance costs	High fixed maintenance costs for closed loop payment system hosted at PTO's end	No costs to PTO and standard AFC system plugins
Vendor lock-in	Yes – proprietary message format	No; supports EMV and ISO 8583 messaging format
Potential of digital payments penetration	Limited; as customers need to carry multiple cards/balances for multiple PTOs	Higher digital adoption and speed to market with One card/balance for all payments

Open Loop Project Status

Live Open Loop Projects

- Bangalore Metropolitan Transport Corporation (BMTC)
- Kochi Metro Rail Ltd (KMRL)
- Ahmedabad Smart City

WIP- Open Loop Projects

- Nagpur Metro
- Hyderabad Metro
- Delhi Metro Rail Corporation

NCMC Specifications from NPCI

- NPCI was entrusted by Ministry of Urban Development (MOUD) to prepare the standards & specifications of the NCMC
- NCMC is an interoperable, open-loop, EMV based contactless payment product. This advanced and secure card can be used for all payment applications including transport (Metro, Bus etc.), toll plazas and shopping.
- For payments lower than INR 2,000, the customers can simply tap their card and the transactions are processed in a matter of seconds.

Customers are also able to leverage other digital payment solutions offered by RBI / NPCI

National Common Mobility Card

Outline of NCMC Standards to be followed

- Online (CT & CL) tran.
- Offline (CL only) tran.
- Dedicated storage areas
- Can be used for transit, toll, parking & small value merchant payments
- Can be issued as debit, credit or prepaid card

Features of National Common Mobility Card

- Banks issued standard & Secure Payment method based on dual interface EMV+ standard
- Vendor agnostic ecosystem
- Provision of Stored Value
- Reserved space on card
- Can be used on PoS/ATM machines

Architecture

Card issued as Credit, Debit or Prepaid

Issuing bank

Stored Value on the Card

Fare collection

Fare collection

Retail purchases

Metro Rail

Buses

Parking

Toll Plaza

Retail stores

Terminal / AFC system sends txn to Acquiring Bank

Provision of Central/Zonal/Standalone AFC

Acquiring bank

Key Stakeholders

Issuing Banks (Multiple Entities)
AFC System (Regional Zones)
Acquiring banks (Specific to Zones)
Clearing System (NPCI)

NPCI Settles between Issuer and Acquirer

Acquirer sends txn file to NPCI

Benefits

Customer

Operator(PTO)

Financial Institution

One card for all use

- Interoperability for multimodal transport
- Quick transaction with contactless mode
- Reduced cash holding
- No need to stand in queue
- Digital trail for all transactions
- Offers on usage of cards

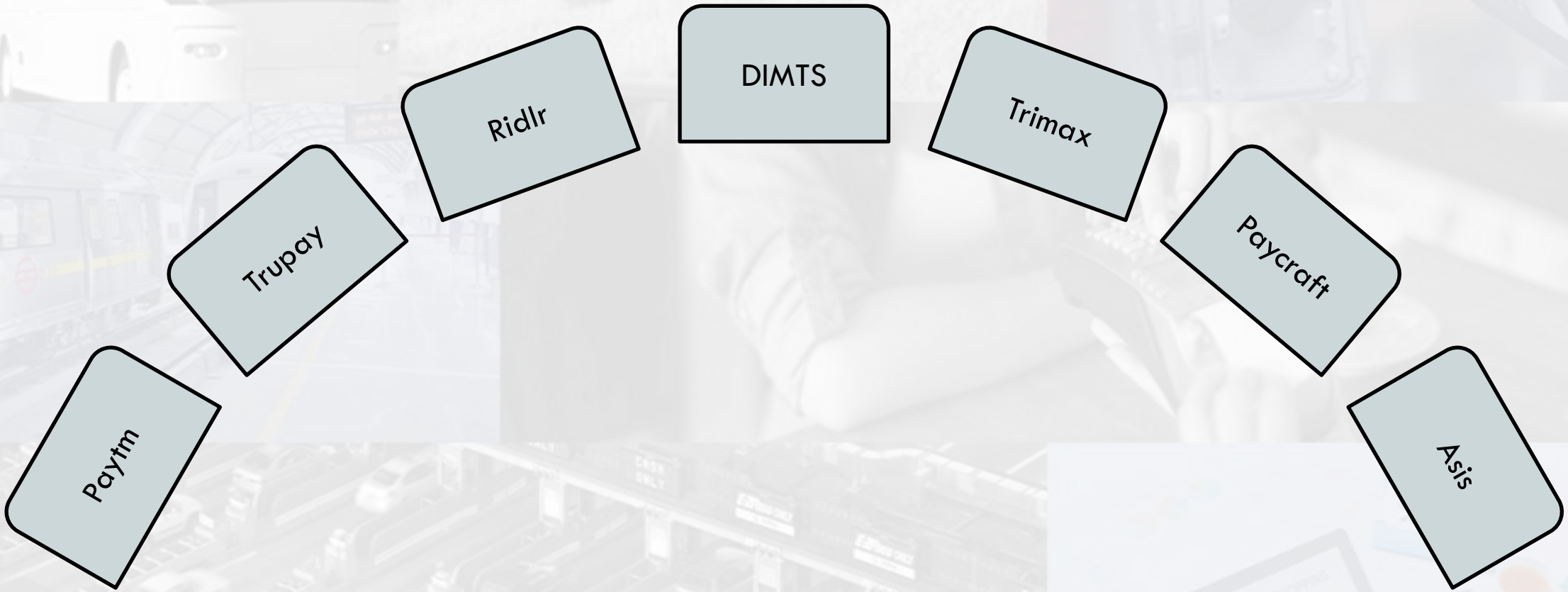
Common standards

- Unified cards with online/offline transaction
- Savings on card lifecycle management cost
- Reduced cash handling & operating cost
- Higher customer loyalty & stickiness
- Rich data insights

Large customer base for issuance

- Interoperability; Access to unbanked customer
- Higher activation percentage, consumer spend
- Increase in CASA deposits
- Business intelligence with rich data insights
- Long term business relationship with PTOs

Other Solutions available in Market



Need for a unified ticketing platform aimed at value proposition for Customers, PTOs and FI…….

Thank You