



17 & 18 March 2026  
Olympia London



Sentient Cities

# From Smart to Sentient:

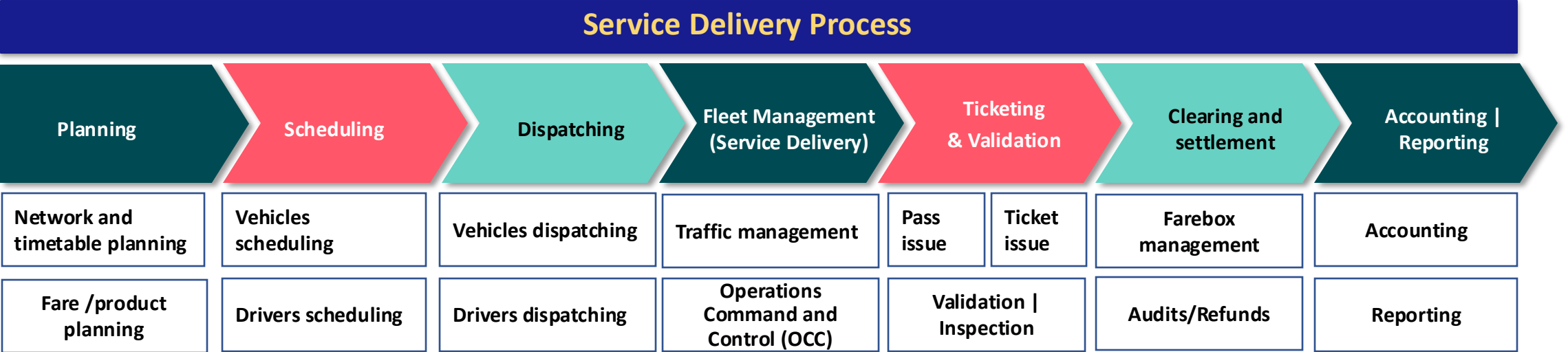
## The Next Evolution of Transit Ticketing

Dr. Dheeraj Bhardwaj  
Former CEO – City Group Co. Kuwait

[www.sentientcity.org](http://www.sentientcity.org)

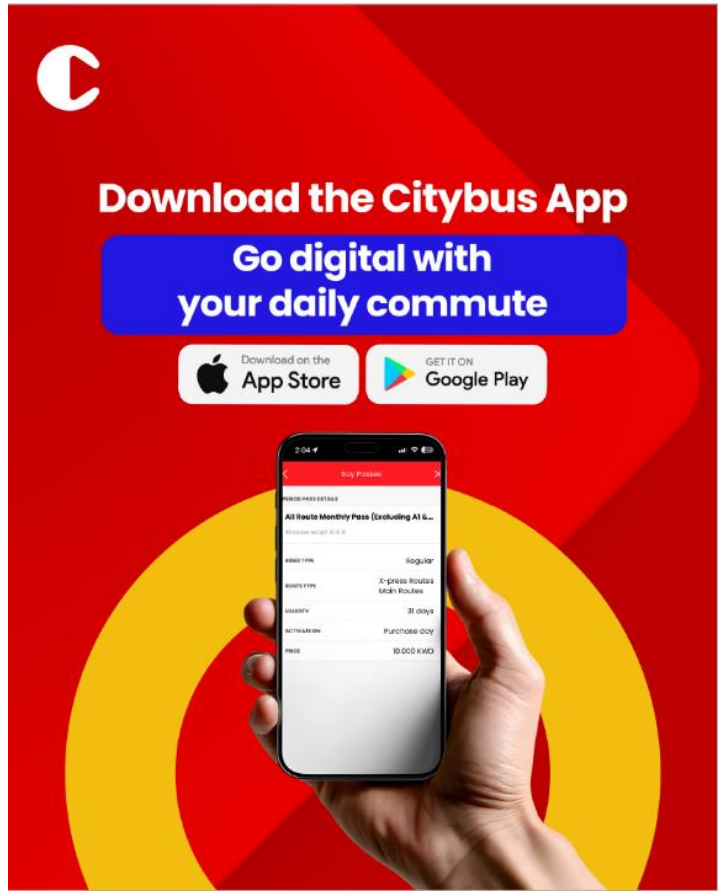
# AFC is pivotal to the digitalization of mass transit...

Complete integration demands digitalization across the value chain making public transport more efficient, reliable, convenient and punctual



# From Complexity to Capability: Delivering the Region's First ABT System

An Account Based Ticketing (ABT) system that offers QR code-based paper ticket, Smart card and mobile payment option and provides seamless integration with service delivery value chain



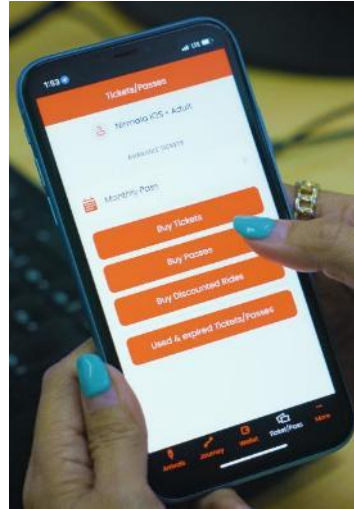
**Download the Citybus App**  
Go digital with your daily commute

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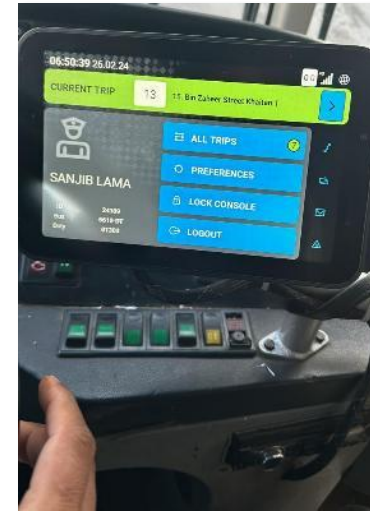
Category	Price
All Route Monthly Pass (Excluding All & ...)	10,000 KWD
Regular	
2-Pass Routes	
30 days	
Purchase only	

**amco** **RIDANGO**

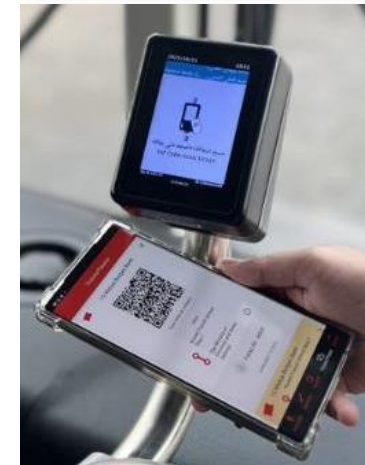
Mobile app integrated with AVL



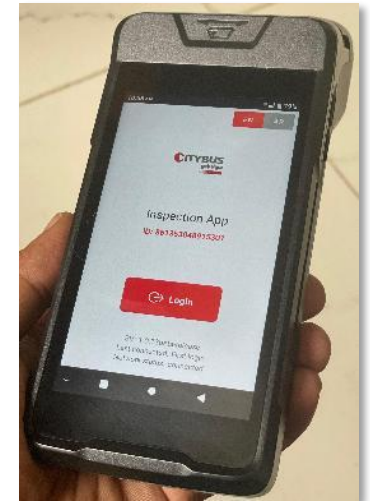
Driver terminal



Validator



Inspections and sales



# ABT implementation has unlocked new opportunities...

There are some unique features implemented in our ABT system making it ready for integration with other transits modes and Supper App for non-transit revenue potential

**C**

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**C**

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Know where your bus is, before you arrive.



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**C**

Your Safety comes first.

CCTV cameras are in operation on this bus to ensure a safe and secure journey for all passenger



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LOST SOMETHING?

Our Lost and Found Team are here to assist!

Contact 1882211 for assistance



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INTRODUCING THE NEW CITYBUS SMART CARD!

Your Smart Card can also be linked to your Citybus App for an even more Smarter Commute



Download app & go digital today!

Swipe to see how it works

**C**

HOW TO LINK SMART CARD ON APP?

Follow these Steps:

- Download Citybus app
- Click on MORE and select SMART CARDS
- Add smart card to your account
- Your smart card is now linked to your Citybus App



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**C**

Buy KD 10 Digital Monthly Pass with Unlimited Rides. App only

\*All Routes Excluding A1 and X1



Download app and go digital today!

**C**

Applicable on all bus passes. Link it to your Citybus App and manage all your trips synced in one place

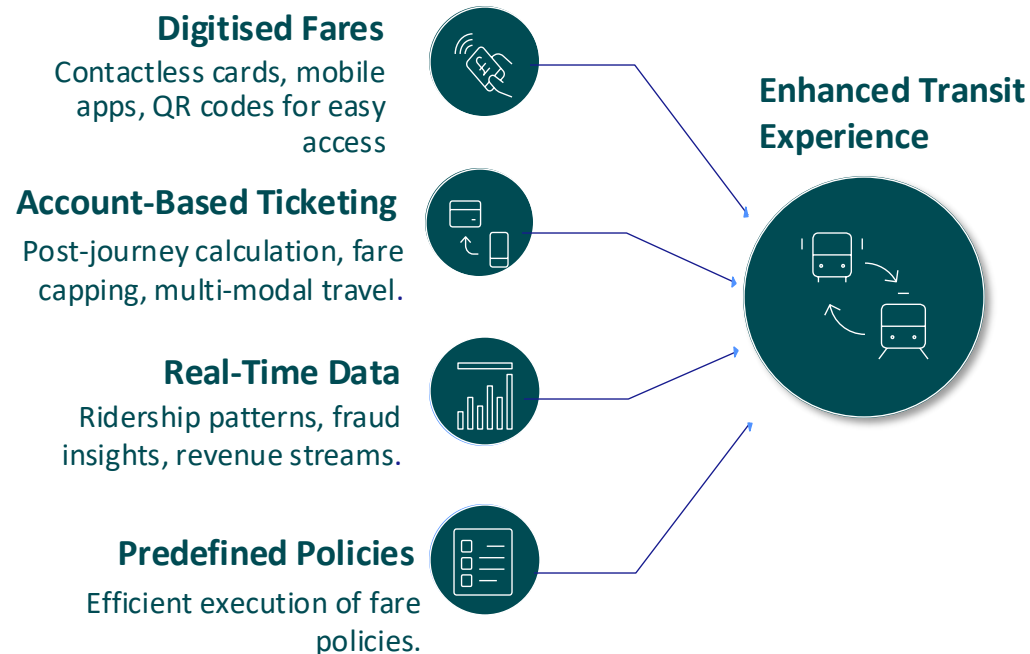


Download app & go digital today!

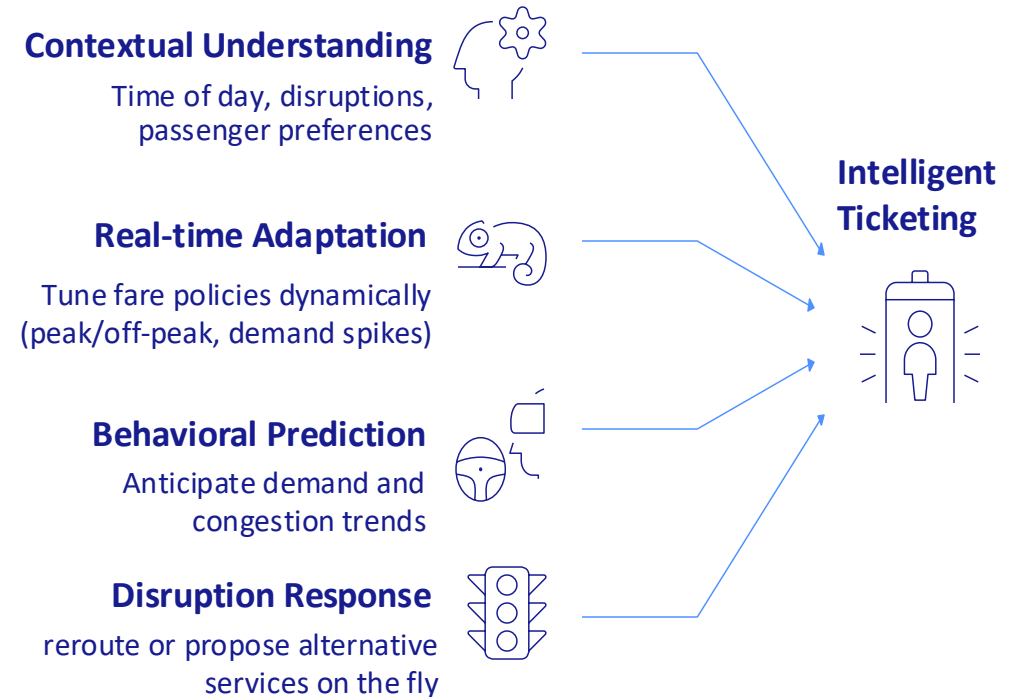
# We've digitised fares — now let's make ticketing *intelligent*

Transit systems are increasingly expected to be frictionless, fair, efficient, inclusive, and resilient; Smart ticketing was just the start — the next leap is **sentient ticketing**

## What smart ticketing gave us



## What "Sentient Ticketing" Means

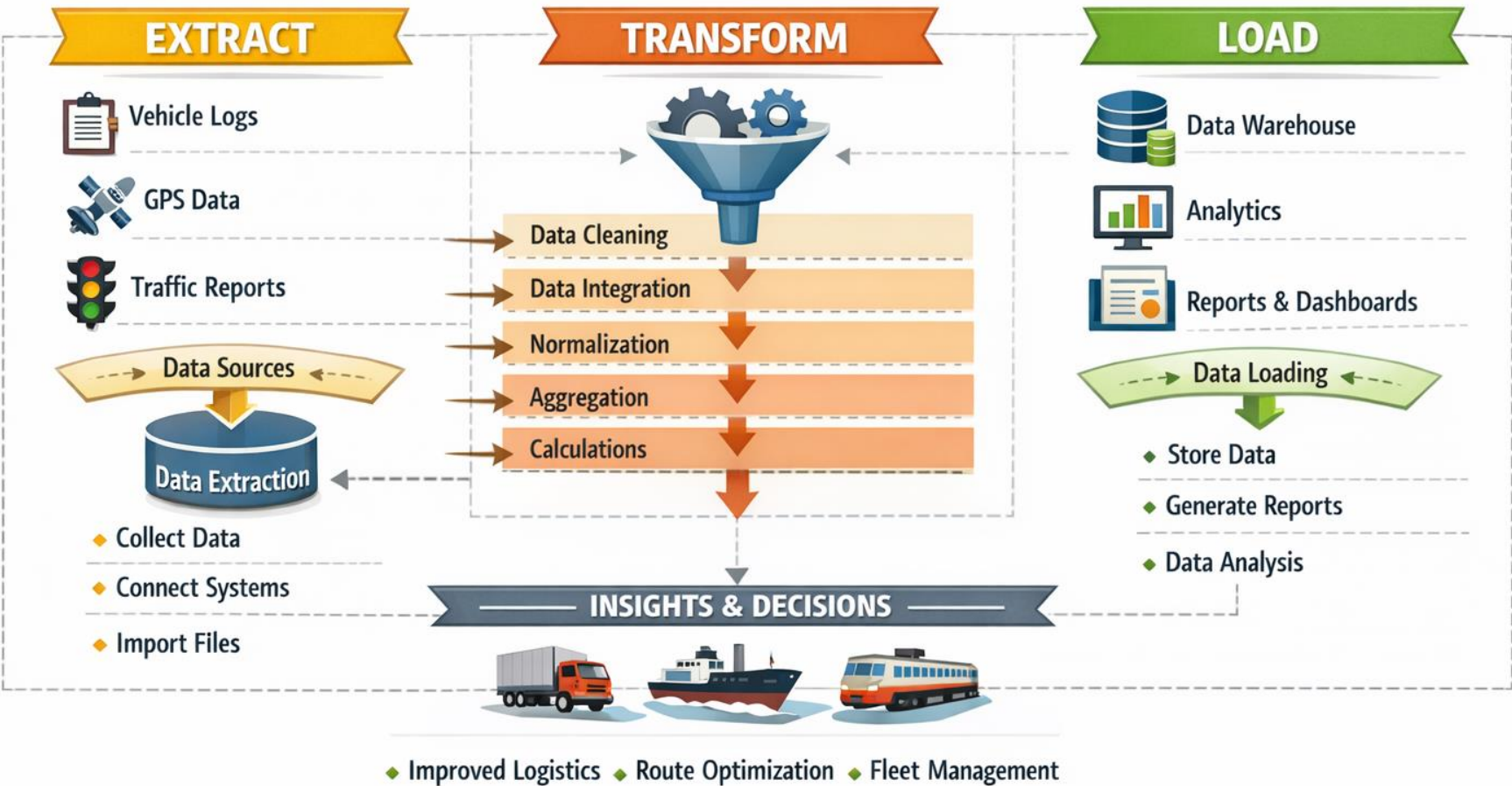


Think of sentient systems like navigation apps that not only show traffic but reroute you based on current conditions  
**Now apply that intelligence to ticketing**

# Digitalisation via traditional ETL generates vast amount of data....

Digitalisation is capable of generating incidental data at atomic level from customer, operations and backend system but only a small amount of data is used for Business Intelligence

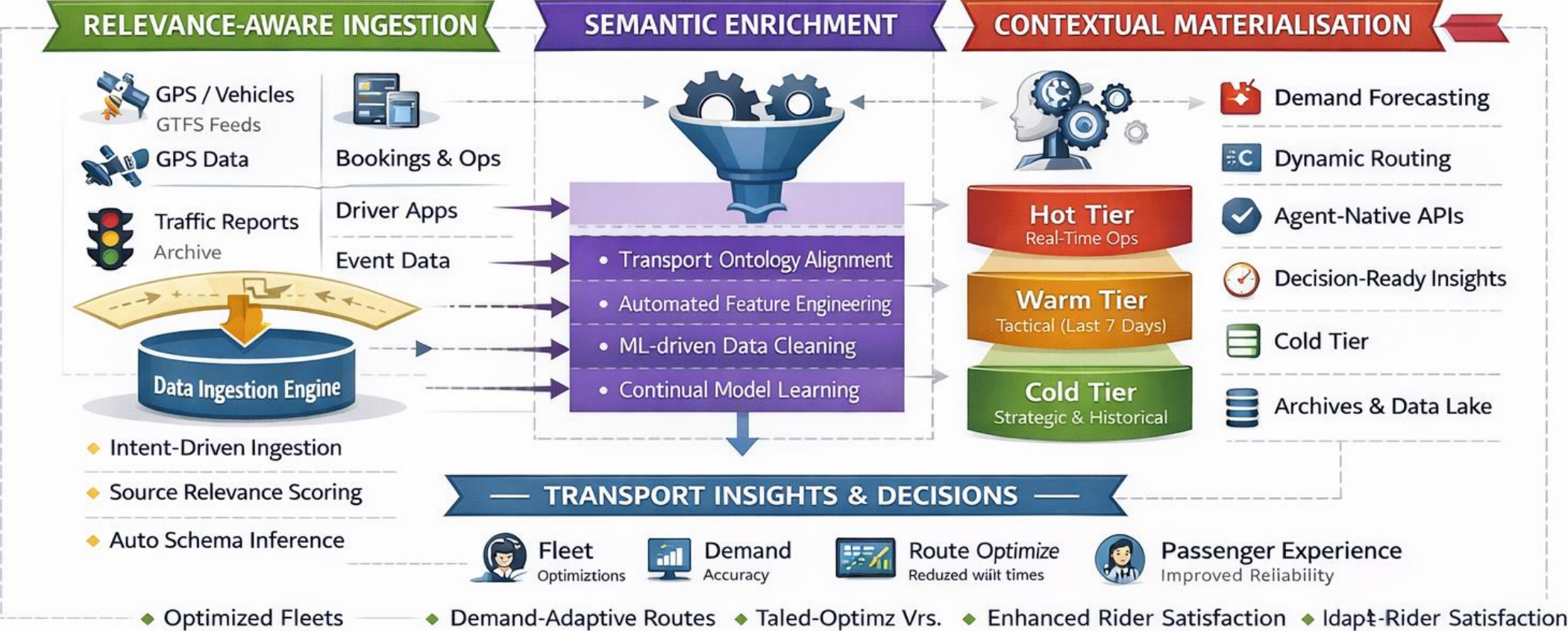
## Traditional Data Integration for Transportation Sector



# which becomes intelligent *Sentient Data Fabric* layer in AI world...

AI based tools allow to provide real time insights from the vast amount of streaming data ...

## Intelligent Transport Data Fabric

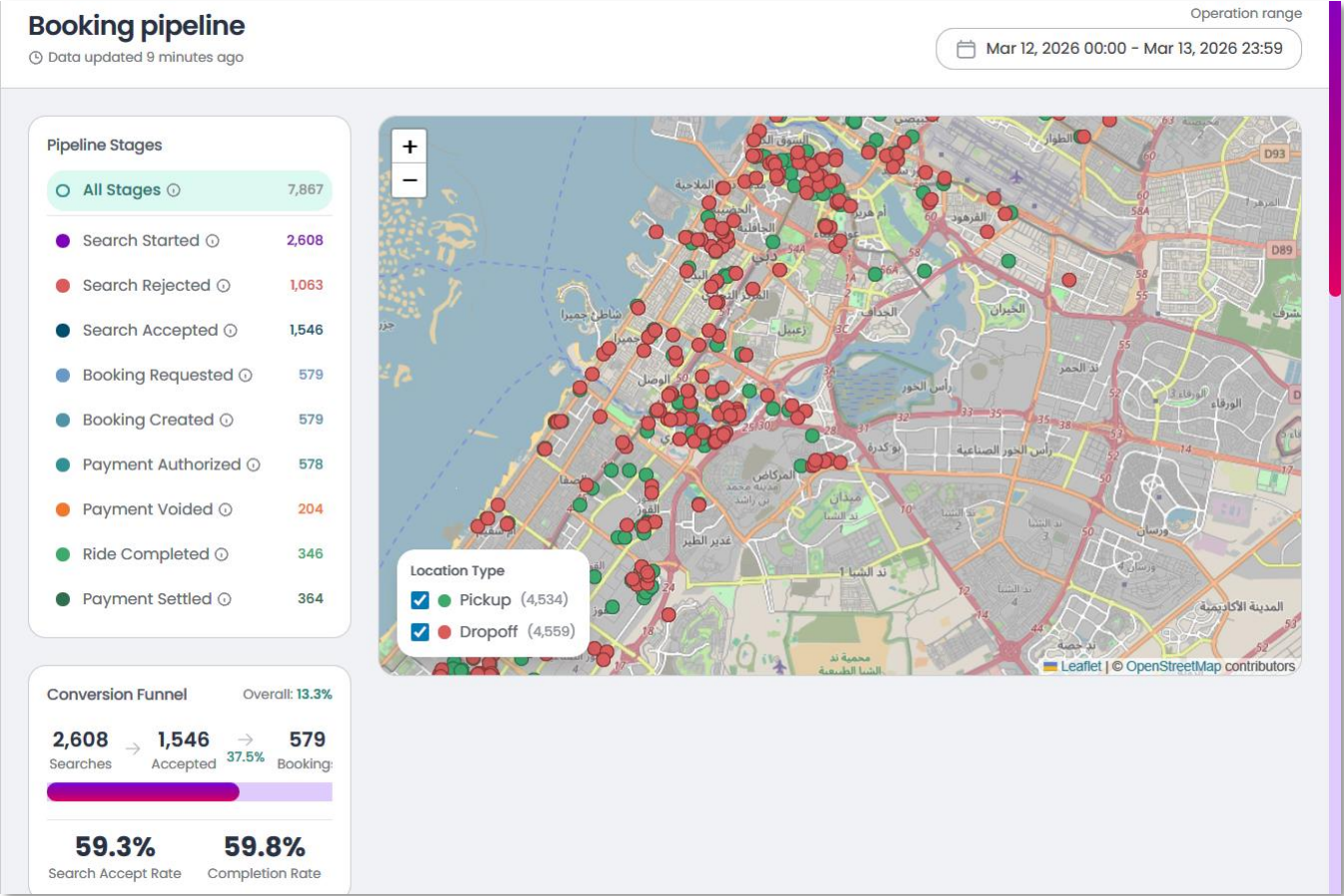
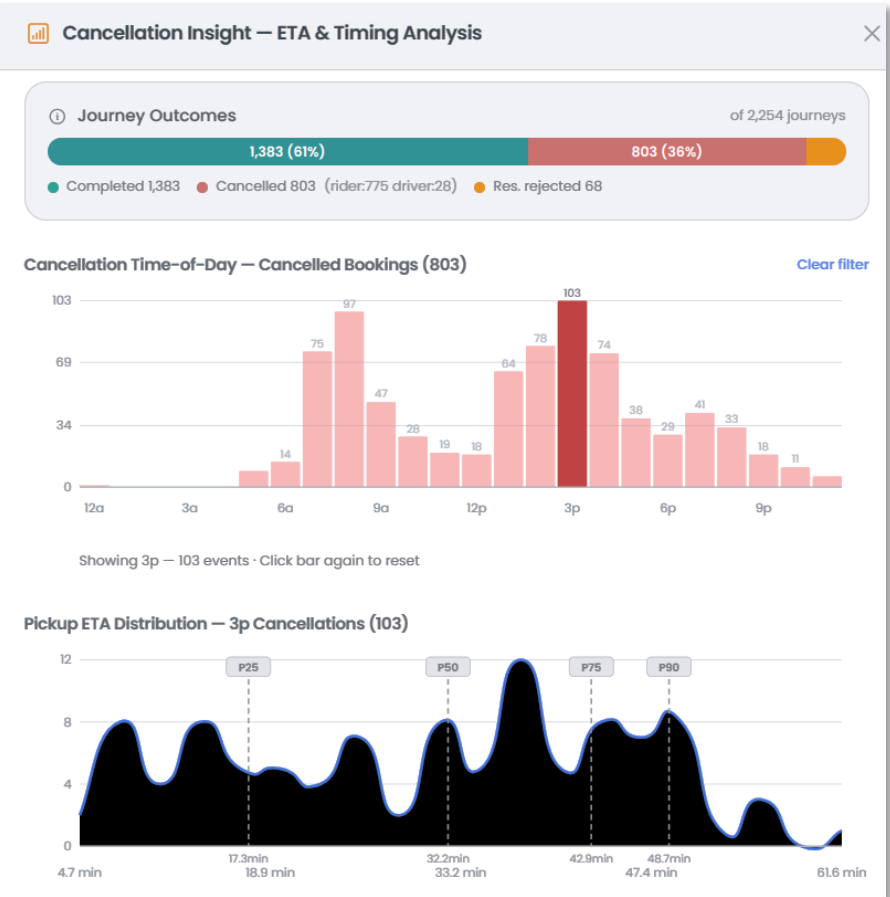


# Sample of real time AI insights from live operations

AI tools (dataobi.com) provides real time insights from the vast amount of streaming data without pre-feeding what is needed; it detects business use cases – intelligent fabric layer and then visualises data

## Contextualized semantic data feed

Auto detection of relevant data points such as real-time demand, ETAs, Time to cancellations, Vehicle load factor, automated vehicle positioning etc.



# Enablers of Sentient Ticketing

Intelligent systems are not new — they borrow from real-world AI and cloud design patterns



## AI & Machine Learning

Forecast demand and future travel patterns

Predict fare evasion risks or disruption impacts

## Real-Time Data Streams

Live location, ridership, and service health feeds

Dynamic fare adjustments based on snapshot conditions

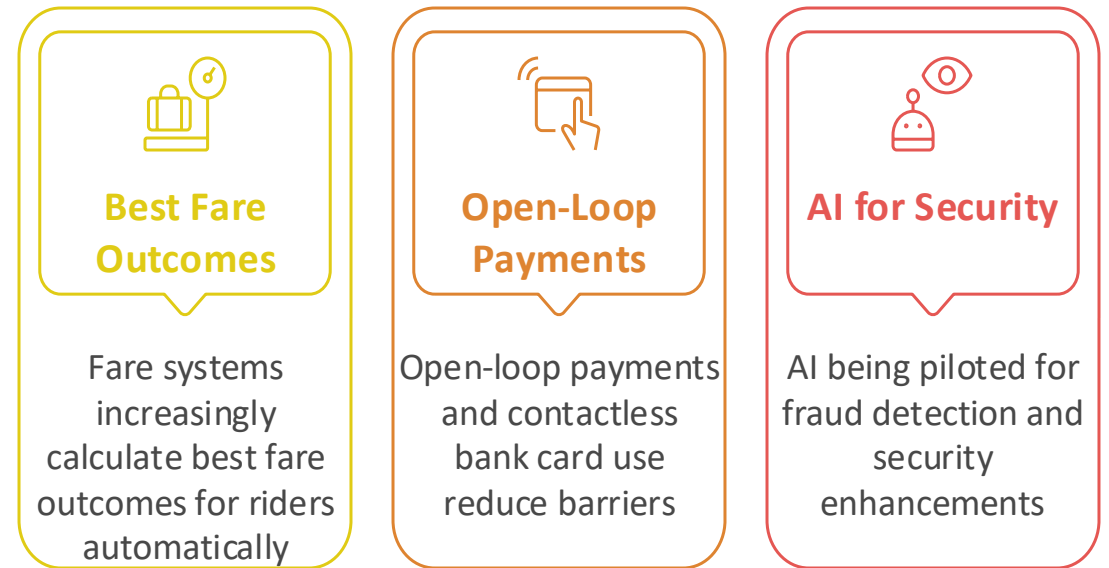
## Platform-Based Architecture

Centralised back-office systems, cloud services, API-first ecosystems

Enables cross-operator interoperability

## Real World Trends

Although examples vary across cities and agencies, core trends reinforce gravity toward sentient practices:



# Fare calculation in practice

Smart executes what you pre-define while Sentient decides what is optimal in the moment

Dimension	Smart Ticketing	Sentient Ticketing
Design Logic	Digitise fare rules	Continuously optimise network outcomes
Orientation	Transaction-centric	Outcome-centric
Intelligence	Pre-programmed logic	Adaptive AI-driven logic
Decision Authority	Fixed rule engine	Dynamic decision engine
Fare Calculation	<ul style="list-style-type: none"> <li>Fare calculated at tap-in/out</li> <li>Based on zones, distance, caps</li> <li>Same logic for every passenger</li> <li>No contextual awareness</li> </ul>	Fare may adapt based on: <ul style="list-style-type: none"> <li>Real-time congestion</li> <li>Passenger journey history</li> <li>System stress levels</li> <li>Disruption state</li> <li>Incentivised off-peak automatically</li> <li>Personalised caps</li> <li>Equity parameters</li> </ul>
<b>Example:</b> If Victoria Line is overloaded:	Charges normal fare	Pushes £1.20 incentive to divert to alternative route in real time

# Demand management and response to disruption

Smart executes what you pre-define while Sentient decides what is optimal in the moment

Dimension	Smart	Sentient
<b>Demand Management</b>	<ul style="list-style-type: none"> <li>• Post-event reporting</li> <li>• Reactive timetable adjustment</li> <li>• Manual policy updates</li> </ul>	<ul style="list-style-type: none"> <li>• Predictive congestion modelling</li> <li>• Pre-emptive fare incentives</li> <li>• AI-driven load balancing</li> </ul>

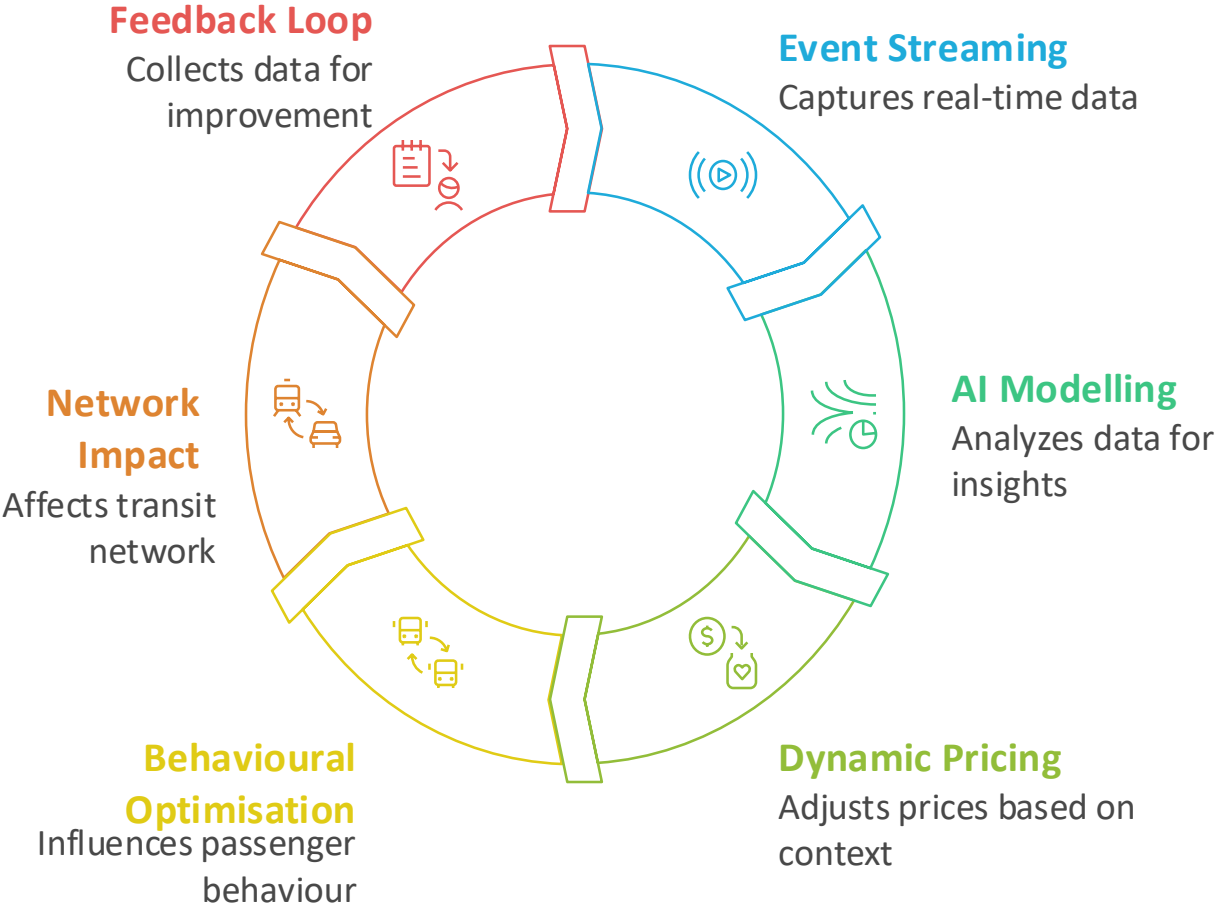
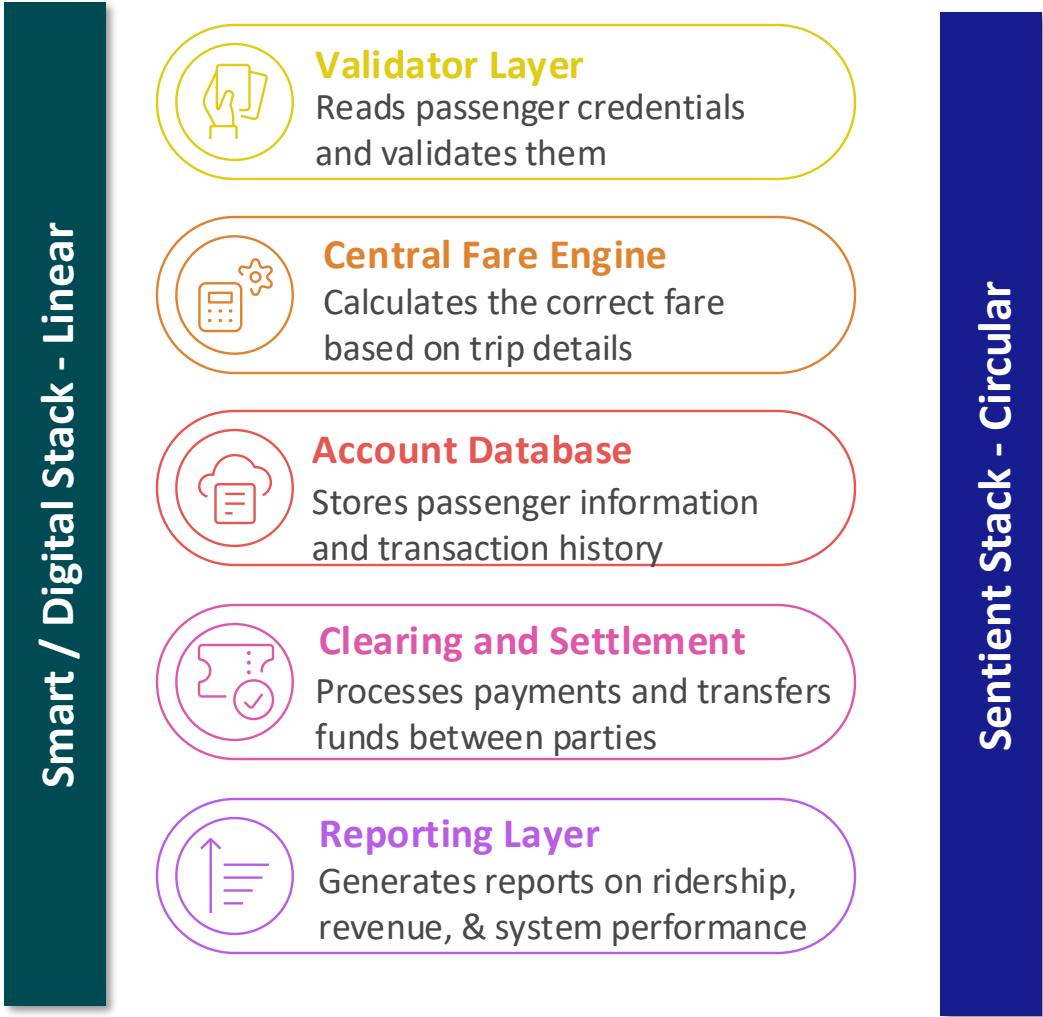
Dimension	Smart	Sentient
<b>Response to Disruption</b>	<ul style="list-style-type: none"> <li>• Static fare logic continues</li> <li>• Staff manually intervene</li> <li>• Communication separate from pricing</li> </ul>	Automatically: <ul style="list-style-type: none"> <li>• Recalculates entitlements</li> <li>• Applies fare waivers</li> <li>• Recommends alternative routes</li> <li>• Sends contextual notifications</li> </ul>

Scenario	Smart	Sentient
Concert ends	Surge happens	System anticipates surge
School rush hour	Known pattern	Micro-adjusted pricing & capacity
Weather disruption	Manual override	Autonomous re-optimisation

Scenario	Smart	Sentient
<b>Example:</b> If line shuts mid-journey:	Refund after complaint	Automatic fare adjustment before passenger notices

# Architectural comparison

Smart is transactional infrastructure while Sentient is adaptive intelligence



# Impact on Cities, Operators & Passengers

Sentience isn't gimmicky — it's practical and people-centric

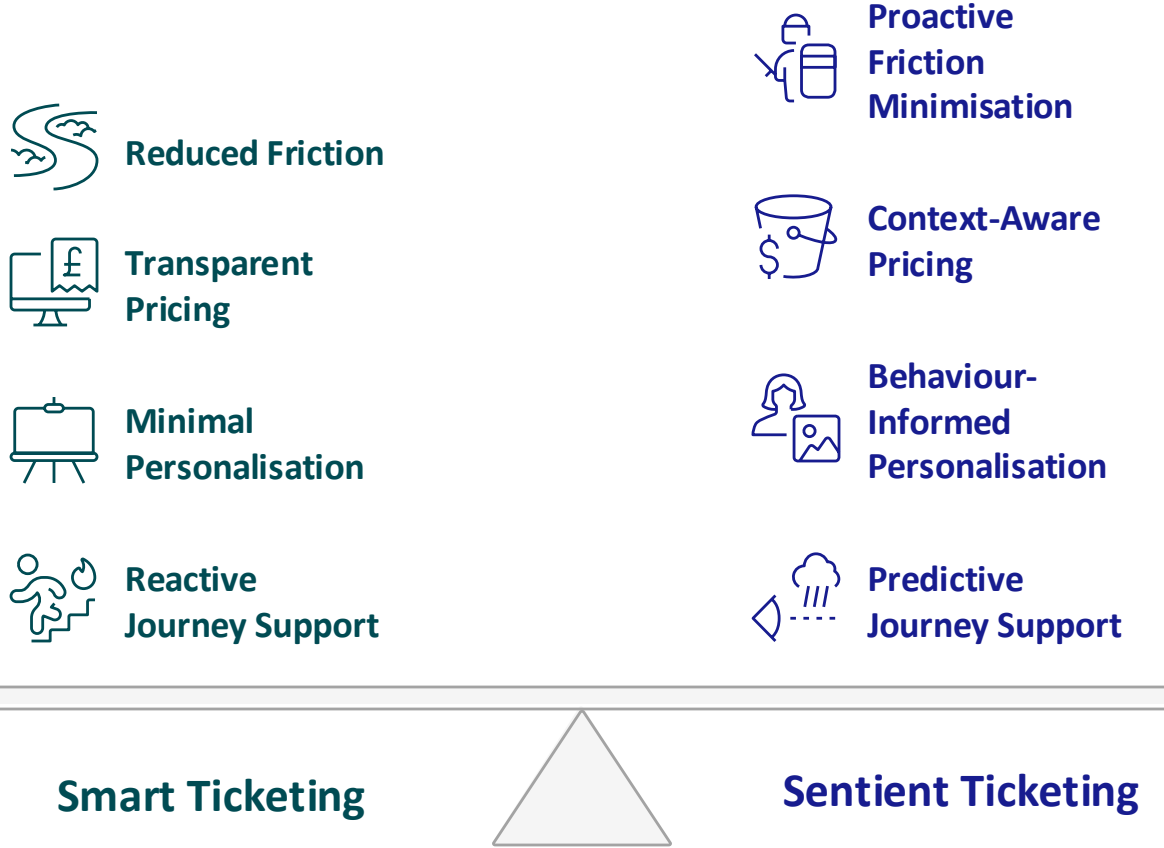
### For Cities & Operators:

- More resilient networks with demand-aware pricing and resource allocation
- Opportunities for smarter planning and sustainable fare economics

### For Passengers:

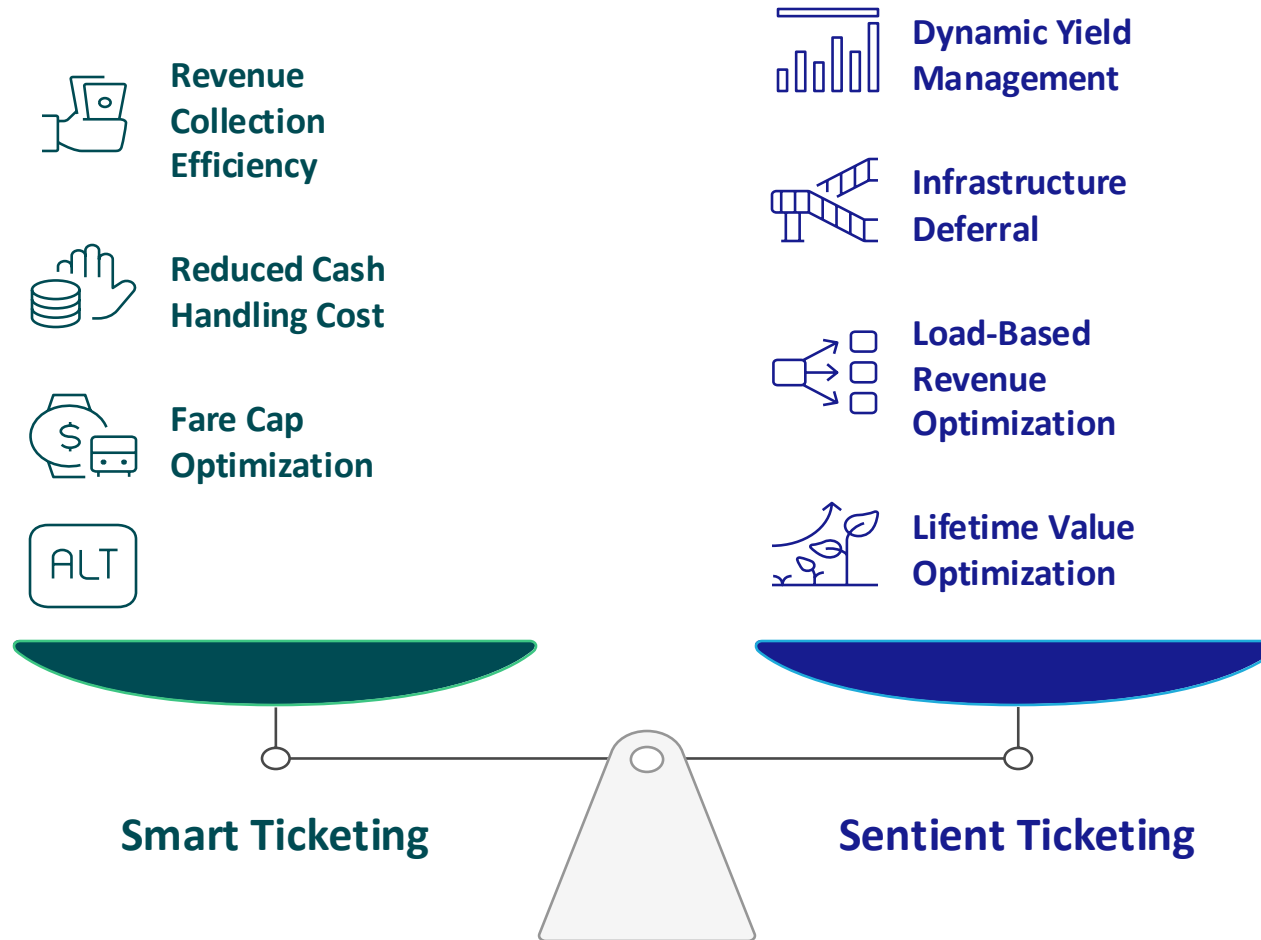
- Fairer pricing
- Seamless, adaptive journeys that respond to real conditions
- Greater accessibility and inclusion

### Sentient Ticketing Enhances Passenger Experience



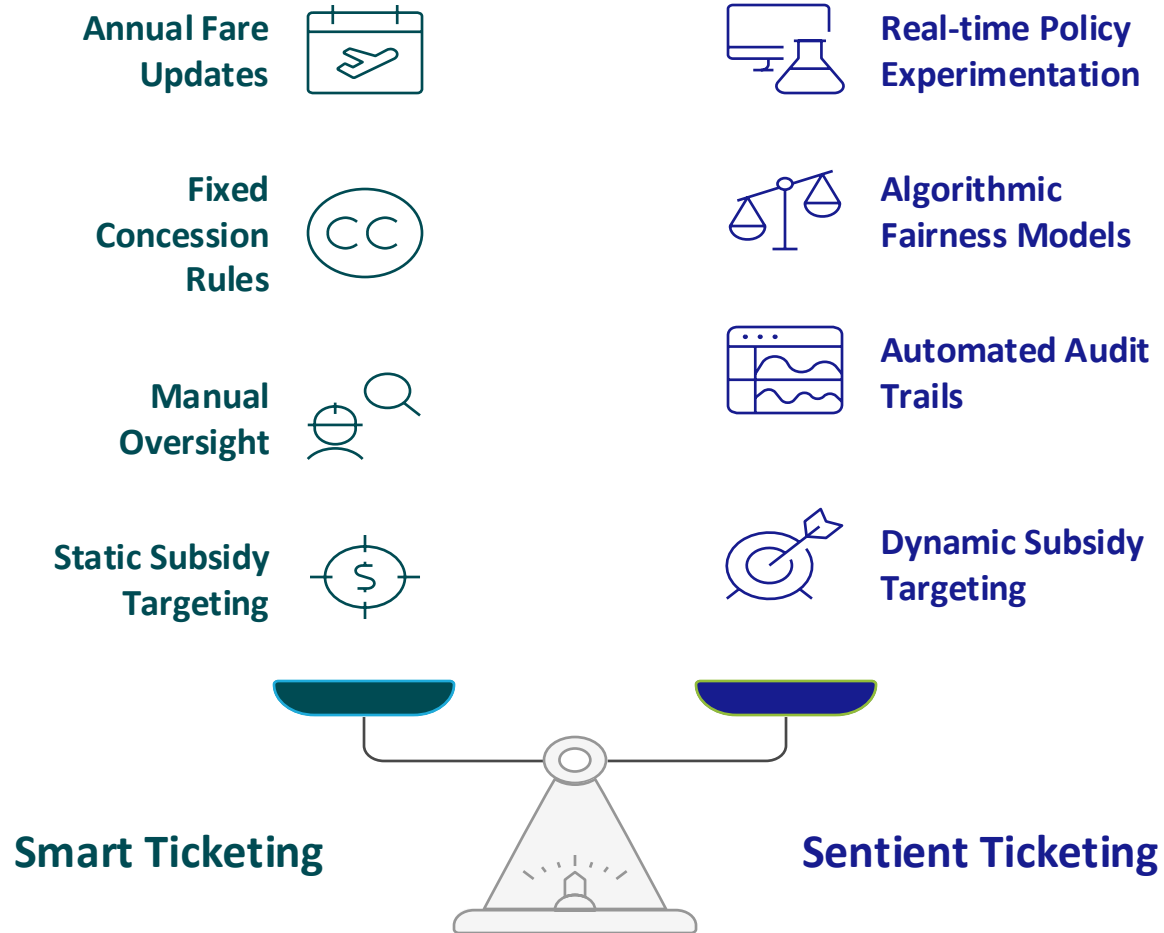
# Financial model shift

Smart reduces cost but Sentient increases strategic value



# Governance and policy

Smart digitises policy but Sentient operationalises policy dynamically



## In summary

Smart is the digital upgrade of fare collection and Sentient is the intelligence layer of mobility ecosystems

### Why this matters to mobility and urban systems



Cities become sentient ecosystems, not static infrastructure



Transport shifts from scheduled supply to responsive, anticipatory mobility

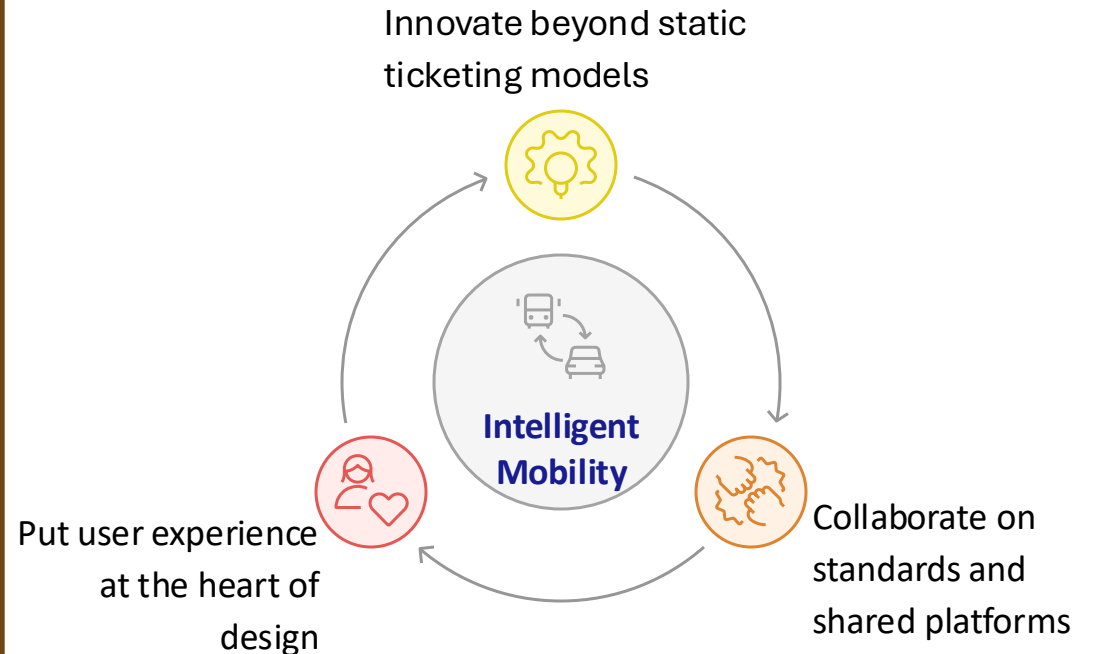


Micromobility, DRT, AVs, and public transit interoperate dynamically



Policy moves from regulating vehicles to governing data, intelligence, and interactions

### Call for action



If smart ticketing was the digitisation of access, sentient ticketing is the intelligence of mobility



Sentient Cities

We digitized tickets!

Now, we must digitize intent !!

Thank you

### **Sentient Mobility for Sentient Cities**

Sentient city is an urban environment enhanced with interconnected digital systems—sensors, data platforms, AI, and real-time communication networks—that enable the city to perceive, analyze, and respond to what is happening within it almost like a living organism

[www.sentientcity.org](http://www.sentientcity.org)