

SMART

SUMMIT 2009



Moving Minds: The Next Transportation Infrastructure

SmarterCities

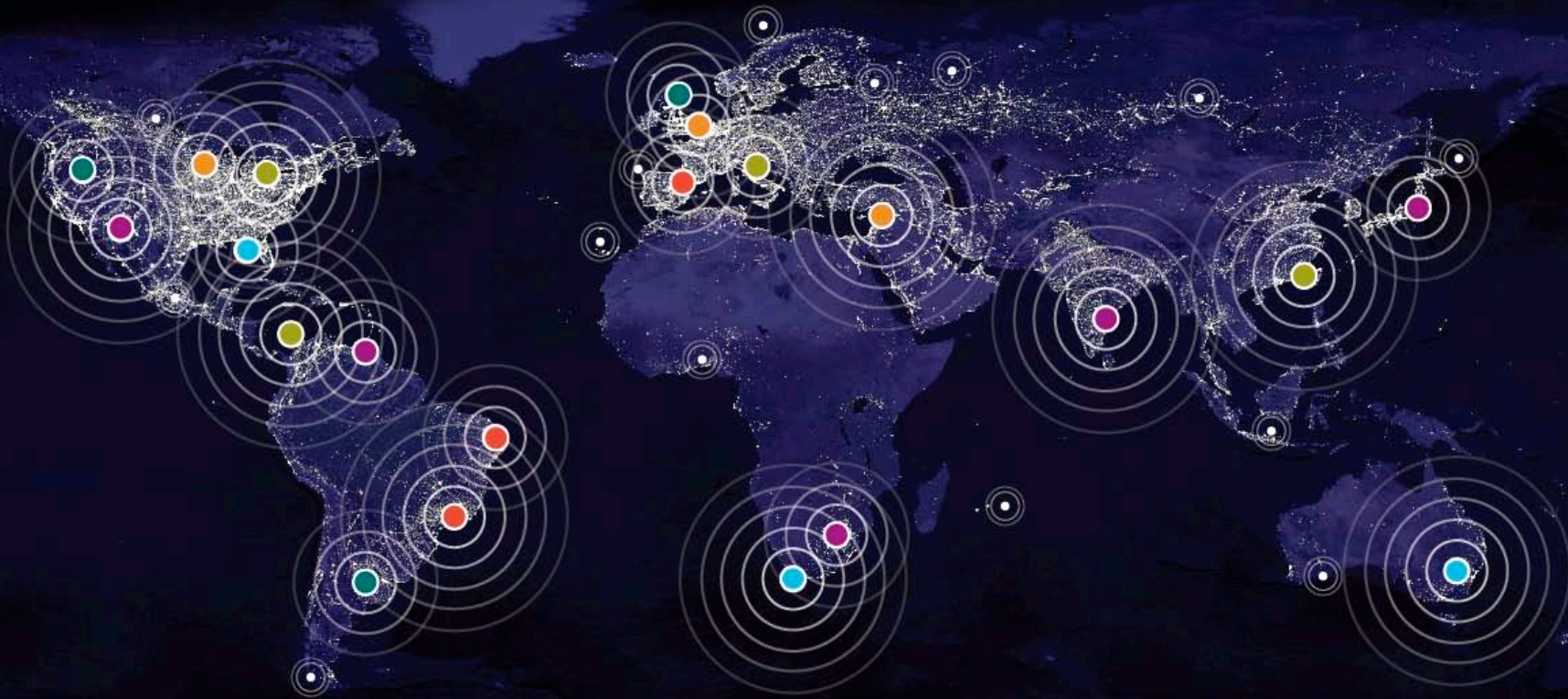
SmarterTransportation



Naveen Lamba

Global Industry Lead, Transportation

A planet of smarter cities: In 2007, for the first time in history, the majority of the world's population—3.3 billion people—lived in cities. By 2050, city dwellers are expected to make up 70% of Earth's total population, or 6.4 billion people.



Resources are being consumed at an alarming rate ...

10,855 liters

Water required over the product lifecycle of a pair of jeans.

6.6 billion

Number of new trees needed to clear CO₂ emitted by data centers each year.

\$46 billion

Value of the carbon offset purchases by 20 countries in order to meet emissions reduction targets in 2008.



But there is good news ...

20 million gallons saved

In water during chip manufacturing process each year by IBM's Burlington FAB. Resulted in \$3 million annual savings.

74% less energy

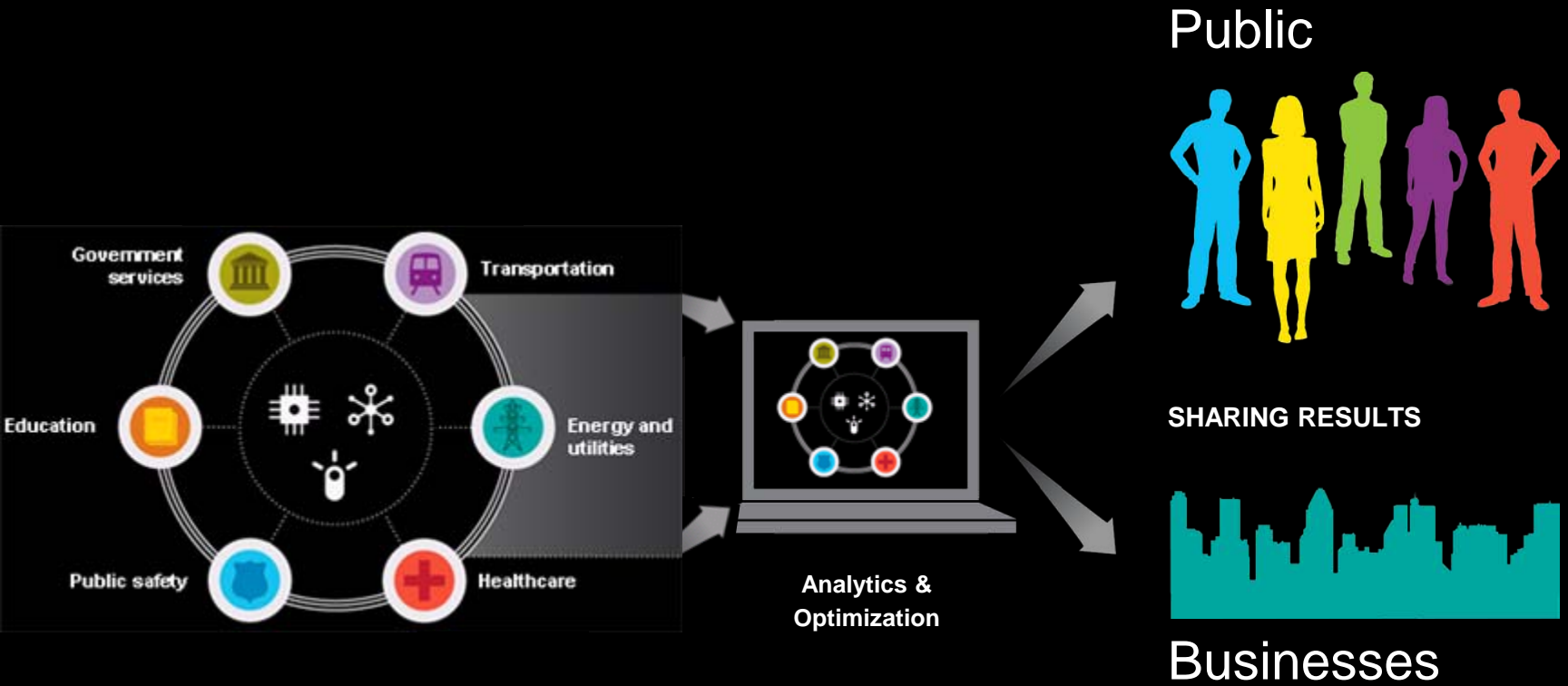
By implementing a green data center, Care2, a global online community, cut costs, improved performance, and promoted its sustainability to attract new members.

2,400 tons avoided

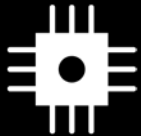
UK retailer Tesco avoided an estimated 2,400 tons of CO² emissions by importing wines in bulk and bottling them in lighter weight glass.



Smarter cities focus on the economic health and welfare of citizens and businesses—providing needed services, creating an economically sound environment and improving the quality of life for all.



Smarter Transportation: A Key Component of a Smarter City



INSTRUMENTED

We now have the ability to measure, sense and see the exact condition of practically everything.



INTERCONNECTED

People, systems and objects can communicate and interact with each other in entirely new ways



INTELLIGENT

We can respond to changes quickly and accurately, and get better results by predicting and optimizing for future events.

MANUFACTURING

IT

CUSTOMERS

WORKFORCE

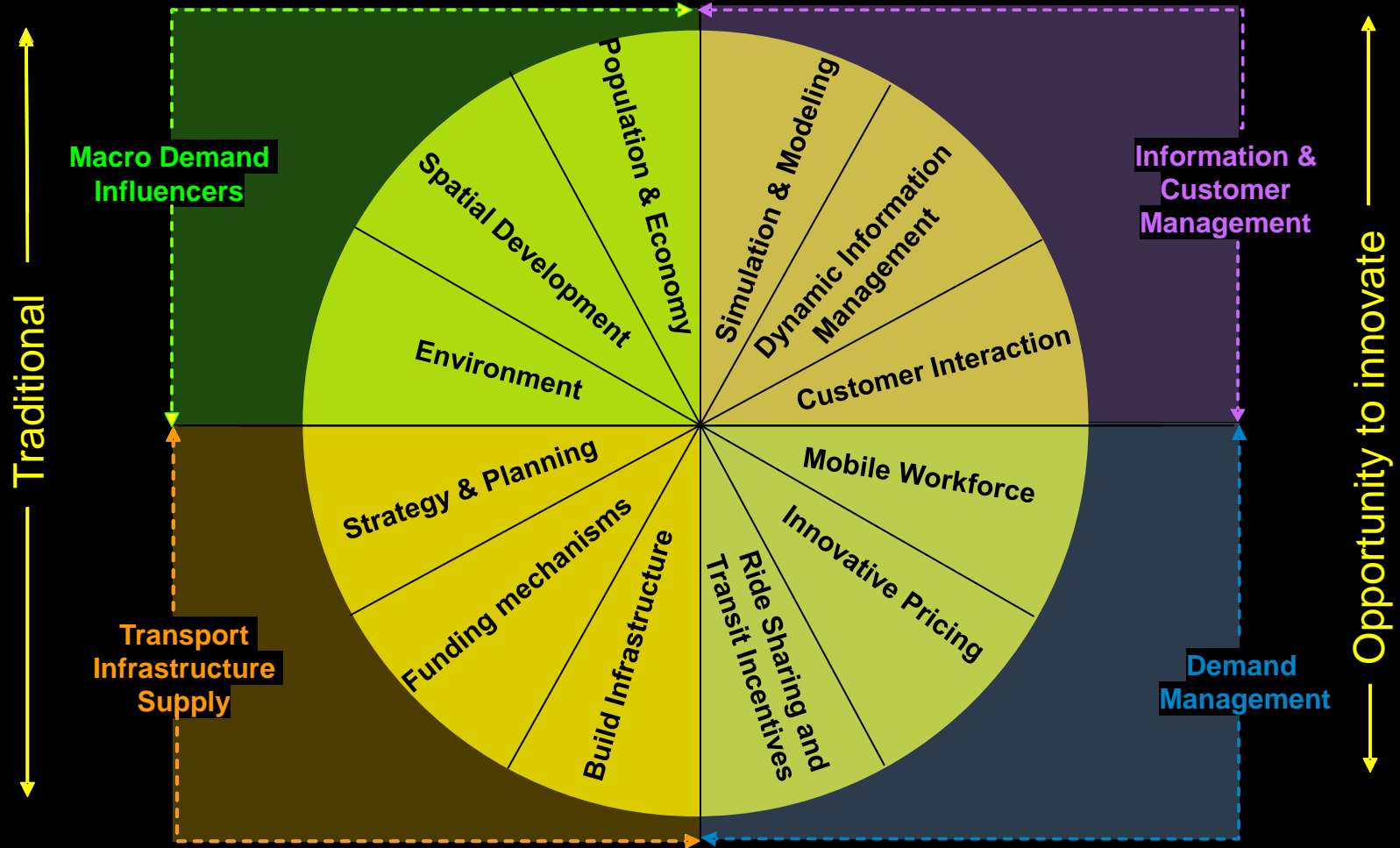
SUPPLY CHAIN

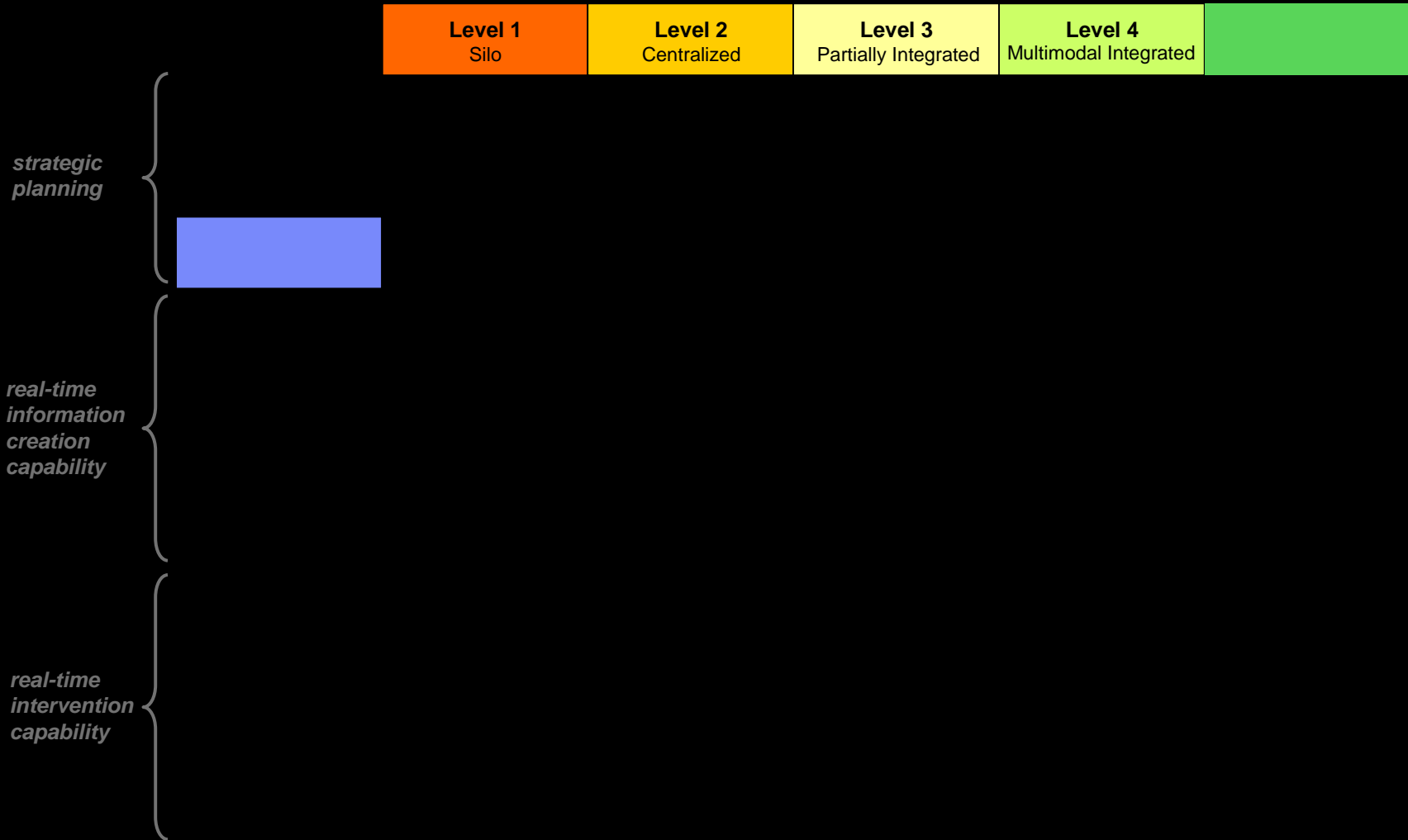
TRANSPORTATION

FACILITIES



Transportation Influencers Model





IBM Intelligent Transportation Systems Offerings

Encompass a variety of strategies to deliver results

- Transportation Strategy and Planning
- Transportation Maturity Model
- Total Cost of Ownership Model

**Transportation
Advisory
Services**

**Integrated
Fare
Management**



ITS Solutions

**Innovative
Transportation
Pricing**

- Single Highway/Bridge Tolling
- Network of Tolloed Highway (incl. HOT networks)
- City Congestion Charging
- Usage Based Pricing/Taxation

**Transportation
Information
Management**

- Improved Network Management
- Real Time Multimodal Traveler Information
- Performance Management and Reporting
- Traffic Prediction and Analytics
- Asset Management
- Visualization

- Integrated payment solutions for multiple transportation modes
- Shared Backoffice across multiple cities
- Cloud Infrastructure

Selected IBM ITS Projects

Stockholm Congestion Charging

Prime responsibility for the design, implementation and operation of the scheme



London Congestion Charging

Provision of a new enhanced central system and scheme operation for 5 yrs from Nov 09



Singapore Pricing, Traffic Prediction

- Built central system infrastructure in 1998
- Delivered an innovative “real time” traffic prediction tool
- Supporting LTA with trials for the implementation of a full Time Distance Place scheme



Dublin Transit Automatic Fare Collection

- Multimodal fare management system
- Single smart card usable across multiple providers of transportation services
- Project to start in October 2008

Brisbane Electronic Toll Collection

- A shared system that will allow of the centralized operation of five separate toll highways
- Each tolled facility will have the flexibility of setting its own variable toll rates



LA County MTA DIOS

- Control inventory without jeopardizing parts availability and service levels
- Reduced inventory by 28% for the Pilot inventory sample of \$15.4M



Amtrak Reservation Systems

- Support the infrastructure for Amtrak's reservation system as well as the corporation's entire computing infrastructure
- Ticket volumes processed via the Web, telephone, and ticket counter channels, makes it one of the largest systems of its kind in the rail industry.

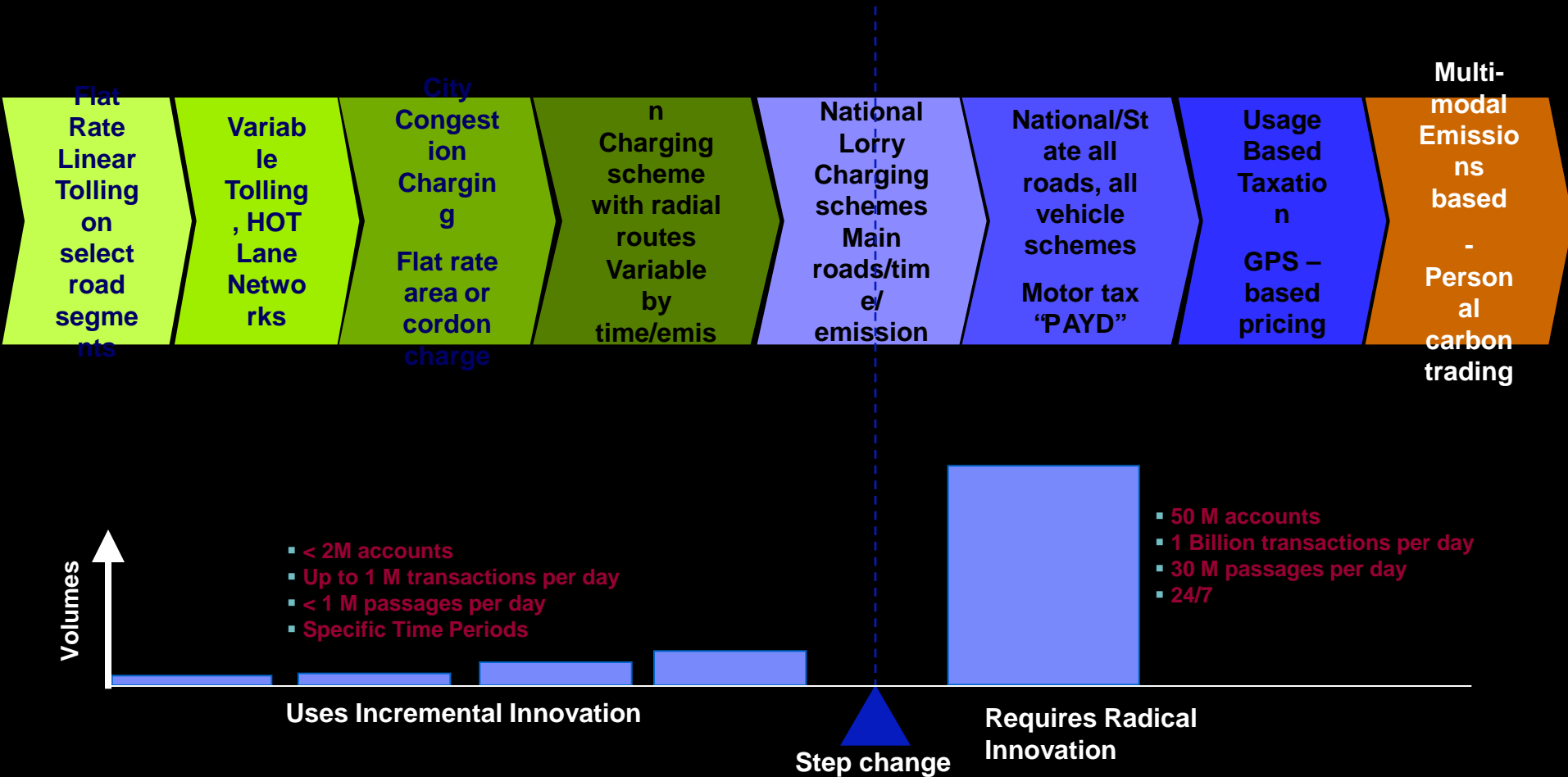


Inter-operable Fare Collection Back Office system, Dubai

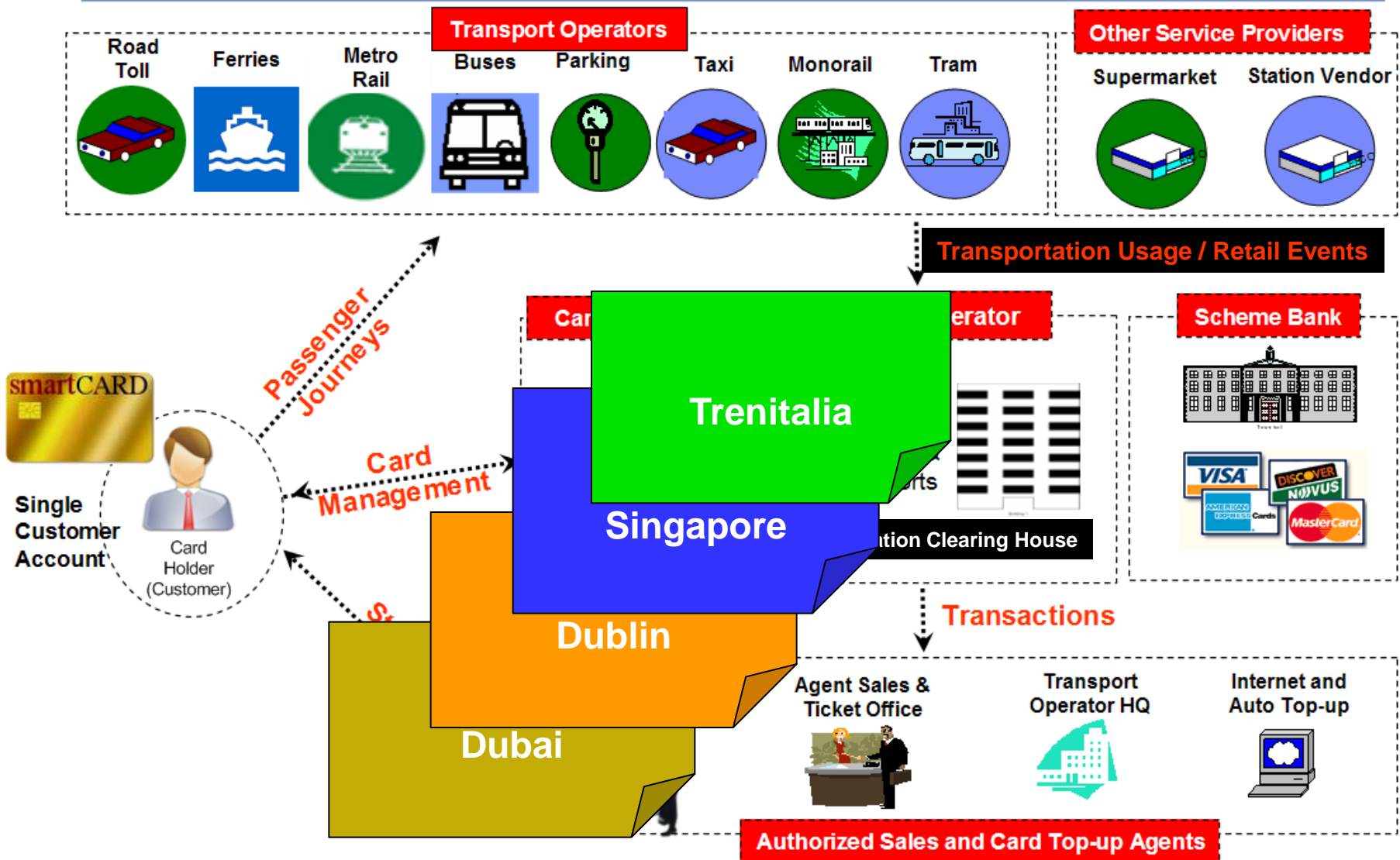
- System specification
- Procurement and Tender evaluation
- Program management office



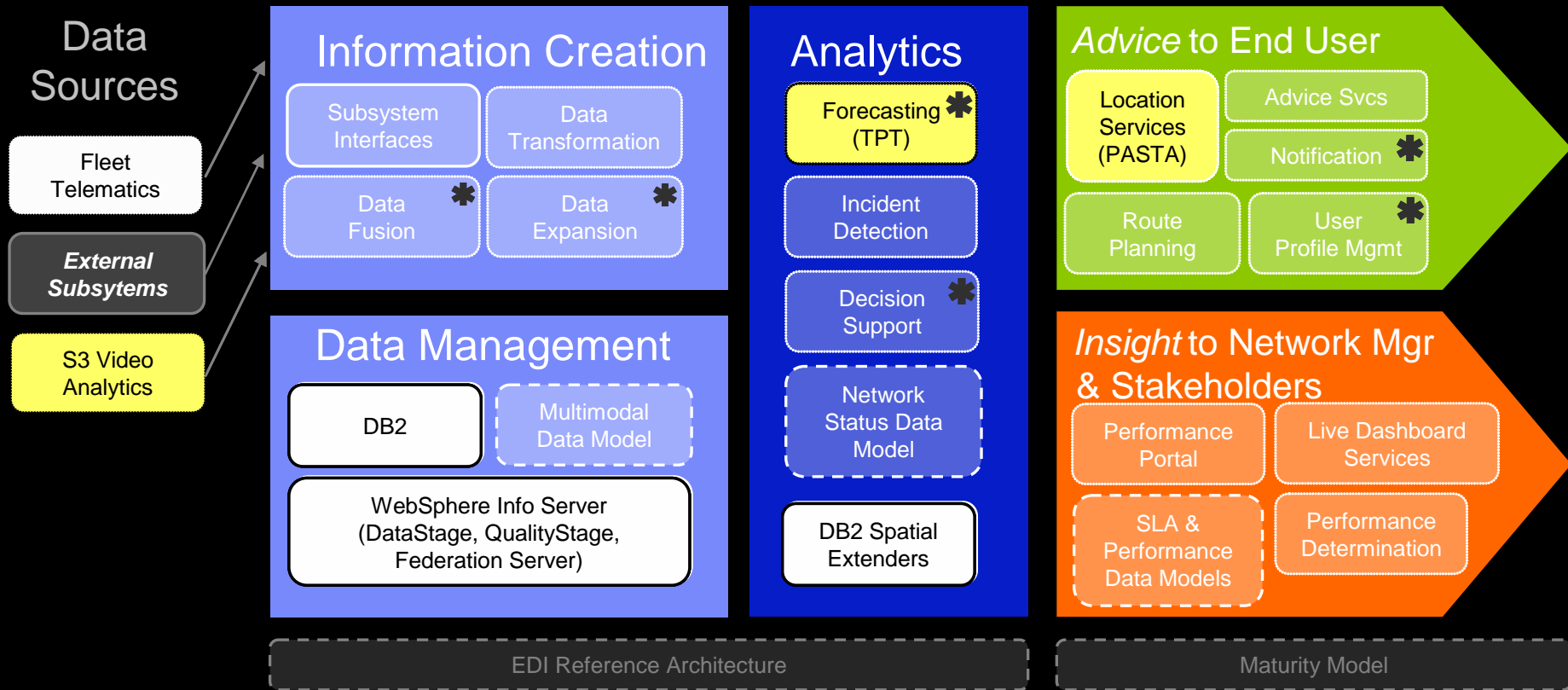
Innovative Transportation Pricing Technology Enabled Policy Implementation



Transport Interoperability – A holistic view



Transport Information Management



Traffic Prediction Tool (TPT)

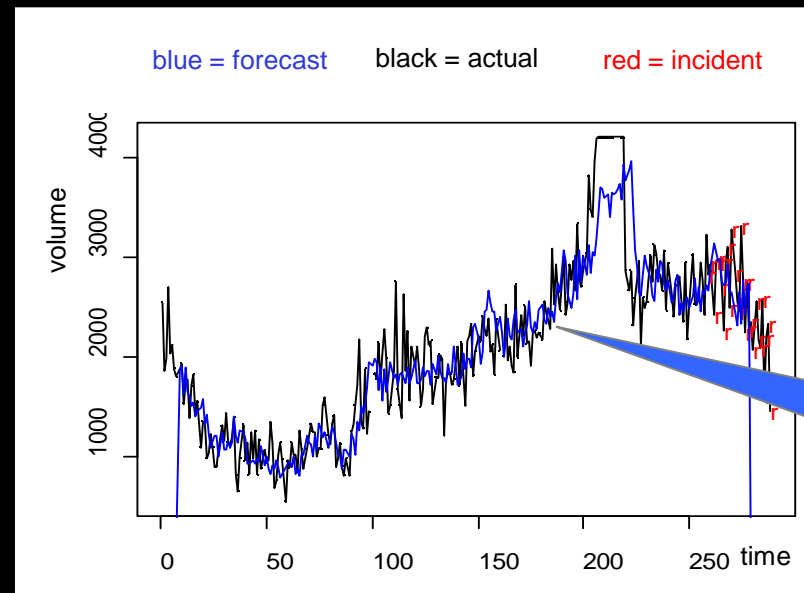
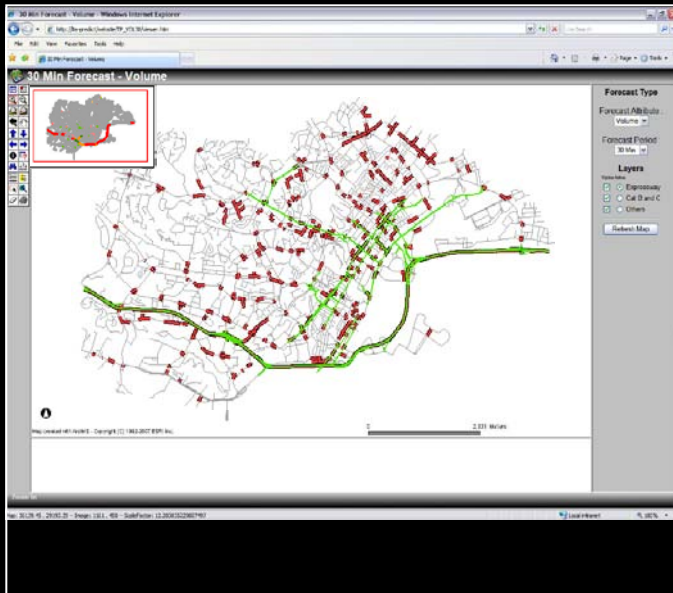
When Real Time is Too Late

► **Issue:** “real-time” is too late

Little automated use is made of the **gigabytes of real-time traffic data** today; often, by the time it is received, it is **no longer representative** of the actual traffic

► **IBM Innovation:** forecast the future

IBM's TPT provides a layer of **intelligence** by using sensor data in sophisticated algorithms that **create relevant insights** from the raw data



TPT accurately forecasts future traffic conditions

Areas of Potential Use
Traffic Operations; Advanced Traveler Information; traffic signal timing, ramp metering, route planning & advice, dynamic pricing

Thank You

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