



Transport Data Integration and Fusion

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TDI – What is it?

- Data Fusion Process for Transportation System
 - All Forms of Inputs
 - Agency Provided Detector Data
 - Cell Phone Data
 - Transit Schedules
- Provides 24/7 Regional Operational Picture
 - Cars
 - Trucks
 - Buses/Trains/Transit
 - Bicycles/Peds

TDI – What Does It Do?

- Operational Data
 - Speeds
 - Volumes
 - Congestion Points
 - Origin-Destination Information for all Travel
- Can Separate by Mode
 - Buses/Trains/Transit
 - Cars/Trucks
 - Bicycles/Peds

TDI – How Does It Do It?

- Collects all “MOTION” Data
 - Detectors
 - GPS
 - License Plate Recognition
 - E-Tags
 - Cell Phones
 - Etc (Open System)
- Data Fusion Process
 - Determines What Data Good/Bad
 - Uses Good Data
 - Creates 24/7 Operational Representation

TDI – How Can It Be Used?

- Operators and Regional Agencies
 - Continuous Update on State of Transportation
 - All Facilities/Modes, All the Time
 - Performance Measurements, Continuously
 - Peak Hour Traffic Counts
 - Operational Efficiency of all Forms of Transportation
 - Environmental Readings
 - Instantaneous Readouts of any Changes
 - Accurate Impacts from Incidents/Accidents
 - Ability to Report Changes or Events, Instantly
 - And to predict if linked to a simulation environment.

TDI – How Can It Be Used?

- Research
 - Automatic Traffic counters
 - Simulation of new concepts (before)
 - Impacts of changes on entire system
 - Automated measurements of test (after)
 - Impacts due to incidents can be catalogued
 - Impacts due to ITS devices (DMS, etc) can be measured
 - Environmental Impacts of Modal shifts
 - Benefit / cost analyses, true time savings estimates

TDI – How Can It Be Used?

- Travellers
 - Personal Travel Predictions
 - By Mode
 - Intermodal
 - Future Travel

TDI – Information can assist;

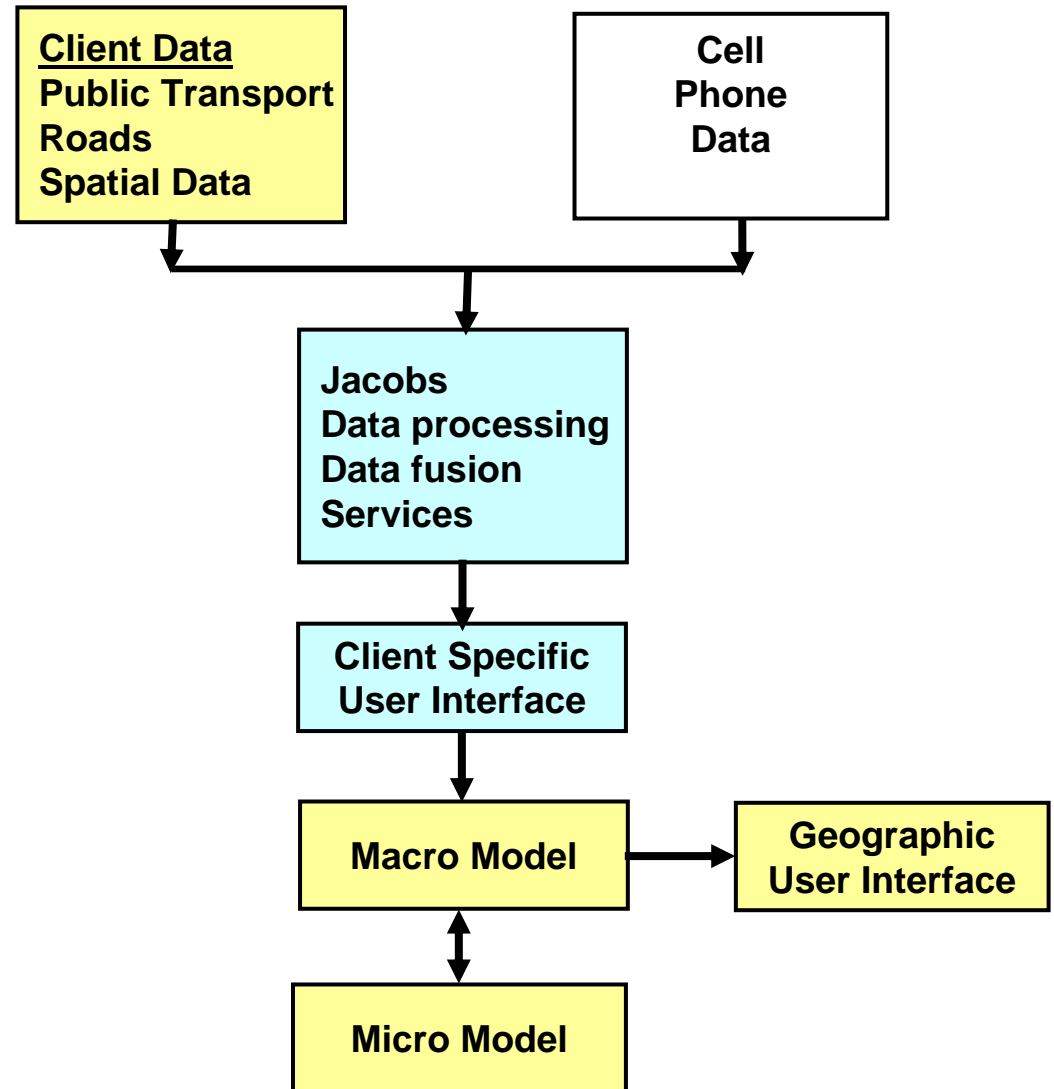
- Personal Travel, Vehicles and Goods Transport
- Congestion Management
- Incident/Accident Detection and Management
- Roadwork Planning and Management
- Emergency Planning
- Transport, Urban and Environmental Planning
- Traveller Behaviour Analysis
- Traveller Safety and Sustainability
- Cost Benefit Analysis of Road Schemes and Their Monitoring

Why we need it?

- Development in our Cities
- Utilizing ITS for Congestion
- Modelling future Transportation
- Road Safety and Emergency Planning
- Bus/Rail Transit Systems
- Active Network Management
- Travel Demand Management
- Improving Environment and Quality of Life
- Technology Convergence
- Economic Engine/Competitiveness

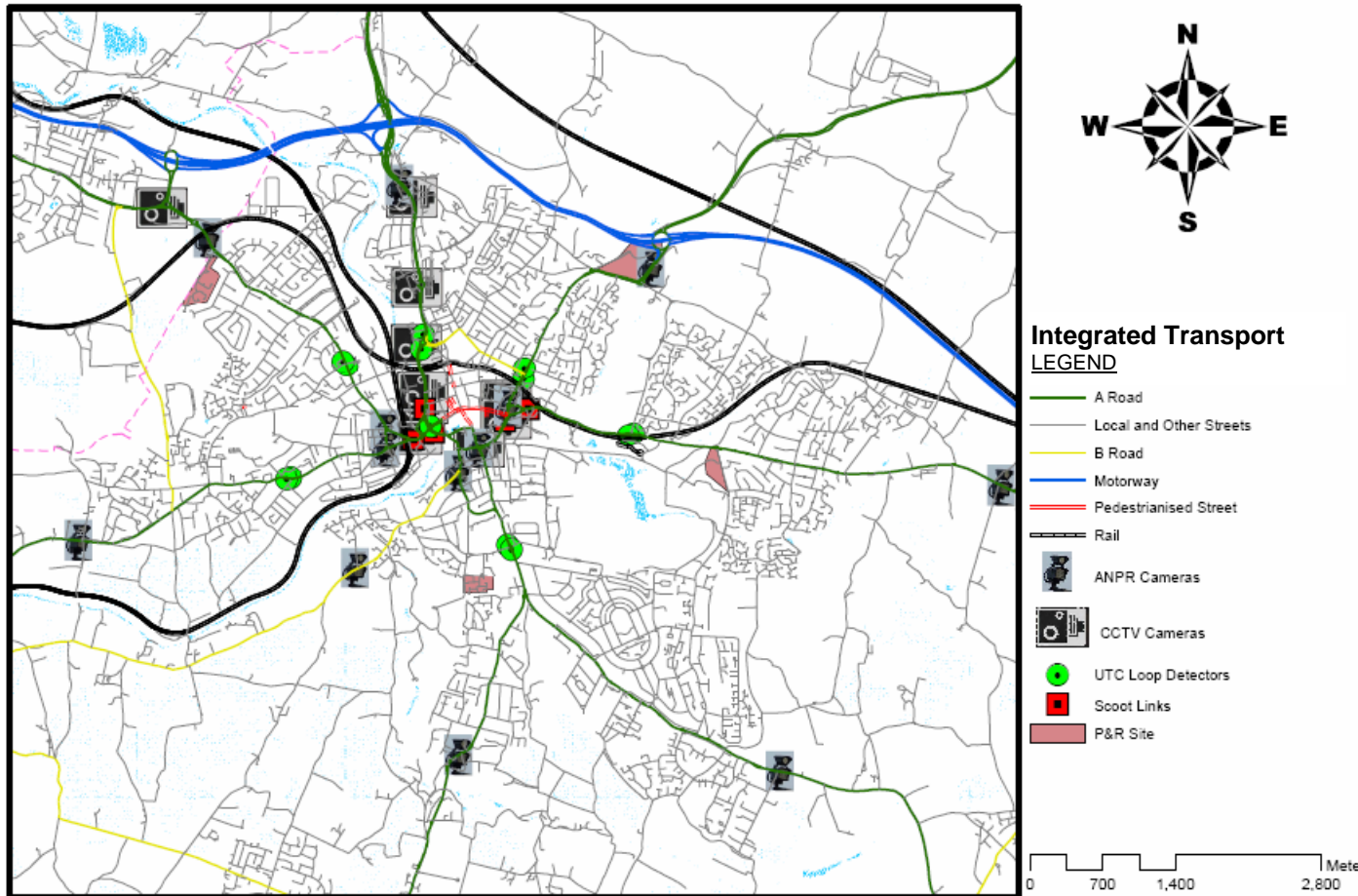
What is required?

- New Thinking
- Innovative Approach
- Techno-Convergence

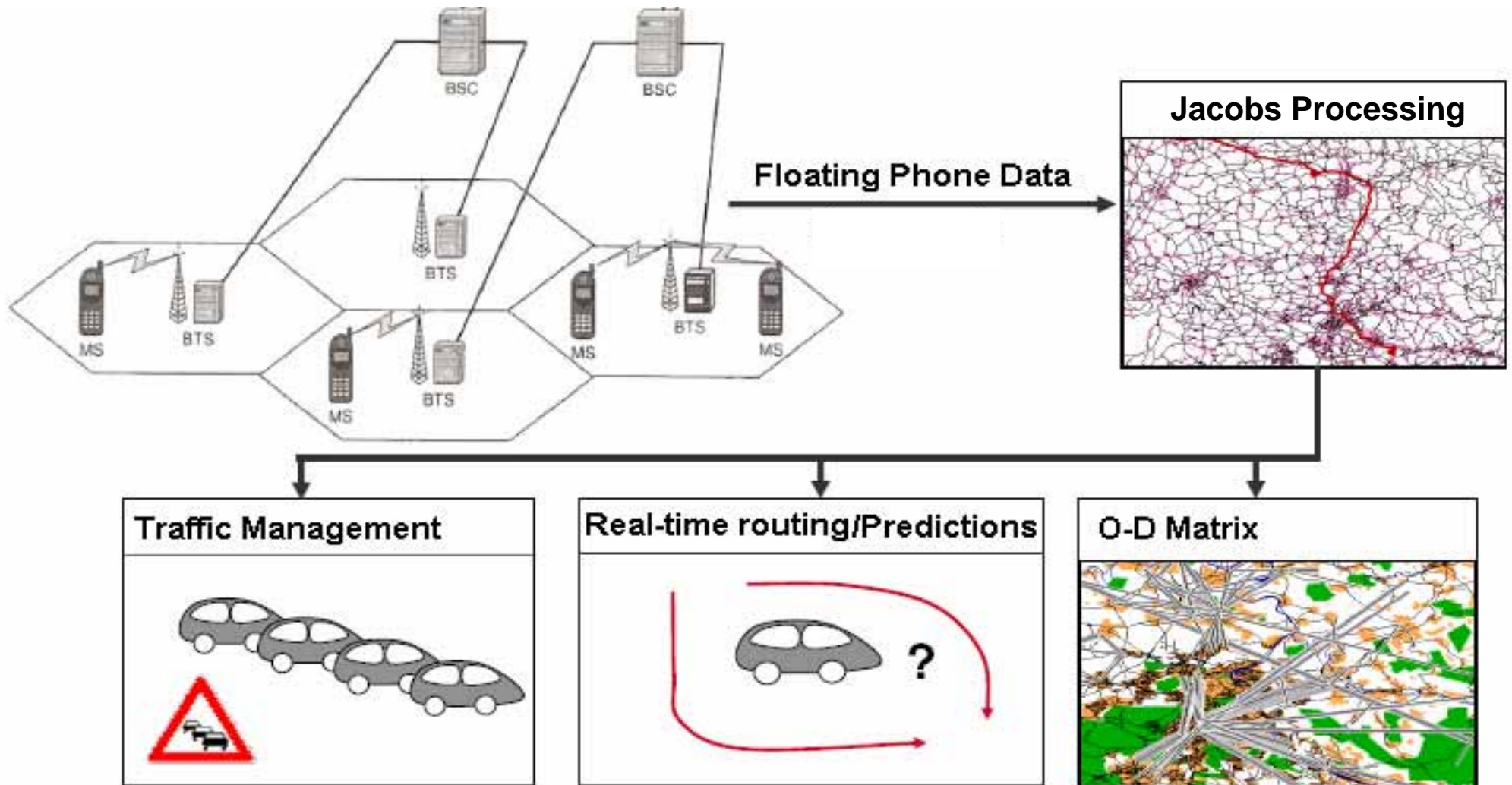


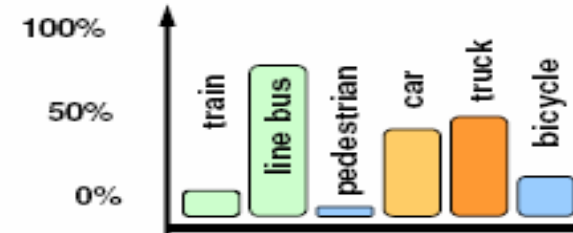
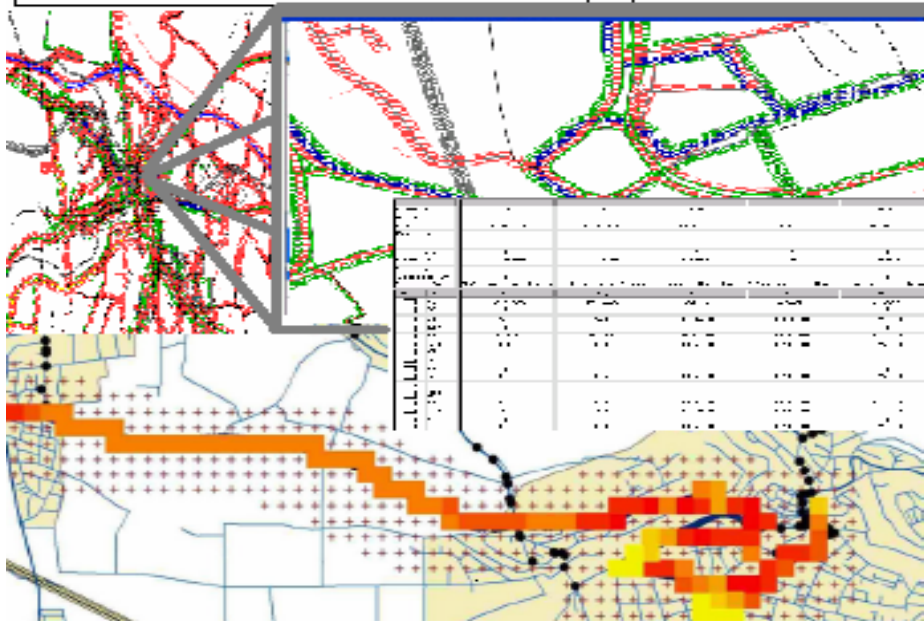
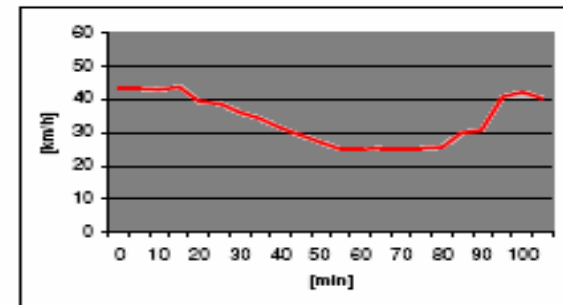
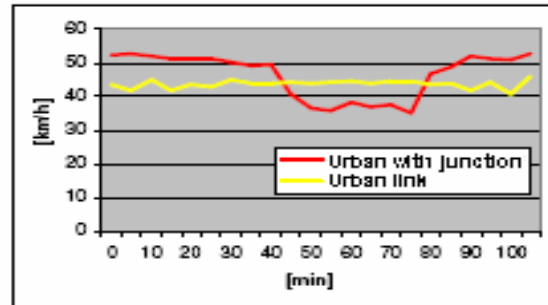
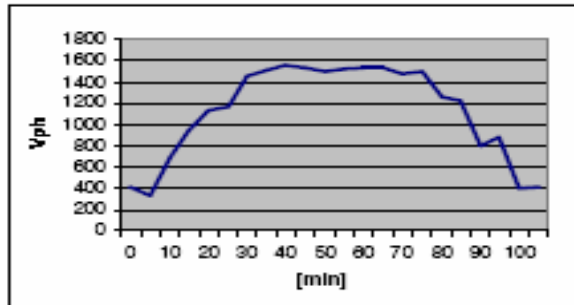
Traffic Management Centre Relationship

INTEGRATED TRANSPORTATION SYSTEM



Cutting Edge Technology





Unique Transport Data Integration

- Basic models and components
 - Conventional TMC and wireless traffic data fusion
 - Real-time dynamic multimodal O-D matrix estimation
 - JT, classified flows and close resolution at turn level
 - Models of driver response to guidance
- Our innovation
 - Guidance on all roads with even those without real-time data and adaptive guidance in presence of uncertainty

Benefits

- Fast, accurate and convenient dynamic data acquisition
- Reduced physical infrastructure investment
- Quick solution to existing highway problems
- Real-time multimodal traffic models with
 - Comprehensive real-time information
 - Multimodal planning and interchange policies
 - Sustainability due to pedestrians/cyclists in planning
 - Improved monitoring and benefit assessment
 - Short, medium and long term travel predictions
- Improved Road Safety
- Improved Disaster Management
- Wider coverage



Thank You

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