Urban Transportation Planning

MIT Course 1.252j/11.380j

Fall 2002

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Nov 14, 2002
Scope

- TeleComs
- ITS:
  - Automobile Oriented
  - Transit Oriented
  - Integration
- From deployment of new technologies towards organizational changes
Information and Communication sectors

- Fastest growing sectors in Europe
- 5% GDP: 4 million employed
- 300,000 new jobs (‘95 - ‘97)
- More to come:
  - audio visual
  - mobile services
Cell phones new markets

- Messaging
- Positioning
- Entertainment
- Info Services
- m-commerce
Mobile Positioning System

- **Positioning methods:**
  - Cell Identity (150 m-40 km)
  - Network Based AGPS (10-20 m)
- **2G & 3G networks**
Telecoms jobs are booming

Mobile Telephony

- **jobs**
- **subscribers**
Forecast increase in Internet Users

Source: Commission estimates based on various Industry
Projected E-commerce growth

$bn

Sources: various forecasts as indicated
Technology evolution

Functionality & capabilities

- Speech
- Circuit data <9.6 kbps
- HSCSD 38.4kbps / 57.6 kbps
- GPRS 115 kbps
- EDGE/EGPRS 384 kbps
- WCDMA 2 Mbps
- IMT-2000 capable systems

Time


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Technology evolution

- SMS
- SIM Toolkit
- WAP
- GPRS
- Bluetooth
- Terminals
- Smartcards
- E-commerce
- Security
- Positioning
Business (r)evolution

- Portals -
  Internet "market places" or "malls"

- Consumer behavior
  - comfortable with on-line shopping
  - SMS
  - internet banking
  - internet stock trading
  - mobile devices are personal
The challenges of telecom providers...

- Mobility - taking services from the desktop to the pocket for the ultimate in convenience
- Security, payment, browsing and devices are key technology
The new European environment

- 100 million users of GSM services
- 450 channels of Digital TV / interactive services
- 30 million INTERNET users
- 4 million teleworkers
- … And an ageing workforce
What sort of Information Society?

- Employment rich
- Socially inclusive
- Economically stable
- Culturally diverse
- Environmentally sustainable
New ways to work in all sectors

- Flexibility in time and place
- Better use of skills
- Reduced investment for new job creation
- Reduced overhead costs
- Financial viability for more new kinds of work
- Greater responsiveness

Work is "what you do", NOT "where you go to"
Teamwork and telework:

- Teamwork across borders and timezones
- Real-time and asynchronous
- Linking different types of workplaces
- Intra-company and inter-company
- New tools and standards
Let’s talk about videoconferencing…
Secure electronic financial transactions:

- Business-to-business, retail and administrative transactions
- Billing, payment, accounting
- Anonymous small payments
- Reliable, tamper-proof smart cards and personal tokens
Europe Today

- Leads in:
  - Mobile communications
  - Digital television
  - Digital local access
  - Electronic payments and smart cards

- Lags in:
  - Corporate IT investment
  - Use of the Internet
  - Electronic commerce
  - PC industrial and technology development
Is Transport any different??

**ITS**: Control, management and information tools aimed to improve the efficiency, safety and quality of service of the transportation system.
Intelligent Transport Systems (ITS)

Sectors involved:
- Transport
- Automobile industry
- Telecoms
- Banking
- Consumer electronics
- Tourism
- Mass Media
Urban Traffic:

- Traffic Signals
- Monitoring throughput:
  - Recommended speeds
  - Ramp metering
- Incident Management
- Signal priority for:
  - Emergency vehicles
  - Public transport
Real-time Information:

- Automobile traffic
- Public transport
- Parking
- Airport arrivals/departures
- Points of interest (POI)
- News, banking, stocks…
Parking

- Information on availability
- Guidance to:
  - Available facility
  - Actual spot
Intelligent Transport Systems (ITS)

Payment systems:
- Tolls
- Transit fares
- Parking
- Electronic purse
- Mobile-business
Payment systems

Towards a consolidated system
Urban Goods distribution:

- Fleet Management
- Real-time location
- Load consolidation
- Hazmat management
From Traffic Control Centers (TCC) to Traffic Management Centers (TMC)

Just a name change?
Traffic and Traveler Information Services

Conditions relayed via web sites and cell phones.
Part of Info-Mobility

Ubiquitous Info-Mobility Systems and Services

- Rich multimedia content
- Advanced sensors
- Large database technologies and intelligent agents
- Fixed and wireless network technologies
- Global positioning systems
- Earth observation systems
Real time information on the Web

Updated every minute

From color coded maps to actual photographs of the traffic stream

You can check in real time an incident

Even choosing to see upstream impact
Color coded maps, time estimates … and times by transit
One of the car dreams...

pre-trip:
- trip request at departure
- trip recommendation

location

RTI center

on-trip:
- deviations from indicated travel times
- new travel times and routes
New high-end services to maintain client loyalty...

Traffic information

User data

Map information

Positioning data

City information

Close
„The next pharmacy ...“

City-Navigation
„The fastest Route ...“

My profile
„Do not forget the birthday of your mother-in-law ...“

My Program
„My nicest day ...“

Watchdog
„My flight is delayed ...!“

City Highlights
„Which club is still open...!“
Public Transport

- Real-time information for:
  - Operators:
    - Fleet management
    - Travel time reliability
  - Users:
    - Waiting anxiety
Public Transport

Easy to deploy within each turf, but

hard to integrate across operators and modes
ITS as a Tool - Main Objectives?

- To increase road capacity at low cost?
- Or, just an opportunity to promote a more efficient and diversified transport system?
- Should it be used to enhance mobility -- Or to improve accessibility? Or perhaps, just to substitute some trips on certain days?
ITS Deployment

- ITS Deployment requires:
  - Important organizational changes
  - A new path from control to sharing information
  - A transition from hierarchical systems to networks
ITS Integration: A bumpy road

ITS: Information + Communication + Integration
ITS Integration: A bumpy road

Let’s share information:
- The public needs a single source of multi-modal information
- The operators can benefit by sharing real time info

Let’s decide with others in mind:
- Impacts or synergies on third parties?
- Modularity of equipment and architecture?
ITS Integration: A bumpy road

*ITS is not a technical issue but a new frame for:*

- Voluntary cooperation
- Seeing the big picture
- Bringing others into the decision process
- Adopting necessary new policies
In short, ITS other than short-term mitigation tools, may serve:

✓ To become catalysts for change
✓ To establish new two-way relationships
✓ To create new spaces for collaboration
✓ To provide a global vision of the transport system

... But, ITS involves a long complex and difficult path, which has to be taken
eEurope Main Targets

- Key challenge is to meet the growing demand for mobility within the finite transport networks

- Congestion in road transport
  - Speed up the development and deployment of Intelligent Transport Systems

- Safety of road, rail, air and maritime transport
  - Active safety systems in vehicles
  - Enhanced 112 with location information (equiv to US 911)
eEurope Targets: ITS Deployment

- Speed up the Development and Deployment of Intelligent Transport Systems
- To support the development and deployment of value-added traffic and travel information services to cover 50% of major European cities (2002)
- All main trans-European networks should be covered by traffic incident/congestion information and management systems (2002)
eEurope Targets: ITS Deployment

- Timely and reliable information and guidance services (in real time, pre-trip/on trip)
- Effective congestion and demand management strategies (to improve delays and to contribute to the environment, safety and intermodality)
- Efficient incident and emergency management (detection, verification, response)
eEurope Targets: Safety

- Safety of road:
  - New emphasis on account of 42,000 yearly deaths
  - All new cars sold in Europe equipped with more efficient active safety enhancing systems

- All citizens on the move throughout Europe should have access to:
  - call localization and
  - emergency services through the 112 number

- CGALIES Coordination Group www.telematica.de/cgalies
Part of eEurope Benchmarking exercise
europa.eu.int/information_society/eeurope/
benchmarking/index_en.htm

Objectives:
- Enable Member States to compare their performance;
- Identify best practice;
- Enable remedial action to be taken.

Quantitative and qualitative benchmarks (e.g. policies behind best practice)
eEurope ITS Benchmarking

- Traffic and Travel Information services in cities;
  - Availability of services
  - Use of services
  - Impact of the services
- Motorway incident detection and management systems;
- Active safety systems in vehicles;
- Location determination of wireless callers through 112 number
Final thought

- What do you think…
  - Is ITS good or bad?
  - Does it help to bring down some barriers?
  - Is technology in general or bad?

- The trouble is that we have to master the technology
  - …And to top it off, it requires wisdom

- See the article of the Sept issue of the Atlantic Monthly on Home Security