ITS deployment strategies based on pilot project in developing countries

Karaj Tehran Corridor: an Iranian example

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Summary

- Iranian context
- ITS in Iran
- Selection of a pilot project: Tehran-Karaj
  - Corridor characteristics
  - Methodology for developing the ITS project
  - Main components of the ITS pilot project
  - Organisational aspects
- Future steps
- Conclusion
**Iranian context**

- Population: 70 Mio.
- Area: 1,650 Mio. Sq km
- Iranian road network
  - Transit network: 180,000 km
  - In construction: 710 km/y
- Traffic growth: +11%/y
- Accidents:
  - 25,000 fatalities/year
**Iranian context**

- **Large cities:**
  - Greater Tehran: 10 Mio.
  - Mashad, Isfahan, Tabriz,
- **New constructions, but ...**
- **Traffic problems increasing**
**ITS in Iran**

- Started in 92: Tehran TCC
- Advisory radio, speed enforcement,
- CCTV, VMS, ..
- Webcams,
ITS in Iran

- 2002: decision taken by the Ministry of Road & Transportation to develop ITS
- 2 options
  - 1: national strategic plan first and then deployment
  - 2: pilot projects first in order to learn at local level and then build at national level
- Second option was preferred: better involvement of stakeholders
- Selection of a suitable pilot project: Karaj-Tehran
Karaj-Tehran corridor
Corridor characteristics

- A strategic link between Tehran and Karaj
- 3 road axis: Karaj freeway, Fath expressway and Makhsus expressway
- But also a multimodal corridor;
  - Metro line between Karaj and Tehran
  - Buses, taxis,..
- Many difficulties: safety, congestion problems
Methodology for developing the ITS project

Usage of PIARC ITS Handbook recommendations (2000) and Network Operation handbook
Methodology: main steps

- Data collection: traffic counts, surveys, accident analysis, generation of GIS map (1:2000), perimeter, identification of stakeholders = Metra in 2003
- Site visits and interviews of stakeholders (ISIS and Metra: June 2004)
- Develop strategies, presentation during first workshop with stakeholders: ISIS
Main problems

- Safety:
  - Drivers’ behaviour: illegal stops, driving on the emergency lane, speed, waving, short headways, ...
  - Pedestrians,
- Congestion
- Road characteristics
- Organisations
Methodology (cont’d)

- Develop strategies
- Identify actions meeting objectives
  - Safety
  - Efficiency
  - User information
- Propose ITS techniques for implementing actions
- Presentation during a 2nd Workshop in July 2004 (ISIS)
- Finalisation (general spec’s for ITS project)
First recommendations

Network “extensions” Multimodal
Main Components of the ITS project

SAFETY
- Traffic monitoring
- Automated enforcement
- Automatic Incident detection
- Quick and efficient intervention

EFFICIENCY
- Traffic flow optimisation
- Ramp metering
- Rerouting traffic
- Demand spreading
- Co-ordination of roadworks

USER INFORMATION
- User warning
- Pre-trip information
- On trip information
- Support to modal shift

Traffic Management Centre
**ITS Techniques**

**Collect data**
- CCTV
- AID
- Speed camera
- WIM, loops
- Weather sensors
- Partners interfaces

**Action on traffic**
- VMS
- Ramp metering
- Traffic lights
- Electronic panels
- Cooperation with Partners

TMCs
Some examples

Automatic Incident Detection

Video-surveillance

Video Detection System

Safe and Intelligent Stopping areas

Call box
Organisational aspects

- General rules:
  - Don’t do at an upper level what can be done more efficiently at a lower level
  - But travel is by definition a movement: travellers ignore administrative borders and limit of competencies
- Organisation of Traffic Management has to be balanced between these two contradictory rules and the specific traffic patterns
Organisation of traffic management

- Incident handling, patrolling, enforcement, assistance to motorists:
  - Local level supervised by upper level when necessary
- Driver information, traffic control, network monitoring:
  - Network level according to traffic patterns (O/D matrices, e.g. Tehran Karaj corridor) + exchanges with neighbours
- Wide area driver information, large network control, co-ordination of various network
  - Regional level or metropolitan area level + co-ordination
- National driver information, traffic management policy:
  - National level + real time co-ordination when necessary
Future steps for implementation

Need for co-operation...

- Between the actors:
  - TMC to be operated with multidisciplinary team
  - TMC linked with other operating organisations (neighbouring TMCs, regional TMC, public transport organisations...)
  - TMC linked with emergency services
  - TMC linked with information service providers, telecom operators

- with the users through new services:
  - the key for changing drivers’ behaviour stands in a good balance between the offer of new services and enforcement of the rules
Conclusion

- ITS implementation in economies in transition and developing countries
  - Organisational problems are of major importance
  - Technology cannot solve all problems: change in driver behaviour is a prerequisite
- A way to reach this objective: good balance between new services (ITS) and enforcement (carrot and stick !!)
- Good cooperation between local actors and ITS specialists is a key for success