Intelligent Transport Systems chances and risks

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Aim of the study

- To give an overview of telematic systems for different transport modes
- To get a general idea of the psychological and socio-scientific aspects of telematic
- To give an overview of socio-scientific methods in order to evaluate new systems and equipments.

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Definition

Transport telematics =
to collect, transmit, process and make use of data relevant for traffic in order to organise and manage the traffic system in the most efficient way.

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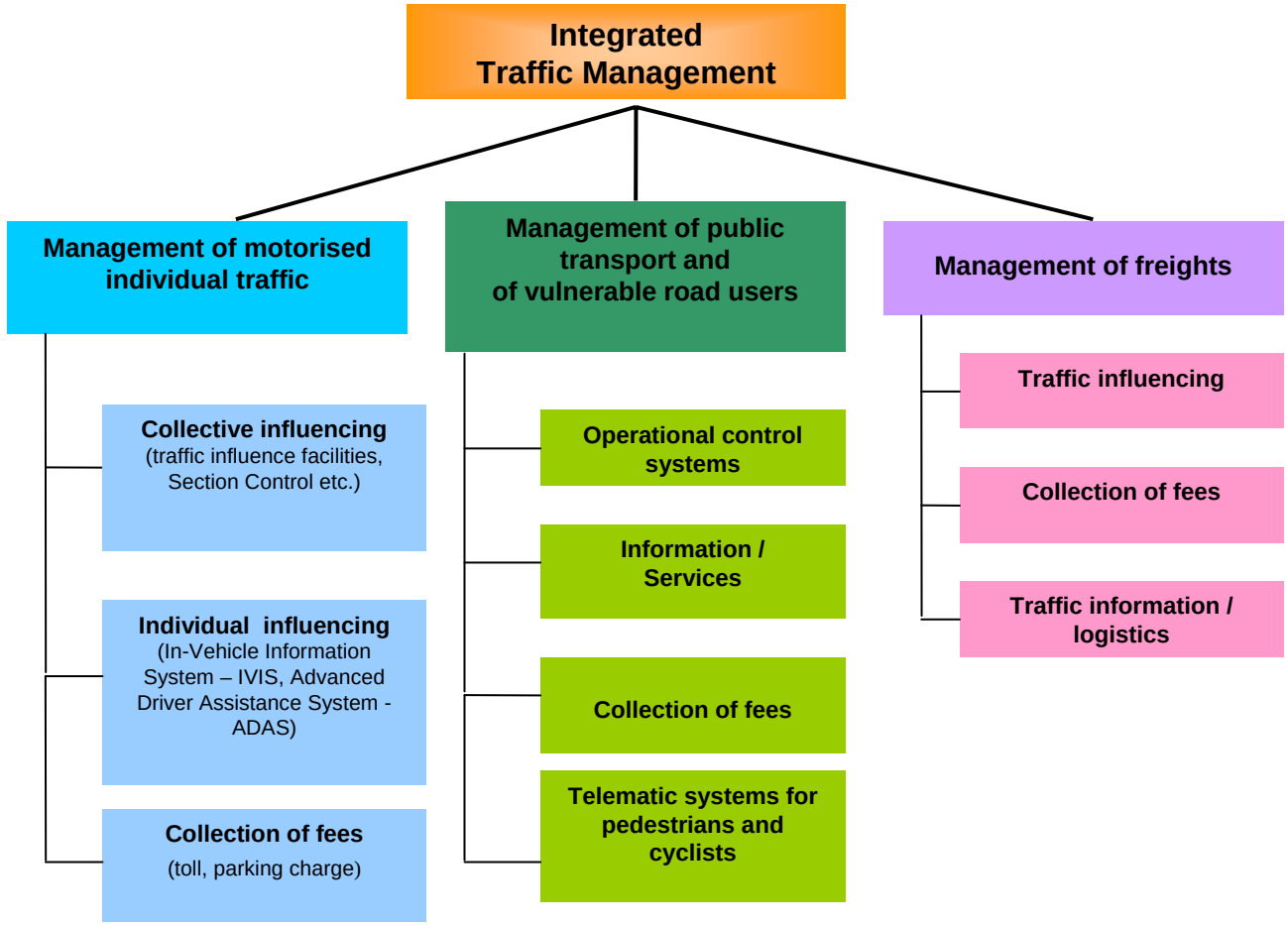
Fields of application



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Aims of telematic systems

- Increase of traffic safety
- Increase of efficiency
- Increase of comfort
- Contribution to a more environmental friendly/sustainable traffic system
- Cross linking of different transport modes

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Need of psychological and socio-scientific knowledge

- High expectations are likely not to be fulfilled
- Traffic is a complex system
- Efficiency of telematic systems will depend on the sum of the activities of all single road users

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Psychological and socio-scientific aspects

- Are potential users willing to use a new system? → **Acceptance**
- Can you expect that a new system will be used in an appropriate way without any negative side effects? → **Behaviour Adaptation**
- Does a new system promote equal opportunities for all road users? → **Equality of Opportunities**

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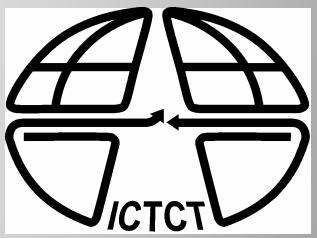

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Acceptance

- Reflects to what extent potential users are willing to use a certain system
- Use of system will depend on the way how user needs are integrated in the development of systems
- Personal importance for the users has to be higher valued than the degree of innovation
- There is a difference between attitudinal acceptance and behavioural acceptance

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Behaviour Adaptation

People do not always behave according to rules and instructions.

Behaviour adaptation =

possible unintended changes in behaviour, caused by a change in traffic system

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Aspects of Behaviour Adaptation

- Risk compensation
- Delegation of responsibility
- Imitation
- Ambiguity of signals
- Communication

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Equality of opportunities

- The needs of all target groups should be considered in an appropriate way
- Above all, weaker road users (e.g. impaired people) might profit from new technologies.

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Collective Influencing Systems

- Systems that address collective behaviour of car drivers (some measures are obligatory)
- Main aim: improvement of both traffic flow and traffic safety
- Behaviour adaptation, acceptance problems, → important topics, but hardly any socio-scientific research is done in this field
- Example: Traffic influencing systems
- Example: Section Control

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Individual Influencing Systems

- Systems addressing individual vehicles, or drivers → two Systems: In-Vehicle Information System (IVIS) and Advanced Driver Assistance System (ADAS)
- Before the implementation of a system many psychological and socio-scientific questions should be clarified (e.g. questions of perception and effects on vigilance; questions of relevance of information)
- Some ADAS and IVIS-systems are well documented (e.g. ISA) → little research with regard to long-term effects
- Various studies result in different outputs → use of so many vastly different methods of analysis

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Public Transport System

- Main aim: improvement of services and of efficiency → increase of attractivity
- Acceptance → important to involve customer, viz. users → needs of various target groups have to be evaluated
- Quality of opportunities → impaired people are sometimes excluded from practical use (e.g. traffic information via internet) → intensive attitude and motive research is necessary

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Vulnerable road users

- Play an unimportant role in transport telematics
- There are some systems, that might improve the traffic safety and the comfort of pedestrians and cyclists (e.g., pedestrian detectors, GPS navigations systems for cyclists and pedestrians)
- No attitude surveys are available

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Conclusions

- Need of more psychological and socio-scientific research in connection with telematics (long time studies)
- Acceptance: Personal importance for the users is more important than the degree of innovation.
- Promotion of equal opportunities → needs of various target groups have to be considered
- Permanent evaluation of systems
- Interdisciplinary approach and use of interdisciplinary methodology

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