



Environment and traffic management challenges: ITS solutions

Addressing future challenges for
road operators



Current situation

- Dense population and increasing traffic in the heart of Europe
- Limited abilities to extend existing road networks
- Better understanding of „costs and causes“
- Change towards „Internalisation for (transport) external costs“
- Increasing need for an integrated, efficient, ~real-time traffic and environmental management
- Various regional and only partly interoperable solutions today

Challenges / Opportunities



By using intelligent transport systems in combination with GNSS systems for:

- Tolling
- fleet management
- integrated road and traffic management
- VAS (safety driven or user oriented)

these challenges may be not only addressed but as well be turned into opportunities.



GNSS as tool

- Actual tolling schemes mainly cover a selected part of the road network or defined region only.
- Ideally, tolling systems and associated traffic management systems work hand in hand to have a real effect.
- In the near future, main parts of the entire road network (at least primary and secondary roads) have to be managed
- As such a complex network covers a variety of nodes, only GNSS based tolling is suitable for such challenges.



User acceptance is key to success

The acceptance and penetration of such systems increases if new services with user acceptance are introduced.

Some examples include:

- Usage oriented road charging replacing existing taxes
- Safety services
- CO2 / deterioration aware driving
- Emission modeling solutions for fleets
- Traffic load monitoring on certain roads
- Integrated traffic management for cities or regions for congestion reduction

European harmonization



- Existing systems like DSRC or GNSS based tolling will continue to grow; new systems for tolling and traffic management will be introduced.
- The growing demand for seamless co-existence has been addressed by industry and European commission already and resulted in interoperability standards for communications
- European endeavors like interoperable Europe-wide tolling ("EETS") are supported well by GNSS systems, despite local enforcement and back-office communication, no further infrastructure is required for a road operator or local toll charger to enable even interoperable road charging.

The birds-eye perspective



- ITS (Intelligent transport systems) are on their way to enhance safety and comfort on European roads
- They will require a a certain amount of infrastructure on the roadside (e.g. sensor, communication, emergency call, camera,..)
- Location based infrastructure services may not only help user but as well road construction and operation to be more efficiently
- Requirements from ITS, traffic management, environmental control and EFC integrate well into one hybrid infrastructure
- The corresponding side in the vehicle is ready even today to support these concepts as a hybrid device



Conclusion

The roles and tasks of stakeholders evolve due to new challenges:

- New markets and players will appear
- Toll charger will act as or interact with service providers
- Roads will be build with certain basic ITS infrastructure
- Devices will support more and more interfaces and applications

Such concepts pave the way for a beneficial co-operation of road construction companies, road operators, toll chargers and – in the near future - EETS providers.