

Evaluation of Driving Assistance Systems Exemplified by the Austrian Project RONCALL_I2

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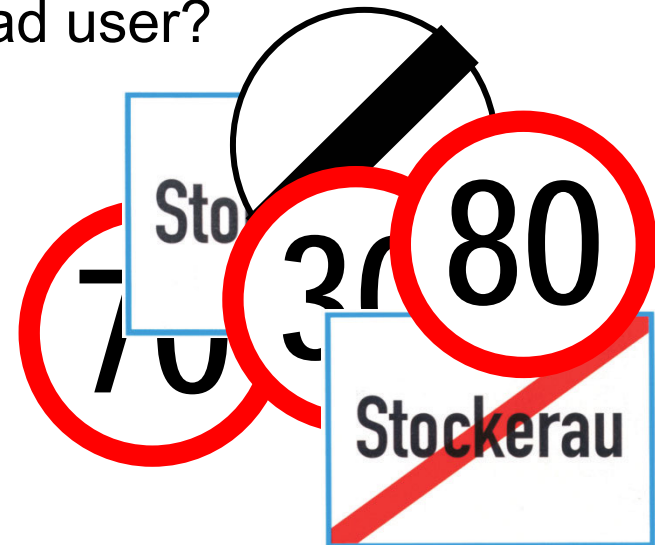
Outline

- Why?
- How?
 - Technical Basis
 - Market Place
 - Services
 - Evaluation
- Whereto?



Well known problems

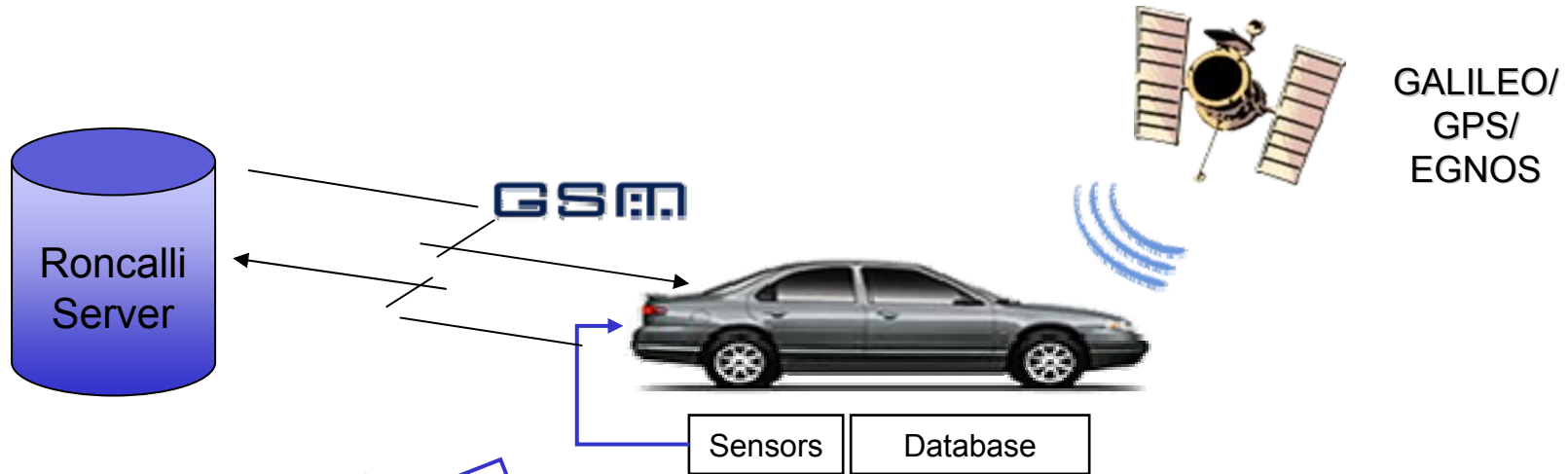
- Road related information is highly dynamic!
- ... traffic signs are not!
- Can we capture these highly dynamic data?
- How can we deliver information to the road user?



Driving Assistance System RONCALLI & RONCALL_I2

- Position dependent and dynamic real time road (safety) information
 - where it is exactly needed
 - only if it is relevant
 - with precise content and only content, that really matters
 - in a way which does not distract
- Market place for transport telematic information
- Several services for demonstration
- Evaluation

RONCALLI – System Architecture



Algorithm

Extract relevant information

PDA (in Real-Time)

- (d)GPS-Position
- Time
- Speed
- Sensors
- Database
- etc.



RONCALL_I2 – Market Place

- ➔ a common, electronic market place for supply and demand of transport telematic information
 - RONCALLI clearing interface: central infrastructure for the exchange of transport telematic content and standardisation of data exchange based on xml-technology
 - RONCALLI reference system: transport telematic content based on a standardised geographical reference system
 - RONCALLI clearing house: central infrastructure for billing and financial clearing for the transport telematic sector

RONCALL_I2 – The Services I

Road Safety Services

- ISA (Intelligent Speed Adaptation)
 - > Display of current speed limit
 - > Speed limit exceedance: icon begins to blink, changes colour, sound signals
- Warnings of Accident Black Spots or Dangerous Road Sections
 - > Depending on circumstances (e.g. weather, day time, ...)
 - > Increase driver's attention to specific sections
- Priority Information
 - > For selected crossings
 - > Behaviour recommendations based on current priority situation



RONCALL_I2 – The Services II

ECO-Driving

- Economical driving behaviour: reducing fuel consumption & CO² production
- Assessment of eco-driving solely via GPS data
- Relevant values: acceleration, deceleration & look ahead → the lower, the more economic

xFCD – Extended Floating Car Data

- Generating additional data through driver's interaction (e.g. congestion warnings)

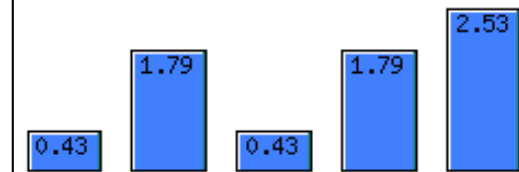
ECO-Driving Results

Last Drive

Look ahead	2.53
Accelerate	88.26
Braking	165.21

Score **5 out of 6**

History:



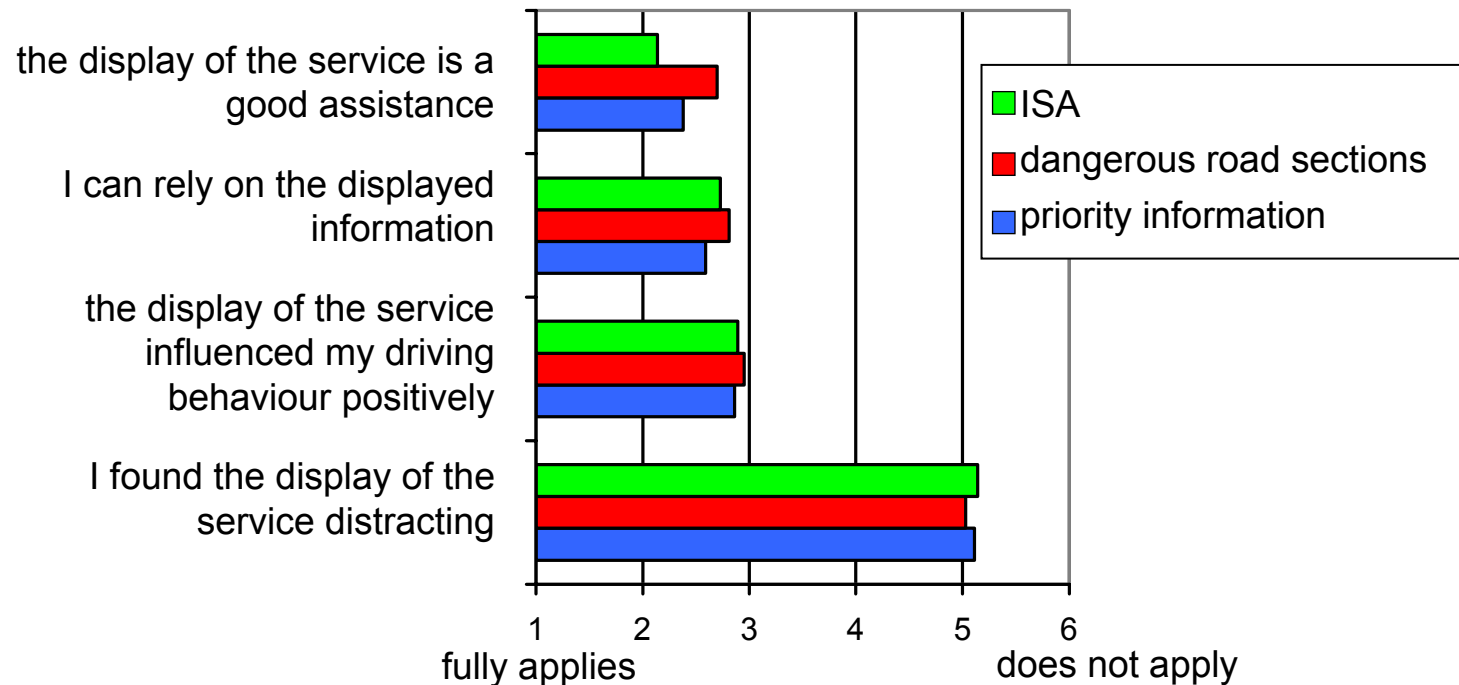
RONCALL_I2 – The Evaluation of the Services

- Survey in driving school
 - Learners: one- or two-staged pre- and post-survey
 - Driving instructors' protocols on learners' reactions
 - Moderated group discussion with instructors

- Market Survey

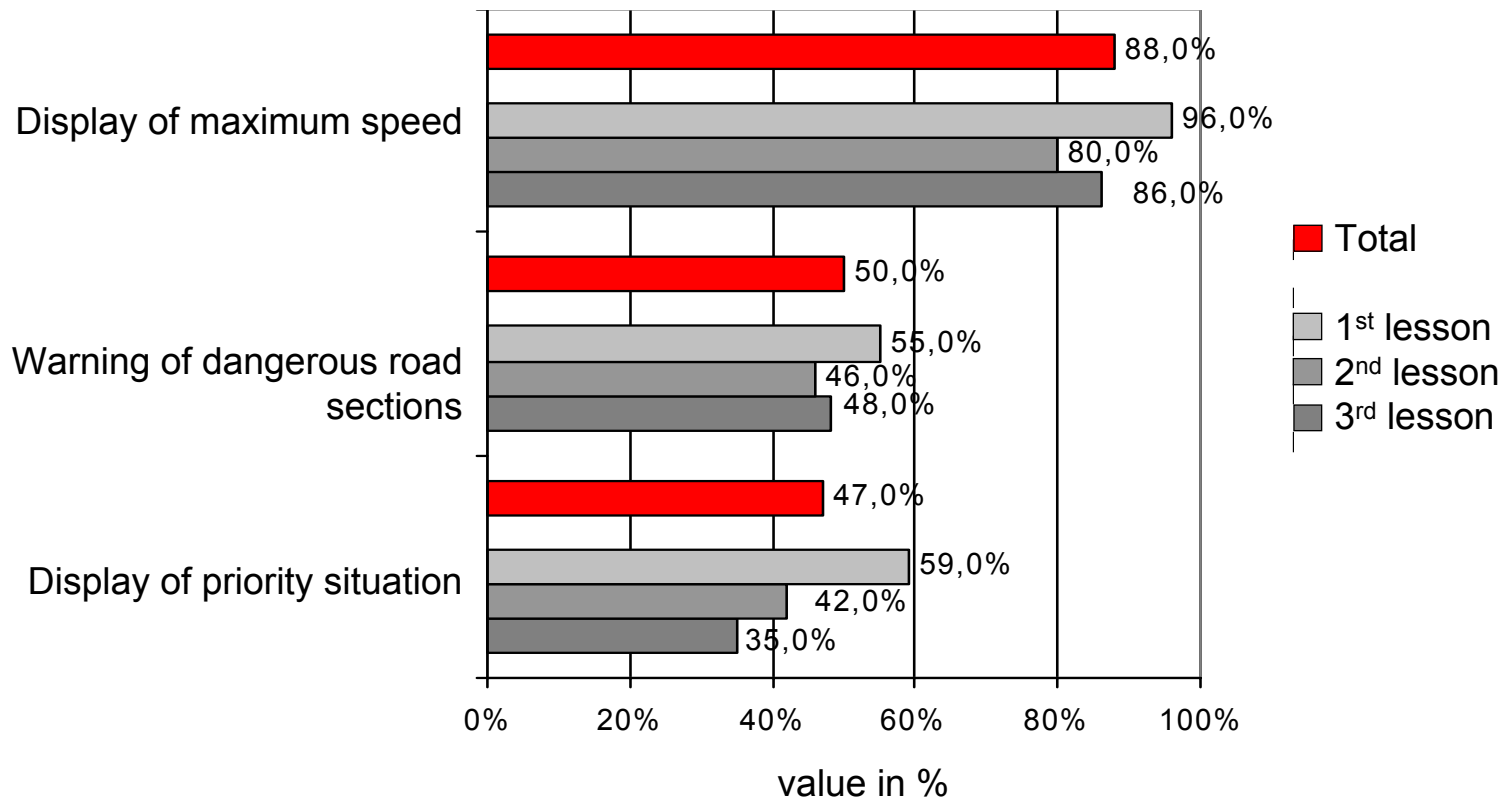
Service Evaluation by Learners

- Duration: 3 month
- Sample: 37 learners (60 % women, 85 % \leq 19 years old)



Evaluation of instructors' protocols

- Percentage of learners, influenced by services:



Group Discussion with driving instructors

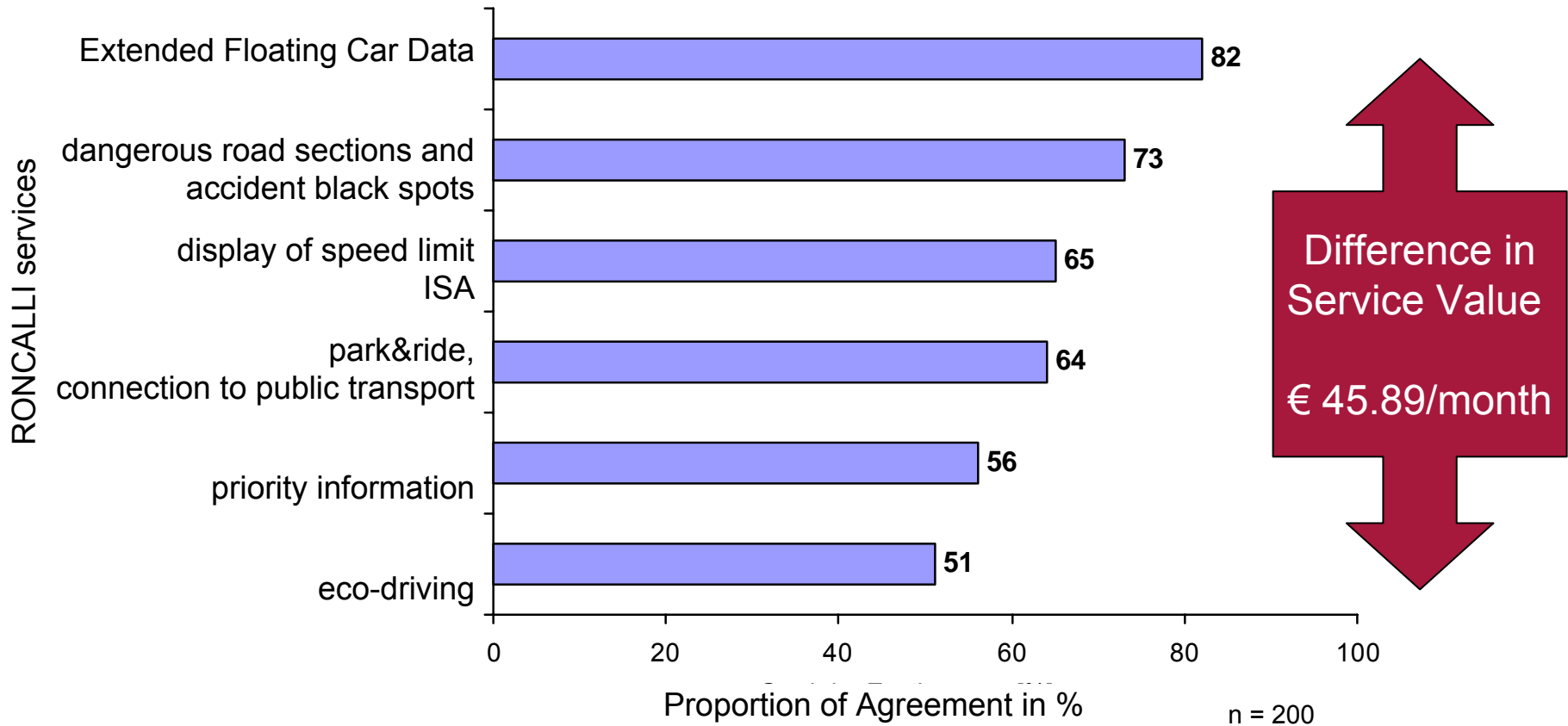
- Services ISA & priority information very useful
- Especially ISA is contributing to road safety
- Warnings of dangerous road sections & accident black spots not so important
- Non-distractive service display
- Pilot trail restrictions (not area-wide, reliability not 100 %, ...)
- No information better than wrong information

Market Survey

- ➔ Analysing customer's view of services' market acceptance

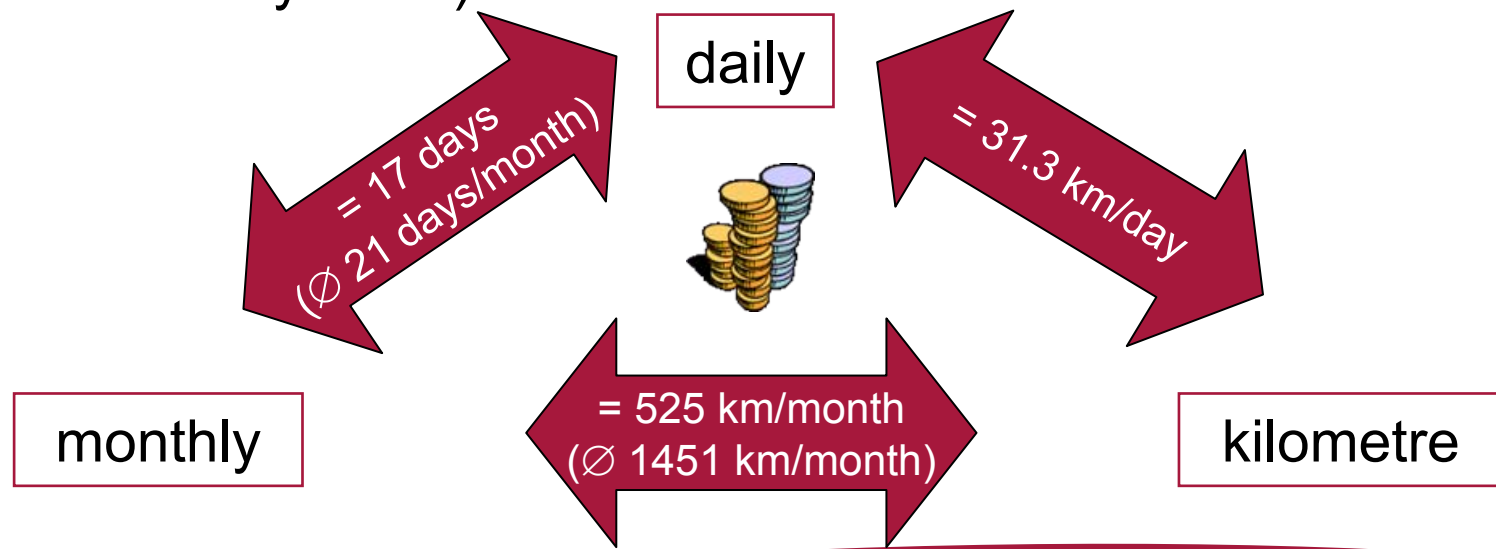
- Two-staged market survey:
 - Via Telephone: 1.345 people → objective personal features?
 - Interactive stated-response interviews:
200 people (possessing driving licence & using car regularly)

Market Survey: RONCALLI services



Market Survey: Types of Settlement

- Fixed, monthly flat rate (preferred by 28 %)
- Daily rate, when the services are used (preferred by 25 %)
- **Rate per kilometre**, when the services are used (preferred by 47 %)



RONCALLI & RONCALL_I2

Driving Assistance Systems in Austria

A Big Step Forward ...

- Prepare information for transport telematic services
- Deliver information to customer
- Competition-free trading space on market place
→ general framework is missing
- Services for system's demonstration
 - ISA & xFCD most interesting
 - Eco-driving not interesting
- Pilot trial problems
 - Improvements are necessary
 - Establish preconditions

Thank you!

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