



Safe and Intelligent Mobility
Test Field Germany

sim^{TD}

Consortium

sim^{TD}: partners

Vehicle Manufacturers



DAIMLER



VOLKSWAGEN
AKTIENGESELLSCHAFT

Suppliers



BOSCH



Network Operator



Science

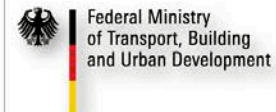


Public Institutions



sim^{TD}: sponsors

Federal Ministries



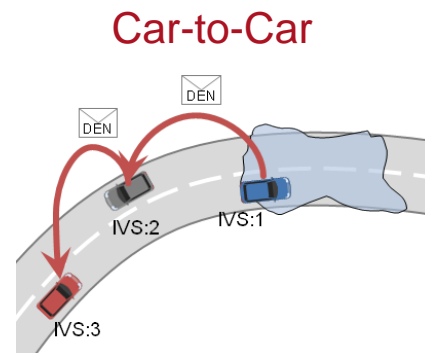
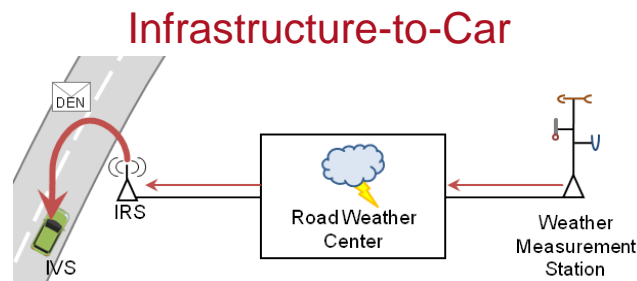
Supporters



Objectives

Principle objectives **sim^{TD}**:






- Increased road safety and improved efficiency of the existing traffic system through the use of car-to-x communication.
- Definition and validation of a roll-out scenario for the identified functions and applications.
- Scientific research in a realistic test field.
- Consolidation of car-to-x functions from the traffic efficiency, driving and safety as well as value-added services categories.






sim^{TD} Functions

Traffic




Monitoring of traffic situation and complementary information/basic functions

-  Data collection in the infrastructure side
-  Data collection by the the vehicle
-  Identification of road weather
-  Identification of traffic situation
-  Identification of traffic events/incidents

Traffic (flow) information and navigation





-  Foresighted road/traffic information
-  Road works information system
-  Advanced route guidance and navigation

Traffic management





-  Alternative route management
-  Optimized urban network usage based on traffic light control
-  Local traffic-adapted signal control

Driving and safety

Local danger alert



-  Obstacle warning
-  Congestion warning
-  Road weather warning
-  Emergency vehicle warning

Driving assistance

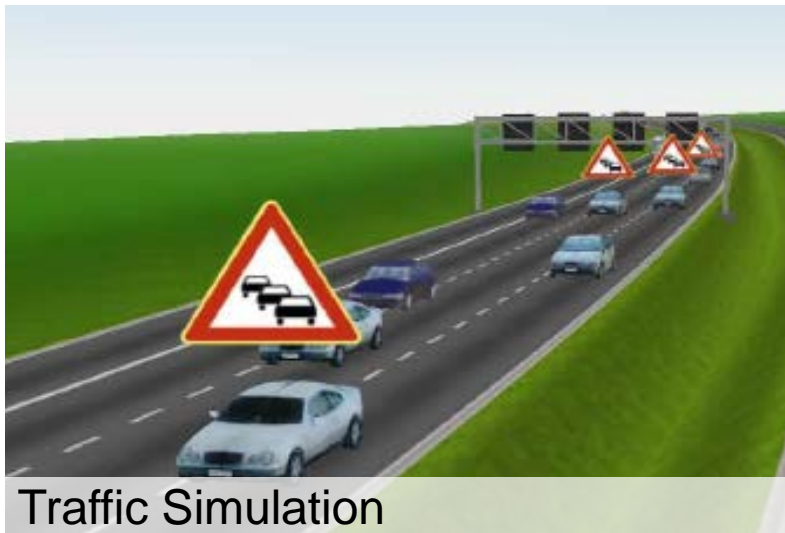
-  In-vehicle signage/traffic rule violation warning
-  Traffic light phase assistant / Traffic light violation warning
-  Extended electronic brake light
-  Intersection and cross traffic assistance

Additional services

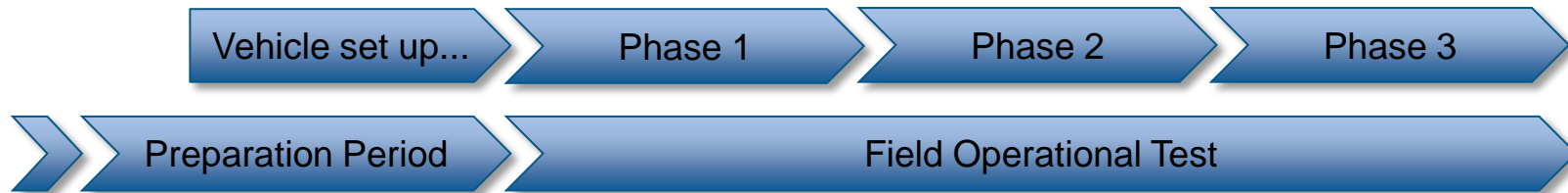
Internet access and local information services

-  Internet-based usage of services
-  Location-dependent services

sim^{TD} Test Environment



Field Operational Test (FOT) Sequences



- Preparation period:
 - Vehicle and infrastructure set up
 - Planning of trials, preparation of trials „screen-play“
- 24 weeks FOT from 2nd July until 14th December 2012
 - 3 Phases of 8 weeks
- 10 Expert drivers available throughout the whole FOT
- Drivers of 110 vehicles were replaced in each phase

Six month Field Operational Test

33 sim^{TD} applications **13** safety-related

tests on more than **390** km of public roads

120 test cars

3 motorcycles

103 ITS-Roadside-Station

thereof **23** at signal controllers

more than **500** test drivers

more than **41,000** hours driven

1,650,000 test kilometres driven





Typical Day of sim^{TD} Field Operational Test

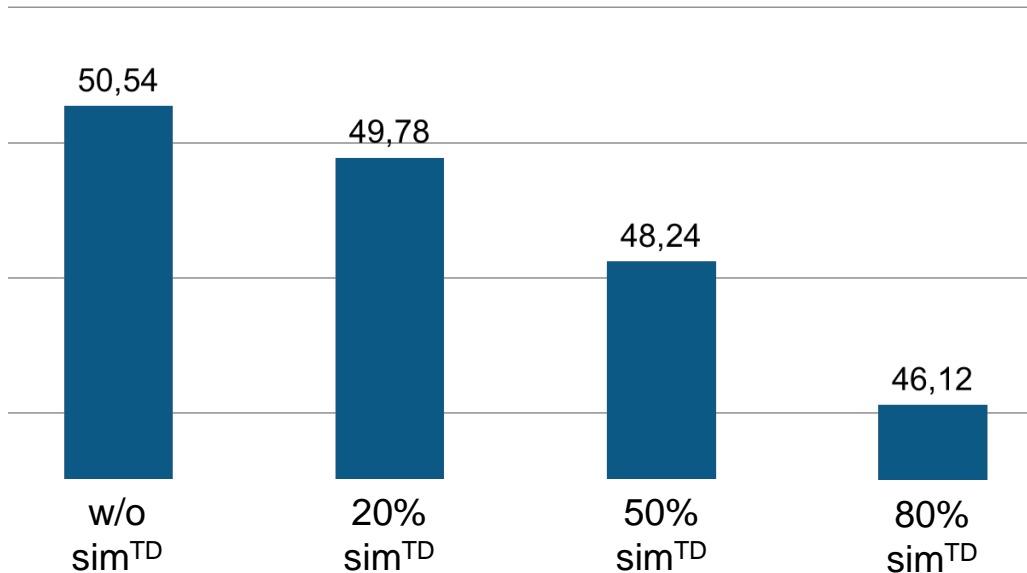
Traffic Light related use cases

- Local traffic adaptive signal control
 - Based on floating car data
 - Interface between vehicle and signal controller
 - Position and direction
 - Speed
 - Indicator status
- Traffic light and phase assistent
 - Based on signal controller information
 - Interface between signal controller and vehicle
 - Junction topology
 - Actual signal status
 - Forecast of next phase change



Local Traffic Adaptive Signal Control

Average Journey time across junction GLY per vehicle [s]



- Savings on journey times
- Savings on infrastructure costs (detection loops)
- Applicable to give public transport priority
- Applicable to give emergency vehicle priority

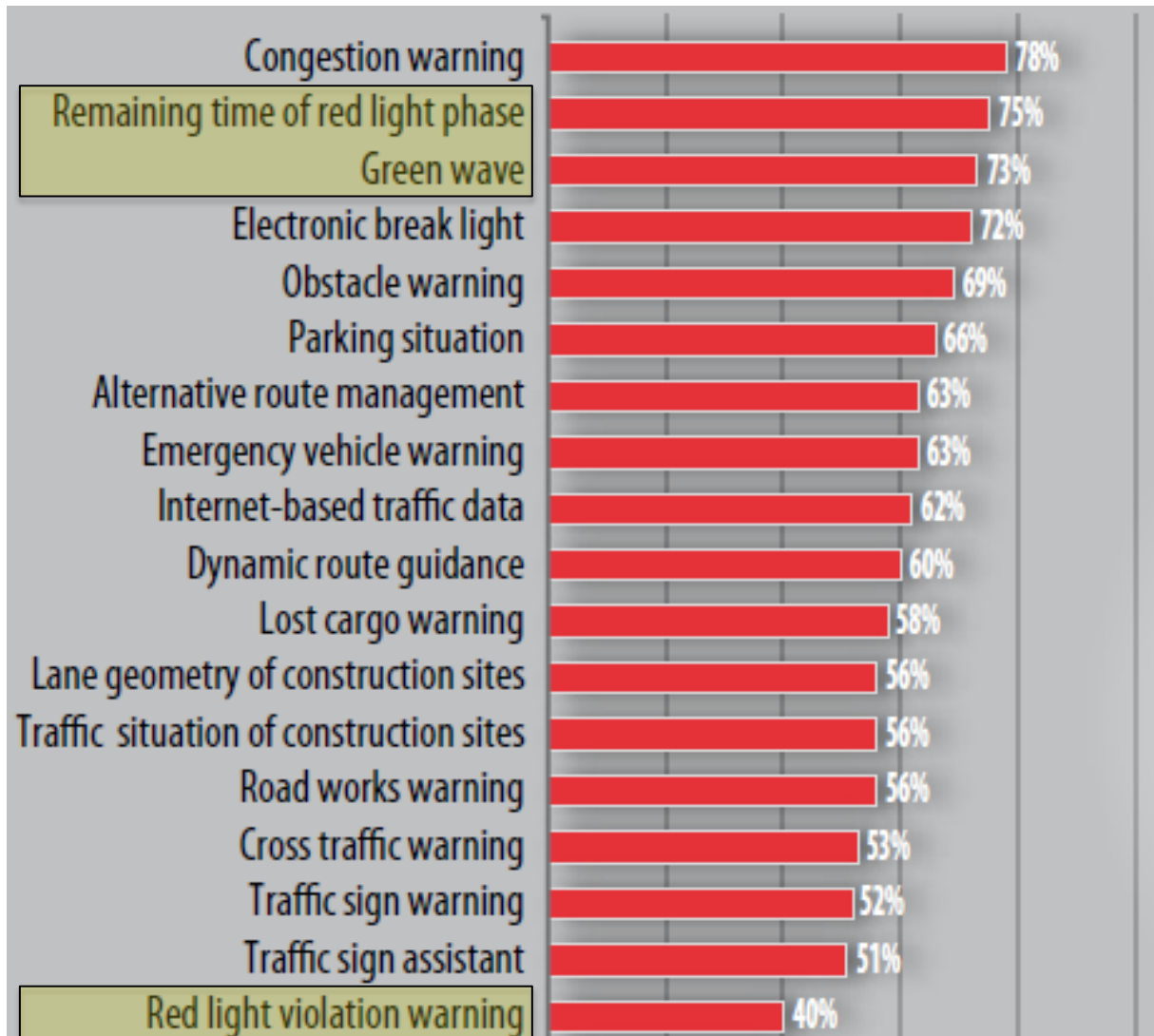


Traffic Light and Phase Assistant

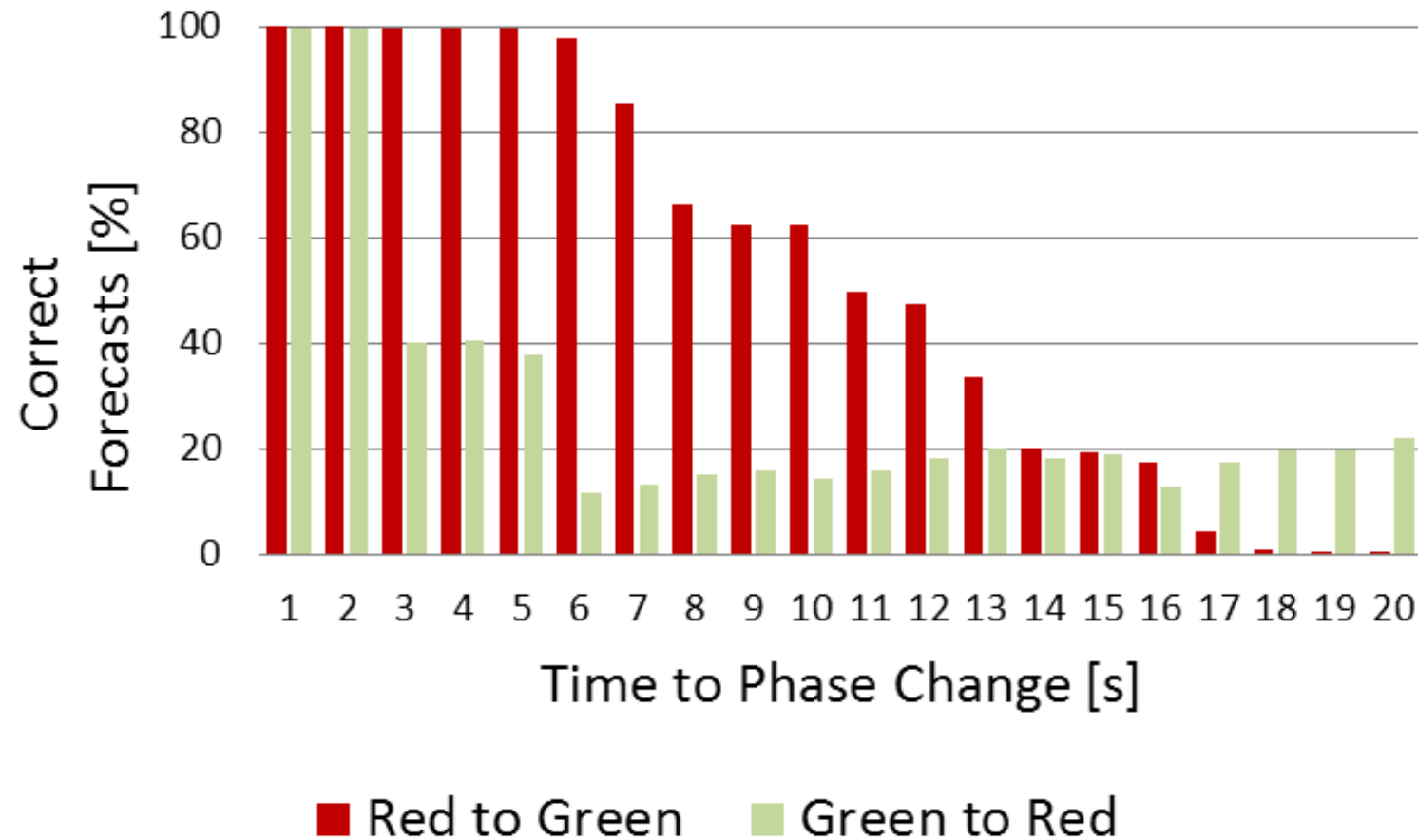
- Red light violation warning
→ Safety implications
- Remaining time of red light phase
→ Driving comfort implications
- Speed recommendation / green wave
→ Driving comfort implication
→ Minor traffic efficiency implication



Drivers Perception



Forecast of Signal Phase Change



Perspective and Summary

- C2C and C2X is strongly driven forward by automotive industry
- First applications will be supplied on motorways from 2015
- Cities benefits
 - Savings on infrastructure investment
 - Better data base for traffic management
 - Improvements in traffic efficiency
 - Potential savings on accident costs
- Cities challenges
 - Data provision for C2X applications
 - Embedment of C2X technology in existing traffic management
 - Availability and procurement of C2X soft- and hardware solutions





Let's get engaged to make the most out of it

More information on sim^{TD}

www.simtd.de

Latest activities about C2X stakeholder discussion

<https://amsterdamgroup.mett.nl>

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