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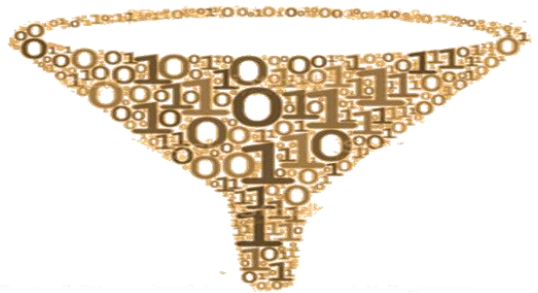
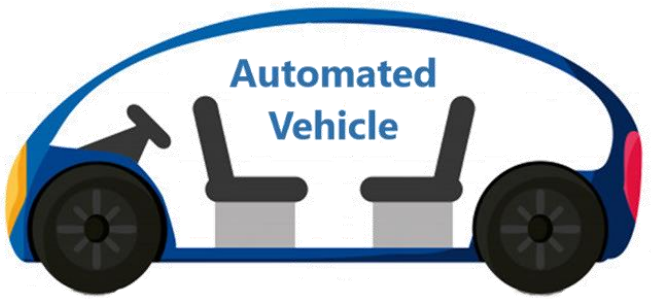
ITS Mobility Standards Status

Knut Evensen
Norwegian Public Roads Administration
Convenor CEN TC278/WG17 and ISO TC204/WG19





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Norwegian Public Roads Administration

Why is NPRA interested in ITS Standards?

- We have some specific challenges
  - Special winter regulations, e.g., snow chains
  - Winter operations such as convoys
  - Single lane low traffic roads
- NPRA already have a robust digital system
  - DATEX node for National Access Point
  - Comprehensive road databank
  - Good set of services with strong usage
- We need standards for digitalization
  - METR and NAP
  - And to **support C-ITS**

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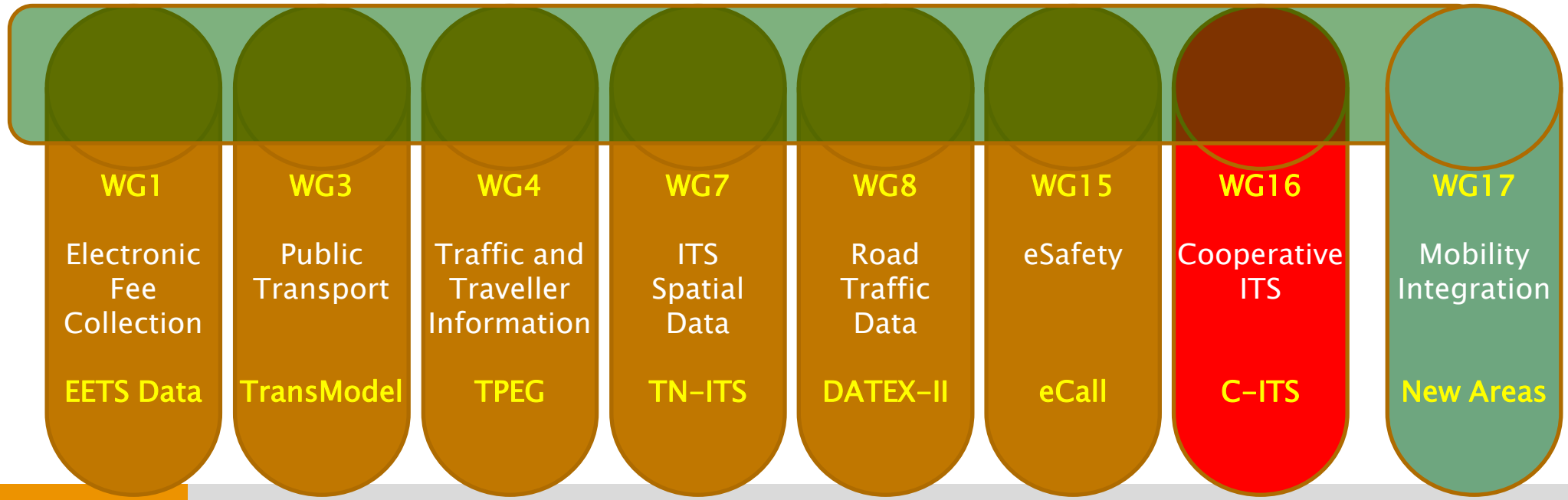
CEN TC278 Intelligent Transport Systems
Active Working Groups

- The initial set of standards WGs
- Adding eSafety and C-ITS
- Adding the Mobility aspect.
- Adding cross-cutting integration

CEN/TC 278
ITS standardization



ISO TC204 Intelligent Transport Systems

Active Working Groups

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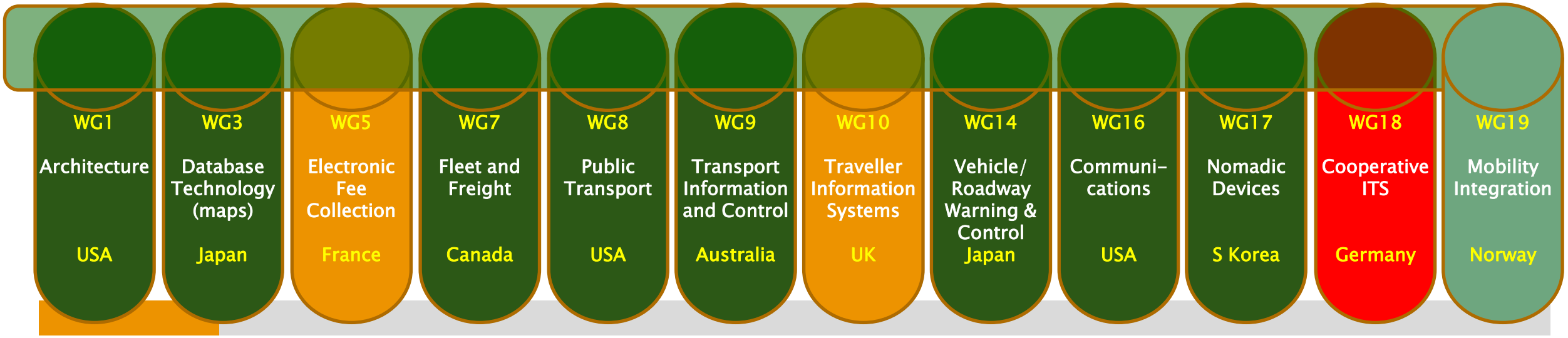
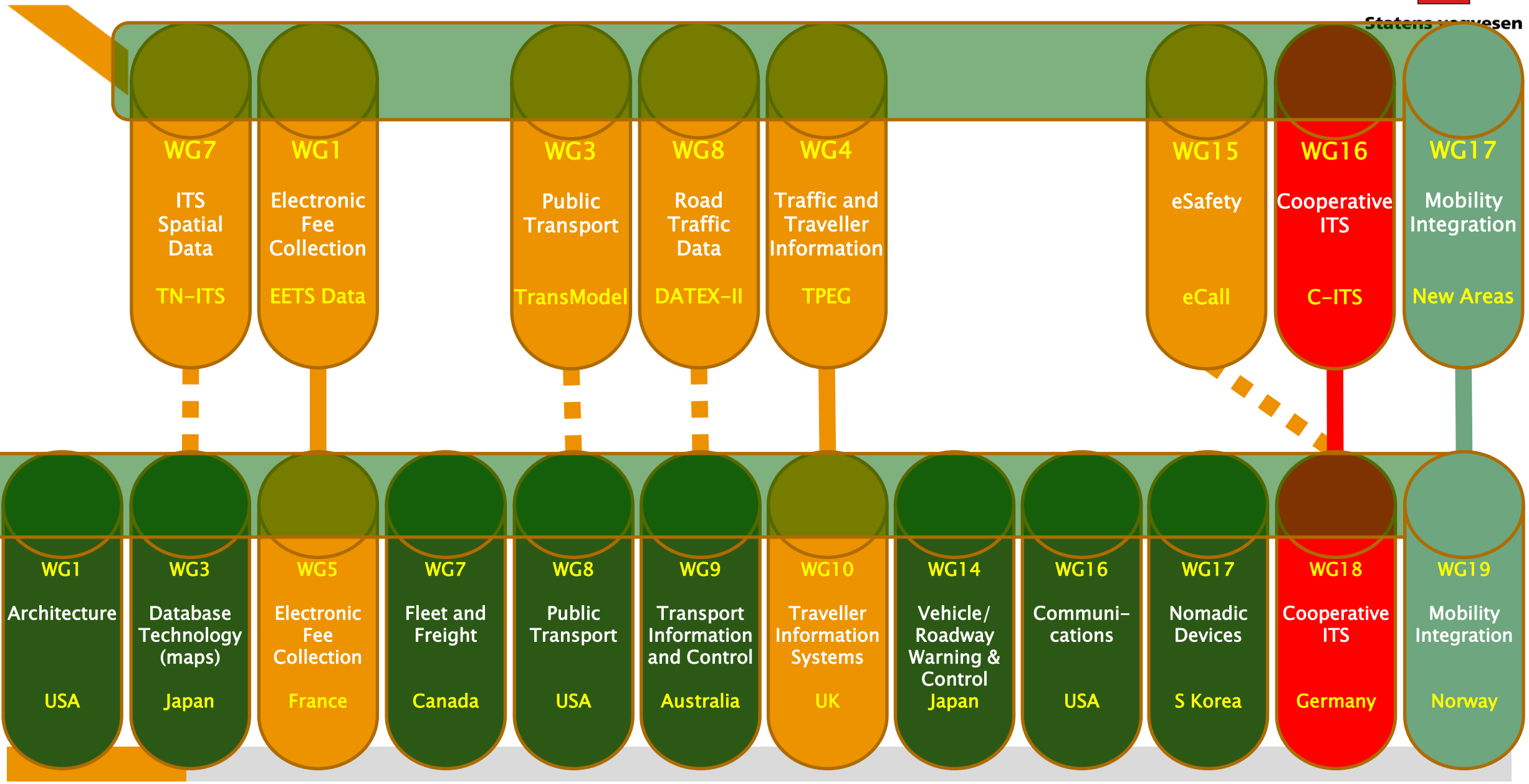
- The initial set of standards WGs
- Adding C-ITS and Nomadic Devices
- Adding the Mobility aspect.
- Adding cross-cutting integration

ISO International Organization for Standardization



CEN TC278 mapping to ISO TC204



Urban ITS / Mobility Integration Working Group

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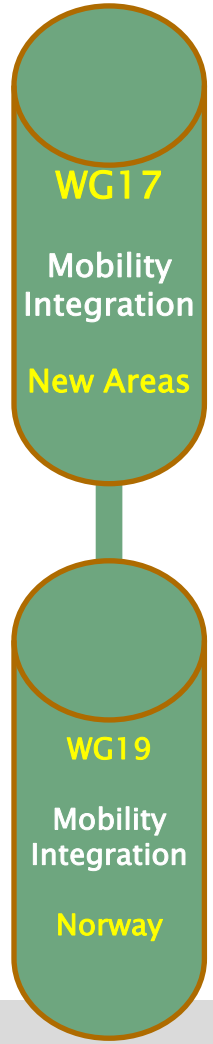
- ITS Mobility Integration working group
  - Started out to support the Urban ITS Mandate (M/546) from DG MOVE
  - Widened its scope in 2019 to help coordinate cross-WG mobility issues
  - Same role in ISO TC204 giving global reach of documents

- Success stories - 11 project teams financed via M/546:
  - Published a 600+ pages status overview of Urban ITS needs based on hundreds of interviews, questionnaires, expert meetings, etc
  - Two new DATEX II publications developed and handed over to Forum/WG8
  - New mobility modes developed and handed over to WG3 (TransModel)
  - Two location referencing guideline standards for cross-translation
  - Several standards to support public procurement
  - Two technical standards on urban vehicle access restrictions (UVAR)



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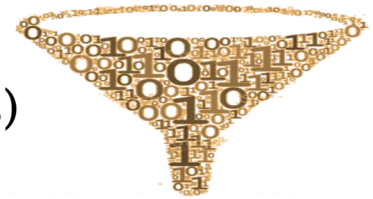
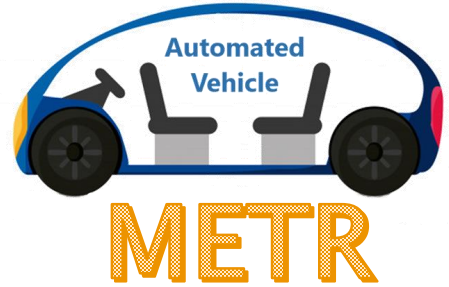
Mobility Integration – current work

- EU-ICIP: Overview and “how-to-guide” on all ITS standards
  - Project team consisting of the top ten experts covering all ITS sectors.
  - Will publish 2021, and maintain a website to keep references up to date
- Parking: two standards under development, strong coordination effort
- Kerbside/sidewalk: three standards on automation, data models etc. Closely linked to parking and METR
- Low Speed Automated Driving: three standards for urban mobility
- Integration of payment models across ITS sectors
- Governance models for data/security operations (from PT1605 standards)
- Basic work on data/role models, e.g. MaaS vs MOD comparison
- Complete gap/overlap overview of all (?) ITS standards

- … and not the least: **Management for Electronic Traffic Regulations**





How did the C-ITS technology evolve?

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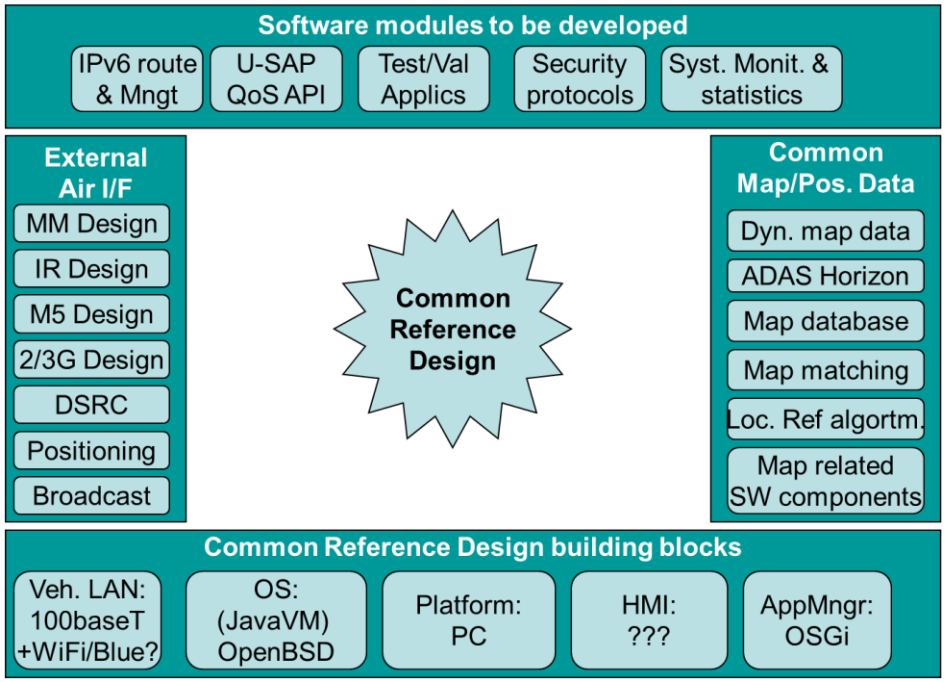
CVIS

- Cooperative Vehicle-Infrastructure Systems
- Largest ITS project in Europe ever
- Fair to say C-ITS was the result of CVIS

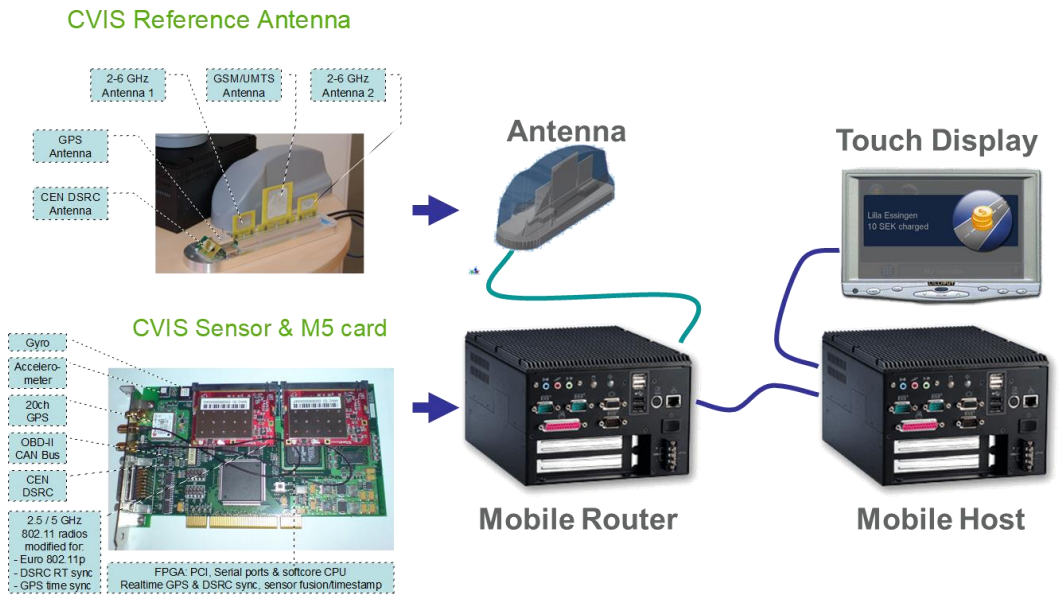
- Time period: **2004 – 2009**
- Total budget: **€ 41 Million**
- Consortium: **61 partners - 12 countries**

CVIS Core Technology function blocks



December 2004 – Functionally the same as today

CVIS 1.0 Vehicle Platform



December 2006 – Technical blocks the same as today

C-ITS products are mainstream now

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CVIS Core Technology function blocks

Software modules to be developed

IPv6 route & Mngt | U-SAP QoS API | Test/Val Applics | Security protocols | Syst. Monit. & statistics

External Air I/F

- MM Design
- IR Design
- G5 Design
- Cell Design
- DSRC
- Positioning
- Broadcast

Common Reference Design

Common Map/Pos. Data

- Dyn. map data
- ADAS Horizon
- Map database
- Map matching
- Loc. Ref algortm.
- Map related SW components

Common Reference Design building blocks

Veh. LAN: 100baseT +WiFi/Blue | OS: (JavaVM) OpenBSD | Platform: PC | HMI: ??? | AppMngr: OSGi

What happened to all functions from CVIS in the C-ITS development?

Blue boxes are CEN-ISO standards and deployed

Yellow boxes have been standardised by PT1605

Grey boxes have been dropped for now

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Conclusion

- C-ITS is fully based on standards
- CVIS project and CEN made the first set of C-ITS standards
- PT1605 completes the job and enables the full C-ITS promise

CEN/TC 278
ITS standardization

ETSI ITS Standards on the move

ISO International Organization for Standardization

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Thanks for your attention!