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Roadside ITS architecture – ITS stations for connected vehicles

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Main objects in intelligent transport systems



Infrastructure



Vehicles with persons and/or goods

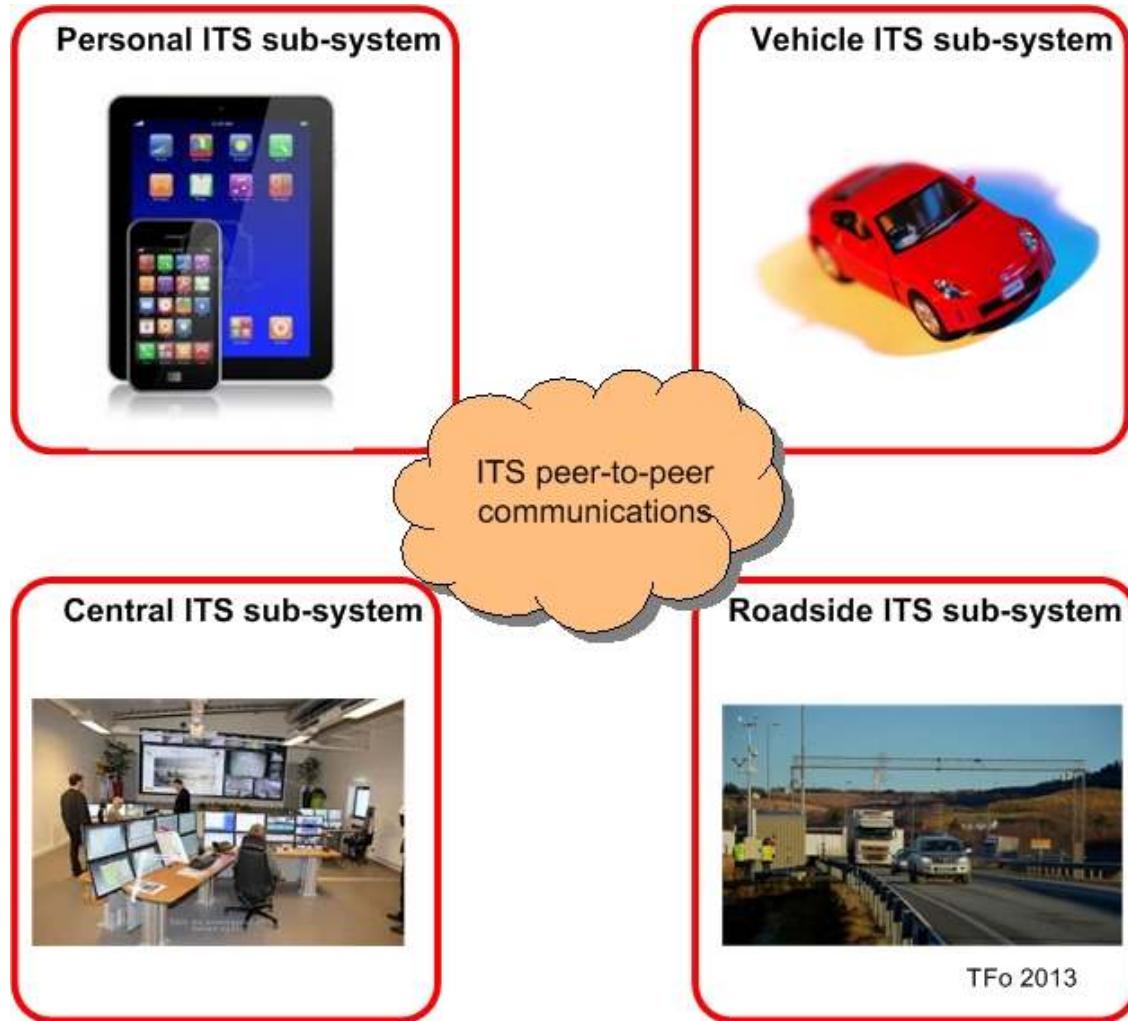


Infrastructure equipment



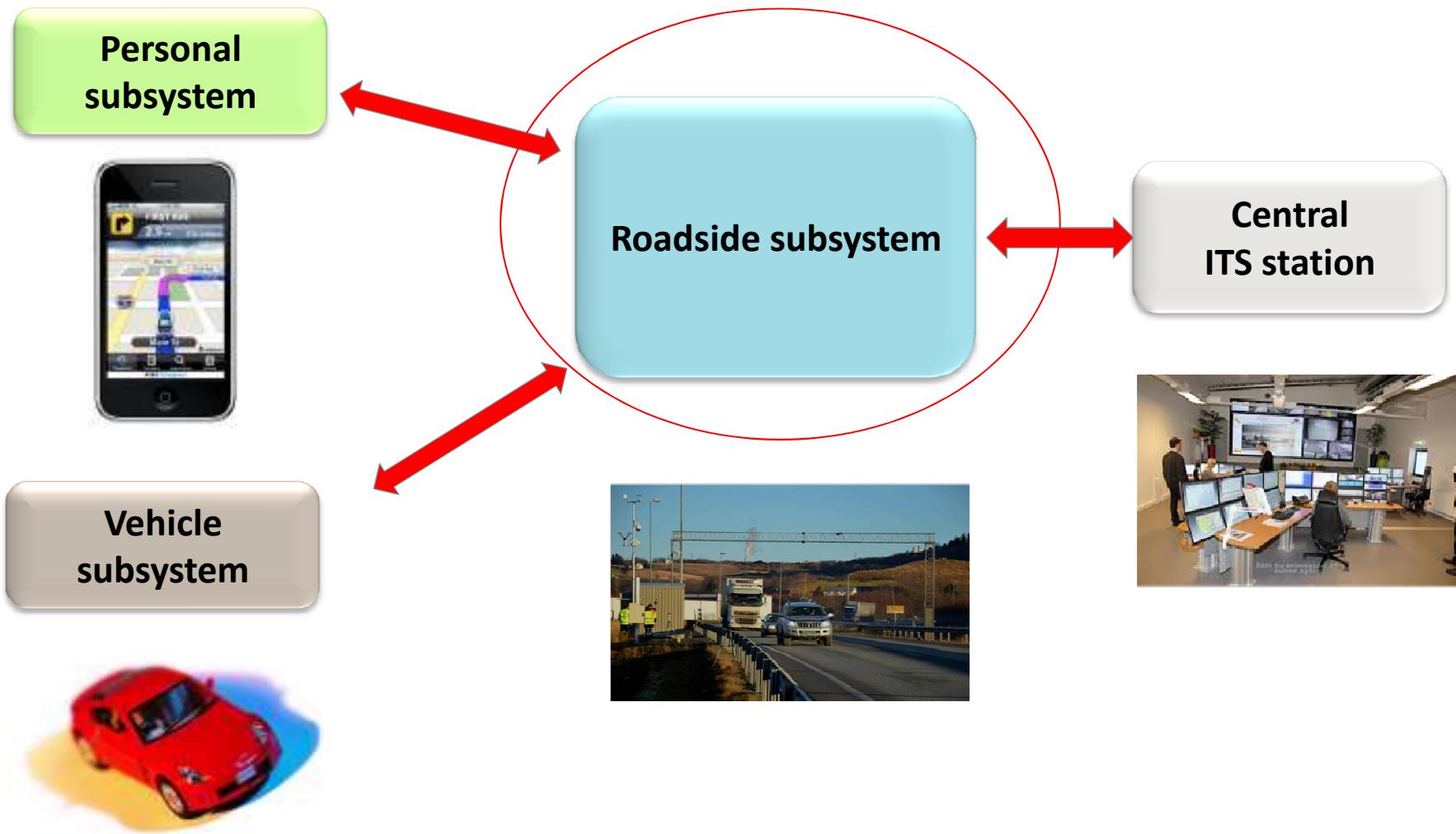
ICT infrastructure and ITS services

The ITS station reference model – 4 ITS sub-systems



Reference: ETSI EN 302 665 V1.1.1 (2010-09) Intelligent Transport Systems; Communications Architecture.

Our main task: to develop an ITS Roadside sub-system



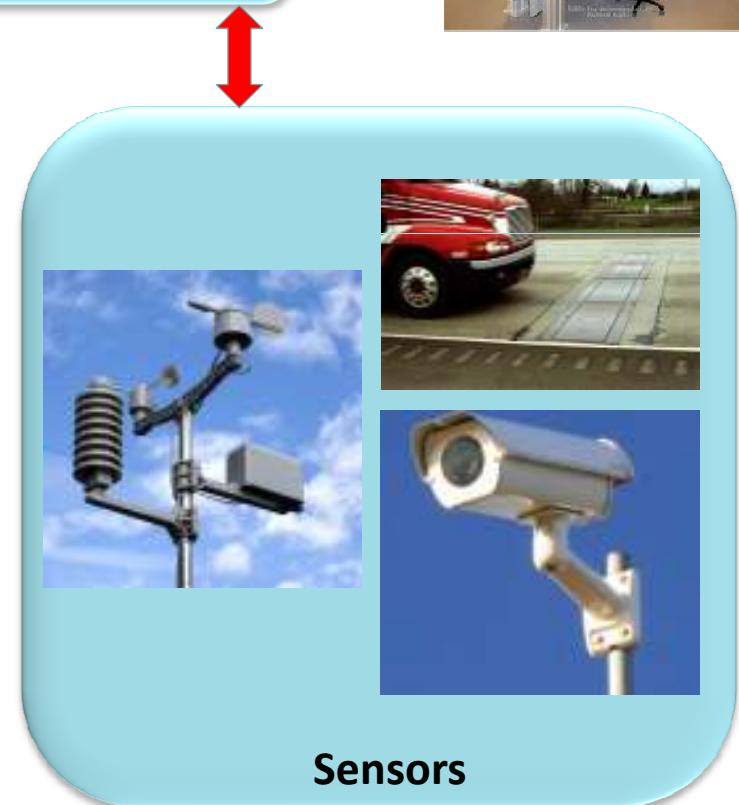


A closer view of a Roadside sub-system

Roadside ITS station with ITS applications

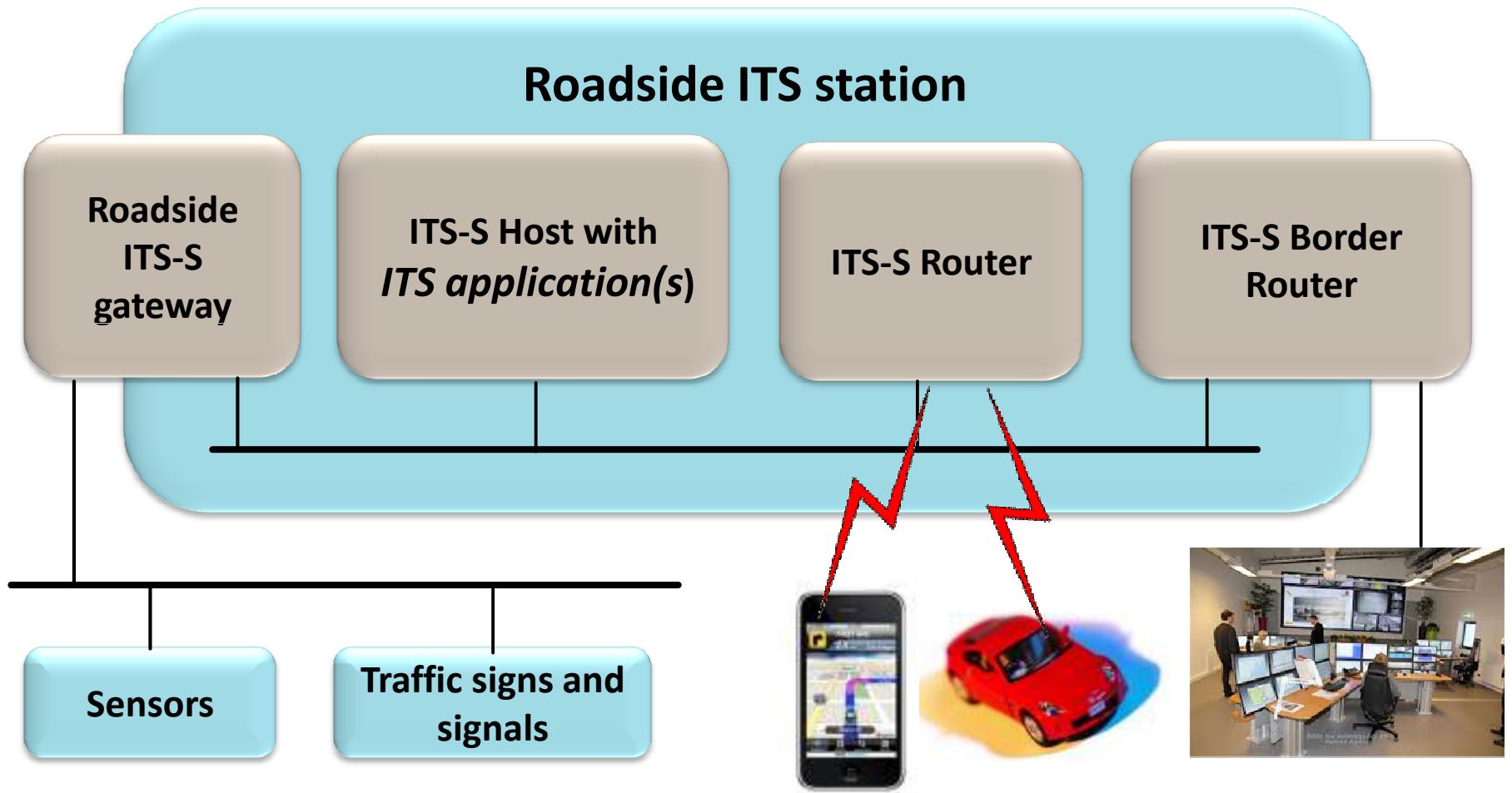


Traffic signals and signs



Sensors

Roadside ITS station modules



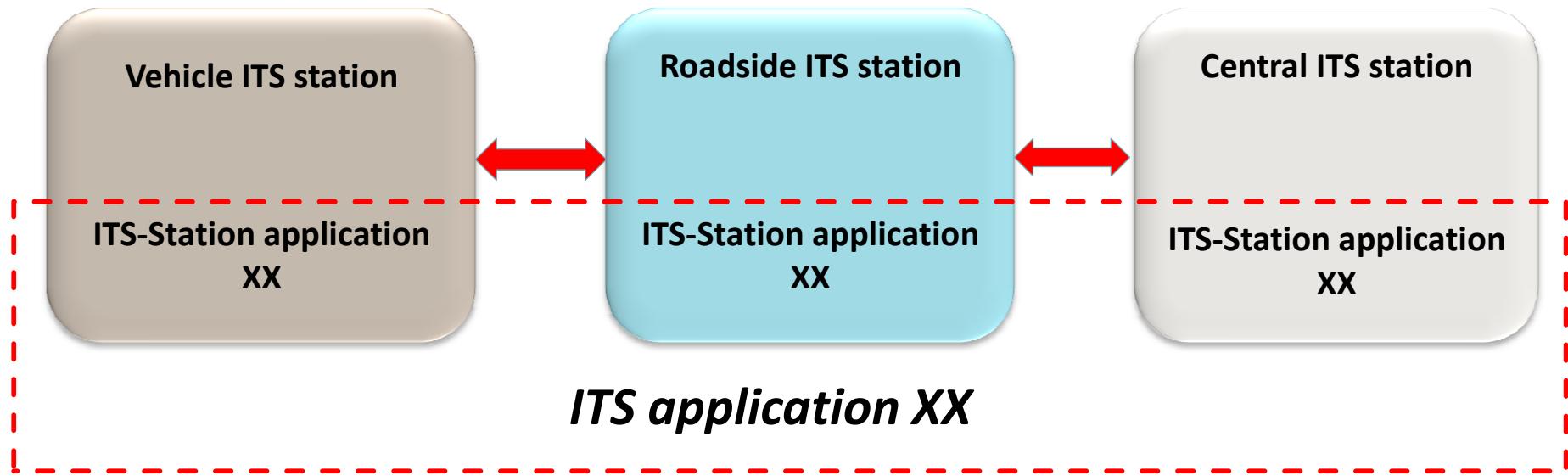
Crucial questions to be answered

- *What are the ITS applications to be hosted by the ITS-Host?*
- *How should the Roadside ITS-S interface with sensors and traffic signals and signs?*
- *How should the Roadside ITS-S interface with the Vehicle ITS station?*
- *How should the Roadside ITS-S interface with the Personal ITS station?*
- *How should the Roadside ITS-S interface with the Central ITS station?*

ITS applications

An association of two or more complementary ITS-S applications constitutes an ITS application which provides an ITS service to a user of ITS.

Reference: ETSI EN 302 665 V1.1.1 (2010-09) Intelligent Transport Systems; Communications Architecture.

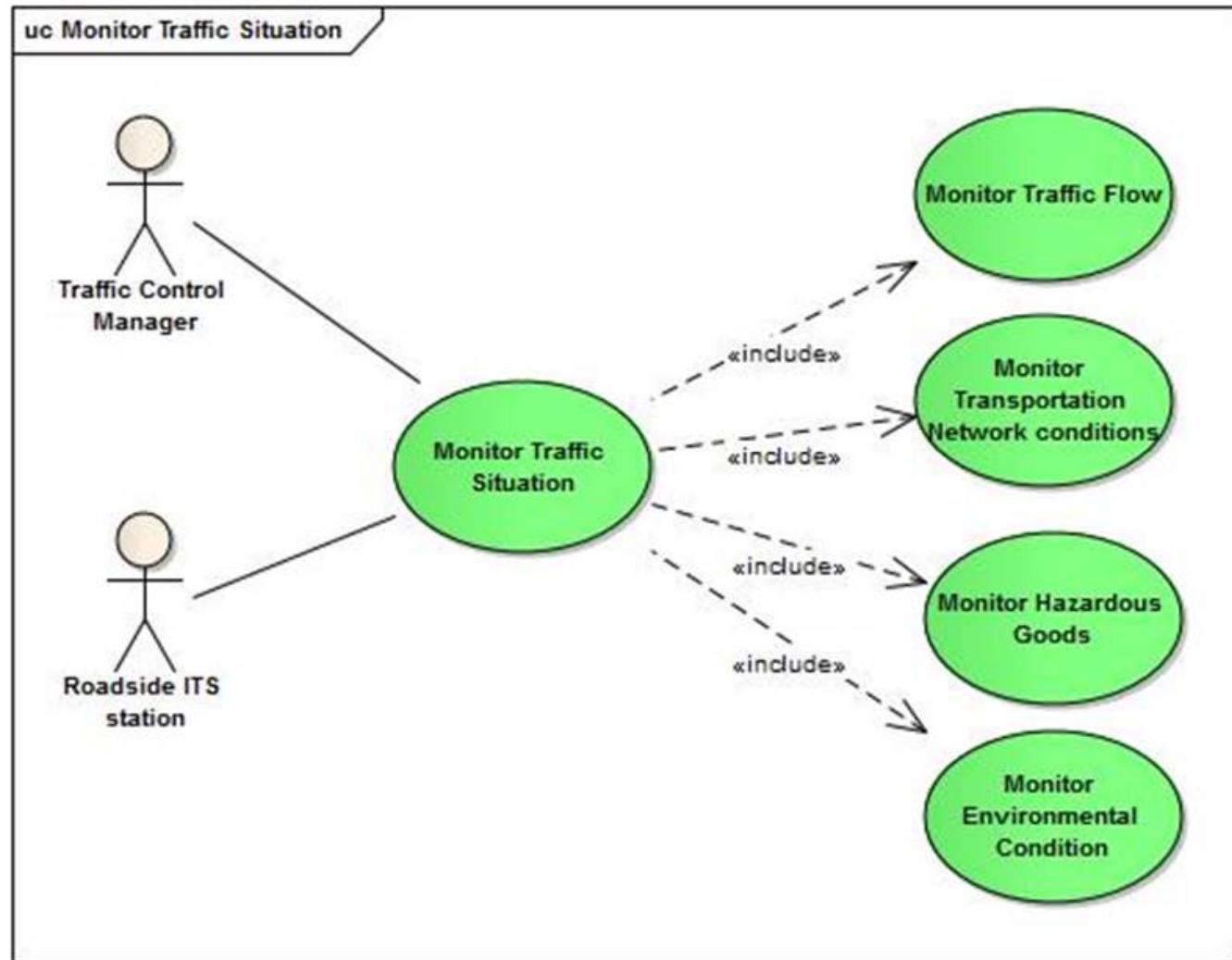


Possible ITS applications (high level)

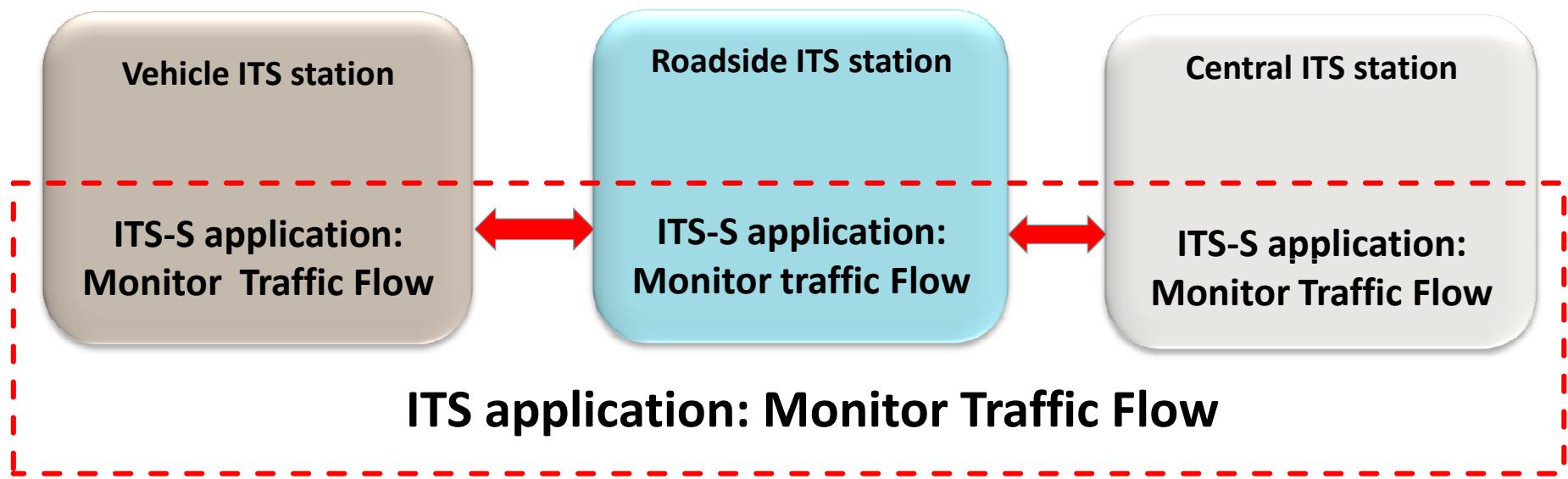
1. Manage Transportation Network Information
2. Manage Transportation Network Quality
3. Support Transportation Network Continuous Operation
4. Perform Operational Traffic Management Planning
5. **Monitor Traffic situation** (our main focus in the project)
6. Perform Traffic Control
7. Provide Traffic situation Information
8. Support and Control Mobility and Transport Means Operation
9. Manage En-route Reporting
10. Manage Transport Means Information

Reference: ARKTRANS v.6 on www.arktrans.no

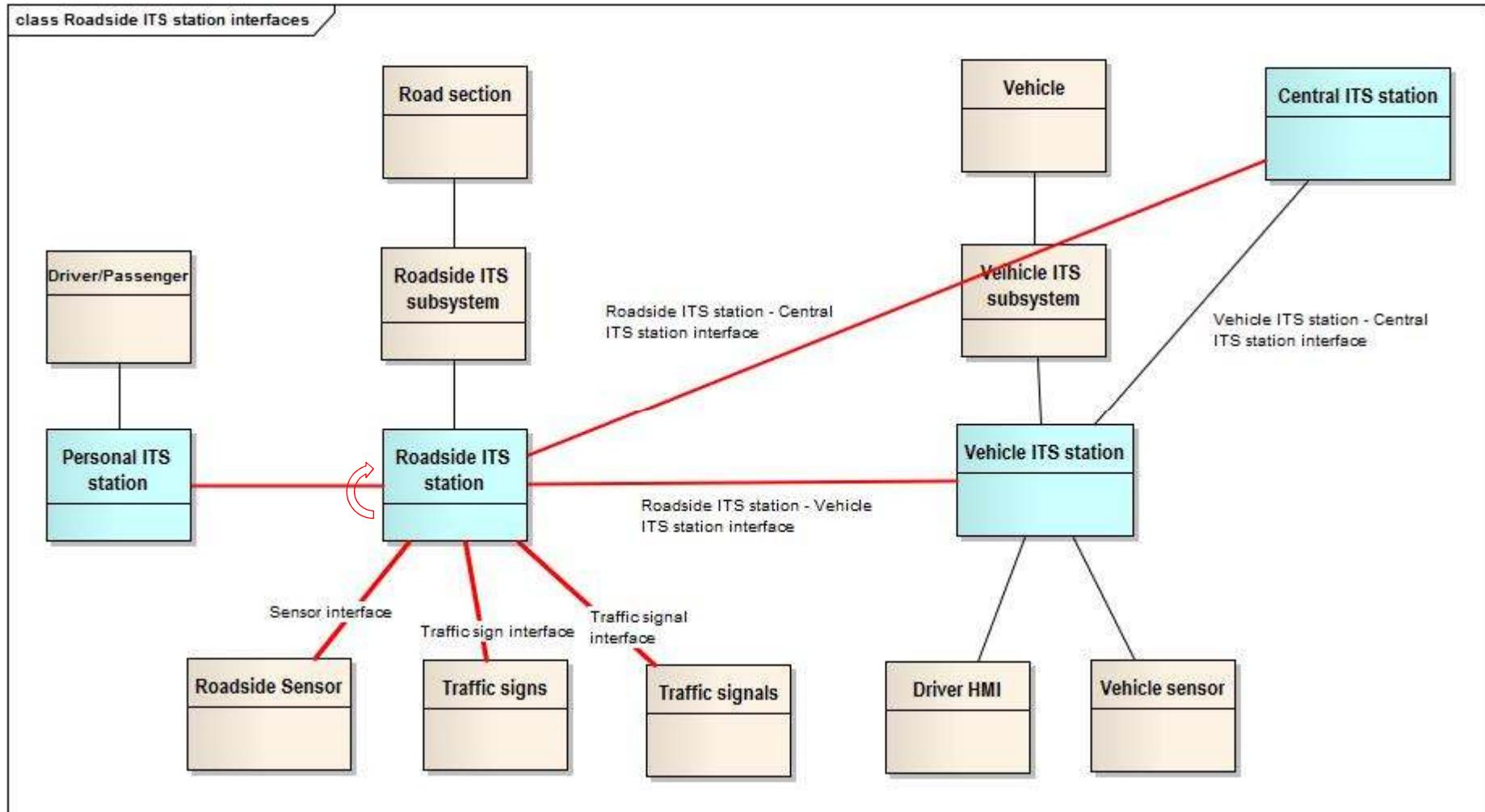
5. Monitor Traffic situation



ITS application: Monitor Traffic flow

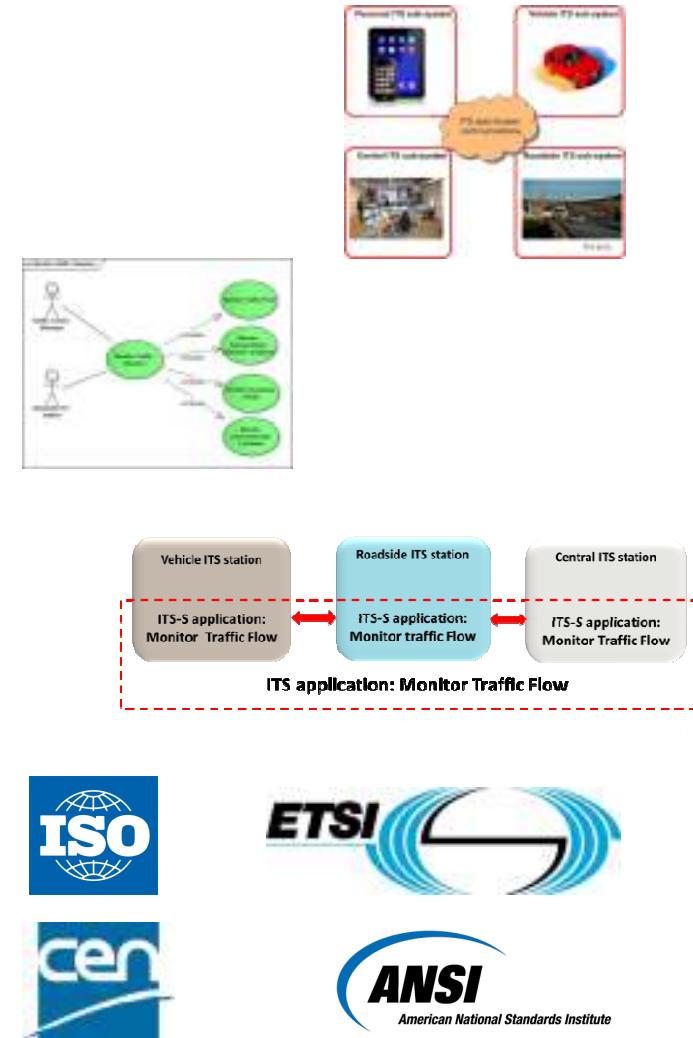


Interfaces



Some high level recommendations

- A top – down approach based on the ITS sub-system architecture
- A detailed and unambiguous specification of the ITS application (s) to be implemented
- A detailed and unambiguous specification of how each ITS application is split into ITS station applications (an allocation of the ITS application processes to the ITS stations)
- Interface specifications based on international standards



Thank you for your attention!

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