

Nordic WAY 2



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Norwegian Public Roads Administration
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Co-financed by the European Union
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Picture: Wikimedia Common, S. Solberg J.

NordicWay 2 – objectives

Pilot deployment of interoperable Day 1/1.5 C-ITS and support infrastructure readiness for connected and automated driving

Contribute to harmonisation and interoperability of C-ITS in Europe

Support deployment of new Day 1 and 1.5 C-ITS services on CEF and rural roads

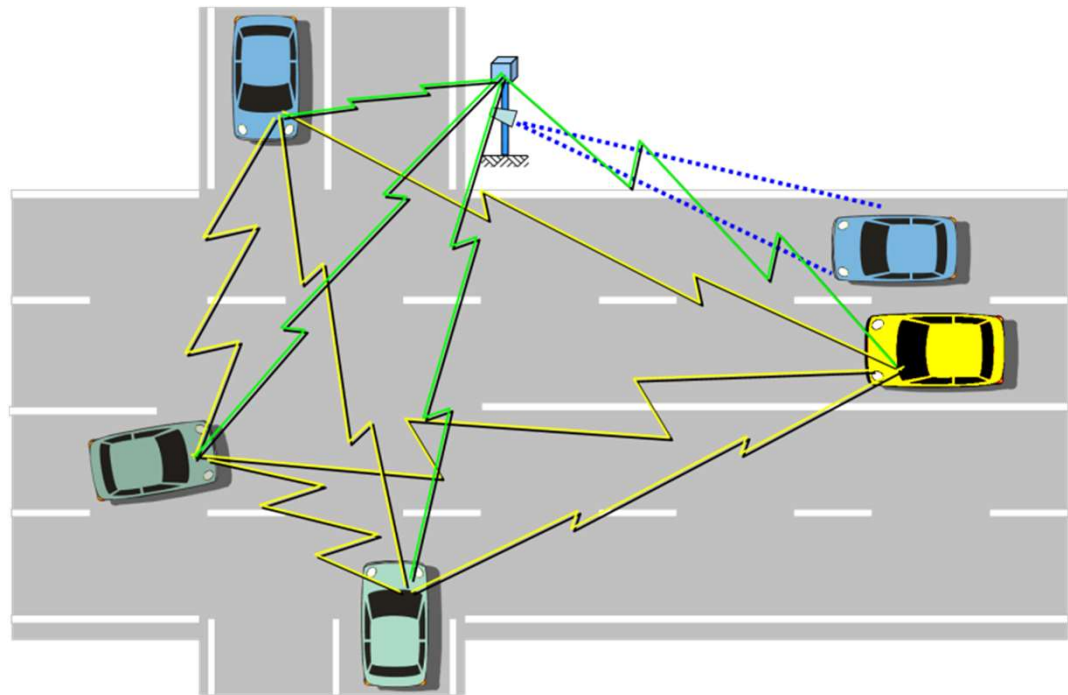
Support infrastructure readiness for connected and automated driving

Assess socio-economic impacts of Day 1/1.5 C-ITS including mobility, behaviour, acceptance



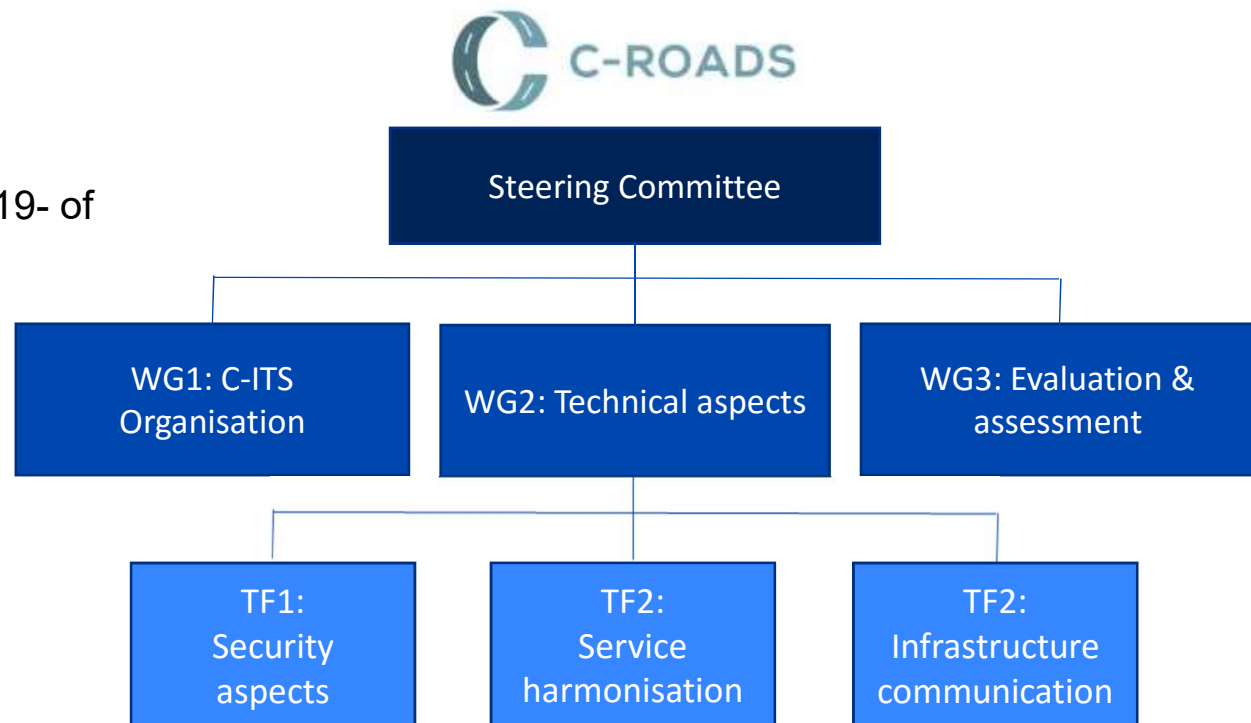
Cooperative ITS (C-ITS)

- Services utilising two-way communication between vehicles, infrastructure, road users
- Today two basic options
 1. Short-range communications, ETSI ITS-G5 5.9 GHz
 2. Medium/long-range communications 3G/LTE
- Option 1: road side units, range of ca 500 m
- 5G can offer both short- and medium/long-range



C-Roads - European interoperability

- EU project 2016-2020
- Harmonised cross-border European deployment 2019- of Day 1 services
- Focus on ITS G5 until now
- NordicWay 2 – all beneficiaries as core members with voting rights in the SC
- Participation in all working groups and task forces



Day 1 services and NordicWay 2

	NORWAY	FINLAND	SWEDEN
Day 1 C-ITS services list			
Hazardous location notifications:			
Slow or stationary vehicle(s) & traffic ahead warning;	✓	✓	
Road works warning	✓	✓	✓
Weather conditions	✓	✓	
Emergency brake light	✓		✓
Emergency vehicle approaching		✓	✓
Other hazards		✓	✓
Signage applications:			
In-vehicle signage	✓	✓	✓
In-vehicle speed limits	✓	✓	
Signal violation / intersection safety	✓	✓	
Traffic signal priority request by designated vehicles		✓	✓
Green light optimal speed advisory	✓	✓	✓
Probe vehicle data	✓	✓	
Shockwave damping (falls under European Telecommunication Standards Institute (ETSI) category 'local hazard warning')			



NordicWay 2 Interchange network



- Close link to C-Roads
- Access to transport related data
- Scalable through Europe and beyond
- Interoperable



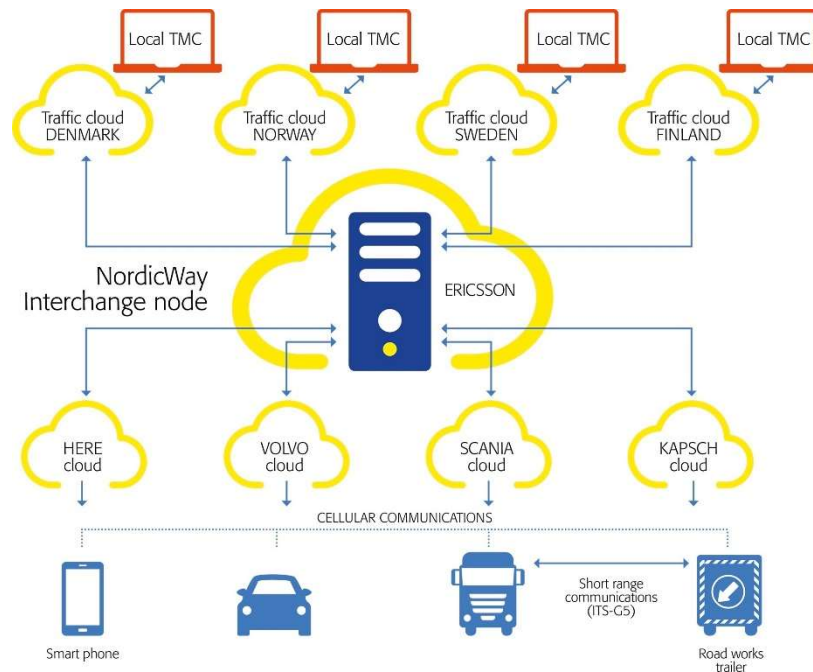
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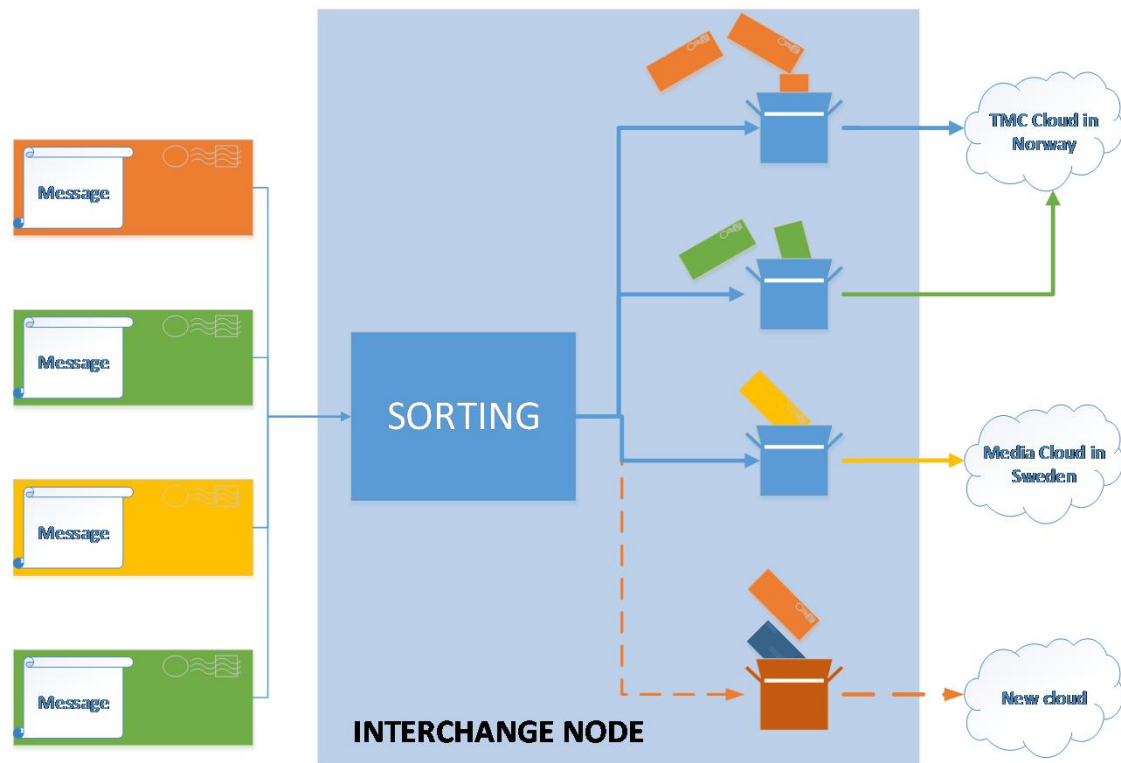
NordicWay 2 Interchange network

- Build on NordicWay architecture
- Concept very similar to that of "Neutral Server" from ACEA
- Open Solution; Open protocols, Open data
- Distributed service network.
- Aim for permanent use enabling long lasting operations
- New vendors can supply interchange nodes with core safety related services and additional commercial services on top
- Opportunity for new business models for transport related data from different Internet Service Providers



Interchange simply explained

- Interchange node receives all types of messages and information from different sources
- Users subscribe to requested information
- The information is instantly available for the users
- It is easy and straightforward to connect to the interchange node



Addressing real needs

Freight transports

- 300 ton salmon every day
- Cargo value from salmon producer
~130.000 Euros per truck
- 16 trucks every day

Salmon from Skjervøy to Japan within 36 hours



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Some Nordic challenges



Norway:
15000 HGV incidents per year



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For transporters

- Safety
- Predictability
- Trafficability
- Early warning of incidents
- Good prognoses and planning on salmon production and transports



NordicWay2 CCAM pilots 2018-2020



- Finland
 - C-ITS pilot to test and evaluate relevant Day-1 and Day-1,5 services in rural areas
 - The Arctic Challenge: Automated and connected Driving pilots in snowy and icy arctic conditions
- Norway
 - C-ITS pilot to test and evaluate relevant Day-1 and Day-1,5 services in rural areas.
 - Map and assess the infrastructure readiness for connected and automated driving on major freight routes
- Sweden
 - C-ITS pilot to test and evaluate relevant Day-1 and Day-1,5 services in urban and interurban areas



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Additional slides



The Corridor (and area)

Country	Road number	Section	Length (km)
FI	101	Ring I Helsinki	24,2
FI	50 (E18)	Ring III Helsinki	43,5
FI	51	Helsinki-Ring III	17,7
FI	1(E18)	Helsinki-Turku	159,3
FI	3(E12)	Helsinki-Ring III	10,3
FI	45	Helsinki-Ring III	11,1
FI	7(E75)	Helsinki-Ring III	19,7
FI/NO	E8	Tornio-Trömsö	664,0
SE	E4	Stockholm-Helsingborg	555,0
SE	E6	Malmö-Svinesund	447,3
SE	E4/Rv40	Stockholm-Gothenburg	469,0
SE	E18/E20	Stockholm-Gothenburg	482,0
NO	E6	Oslo-Svinesund	112,0
			3015,1



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Thank you for your attention!

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NordicWay2 Finnish CCAM pilots



- Budget 5,6 million euros
- C-ITS pilot to test and evaluate relevant Day-1 and Day-1,5 services on core corridor in rural areas (2018–2020)
- The Arctic Challenge: Automated and connected Driving pilots in snowy and icy arctic conditions (2018–2020)



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NordicWay2 Norwegian CCAM pilots



- Budget 6,4 million euros
- C-ITS pilot to test and evaluate relevant Day-1 and Day-1,5 services in rural areas.
- Map and assess the infrastructure readiness for connected and automated driving on major freight routes of the comprehensive network in Norway



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NordicWay2 Swedish CCAM pilots



- Budget 6,2 million euros
- C-ITS pilot to test and evaluate relevant Day-1 and Day-1,5 services on core corridor in urban and interurban areas(2018–2020)

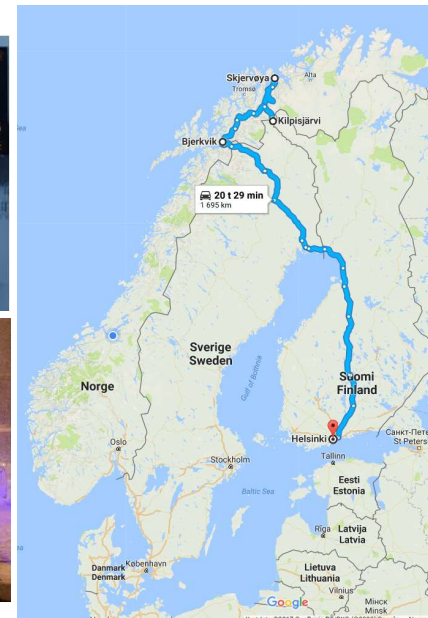
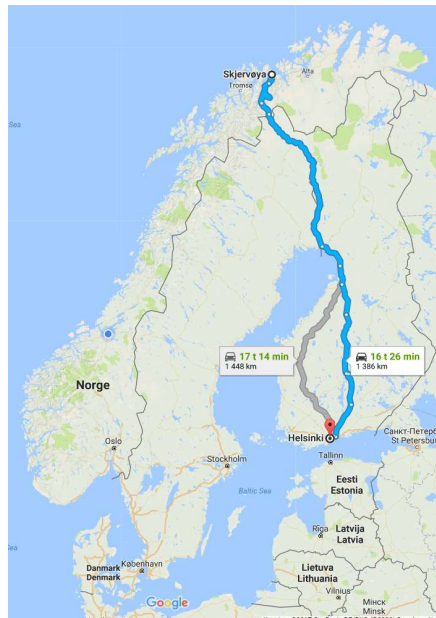


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Impact of a closed road

Delays and long detours

+ 5-10 hrs / 300 km



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