Nordic Way 2
Ecosystem evaluation

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VTT

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Nordic Way 2 Ecosystem evaluation

Content

- Set-up and methodology
- Sneak-peak to interim results

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Nordic Way 2 Ecosystem evaluation

Set-up and methodology

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Nordic Way 2 Ecosystem evaluation

A contracted team is carrying out the evaluation of the Nordic Way 2 C-ITS pilot ecosystems.

In accordance with Nordic Way 2 Evaluation Plan, the ecosystems are studied in all piloting countries, based on homogenous & comparable principles.

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Nordic Way 2 Ecosystem evaluation

Ecosystems to pilot C-ITS services (or service clusters):

	C-ITS services			FI	NO	SE
Day 1 services	Hazardous location notifications	1	Slow or stationary vehicle(s) & traffic ahead warning	FI.1	NO.1	
		2	Roadworks Warning	FI.2	NO.2	SE.2
		3	Weather and road condition	FI.3	NO.3	
		4	Emergency brake light	-	NO.4	
		5	Emergency vehicle approaching	FI.5		SE.5a&b
		6	Other hazards	FI.6	NO.6	
	Signage applications	7	In-vehicle signage	FI.7	NO.7	
		8	In-vehicle speed limits	FI.8	NO.8	
		9	Signal violation / intersection safety	FI.9	NO.9	
		10	Traffic signal priority request by designated vehicles	FI.10		SE.10
		11	Green light optimal speed advisory (GLOSA)	FI.11		SE.11
Day 1.5 services	12		Information on alternative fuel vehicle fuelling & charging stations	-	NO.12	
	13		On street parking information and management	-	NO.13	
	14		Traffic information & smart routing	FI.14	NO.14	SE.14
	15		Cooperative collision risk warning	-	NO.15	

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- Main focus is in discovery of ecosystem actors´ perception on viability, feasibility, resiliency and profitability of providing C-ITS services as a group.
- Not focusing on technological challenges.
- Main data collection method is via 2 sets of workshops - in addition to existing background, data and prior communication.
- Note: Our “definition of an ecosystem” is kept somewhat flexible (service <-> pilot <-> consortium <-> ecosystem <-> federation…)

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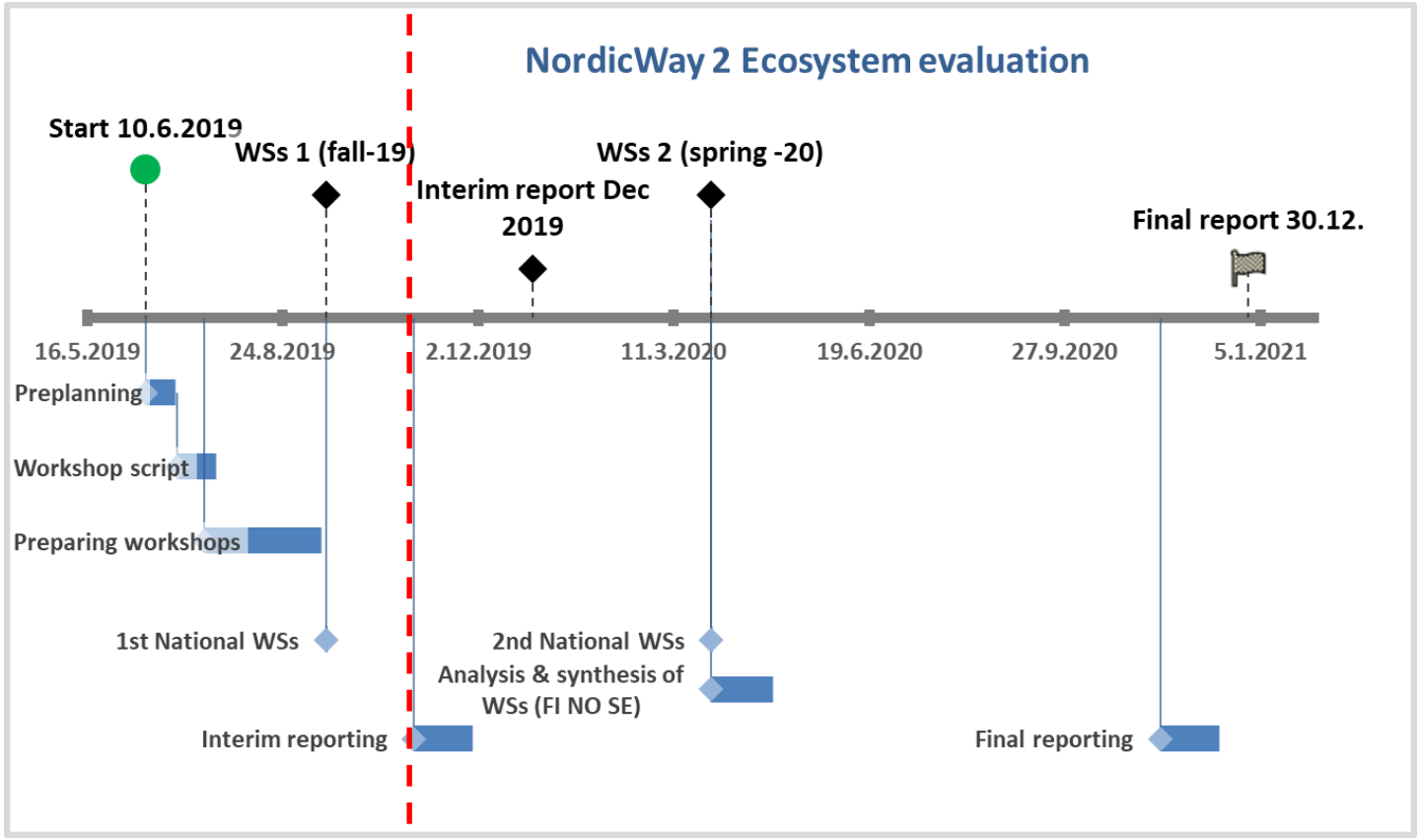
Tasks in ecosystem evaluation

Task	Description
Start-up	(i) Discussions with the NW2 evaluation group and Nordic contact persons (ii) seminar with the Finnish ecosystems and (iii) synchronization meeting between the 4 evaluation processes. (ecosystems & technical & user acceptance & socio-economic impact)
Workshop scripting	Charting out the characteristics of national implementations, and the effects of these to evaluation. WS script is based on this and the work plan. Background includes e.g. C-ITS Platform Business models group report, SRTI PoC MoU (Data for road safety), C-ITS Platform Horizontal Business model WG draft final report etc.
Organizing WSs & reporting	Guidance to national organizers. Translations to national languages to be done nationally, as well as reporting back in English to VTT.
1st Workshops in FI, NO & SE	National organizers implement these in each country, starting autumn 2019.
Summary of 1st WSs	Short summary and lessons learned for enhancing 2nd workshops. Interim report.
2nd Workshops in FI, NO & SE	National organizers implement these in each country, spring 2020.
Synthesis report (Ecosystem evaluation report)	WS results, data analysis, synthesis. Answers to RQs. Analysis to be linked to other ongoing evaluation work -> All to be integrated into Nordic Way 2-evaluation report.

Research questions of ecosystem evaluation

Research questions - this is what we want to extract	Indicators / KPIs	Output format
What should be taken into account in forming a service ecosystem? What defines an ”ideal” ecosystem?	Acceptability / attractiveness of the Business-case (to the ecosystem partners)	Description (qualitative)
	The feasibility of the ecosystem (build up phase and resilience)	Description (qualitative)
	Roles for (i) for private actors, (ii) for public actors,and (iii) what are the “must have players” in the ecosystem(s)	Description (qualitative)
What problems and challenges have been encountered? (i.e. both challenges encountered thus far and now foreseeable challenges)	Encountered problems and challenges in the ecosystem	Listing / table
What is the business potential of the service? (e.g. perceived, anticipated, modelled or observed potential, from the actor perspective)	Business potential (Including the business in the NW2 pilot subject matter plus additionally any potential for uprising future opportunities nationally or internationally.)	Description (qualitative) - where possible, some quantitative data included (expected/potential number of users, turnover, etc.)
What are the most important things to be taken into account (and solved) in the service development and provision phases, in short term and in medium term?	Issues in implementing the service	Listing / table

Overall timeline



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Nordic Way 2 Ecosystem evaluation

Some initial picks from early results (limited data)

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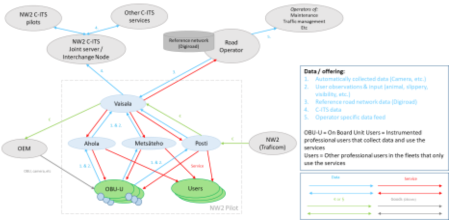
Similar data collected from each ecosystem

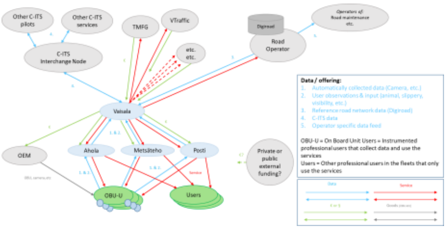
POSTI	End-to-End																							
	Content provision												Service provision											End User
	Content Collection						Content Processing						Service Provision						Service Presentation					
	Detection	Data delivery	Data reception	Data pre-processing	Data delivery	Communication	Data reception	Content fusion	Data processing	Quality check	Content delivery	Communication	Content reception	Content fusion	Service generation	Pre-formatting	Service delivery	Communication	Service reception	Service decoding	Info fusion	Service rendering	Service presentation	
Vaisala	x						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Posti	x	x	X	x	x	x																		x
Metsäteho Oy	X	x	x	x	x	X																		x
AT Spec. Transport Oy	X	x	x	x	x	x																		x
Numerous companies that provide material flows to forestry companies																								x
																								x

Forming the ecosystem (consortium, others)	-Consortium is quite small so it was easy to put together. Because forest industry covers own mobile data collection devices and dataplans it made contract building straightforward. - It is quite clear that there is now possibility to get data from mobile fleets if there is no business models to cover the costs.
the service formulation and provision phases	We are trusting that in early phase we need to create value for road maintenance and Traffic control center other vise there is no business available.
access to data and right to use for service provision purposes within the pilot (within the consortium, with public actors, with commercial actors)	No major problems. Basically pilot enables data access for free. But challanges will be faced later when business model should cover cost and provide margin for service operator. Relating to access to data and its coverage, private roads (yksityistiet) remain still a challenge – discussions are ongoing with ministries to solve this. Also relating to data coverage, for Posti the conventional "mummon kirje" (letters to distant rural locations) is the best way to keep the data abundant, fresh and up-to-date. But the coverage requirement and need in this pilot goes even beyond postal codes (timber harvesting and transport).
Any other issues / challenges	The role of the interchange node might remain marginal in this particular pilot. The data format is limited and does not allow transferring images, for example. Not a challenge but a very positive notion: this pilot has already raised quite a bit of international attention, too. Queries come in and additionally, "Postal and Parcel Technology" –publication awarded Posti and Vaisala an honorary win recently, in category "New Business Diversification of the Year"!

Service	Data providers Main responsible organization & main original source of data	Current user groups	Number of Users 2019
Traffic jam ahead warning	Professional drivers, manual button annotation in vehicle (POSTI, forest companies´ trucks)	POSTI, forest companies, Vtarffic ecosystem	Users are now only through UI
Animal or person on the road	Professional drivers, cameras in vehicle (POSTI, forest companies)	As above	Users are now only through UI
Obstacle on the road This is removed to avoid manual	-	As above	Users are now only through UI
Road works warning	Professional drivers, camera in vehicle (POSTI, forest companies)	As above	Users are now only through UI
Weather conditions	Professional drivers, sensors and camera in vehicle (POSTI, forest companies)	As above	Users are now only through UI
Temporary Slippery road	Professional drivers, camera and sensors in vehicle (POSTI, forest companies)	As above	Users are now only through UI
Reduced visibility	Professional drivers, camera in vehicle (POSTI, forest companies)	As above	Users are now only through UI
(Slow or stationary vehicle)	Professional drivers. (Special Transport)	Will be channeled to Traffic Management	Users are now only through UI

Actor	Pain	Gain	Commitment
Vaisala	Product development to products that have no clients as of yet. Risk taking (cost & time).	NW2 funding alleviates and mitigates the risk taking element. New business opportunities potential. Delivery of traditional road information in novel ways.	Active actor in the market Involved in R&D&I. Supports strategic objectives.
Posti	To find out if or not a governmental buyer can be found to big data.	Data loop: the more data intensive the network management is, the better,	Active actor in the market. Involved in R&D&I. Supports strategic objectives.
Metsäteho	Purchase costs of equipment to collect data R&D&I resources (working time of experts)	At all times safe and fluent material flows to the industry. Brand image issues, e.g. to attract new drivers to the sector (constant shortage).	Supports strategic objectives. Provides better solutions.





- What do you expect the number of users and the turnover to be in five years from now?
  - In this particular pilot, the users (and also the data providers) are drivers and vehicles in professional fleets (of Posti, Metsäteho affiliates, Ahola)
  - Also noteworthy, that the "payers" and the users are in a way different entities. Typically, the payer is the employer and the end user is the employee i.e. driver
  - The number of users per employer varies a lot (from one user to hundreds or even thousands)
  - Therefore in this pilot is would be perhaps more appropriate to talk about new clients (organisations) than new users (individuals)
  - Potential other type of clients with masses of users include insurance companies
  - No estimates on future user numbers nor turnover could be done in this group
- What new actors or data sources needed in various scaling up levels? Any of the current ones becoming marginal?
  - Posti's new role as MyData operator (VAKE funding) could open up new possibilities
  - National TM actor TMGF or other, that would provide the platform – and the public data (at least the public data needs a public funder)
- What are the implications (pros & cons) of the federation model?
  - One challenge with a public interchange node is, that tracking the monetary value creation (billing, invoicing, charging) is not possible beyond that – what is released as open data will remain open and free for any user (private or commercial) after that basically for forever, regardless of who paid for collecting the data in the first place
- Where is investment and/or development needed?
  - The level of service is key (data quality, trustworthiness, timeliness, etc.)
  - Could there be some public incentives, fiscal or otherwise?
  - The coverage of the data and service (timely coverage of the entire road network)
  - One revenue channel or model to be developed/considered could be sponsoring (like OP in Porokello, either for marketing/image purposes or for providing added value for sponsor clientele – or e.g. insurance companies)
- What should be the public sector's role? (Please differentiate clearly between city actors and other type of public actors, since cities are of special interest in NW2 C-ITS.)
  - See the above points, plus:
    - Road maintenance -> payer
    - Road works info -> some public payer
  - Innovation opportunity provider – also beyond Finland
- Other issues?
  - Relating partially to the user numbers, the developer's/ service provider's basic reasoning is pretty straightforward: the upkeep of a technology and service platform costs xxx xxx €/a, therefore the pricing needs to be 1.y * xxx xxx €/a

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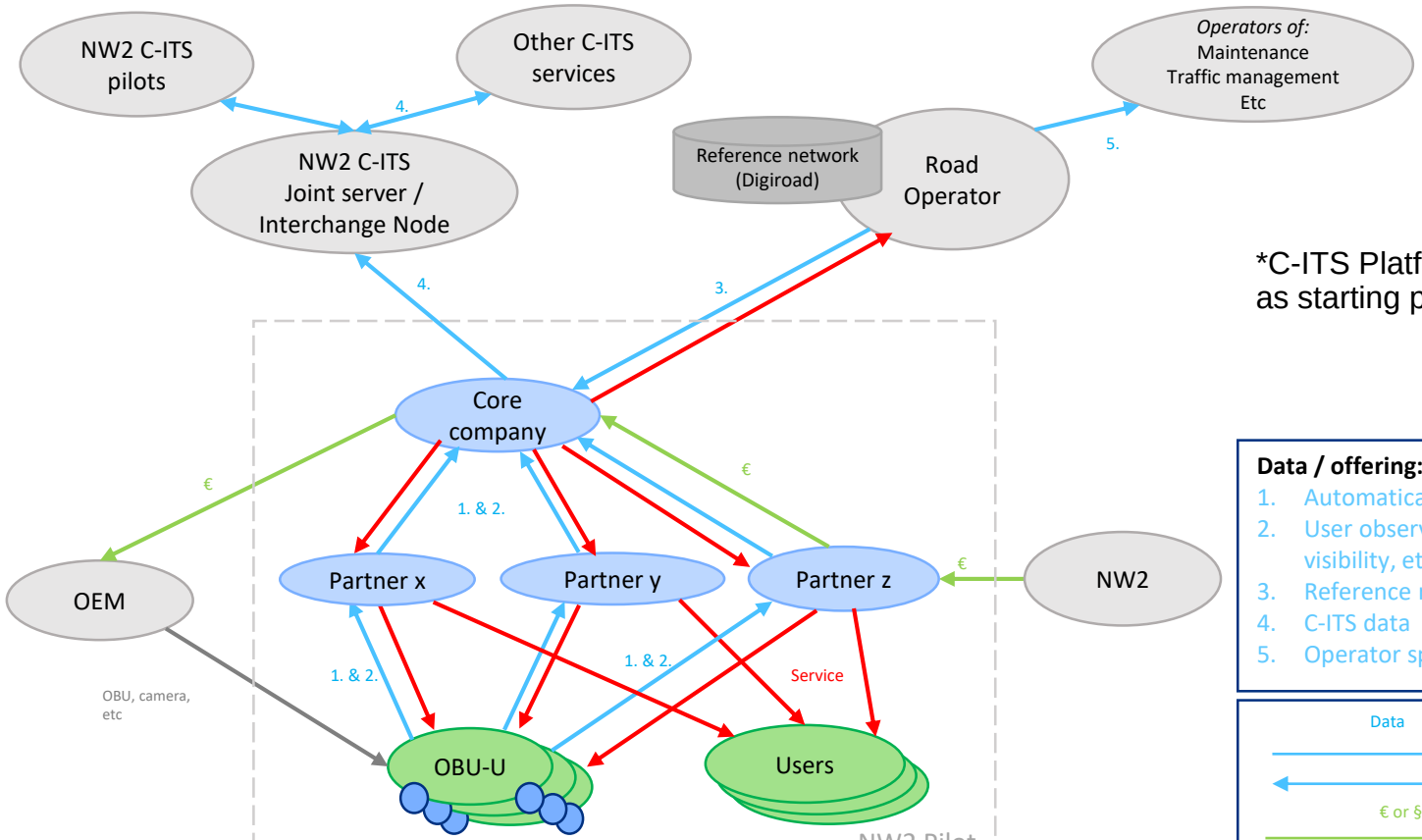
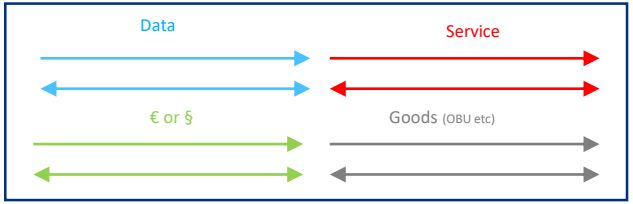
C-ITS Value Network Model – prepared template* for Current state



*C-ITS Platforms final report model as starting point

Data / offering:

1. Automatically collected data (Camera, etc.)
2. User observations & input (animal, slippery, visibility, etc.)
3. Reference road network data (Digiroad)
4. C-ITS data
5. Operator specific data feed



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C-ITS Value Network Model – template for Scaled up state (short…mid term future)

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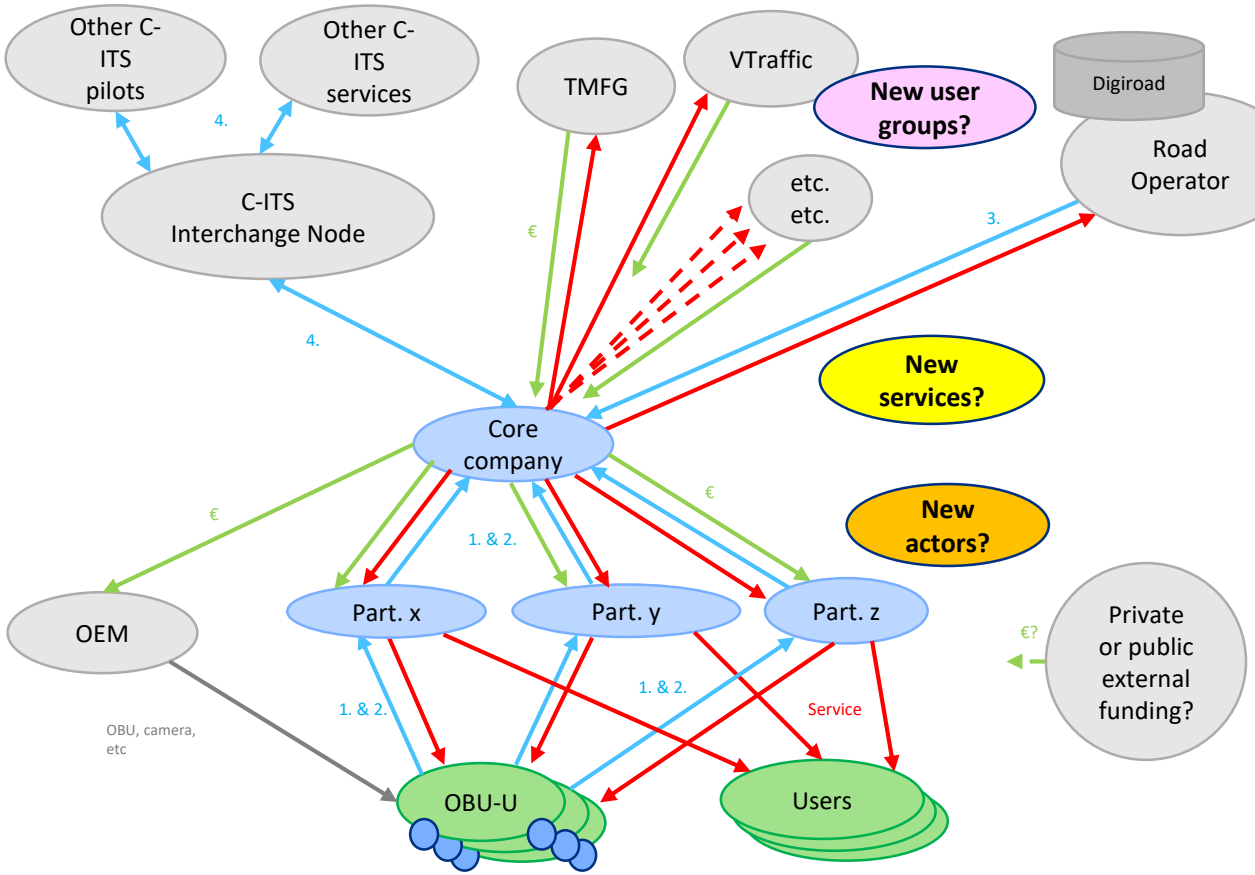
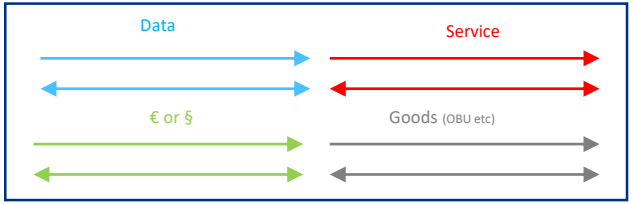


Data / offering:

1. Automatically collected data (Camera, etc.)
2. User observations & input (animal, slippery, visibility, etc.)
3. Reference road network data (Digiroad)
4. C-ITS data
5. Operator specific data feed
6. Etc.



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Top: status now Bottom: initial scale-up

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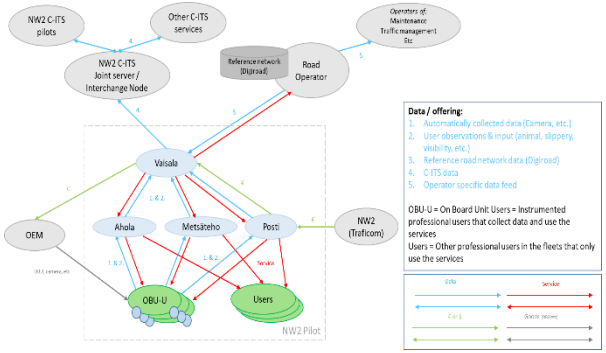

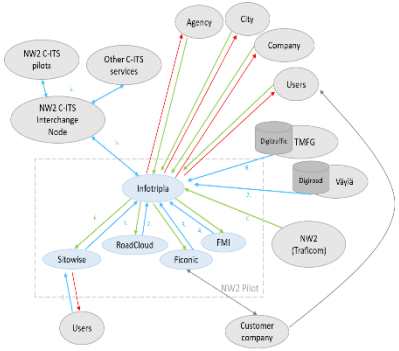

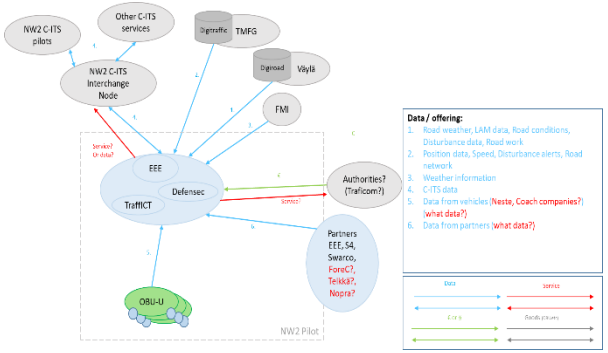

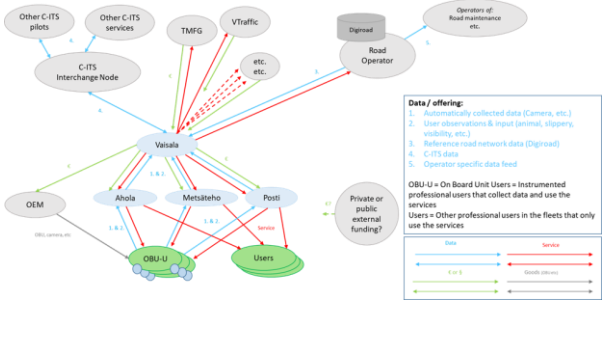

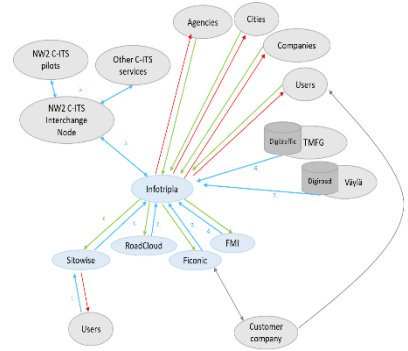

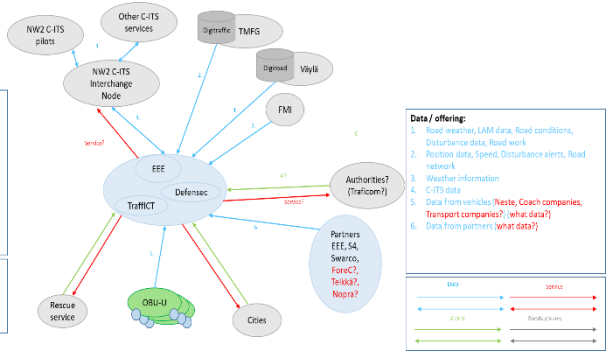

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Nordic Way 2 Ecosystem evaluation

Some initial picks from results – note, analysis is only just starting!

Ramp-up challenges:

- Contracts (especially GDPR **personal data** implications)
- Data quality assurance across ecosystem
- Service coverage (geographical)
- Interchange node limitations
- ~~*Datex version discrepancies etc.*~~ (tech.)

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Pains, Gains, Commitment:

- P: “Integrator pain”, attracting users, product development investment, data costs …
- G: Revenue, clientele growth, product portfolio, international partnerships, also operational ones (“safe and fluent material flows”, ecosystem partner as primary user) …
- C: Active actor in the market, heavily involved in RDI, supports strategic objectives / corporate strategy …

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Business model (feasibility, scalability, long term sustainability, profit):

- “If there is public data, there needs to be public co-funding.”
  - Direct revenue collection pipeline stops at publication of data
- “Revenue streams from individual private users may be thin.”
  - “Grouping synergy”: insurers, employers, etc. as primary clients?
- Scaling up ideas are now there and brewing - but not too concrete yet
  - 2nd WS series continues from this aspect -> advanced maturity

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More results in the Nordic Way 2 Interim Evaluation Report.

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Thank you!

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