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MODI: Use cases

28/03/2023

Petter Arnesen,
SINTEF



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MODI use cases

Demonstrere og evaluere på nivå 4 (L4)

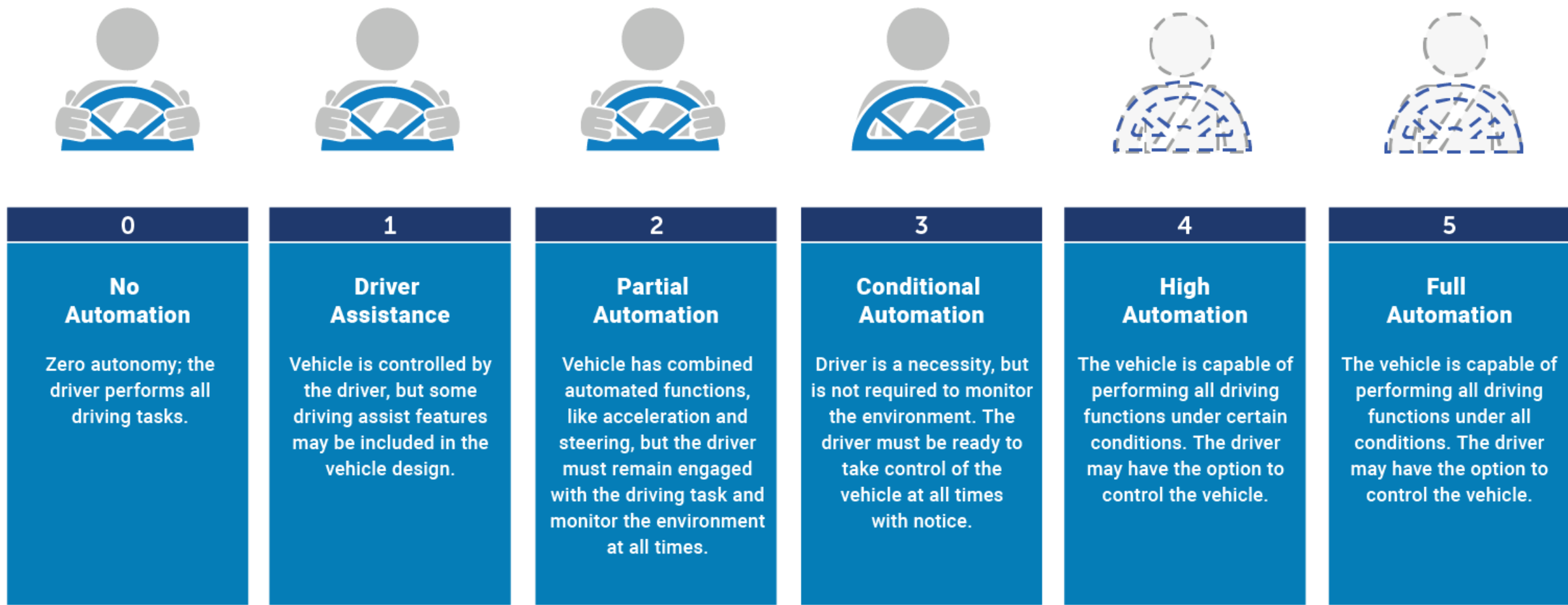


Kilde: Einride



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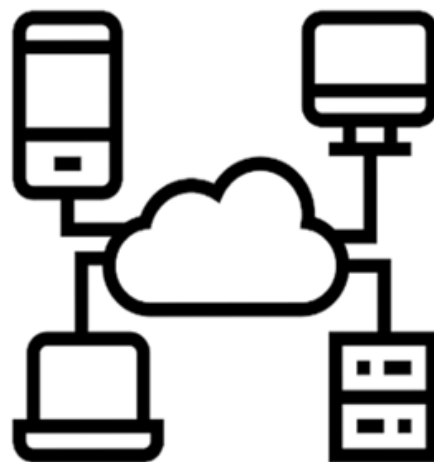
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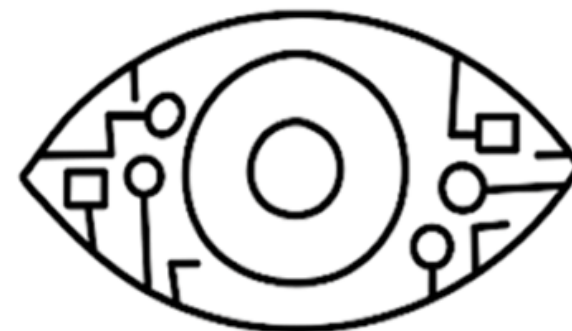
Kjerneteknologier for automatisert transport



Positioning



Communication



**Human machine-readable
infrastructure**

Bilde: Tomas Levin



SINTEF

Portefølje - Kjerneteknologier for automatisert transport

1 "Fremtidens behov for kommunikasjon i transportsektoren" **Lambda**

2019-2022



2 "Technology for advanced positioning in the transport system" **TEAPOT**

2020-2023



Kartverket



Aventi



Statens vegvesen



APPLIED AUTONOMY



3 "Machine Sensible infrastructure under Nordic conditions" **MCSINC**

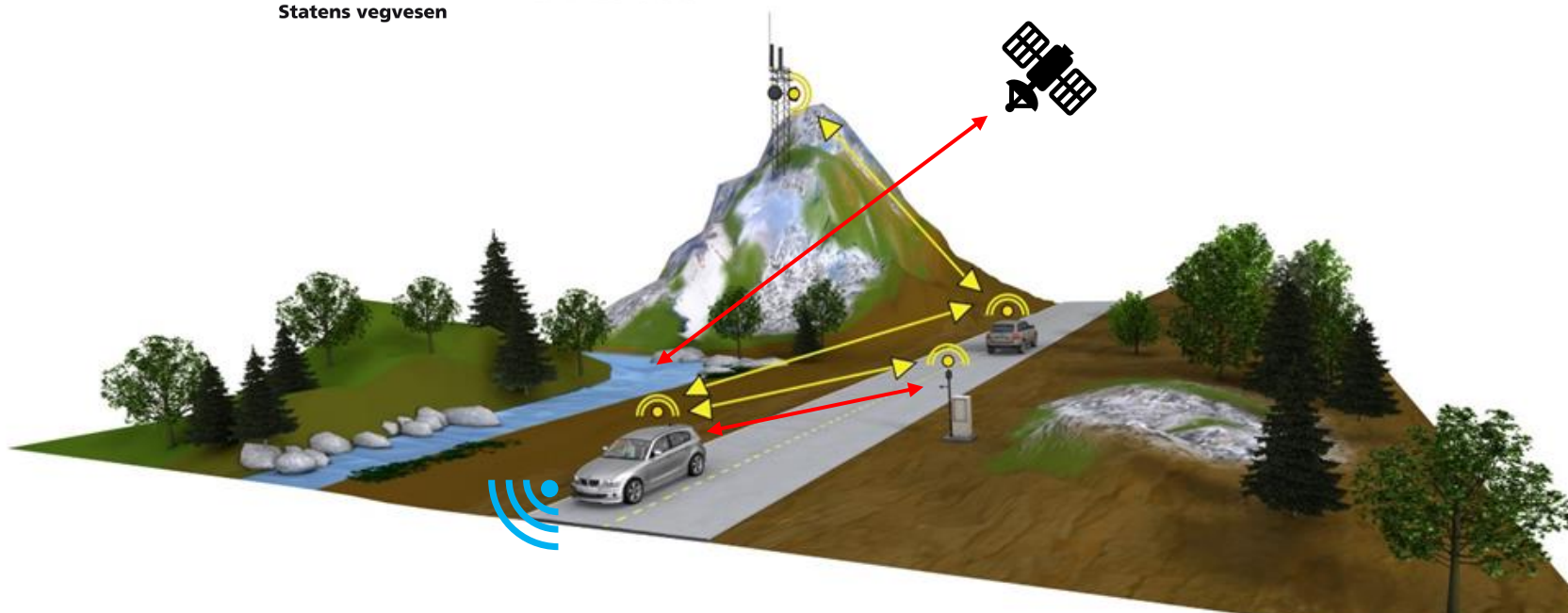
2022-2025



Troms og Finnmark fylkeskommune
Romssa ja Finnmarkku fylkkagielda
Tromssan ja Finmarkun fylkinkomuuni



Statens vegvesen





SINTEF

Portefølje

- Kjerneteknologier for automatisert transport

1 "Fremtidig kommunikasjon i transportsystemer"

2019-2022



Statens vegvesen

2 "Technology for advanced automation in the transport system" APOT



Høyt fokus på
pilotering og uttesting
og
samhandling på tvers av
relevante aktører



Troms og Finnmark fylkeskommune
Romssa ja Finnmarkku fylkkagielda
Tromssan ja Finmarkun fylkinkommuuni

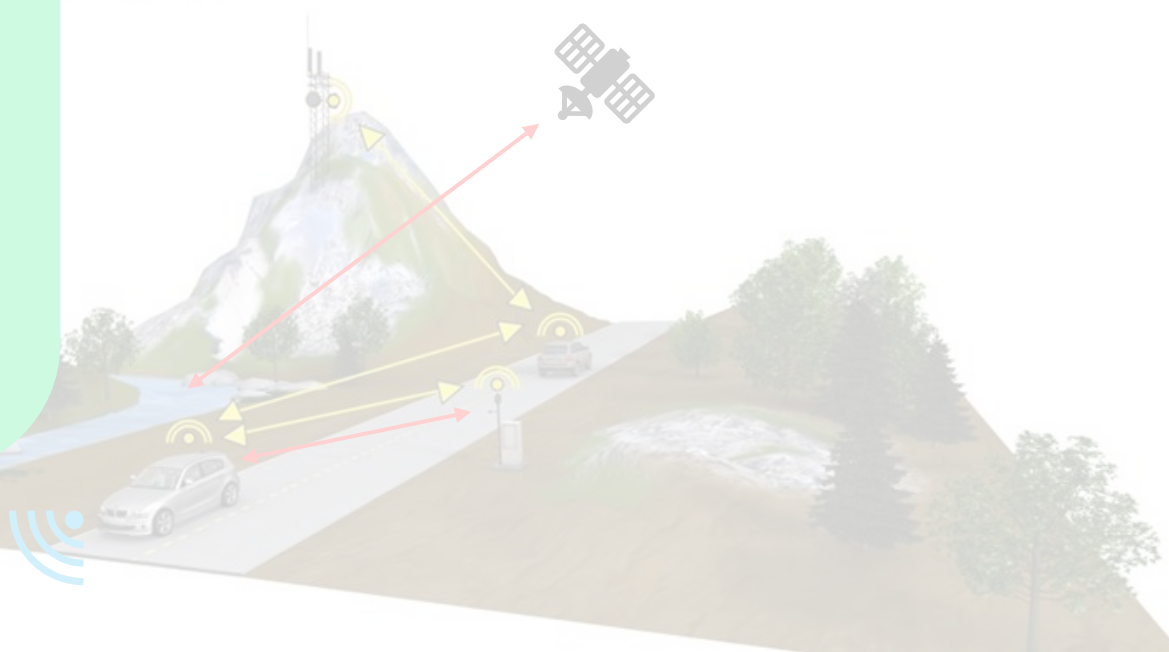


Statens vegvesen



3 "Machine Sensible infrastructure under Nordic conditions" MCSINC

2022-2025





SINTEF

Portefølje

- Kjerneteknologier for automatisert transport



Høyt fokus på
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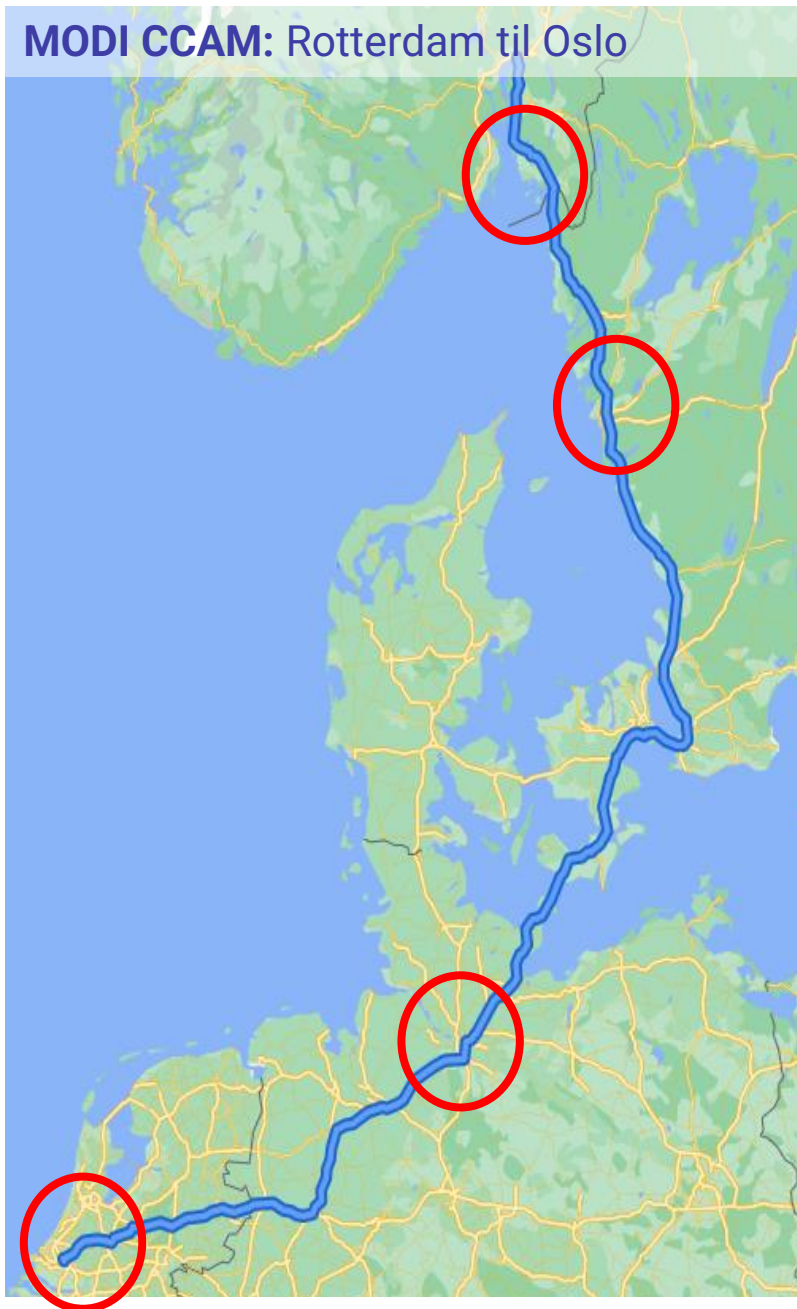


Hovedaktiviteter SINTEF:

Leder UC Norway og UC CCAM,
og
**Leder WP2 "Use case definition
and impact assessment" inkludert
samhandlingsarenaer**



MODI CCAM: Rotterdam til Oslo



Norge: Landegrense til havn



Sverige: Hub-til-hub



Nederland: Havneoperasjoner



Tyskland: Motorveg til lukket område



UC Norway

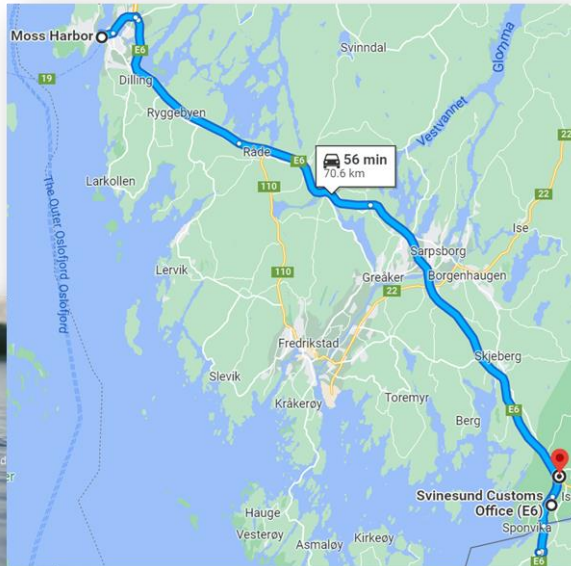
ASKO

Autonomous
sea drones



In line with the call:
focus on cocreation
between stakeholders

Public roads:
Prioritized L4 roads



Kartverket
Map data,
reference frame,
point cloud

TOLLETATEN
TRAFIKVERKET
Border crossing



UC Norway

ASKO

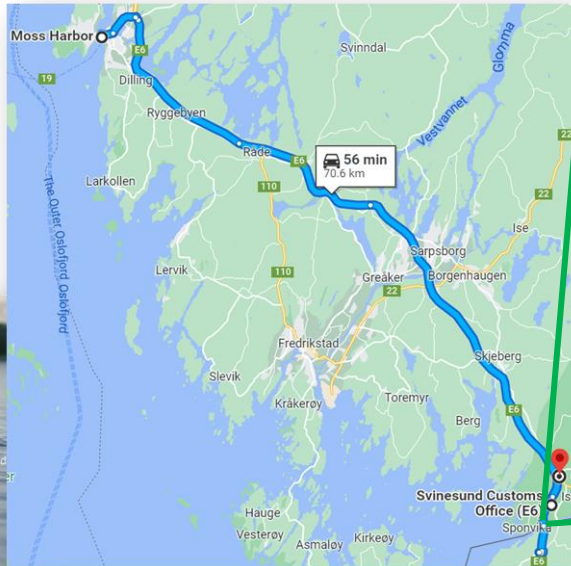
Autonomous
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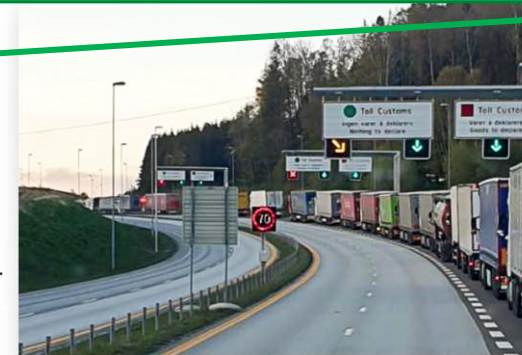


Kartverket
Map data,
reference frame,
point cloud

TOLLETATEN
TRAFIKVERKET
Border crossing



Læringer på tvers av
landegrenser:
Oppkobling
GNSS
Tillatelse
Fjern-grensesnitt (remote
operator interface)



UC Norway



ASKO

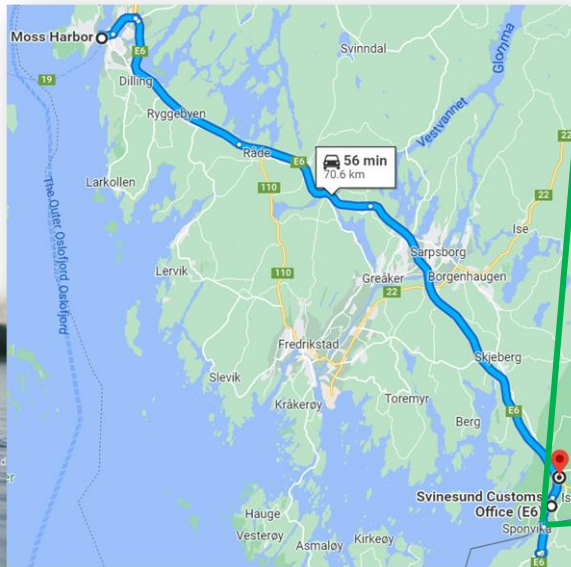
Autonomous
sea drones



Type fartøy: Ro-Ro, containere og d
Kapasitet: 16 Eurotrailere
Lengde: 67 meter
Bredde: 15 meter
Design dødvekt: 448 tonn
Design dyptgående: 1,70 meter
Batterikapasitet: 1,800 kWh
Hastighet: 8 knop (10)
Rekkevidde: 4 timer i 8 knop

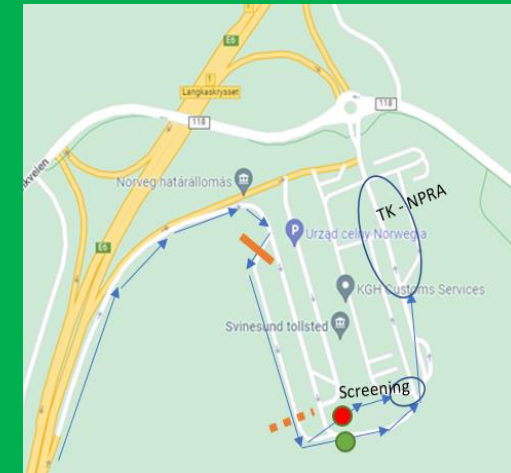
In line with the call:
focus on cocreation
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Public roads:
Prioritized L4 roads



Kartverket
Map data,
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point cloud

TOLLETATEN
TRAFIKVERKET
Border crossing



Læringer ved toll:
Lov og regulering uten sjåfør
Digital toll prosess - Digitoll
C-ITS løsninger
Behov for interaksjon med
kontrollører



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UC Norway



ASKO

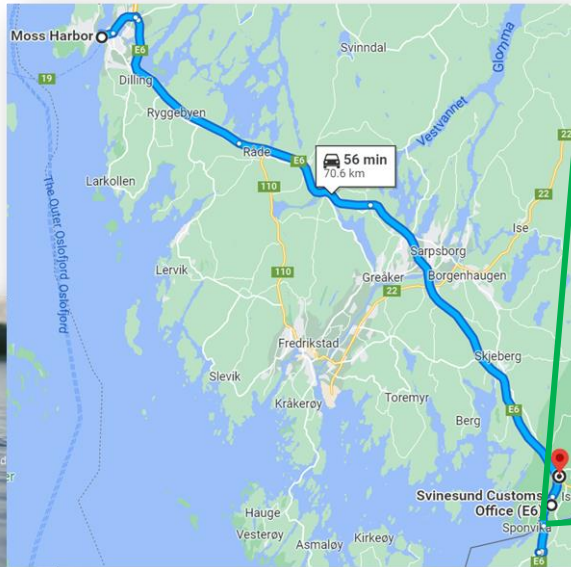
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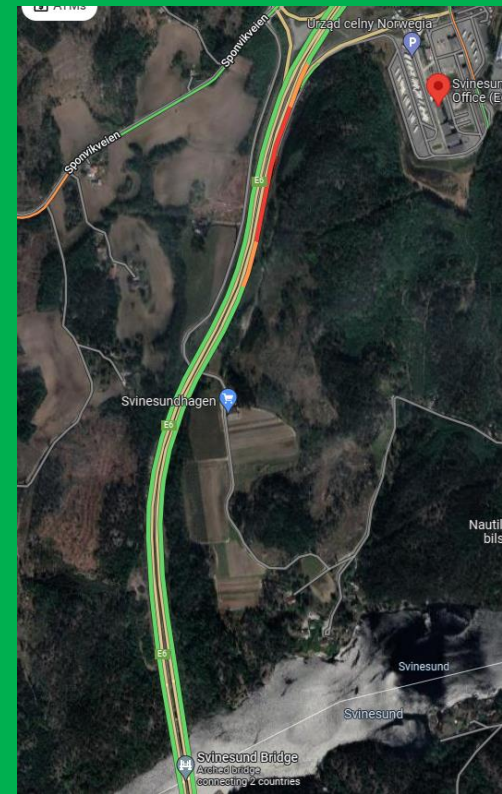


 **Kartverket**
Map data,
reference frame,
point cloud

 **TOLLETATEN**
 **TRAFIKVERKET**
Border crossing



**Læring med kjøring på
motorvei:**
Sikkerhets-case for kjøring i
høyere hastigheter
Krav til PDI
Teknologiske og
regulatoriske gap



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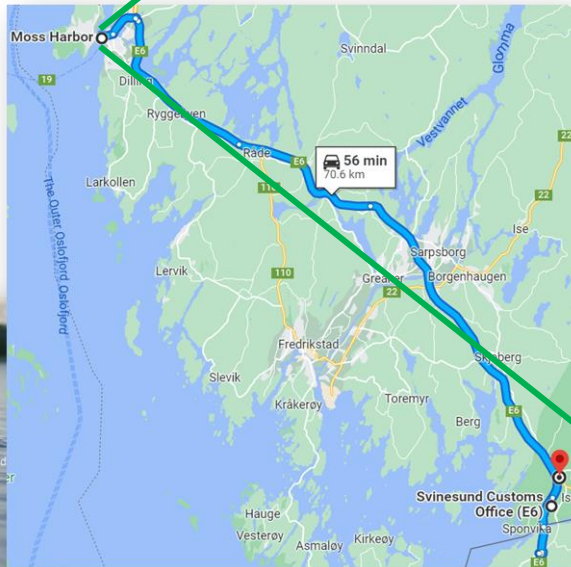
ASKO

Autonomous
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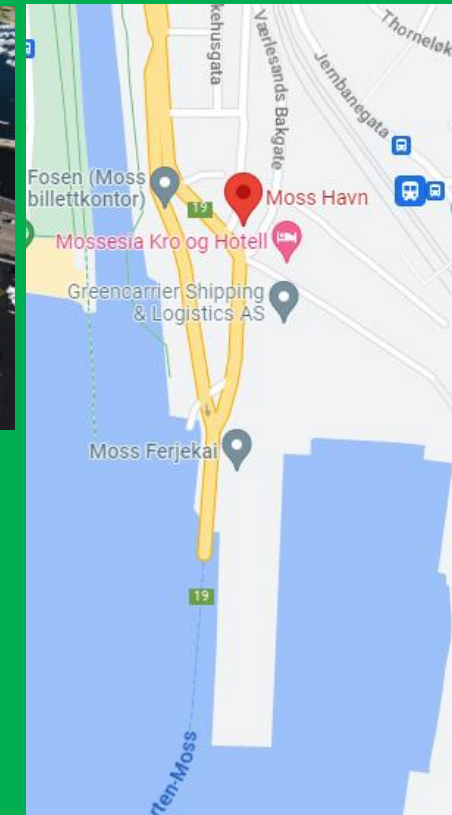


Kartverket
Map data,
reference frame,
point cloud

TOLLETATEN
TRAFIKVERKET
Border crossing



**Læringer i
tilknytningen til havn:**
Utforske verdien av
helelektrisk og
helautomatisert
transportkjede



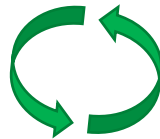
UC CCAM



Assessment of CCAM-implementation along MODI-corridor

Offentlig vei:
Hvor klargjort er korridoren
for kjøring på nivå 4?

Undersøke PDI og kjøretøy,
samt deres samspill, for nivå 4
på strekningen Rotterdam-Oslo



Gjennomføre datainnsamling og
analyse.



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Hovedperspektiver:

Kjøretøysprodusenter (VOLV, EIN, and DAF)
Veimyndigheter (NMIW, VEJ, STA, BAST and NPRA)
Logistikkoperatører (DFDS, ALI and GRU)
Teknologileverandører (Q-Free)
FoU (SINTEF, BAST)

UC CCAM

Høna og egget

OEM + Teknologiperspektiv:

Hva kan vi få, og hva er kravene?

Myndighetsperspektiv:

Hva trenger dere, og hva kan dere få til?



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Høna og egget

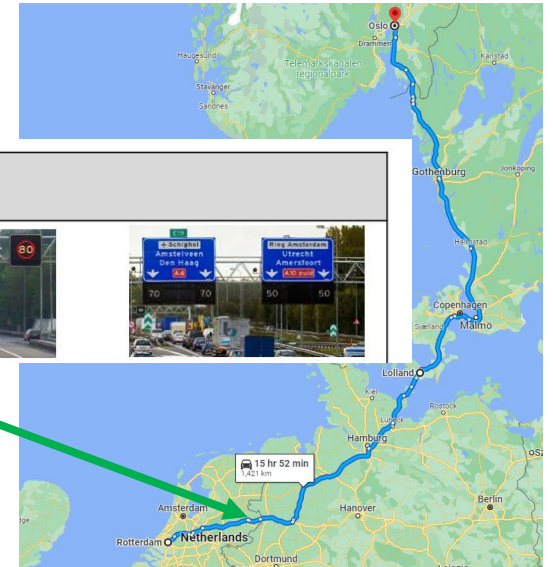
OEM + Teknologiperspektiv:

Please fill out the table below

Pain points – road elements – What is difficult?	Why is it difficult?	Suggestions for how to fix what is difficult - optional	Pain level – light, medium, hard
Tunnels <i>(example!)</i>	Loss of GNSS, light, ...	Augmented GNSS signals ITS-G5, sensor in vehicle for navigation (e.g. LiDAR), ...	Medium

Myndighetsperspektiv:

Road characteristics	Potential hazard	Example
Dynamic signs	Variable message signs with speed limits: with and without a red circle, and differences per lane	



Felles forståelse og fremgangsmåte



Datainnsamling og analyse



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THANKS FOR YOUR TIME!



Presenter

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