

AUTONOMOUS MOBILITY

TEST ARENA KONGSBERG



PHOTO: Håkon Mosvold Larsen, NTB scanpix



APPLIED AUTONOMY



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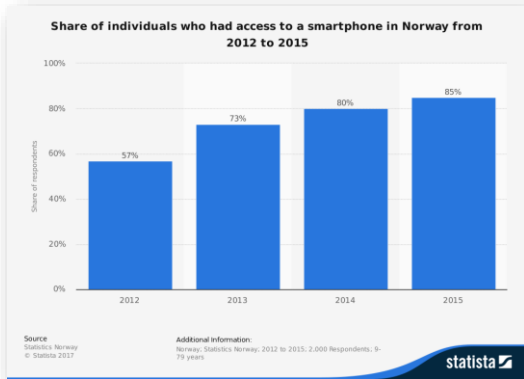


APPLIED AUTONOMY

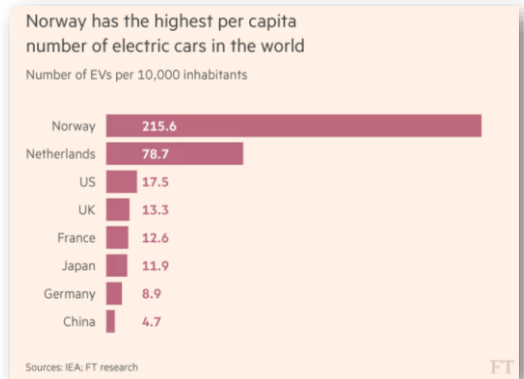
CONTENT – AUTONOMOUS MOBILITY

- Status in Norway
- Test arena Kongsberg
- Focus areas – Learn and build
- Potential Next step

NORWAY – EARLY ADAPTOR OF TECHNOLOGY – MOBILE PHONES AND ELECTRICAL VEHICLES



Shares of Norwegian inhabitants between 9 and 79 years with a smart phone.

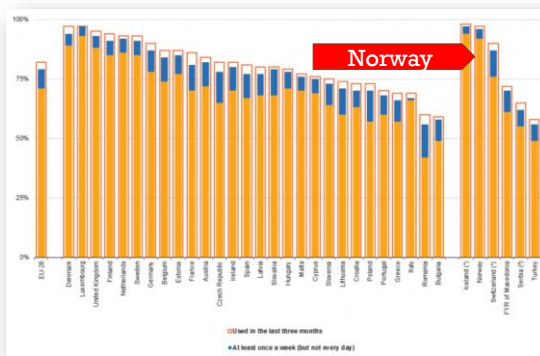


Norway has been hugely successful in introducing electric cars and aims to sell only zero-emission new vehicles by 2025.

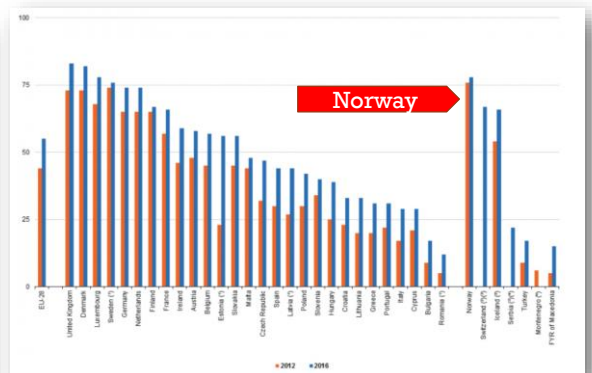
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NORWAY – EARLY ADAPTOR OF TECHNOLOGY OF INTERNET

Source Eurostat



Frequency of internet use, 2016 (% of individuals aged 16 to 74)



Individuals who ordered goods or services over the internet for private use in the 12 months prior to the survey, 2012 and 2016 (% of individuals aged 16 to 74)

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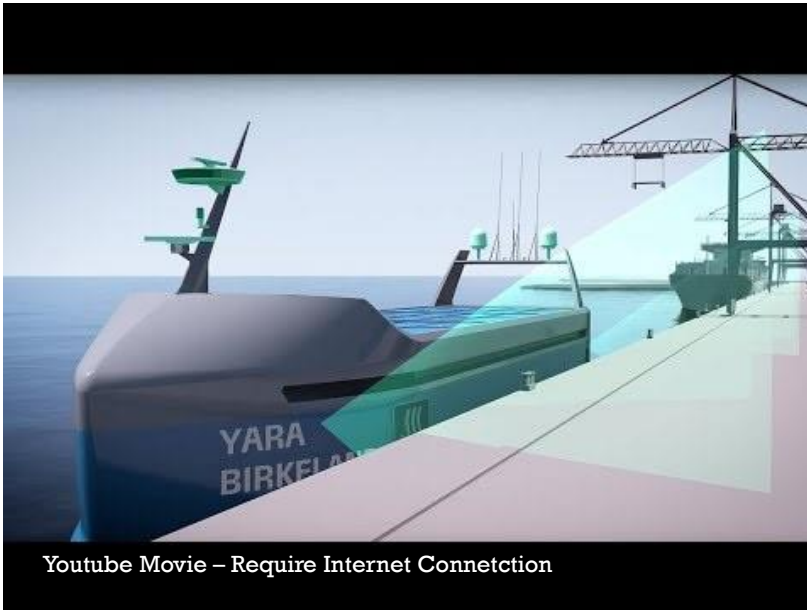


KONGSBERG

Once fully operational in 2020, YARA Birkeland will be the world's first fully electric, autonomous, and zero-emission container ship.

https://www.youtube.com/watch?v=4Ogg4_ge0f8

Flotaing platform of sensors



Youtube Movie – Require Internet Connetction

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https://www.youtube.com/watch?v=DgXdvI-Bm_M

NORWEGIAN LEGISLATION FOR AUTONOMOUS DRIVING – STATUS ...



Minister of Transport and Communications Ketil Solvik-Olsen and Olav Madland the engine behind the new law that permits autonomous driving with the driver **outside** the vehicle



Svein-Olav Torø, Kongsberg Innovation, Olav Madland, Applied Autonomy and Major of Kongsberg Kari Anne Sand try one of the vehicles without a wheel in Test arena Kongsberg

Status most other countries permitting autonomous driving requires a driver on board that always can take the control. **Norway does not require a driver on board**

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..COMPARED TO OTHER EUROPEAN NATIONS

Country	Can the Autonomous vehicle drive with the driver outside the vehicle?	Prerequisites to start driving Autonomously
Norway	YES	Risk assessments of the routes. An operator have to take the juridical responsibility
Germany	NO	The new legislation allows them to road-test vehicles in which drivers will be allowed to take their hands off the wheel and their eyes off the road to browse the web or check e-mails while the vehicle handles steering or braking autonomously.
Sweden	YES	The driver must be inside or outside of the vehicle
Denmark	NO	<div style="background-color: #FFD700; padding: 5px; text-align: center;">GEAR 2030</div> <p>High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the European Union</p> <p>FINAL REPORT - 2017</p> <p>DS GROW - Internal Market, Industry, Entrepreneurship and SMEs</p>
Italy, an rest of South Europe	NO	
Finland	YES	
UK	YES	

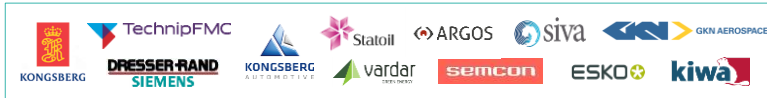
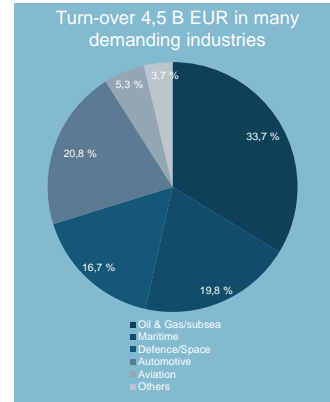
Source: <https://ec.europa.eu/docsroom/documents/26081/attachments/1/translations/en/renditions/native>

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KONGSBERG INDUSTRIAL CLUSTER

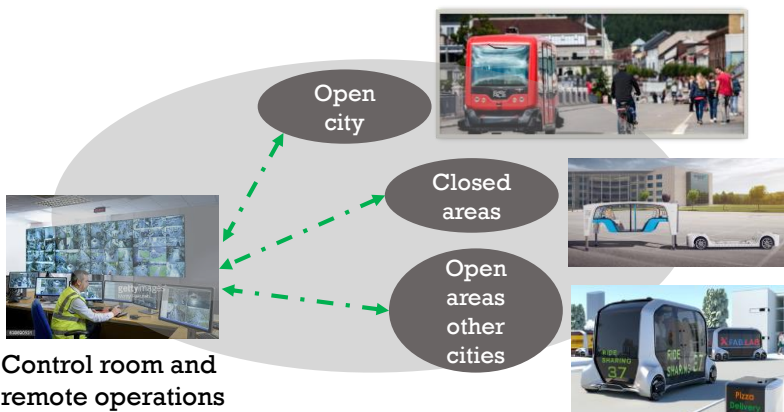
SUPPLYING HIGH CRITICALITY SOLUTIONS TO MANY INDUSTRIES



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TEST ARENA KONGSBERG,



Test Arena Kongsberg
The main test arena is 2,2 kilometre long route in mixed traffic

Different types of vehicles will be included

Partnership

New innovative solutions, all green and based on C-ITS standards will be used.

Piloting will be supported by KONGSBERG and Applied Autonomy in other cities



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Telenor 5G
telenor

Autonomous minibuses

Autonomous electrical bicycle

IOT and Sensor platform
KONGSBERG

Fleet Management

Autonomous snow plows
semcon

IOTA

Autonomous agricultural robot
semcon

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.... SOME OF OUR PARTNERS

Open city lab

Closed lab

Open labs in other cities

Control room and remote operations

Lab office and meeting space
Mini seminars, events and workshops

NSB

KONGSBERG KOMMUNE

ITS NORWAY

HSN University College of Southeast Norway

Buskerud fylkeskommune

telenor

APPLIED AUTONOMY

IOTA

Innovation Norway

Interreg

KONGSBERG

Statens vegvesen

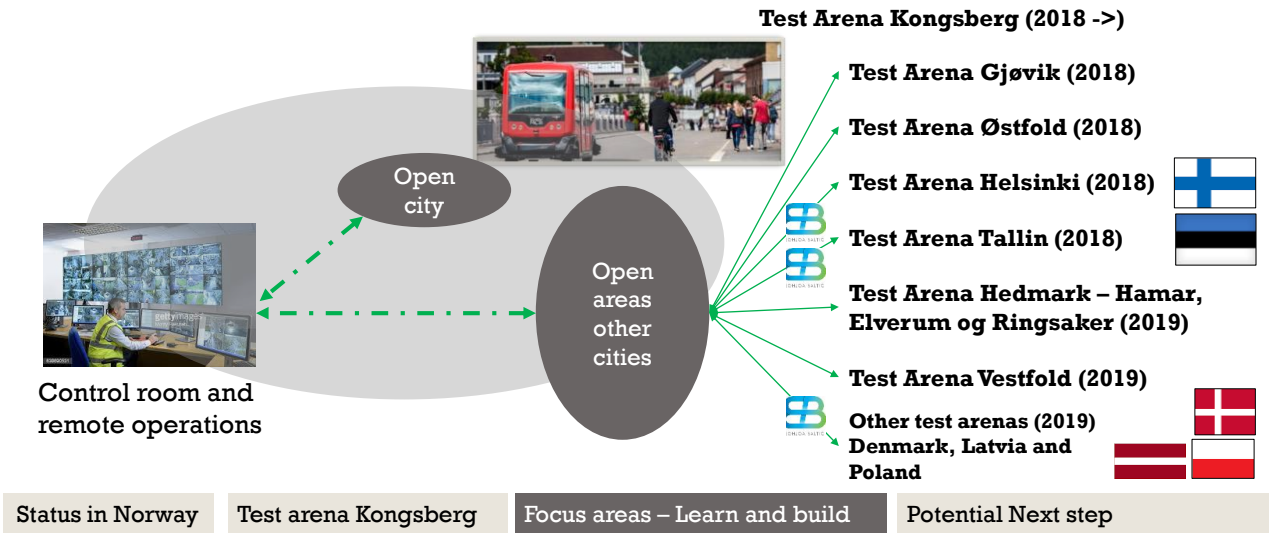
TORNGA SALTIC

semcon

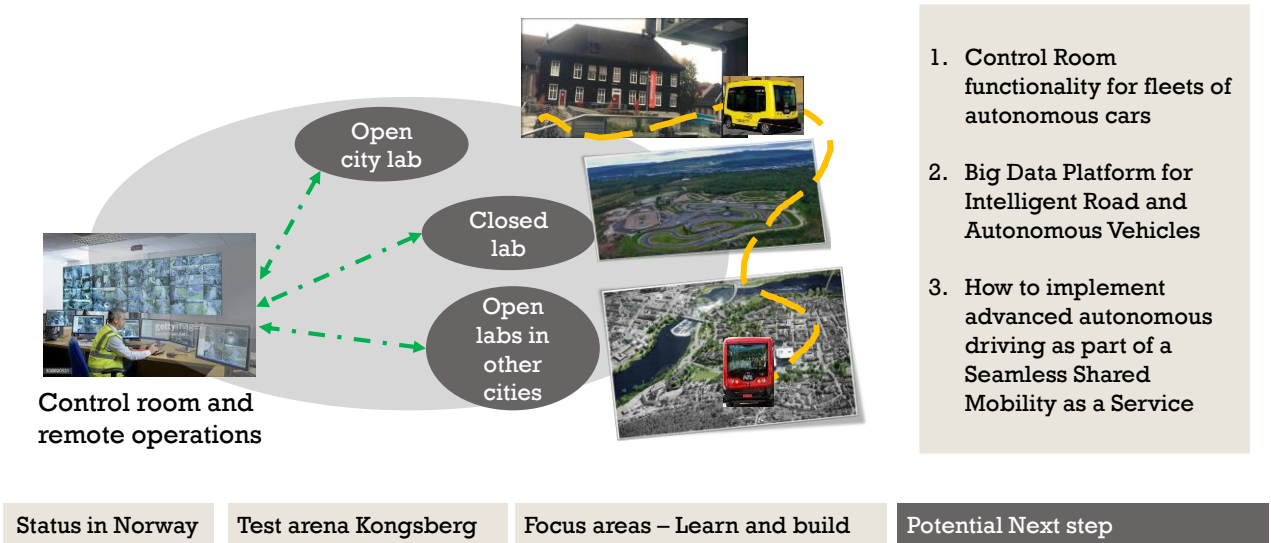
EKER DESIGN

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.... OTHER PROJECTS THAT WE SUPPORT AND THEIR TIMELINE



WHAT DO WE LIKE TO EXPORT





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