

Unmanned vehicle operations



Olav Madland, CEO



- Dette er veldig science fiction

Jergen



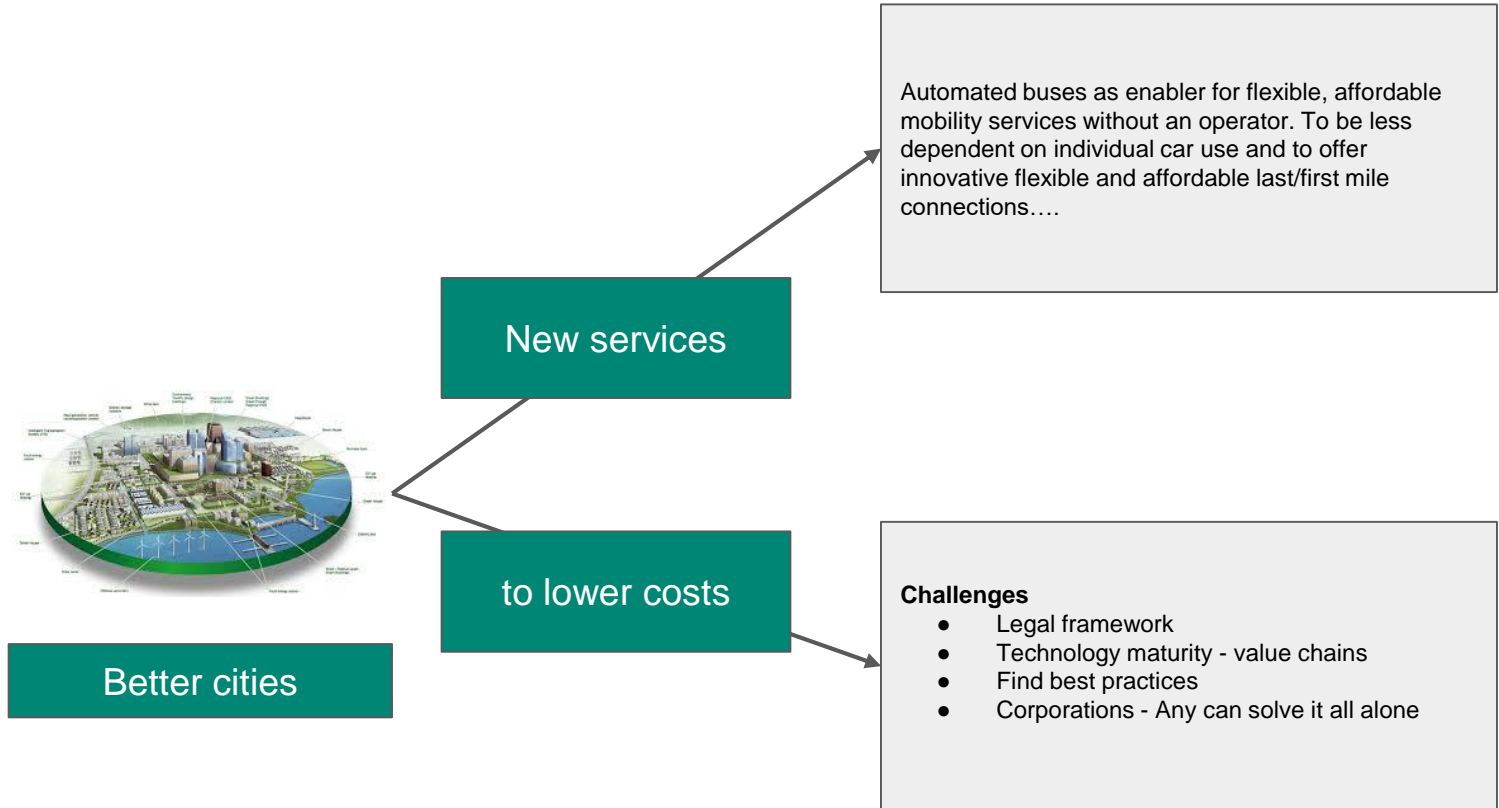
Busen løber om rullebane, og skal kjøre rundt Småungen lørdag kl. 11.00 og 16.00.
Opplysningsvesenetsvesenheten og teknologisk utvikling av offentlig transport i Jergen



Build trust and a transport system for the future



Opportunity and Challenges



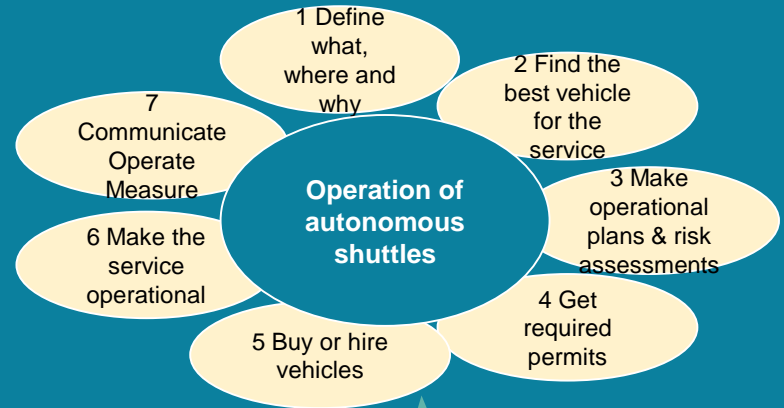
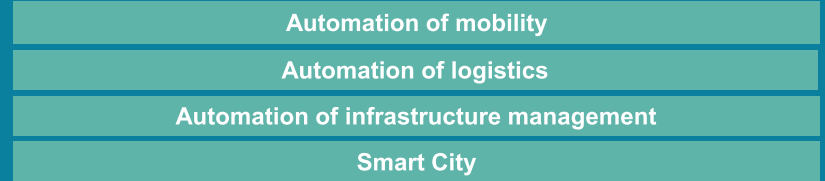
From idea to operation!

CITY: Automated buses as enabler for flexible, affordable mobility services without an operator. To be less dependent on individual car use and to offer innovative flexible and affordable last/first mile connections...



PTA: We will bring our exciting and new passengers in a cost efficient and reliable transport

PTO: We would like to operate a service of electric automated vehicles and have partners to make it happen



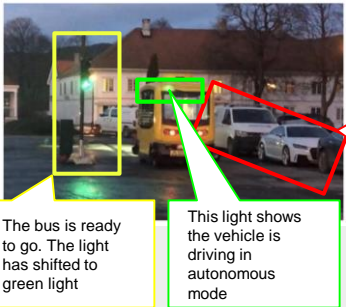
Applied Autonomy is a subcontractor and partner that makes it happen

Applied Autonomy has proven and verified methods and tools

Stepwise implementation to unmanned operation

How do we progress ?

Phase 1 Mission: See and get trust




Risk: The vehicle might drift out of the track.
Probability: Very low
Consequence: Medium to Low

Mitigation: Parked vehicles were used to segregate the bus from drifting out of the track

The bus is ready to go. The light has shifted to green light

This light shows the vehicle is driving in autonomous mode

Phase 2 at Herøya Factory Remote control




Risk: Gas leakage, fire risks and block the intersection of fire department
Probability: Very low
Consequence: Medium to Low

Mitigation: Gas sensor on top of the bus, blocks were used to segregate the bus from drifting out of the track

Risk: The vehicle might drift out of the track.
Probability: Very low
Consequence: Medium to Low

Mitigation: Blocks were used to segregate the bus from drifting out of the track

Phase 3 at Kongsberg city Safety driver is close to the vehicle




Risk: The vehicle might not stop for an obstacle
Probability: Very low
Consequence: Medium

Mitigation: The driver has a remote control

More than 30 partners from public and private sector work together in Norway and across Europe to scale up. Here is an example of what we are doing in Testsite Kongsberg City&Lab in 2020 and 2021

Phase 4 Mission: Mixed traffic in slow speed. Remote monitor and control



Risk: The vehicle cannot handle an extraordinary traffic situation
Probability: Medium
Consequence: Medium to Low

Mitigation: A supervisor monitors the vehicle remotely and a field operator is on site to take over manual control of the shuttle if needed

Contact



<https://www.facebook.com/SeamlessTransport/>



[linkedin.com/company/appliedautonomy](https://www.linkedin.com/company/appliedautonomy)



<https://appliedautonomy.no>

<https://cityandlab.no>



post@appliedautonomy.no