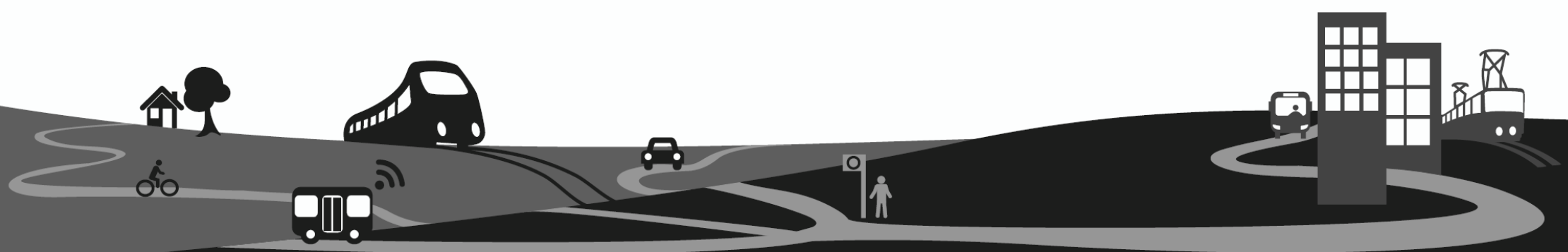


Policy brief

Automated Road Transport (A.R.T)

for planners and decision-makers from politics and local authorities

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#EU-Interreg ART-Forum: A debating ground for Automated Road Transport

The technological development towards automated transport is fast. It is likely that Automated Road Transport (ART) will change spatial development and the transport system in the North Sea Region and beyond in a fundamental way.

Currently, much enabling of technological developments and test applications of automated vehicles can be observed but little guidance is being provided for public authorities on how to deal with these new technologies, particularly in their sustainable mobility plans, street design and regional development plans. In addition, not every aspect of the technology development can be accepted as positive. Therefore, it is necessary to better involve and build the knowledge base of public authorities – enabling them to raise their voices in the development of new framework settings for this technology.

ART-Forum will create a debating ground for local/regional authorities in the NSR, address risks and opportunities and help guide policy development with regard to the impact that automated transport could have on the entire road transport system and life in cities and regions in the NSR.

The overall objectives of ART-Forum are

-  **Raise awareness among public stakeholders**
-  **Develop policy recommendations that enable local and regional authorities to take advantage of the opportunities of ART**
-  **Support sustainable transport and territorial development goals as well as improve quality of life in communities**



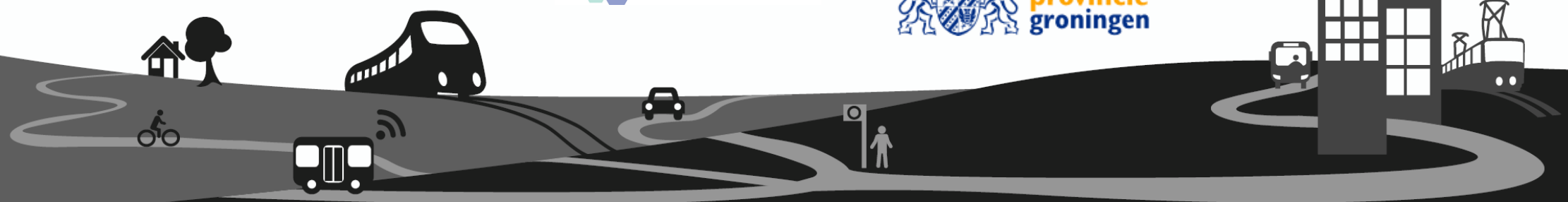
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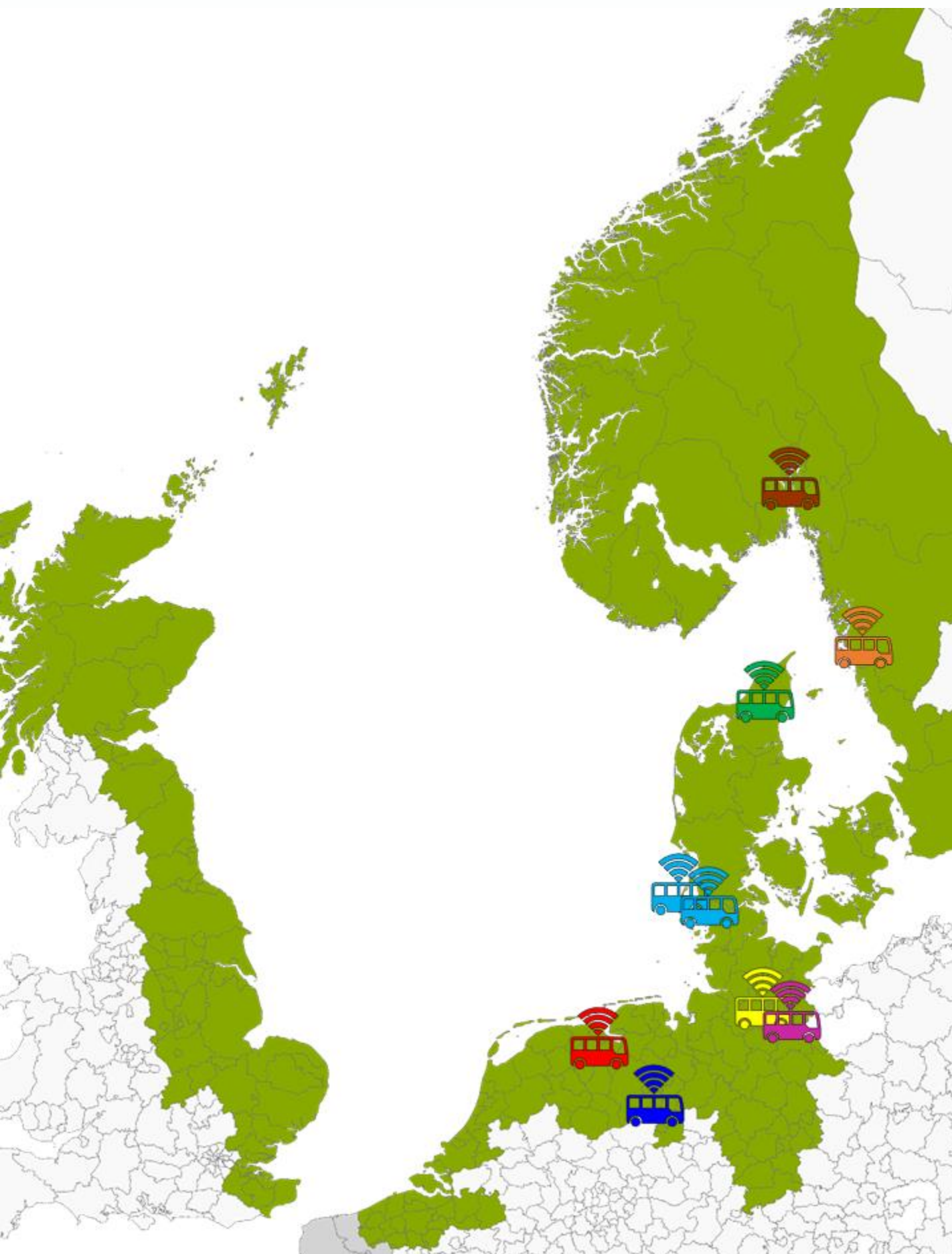
The Ministry for Climate Protection,
Environment, Mobility, Urban and
Housing Development











AALBORG UNIVERSITY



#EU-Interreg ART-Forum: Driverless busses operating in NSR (status: 02/2020)



-  Akershusstranda (NOR)
-  Gothenburg (SWE)
-  Aalborg Øst (DK)
-  NAF-Bus: Keitum (Sylt) and Enge-Sande GreenTec-Campus (GER)
-  HEAT: Hamburg (GER)
-  TaBuLa: Lauenburg an der Elbe (GER)
-  @north: Scheemda, Groningen (NL)
-  HubChain: Osnabrück (GER)



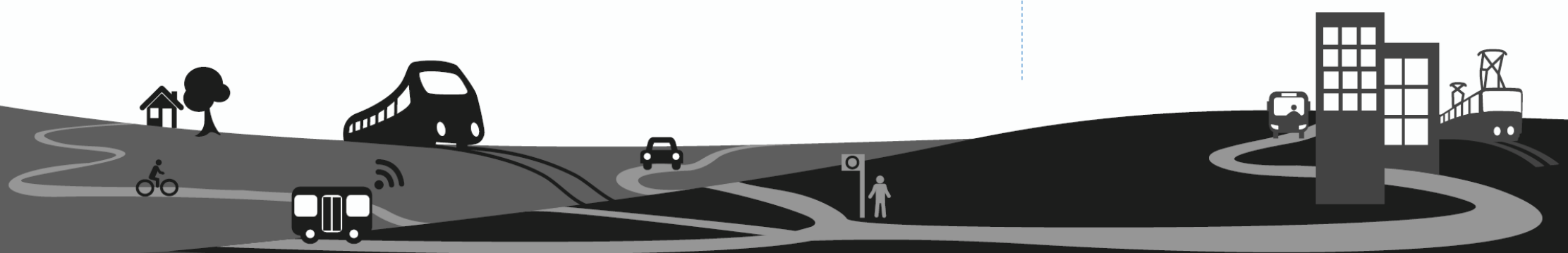
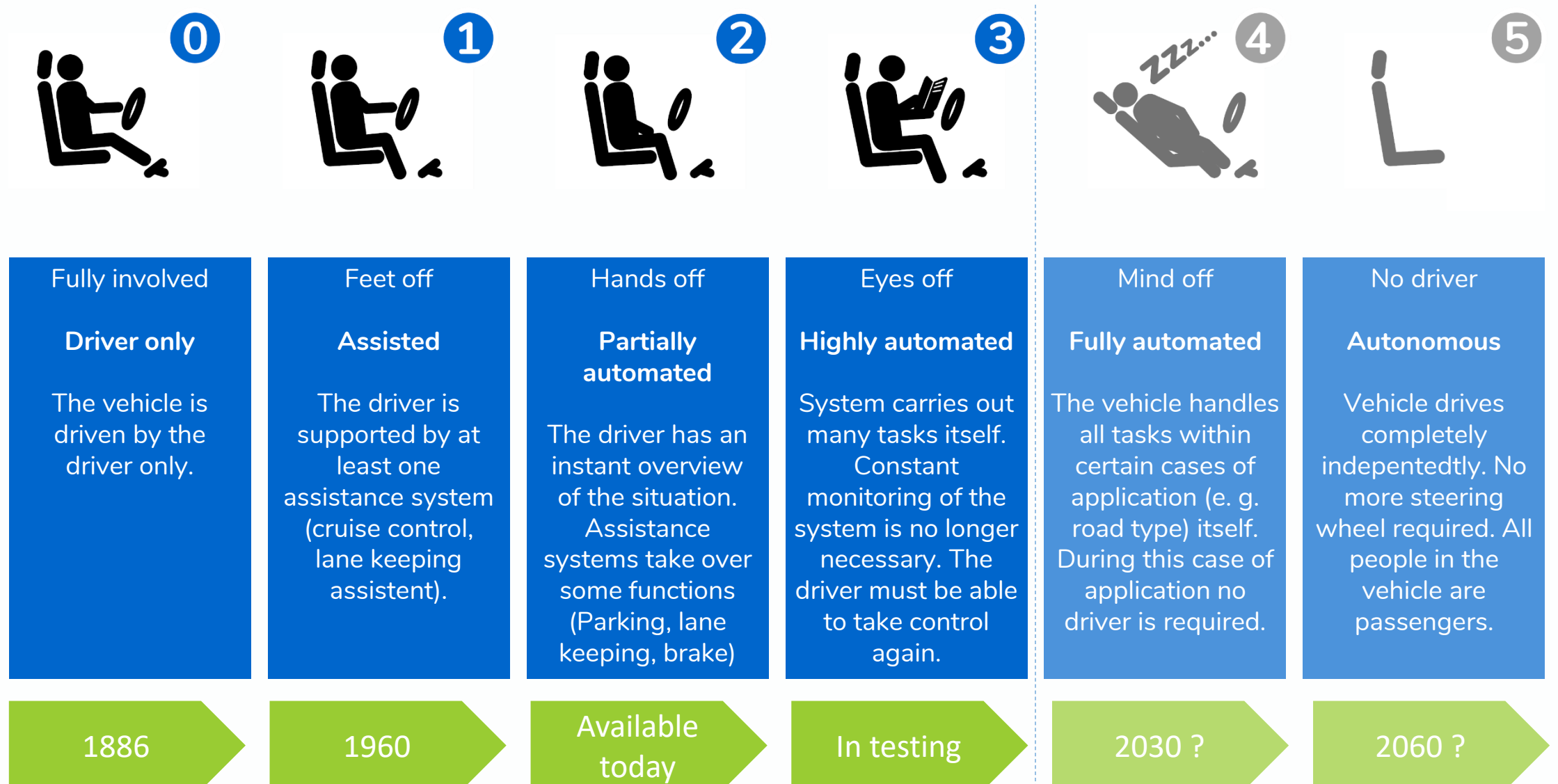
#On the way to autonomous mobility: Where we currently stand with this technology!

According to international standards there are five development stages distinguished on the way to autonomous driving (classification according to S.A.E.). In order to understand the current status of technology, it is important to know these levels.

Because the public discussion often gives the impression that autonomous mobility is about to be imminent.

But 'Autonomous' means that the vehicle acts completely independent without any human intervention (level 5). However, these fully autonomous vehicles will not drive on our roads in the next few years.

Today and in the near future, the focus will be on achieving 'automation' that includes the development from the assistance system to the takeover of individual technical tasks.



#Automated mobility in public transport: Cities and municipalities as a key factor

The ongoing automation of vehicles has the potential to bring about a decisive change in our mobility and our transport system. At best, it could help strengthen rural areas, better meet mobility needs, facilitate access to mobility, and ultimately contribute to an integrated and sustainable transport system. Or it could make individual transport even more attractive, eventually displace public transport and lead to significantly more traffic. Automated mobility not only presents us with diverse opportunities, but also far-reaching challenges. In view of this situation in particular, an early consideration of possible impacts and options for action seems all the more important.

Cities and municipalities will play a key role in this context - especially when it comes to integrating automated mobility into public transport and shaping the opportunities of the new technology. They are important initiators of developments and are in demand in many ways: as a planning authority, as an implementer, as a networking provider and integrator, operator and sponsor.

The time to prepare communities and regions for the upcoming technology is now. Even if autonomous vehicles are not with us yet and the full introduction is a few decades ahead, local governments should not wait and see. They should take the opportunity to actively shape the framework for the future before that is provided by international vehicle and software manufacturers.

But where to start?

#1 Open Discourse

First of all, it is essential that the public sector initiates a discussion on the potential that will arise in the course of the upcoming technology, what the future transport system should look like and what role automated and autonomous vehicles play in it.

#2 Guideline and planning framework

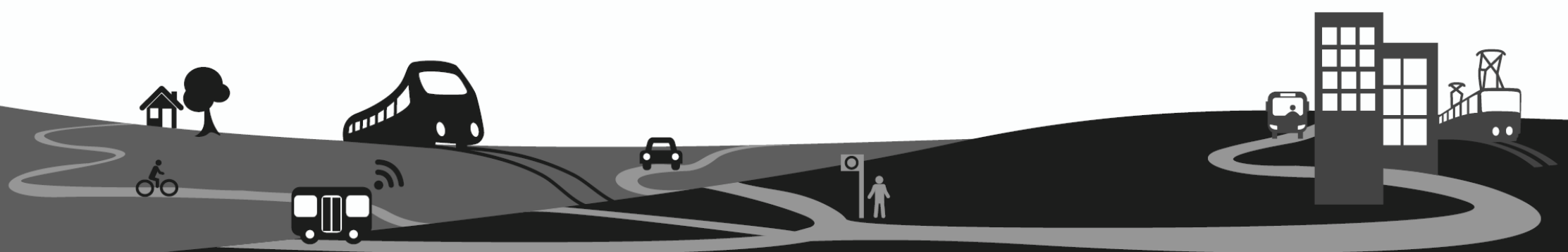
In order to be able to anticipate changes in the planning, municipalities should develop a vision of the future mobility, including automation. What should mobility look like in 20 years? How could automated vehicles support the traffic system? How can benefits be achieved for everyone? Accordingly, existing planning tools should also take automated mobility into account.

#3 Establish new contacts and cooperation

The exchange and coordination with industry, research, politics and citizens is essential. In order to be informed and to be able to keep up with the development, new cooperations have to be established.

#4 Monitoring progress

In well-defined areas of application, there are already opportunities to test automated mobility in public transport. Visiting these projects enables municipalities to learn from others, share knowledge, network at an early stage and try out different aspects of the new technology.



#Implementing ART: Connecting a residential area with driverless buses

Interview with Maria Vestergaard Department of Mobility Aalborg Municipality, Denmark

What are the goals of the municipality concerning the implementation of an automated bus route?

The driverless bus is part of an urban development project in Aalborg Øst and should help to promote the social sustainability of the area. The better transport connection brings the neighborhood closer together and enables them to participate more in social life. In addition, we would like to contribute to a positive and modern image of the community.

What were the main hurdles to be overcome before you could get started?

It took us a very long time to get a permission for testing. The requirements were extremely challenging. It took a total of 5 years from the first contact with the authority to the permission. But it is a big step we've reached. Aalborg now has the first driverless bus in mixed traffic in Denmark. However, one should be aware that autonomous vehicles are still in a development process. The possible applications are limited by the low speed. This means that longer distances are not possible yet or rather would be unattractive.

Despite the restrictions today, where do you see automated vehicles as a potential solution?

Even if you can't use the vehicles everywhere today, they can still be a good addition and part of a future integrated transport system in which small and large buses, drones, etc. will have its place.



Project Overview

PROJECT LEAD: Aalborg Municipality

LOCATION: Aalborg Øst

PROJECT PERIOD: 2 years

ROUTE: 2,1 km with 10 stops, on cycling path

Operation Start: March 5th, 2020

CAPACITY: 11 passengers

SPEED: 18 km/h

DRIVING AUTOMATION: Level 3, planned development up to level 4

TRANSPORT SOLUTION: Better internal mobility in residential area and first/last-mile to ordinary transport.



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