



CASE STUDY

FABULOS

Digital Library | Global Partnership for
Local Investment

City **Helsinki, Finland; Helmond,
Netherlands; Gjesdal,
Norway; Lamia, Greece;
Tallinn, Estonia**

Region **European Union**

Project partners **STCP Public transport
service provider,
Porto, Portugal**

Technical partner **Helsinki Metropolia
University of Applied
Sciences, Finland**

The FABULOS (Future Automated Bus Urban Level Operation Systems) project was designed to accelerate innovation in the development of autonomous bus systems and prepare cities for the future of mobility, with the goal to implement and operate an autonomous electric bus line using a pre-commercial procurement approach. Different holistic automated fleet management solutions have been piloted in five partner cities, with the collaboration of public and private entities sharing the benefits and risks of the project.

The project applies a systems approach in order to find a holistic solution that includes not just a fleet of autonomous electric buses, but also the overall fleet management capabilities, maintenance and charging, and control room functions with full integration into existing public transport.

Overview



FABULOS has been a really great way to get to know the state of the art in the industry and to work closely with companies that are developing these types of mobility innovations. It was very useful for the public sector procurers to compare the pros and cons of the various competing solutions. The procuring partners really were in the driver's seat and ended up with several different solutions to the set societal challenge. The project also contributed tremendously to increasing the knowledge level with the cities and stakeholder organizations on the automated shared mobility topic.

Renske Martijnse-Hartikka, Project Manager, Forum Virium Helsinki, Finland

The FABULOS project leverages a pre-commercial procurement (PCP) process to help drive public-private collaboration to develop innovative solutions for automated electric bus management systems. The PCP process has allowed partners to share the risks and benefits with suppliers.

The partnership aims to develop automated minibuses in a rigorous three-year process that involves three phases. The first phase is a feasibility study of the proposed solutions and technologies, which seeks to verify the technical, economic and organizational feasibility of each supplier's offer. The second phase develops prototypes of the most promising and feasible concepts from phase one and conducts lab testing. The third and final phase of field testing aims to verify and compare the full feature set and performance of different solutions in real-life operational conditions in partner cities. With each phase, the number of supplier teams decreased and the budgets increased. The public sector procurers were able to compare the pros and cons of the competing solutions.

The five pilot locations were chosen based on the best possible match between the proposed solutions and local needs, opportunities and regulations. Three of the supplier teams were selected for phase 3: field testing; the duration of this phase took place between February and October 2020. At the end of the PCP process, the suppliers continued the

refinement of the tested prototypes to enable faster public procurement. This activity fell outside the scope of FABULOS.

Automated shuttles have been tested in controlled environments in various countries, but a proof-of-concept as part of the public transportation system is not yet available. Cities needed to be better prepared, and some parts of automation needed further development to be deployable on open roads in urban settings. FABULOS takes all these elements into account, with a special focus on the technical and economic aspects. This PCP process is considered a good way for cities to solve such societal challenges that are too hard or too far in future to tackle with conventional procurement tools.



PCP provides a proof-of-concept of an innovative solution or service and demonstrates applicability through field testing. It is a good method for public procurers to buy R&D from several suppliers in parallel, to steer the development of solutions to meet real needs.



The funding provided in the process is not enough to solely fund the development of the full project, it is to act as an additional resource to the R&D budgets of existing commercial project partners.

Plans for follow-up projects have been confirmed in the cities of Helmond, Lamia and Helsinki.



Key decisions and tactics

1 Accelerating innovation and technology

Through the PCP process, FABULOS aims to accelerate innovation in the public sector by providing a global platform to test and build a model solution. Interested companies are motivated by competing with other innovators, of which only the top three would be tested in the real world. At the conclusion of the research and development work, the intellectual property rights and any prototypes remain the property of the suppliers involved.

2 Exploring the potential of automated vehicles

With the help of intelligent mobility solutions (e.g. automated vehicles), the aim is to meet emission reduction targets and to promote the transition to a demand-driven transport system. The EU Commission has stated that autonomous vehicles have the potential to bring down road fatalities to near zero and increase the accessibility of mobility services by making traffic more efficient, safer and widely usable (Mohamed Mezghani, International Association of Public Transport).

3 Reclaiming essential urban space to create better access for the public

The FABULOS project – intended to be a long-term development strategy for urban public transport and has served as a research and testing platform to show how intelligent mobility services – could be integrated into a holistic intelligent transport system. The shared fleet of vehicles integrated with traditional public transport services will help to reduce car ownership and congestion. Providing a last-mile solution extends the public transport system and enables access to city infrastructure.

4 Providing companies with a template

To make the process simpler and clear for all parties, it is good to have a pre-designed standard template for companies to elaborate on how to report and measure progress throughout the process. This could also include a video template where companies make videos of their solutions and share them with the team. The FABULOS project implements standardized templates to ensure accountability and unify reporting criteria.

5 Choosing the right team size

PCP is an interactive, engaging and active process; to keep the process manageable based on the FABULOS experience, it is suggested to keep procurer teams of six or less. There needs to be strong commitment from the buyers group.

6 Ongoing communication

One of the biggest benefits of PCP is that procurers and suppliers are at the same table. Utilizing an iterative process where feedback can be incorporated early in the process is key. During the FABULOS project, regular dialogue was facilitated among the actors to ensure active absorption of suggestions. It is, however, important to find a good balance between this agile process and the administrative and evaluation workload on both suppliers and procurers.

7 Engaging all partners at an early stage

The PCP process often requires getting additional authorizations from national authorities for field testing or running pilots of solutions. Engaging with these authorities early in the process, both by procurers and suppliers, has proven helpful in avoiding delays. Such early engagement for clearances becomes even more crucial when different countries are collaborating on one PCP, as was in the FABULOS project.





Best practices

1. Early engagement with all stakeholders, understanding, designing and defining the requirements thoroughly earlier in the project.
2. Partnering with experts with prior experience in the PCP process to ensure successful completion of the project.
3. Creation of standardized templates for companies. (e.g. related to reporting on key performance indicators, measuring public acceptance or intellectual property rights.)



Impact

2,807 passengers were taken on board the autonomous bus shuttles and approximately 14,000 km were driven in open road conditions in five pilot cities during the COVID-19 pandemic.

Increased capacity of local and regional stakeholders to understand and navigate the specifics of autonomous vehicles in their systems.

FABULOS has accelerated the adoption of the required legislative process to allow for the existence of this new automated transportation systems.



What did the public sector offer?

- A first test case of a highly innovative mobility solution, trailed in a real urban environment
- Legislative support to identify potential large-scale implementation
- International platform to demonstrate solution capability



What did the private sector offer?

- Capital and knowledge investment
- Industry expertise
- Access rights to the solution developed



Replicability

- Cities looking to use PCP or alternative innovative procurement approaches will need to determine feasibility with their current procurement policies or update to allow for such approaches.
- Cities looking to replicate the field testing of innovative mobility solutions can look to the FABULOS project for a step-by-step guide for the three main phases: obtaining permissions, pilot

Policy models

[FABULOS Policy Recommendations](#)

[Tender Document 2](#)

[Tender Document 9 \(Field Test Specifications\)](#)

For more information

[FABULOS Project](#)

[Pre-Commercial Procurement Process - FABULOS](#)

[Deliverables - FABULOS](#)

[Periodic Reporting for period 1 - FABULOS](#)