

pendel

Transporting the future.

Why did we create Pendel ?

As a **one-stop shop**, Pendel provides an **all-inclusive** and **continuous** service for **autonomous transport**.



All-inclusive service

From preparation, setup, to operation



Tech and service partners

Reliable, leading industrial position



Proven track record

Delivering 4+ projects by 2023



Our deployments in 2022



Port of Barcelona, Spain

Last mile from a parking lot to the World Trade Center



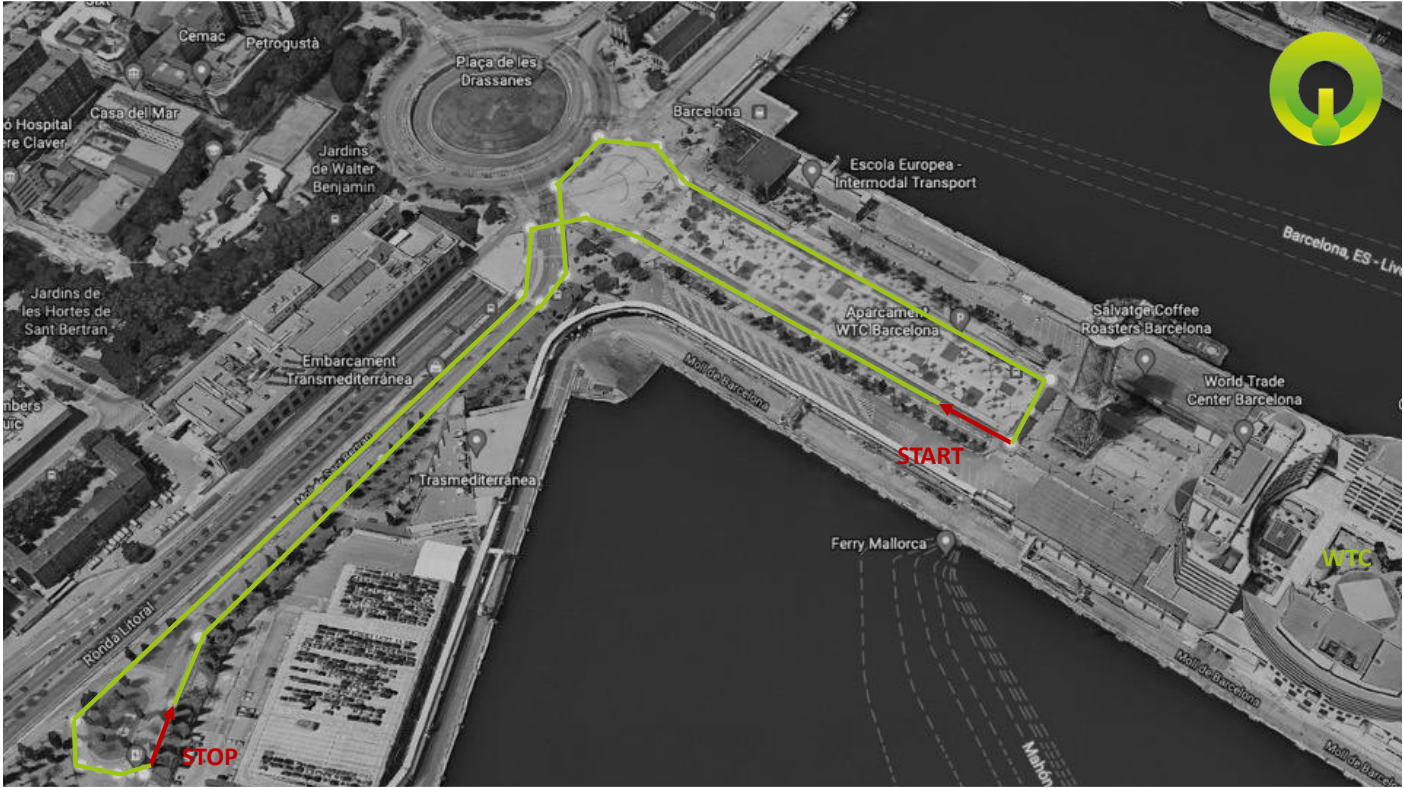
Hannover Region, Germany

Last mile from a tramway station to a university campus, temporarily substituting a conventional large bus



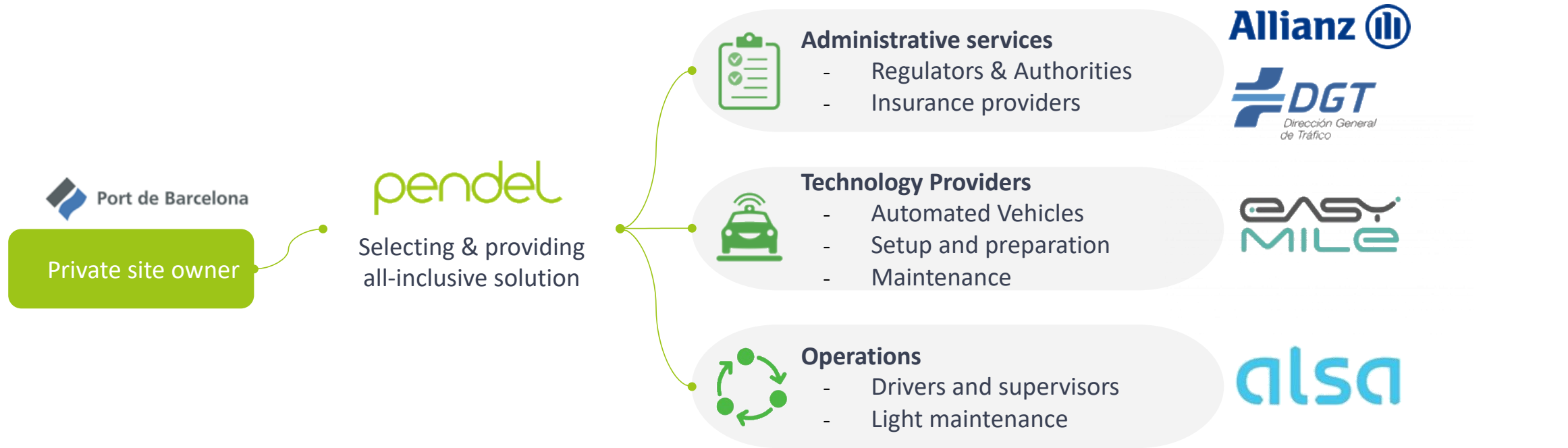
The project at the Port of Barcelona

Deploy an autonomous shuttle in real-life conditions and understand the main regulatory and operational steps needed.



This project has received funding from the European Union's Directorate-General for Communications Networks, Content and Technology, 2020 Work Programme under grant agreement No. LC-01632937

Stakeholders involved in preparing and operating



Our main learnings from this pilot for the future of AV

1. Overall, the technology works

Trip time regularity

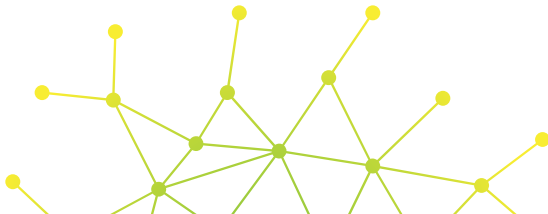
Standard deviation time of 1.09 minute calculated out of 375 trips. Main reason for delay was due to emergency stops and its “recovery time”.

No accidents

The pilot maintained its transportation service during one month without any accidents.

Users felt safe (seated)

Users had a positive perception of preventive emergency stops, but felt that the suddenness of stops presented a hazard when standing up.



2. We need to improve shuttles' operations

Large amount of emergency stops (20-25/week)

Over 379 trips, 76 emergency stops were recorded.

Manual mode to autonomous mode is "tough"

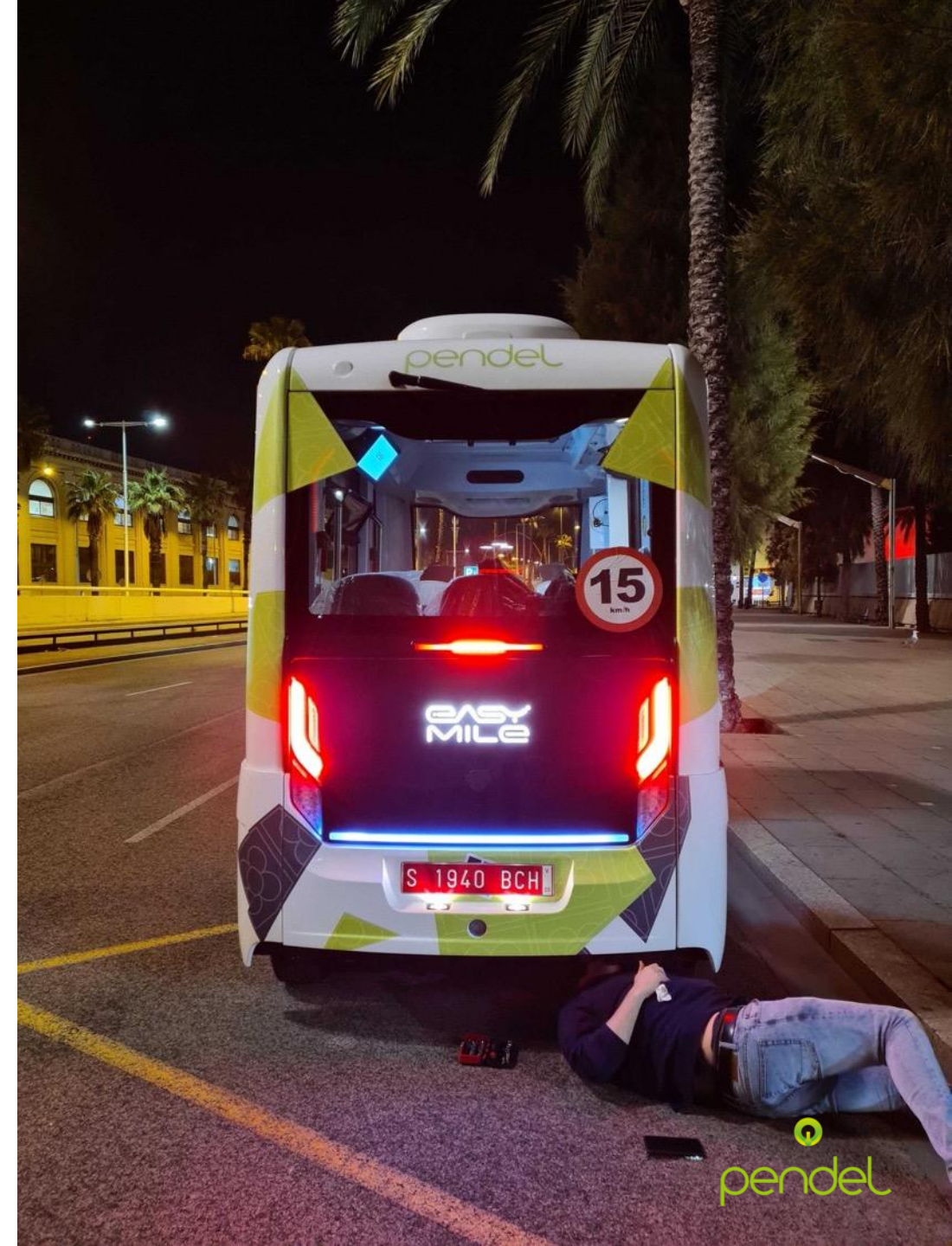
When an emergency stop was needed, the slow change between manual and autonomous modes led to additional hazards.

Route flexibility is needed

The vehicle should be able to incorporate several routes simultaneously.

Increase speed of the vehicle

The shuttle took twice as long as a conventional vehicle to complete the route (15km/h).




3. Public acceptance should not be underestimated

Barcelona Secreta 26 mai · 🌐

El futuro ya está aquí: los coches autónomos llegan a la ciudad 🚗

Voir la traduction



BARCELONASECRETA.COM

El primer vehículo sin conductores empieza a circular por BCN
El 30 de mayo el Puerto de Barcelona estrenará el primer vehículo autónomo y sin conduct...

698 235 commentaires 211 partages

Comment 1: Me da menos miedo un vehículo autónomo que muchos conductores de bus y taxi, ahí lo dejo!
J'aime Répondre Voir la traduction 15 sem Modifié 23
↳ 10 réponses

Comment 2: Entendéis porque necesitan reducir población . Todo será máquinas , irás a comprar y adiós cajeras, camareras, todo te lo harás tú o un robot . Ya hay muchos países que tienen robot como camarero . Somos desechos para esta gentuza . Millones de trabajos caerán .
J'aime Répondre Voir la traduction 15 sem Modifié 34
↳ 6 réponses

Comment 3: Venga, todo automatizado, sigamos quitando puestos de trabajo, de perlas para los empresarios
J'aime Répondre Voir la traduction 15 sem 35
↳ 5 réponses

Comment 4: Agenda 2030. Reducción de la población e inteligencia artificial a tope. Además para que el cacharro este circule antenas 5g en cada esquina ...vamos una maravilla
J'aime Répondre Voir la traduction 15 sem 6
↳ 10 réponses

Comment 5: ESE FUTURO DISTOPICO QUE NOS VIENE PISANDO LOS PIES !!
J'aime Répondre Voir la traduction 15 sem 2

Our recommendations

Choose your use case and route carefully

Where can autonomous vehicles be efficient already today and provide a real-added value, moving from demonstrations to transportation services.

Anticipate the performance of the vehicle

At the moment, we see many experiments taking shape as "additional route for experiments", which have a lower consequence on the user journey in case the service is not working properly.

Use your pilots to engage with citizens

Public perception on autonomous vehicles remain controversial. It is crucial to showcase the foreseen benefits (safety, expansion of public transport, driver shortage of AVs...etc.) and engage with different civil stakeholders.



Main question to keep in mind for transport operators for the next years



Where does it make sense to invest and deploy autonomous vehicles ?

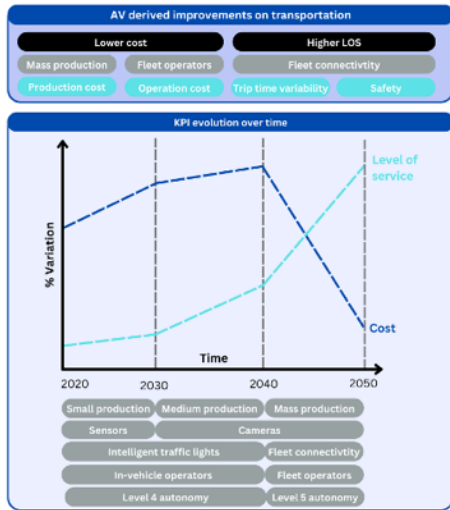
Finding the right balance between the mobility need, the technology performance and its related service cost to define optimal use cases.



How to organise multi-service level agreements ?

Defining the future role of transport operators and the new stakeholders involved in complex public-private collaborations

This what we are going to do



Business case analysis

Assessing the costs, benefits and impacts for current and future AV deployment for 3 transport authorities in Europe.



Multi-deployment and Service Level Agreements

First economically feasible integration of AVs for MaaS public transportation and LaaS urban goods transportation-

Interested to know more ?
Read our last insight guide or get in touch with us

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