Digitalization for a Green Transition

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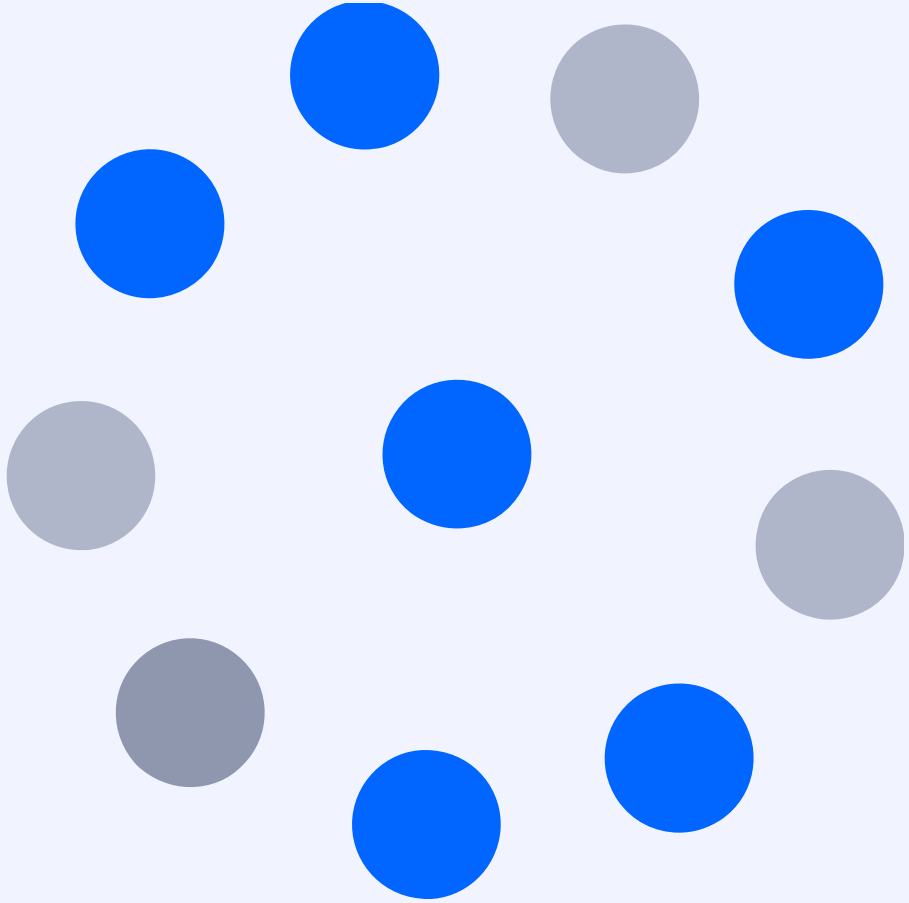
MWC 2022

Transformation is now

Índice

Environmental Srategy



TELEFONICA

Committed to a world where **technology helps to protect the planet**

Minimize the impact of our operations

Our goal is **to have the most efficient network** in terms of energy and carbon, so that the connectivity we offer to our customers is green

Support our customers to decarbonize their activity

Digitalization is a key tool to help other sectors to become more sustainable. **Our services allow to optimize the consumption of resources**: energy and water, reduce CO_2 emissions or promote the circular economy

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OUR GOALS

We will achieve net zero emissions by 2040

Net zero emissions

2025: Interim target key markets
2040: Value chain and Hispam

Renewable energy	Energy efficiency	Emission reduction	Value chain	Neutralisation
100%	-90%	-70%	-39%	100%
2030	MWh/PB 2025	2025	2025	Residual emissions
Already 100% renewable Europe+Brazil+Peru	Consumption of energy per traffic unit	Scopes 1 + 2	Scope 3	

Digitization to Decarbonize the economy

Help clients to avoid

12 Million tCO2 yearly by 2025

SCIENCE BASED TARGETS
DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

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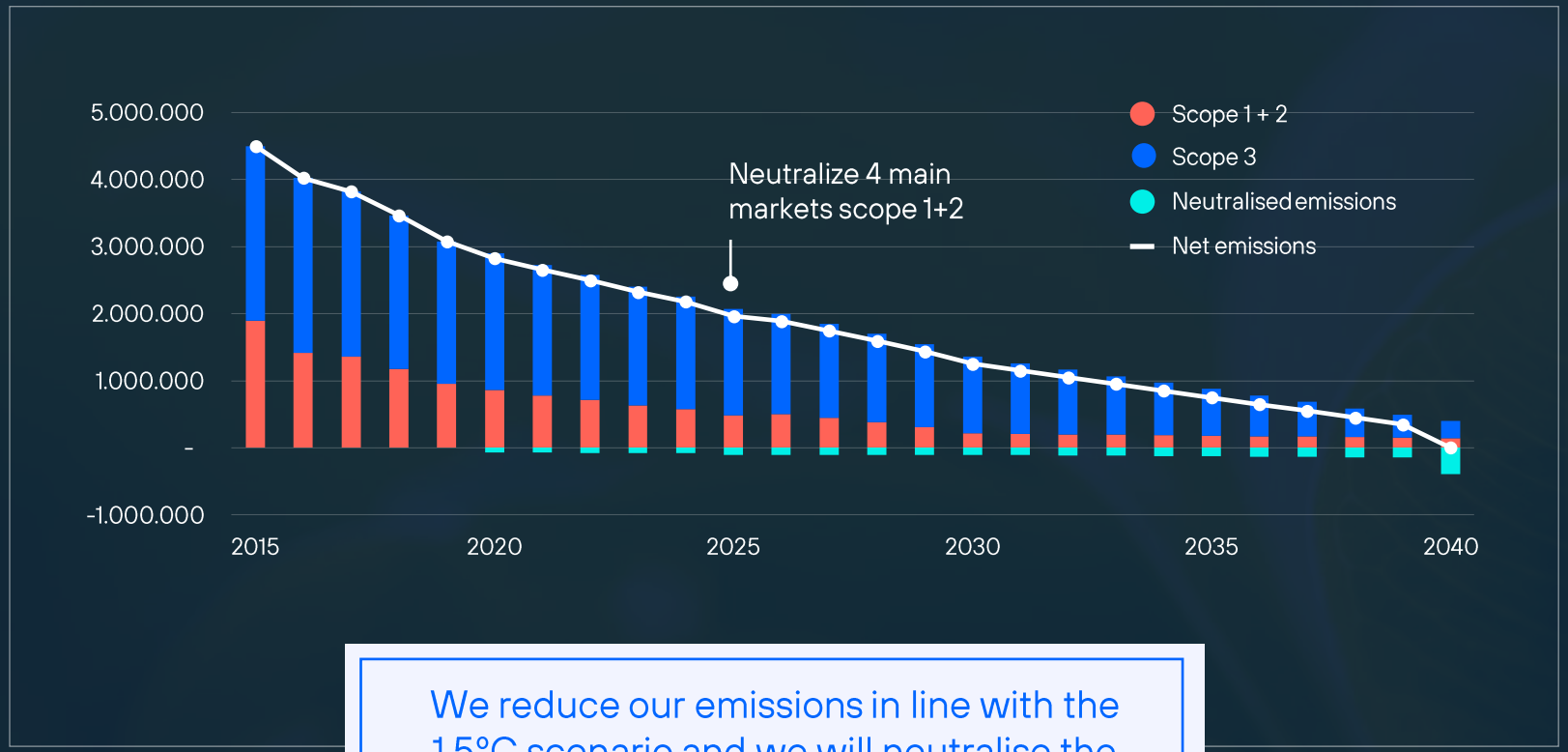
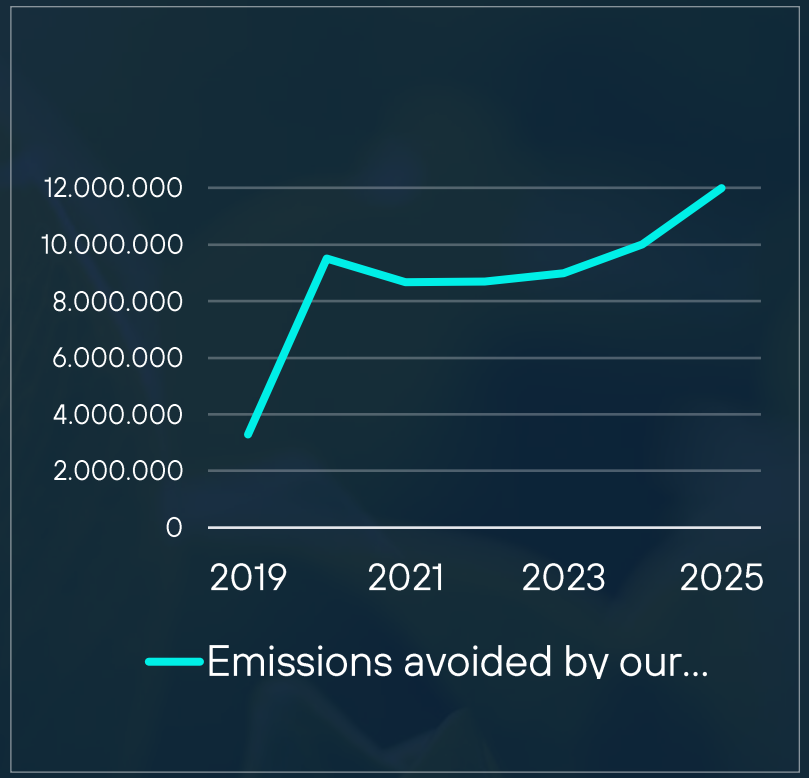
Our Journey

Journey to Net Zero



We reduce our emissions in line with the 1.5°C scenario and we will neutralise the remaining ones to achieve Net Zero

Our Journey Decarbonize the Economy



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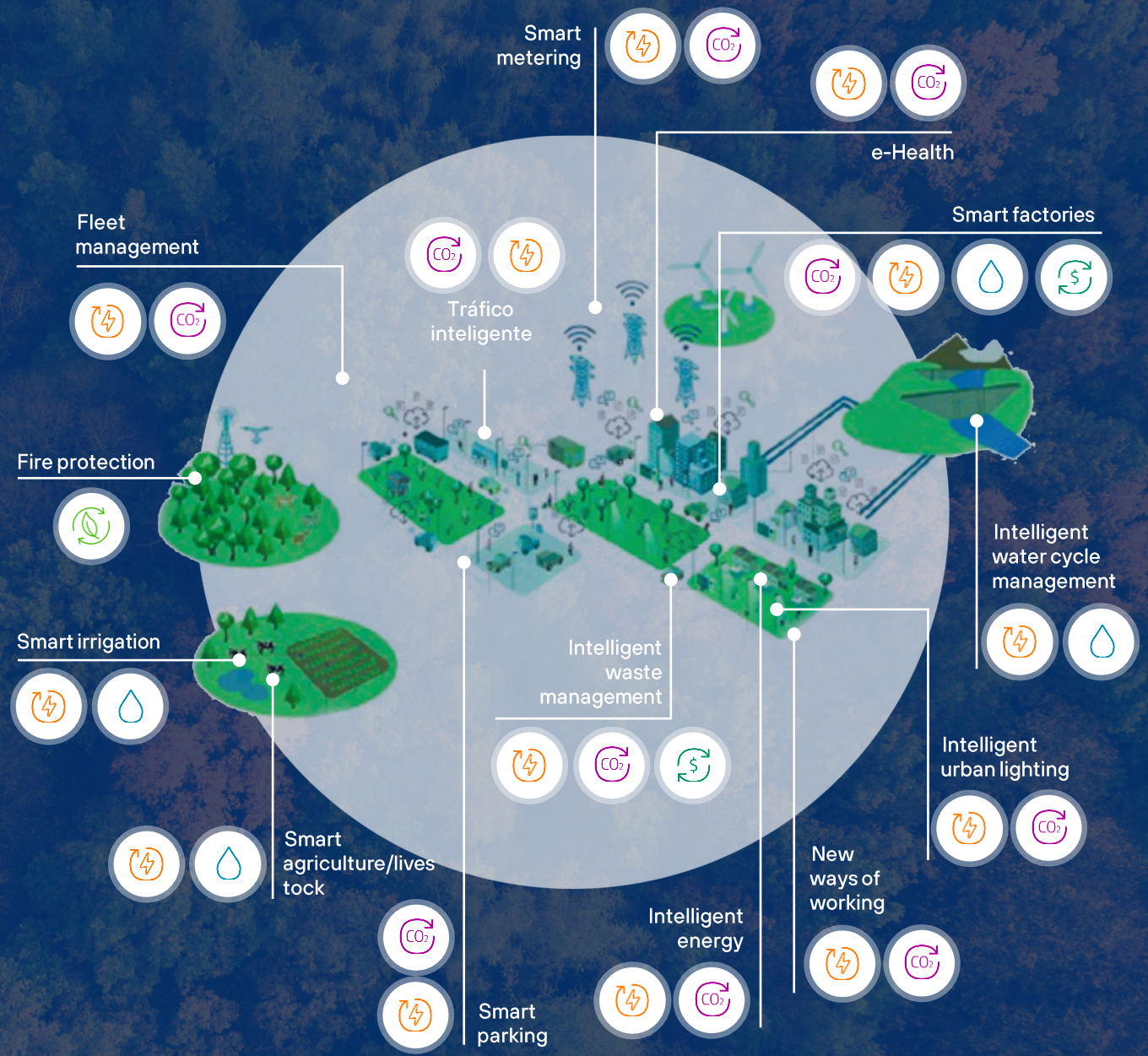
PARTNERS FOR THE GREEN TRANSFORMATION OF OUR CLIENTS- B2B

In 2021 our customers avoid the emission of 8,7 MtCO2 through of our services which is equivalent to the absorption of 143 million trees.

To convey this benefits to our customers, we have created the Eco Smart label. Currently **52%** of our portfolio has been **verified** by AENOR as **Eco Smart services.**

ECOSMART SERVICES

VERIFIED BY AENOR



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PARTNERS FOR THE GREEN TRANSFORMATION OF OUR CLIENTS –B2C

We want to help our customers to make informed and more sustainable choices.

Eco Rating evaluates the environmental impact of the entire live cycle of mobile phones.

We have implemented the seal in our online shops in all countries where we have operations: Spain, Germany, UK, Brazil, Argentina, Uruguay, Ecuador, Peru, Colombia, Chile and Mexico.

ECORATING

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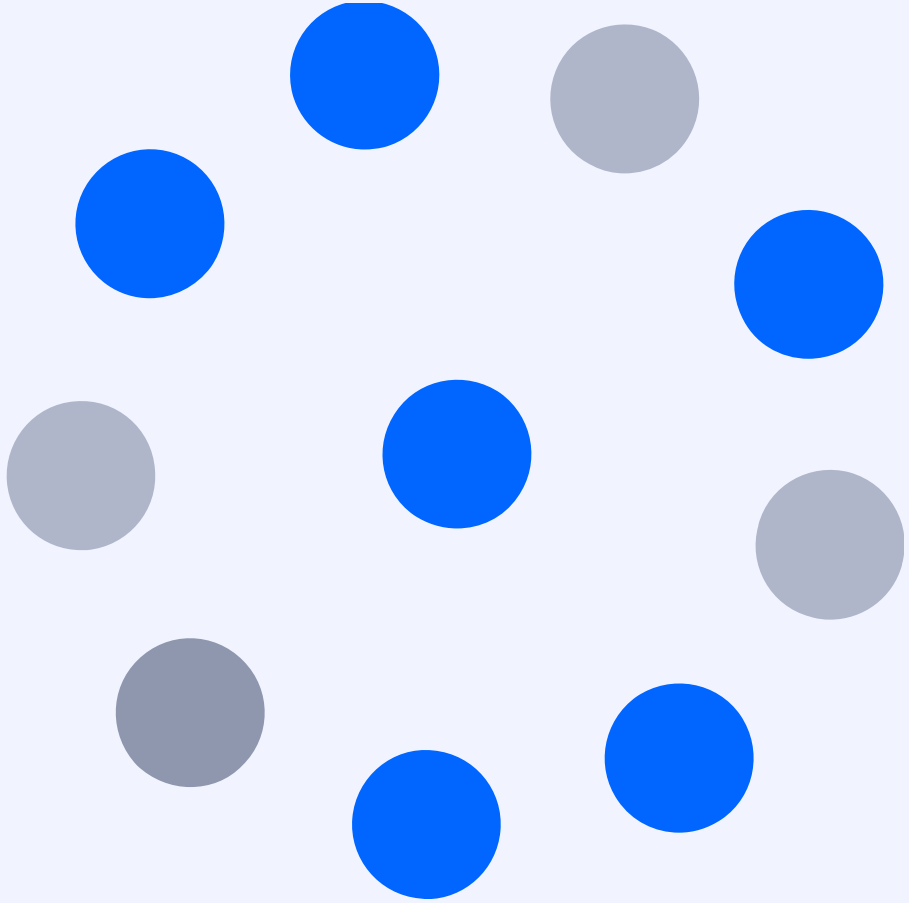
Digitization of La Marina de Valencia



What is La Marina de Valencia?

- La Marina de Valencia is a space within the Port of Valencia aimed to provide **docking services for recreational vessels and leisure services**.
  - La Marina has 71 dealerships in gastronomy, leisure, culture, nautical, training and innovation.
  - 1 million of m2, the biggest Europe Marina.
  - More than 800 berths.

La Marina de Valencia is managed by **Consorcio Valencia 2007**, a public entity depending on Valencia City Council, Generalitat Valenciana, and Spanish State Government.

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What is the Telefónica Tech digitalization Project at La Marina de Valencia?

The Service

- The people that berth their boats at La Marina can enjoy the **water supply** and **power supply** service while their boats are docked.

The issues

- Nowadays the operation of this service is not digital, and it is **hard to detect excessive energy use cases**.
- There is no strong and irrefutable link between the user and the service, that could establish **rules and politics for responsible consumption**.
- In an environment like La Marina, it's **strongly difficult to detect water leaks**. An opened tap can be dropping water into the sea for weeks before it can be detected by the managers.

The Telefónica Tech solution

We have proposed to La Marina a **digital transformation** exercise for the boat's water supply and power supply service.

This new digital service is leveraged in our technology **IDoT** (Identity of Things)

With this project, we answer to the **machines' identity challenge**.

We link the identity of the service's user with the device, the supply post in this case, and the operations are auditable.

An IDoT **beacon** is deployed for each supply post.

The beacon is the **interface** between the digital service and the post's supply electromechanical elements and the interface between the user and the digital service.

What does digitalization provide to the new service?

Water leak alerts

Allow to detect and fix them as soon as possible

Thresholds warnings

User warnings about power or water consumption over the preset thresholds

Monitoring

Monitoring of the supply service efficiency

Metrics

Gathering relevant metrics to improve the effectiveness of the service

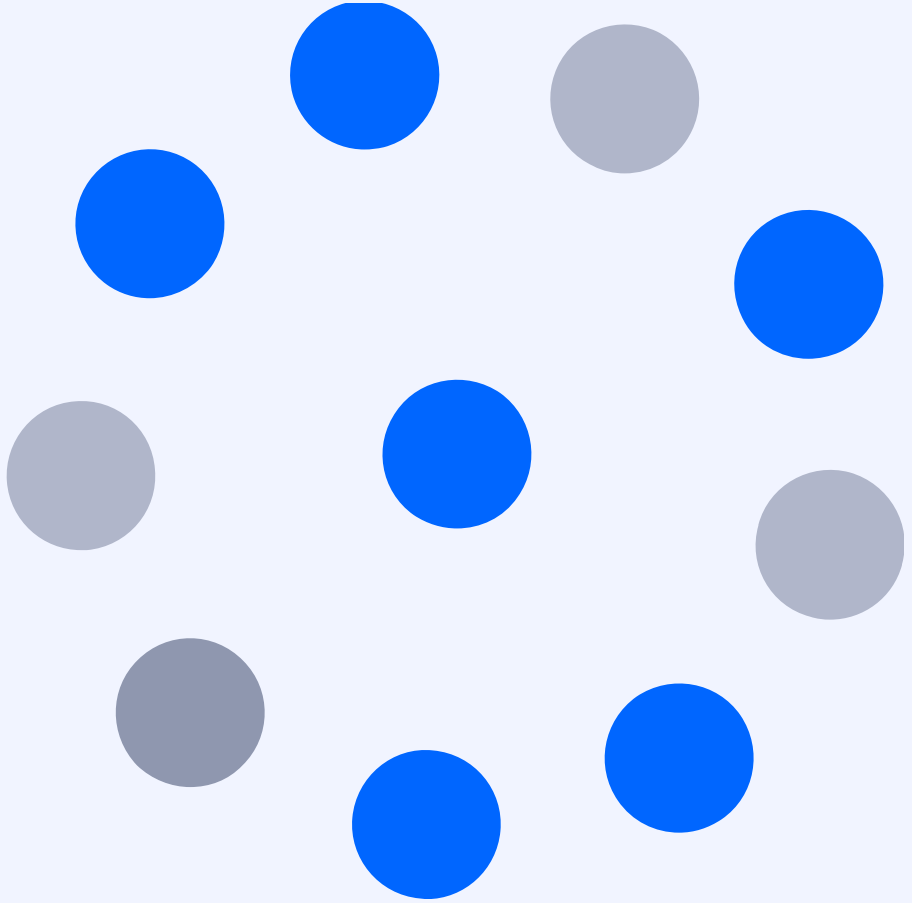
Blockchain

Gathering relevant metrics to improve the effectiveness of the service

SDG Compliance Indicators

Provide supply service metrics and indicators about the Compliance with Sustainable Development Goals

Secure Communication for Self-driving Vehicles



Autonomous vehicles and sustainability

- CAVs are part of a broader push towards electric cars, which emit almost 3 times less CO_2 than equivalent petrol/diesel cars in Europe (Transport & Environment, 2020).

- Automation increases fuel efficiency. Vehicles consume up to 7% less fuel in adaptive cruise control mode (Zhu et al., 2019).

- Aggressive driving – speeding, abrupt braking – can increase fuel consumption by up to 40% (Oak Ridge Laboratory, 2017). CAVs don't speed, and only brake suddenly if necessary.

Cybersecurity for autonomous vehicles

Telefónica Tech is working with Darwin to create a cybersecurity solution for the Darwin Autonomous Shuttle.

Darwin is an R&D company that works to make sure CAVs can remain connected anywhere.

This passenger shuttle uses both satellite and terrestrial networks, creating new cybersecurity challenges.

Providing the identity and interaction of the Connected Autonomous Vehicle passenger

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The objective matters, but it is more important **the path we take** to reach it
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