



11 BILLION MILES

To prove that an autonomous vehicle is
20% safer than human drivers,
We need over 11 billion miles[1].



**11 BILLION
MILES**



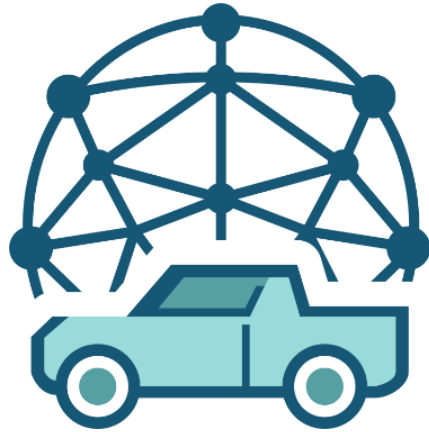
**20%
20% SAFETY
IMPROVEMENT**



Driving 11 billion miles is like circling the Earth more than 441 million times.



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SYNERGIES

SYNERGIES: Generation Of Scenarios For The Development, Training, Virtual Testing And Validation Of CCAM Systems

CENEX Expo CAM Tech Talks
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SYNERGIES Introduction

- **Co-funded program:** Horizon Europe
- **Run time:** June 2024 – May 2027 (36 months)
- **Total Budget:** 20.000.000,00€

OEMs



Tiers



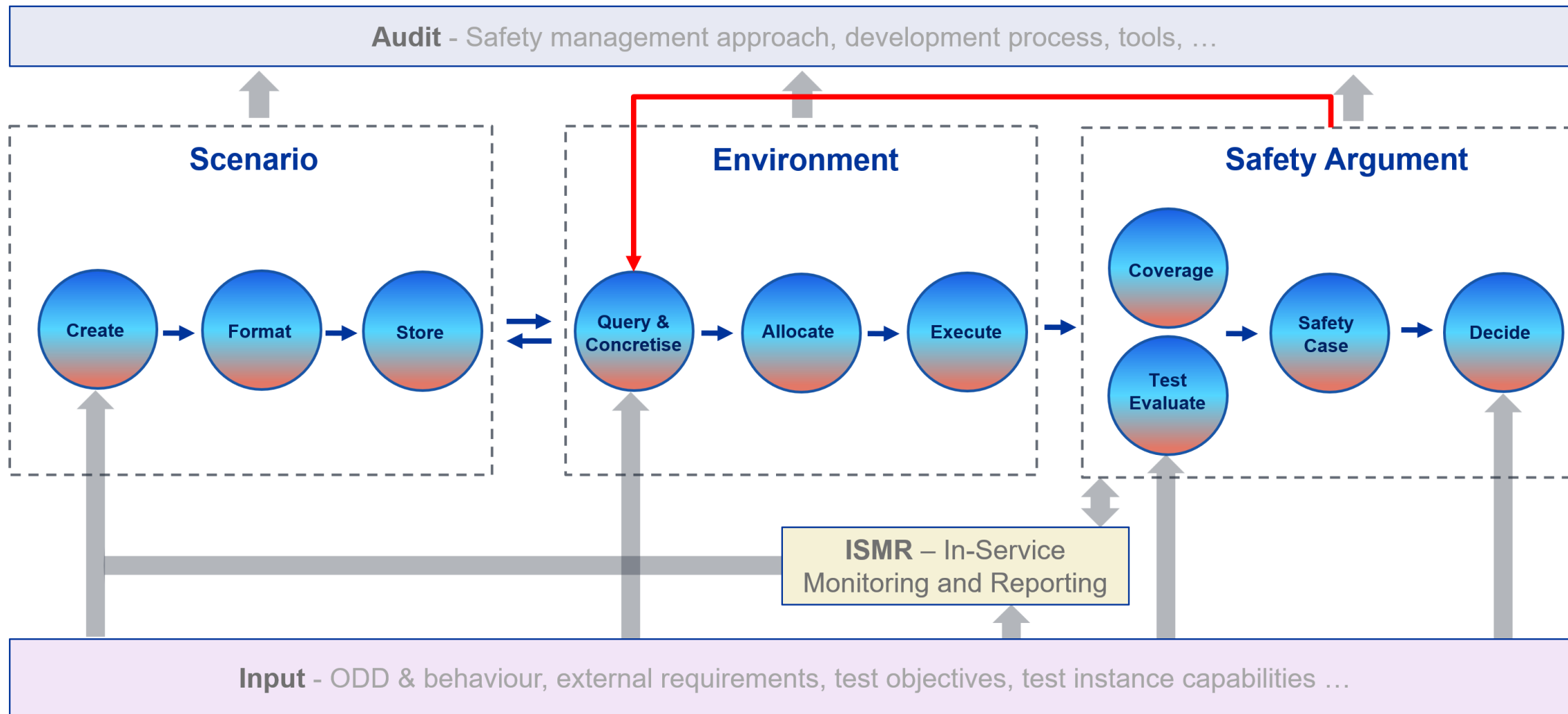
Service Providers



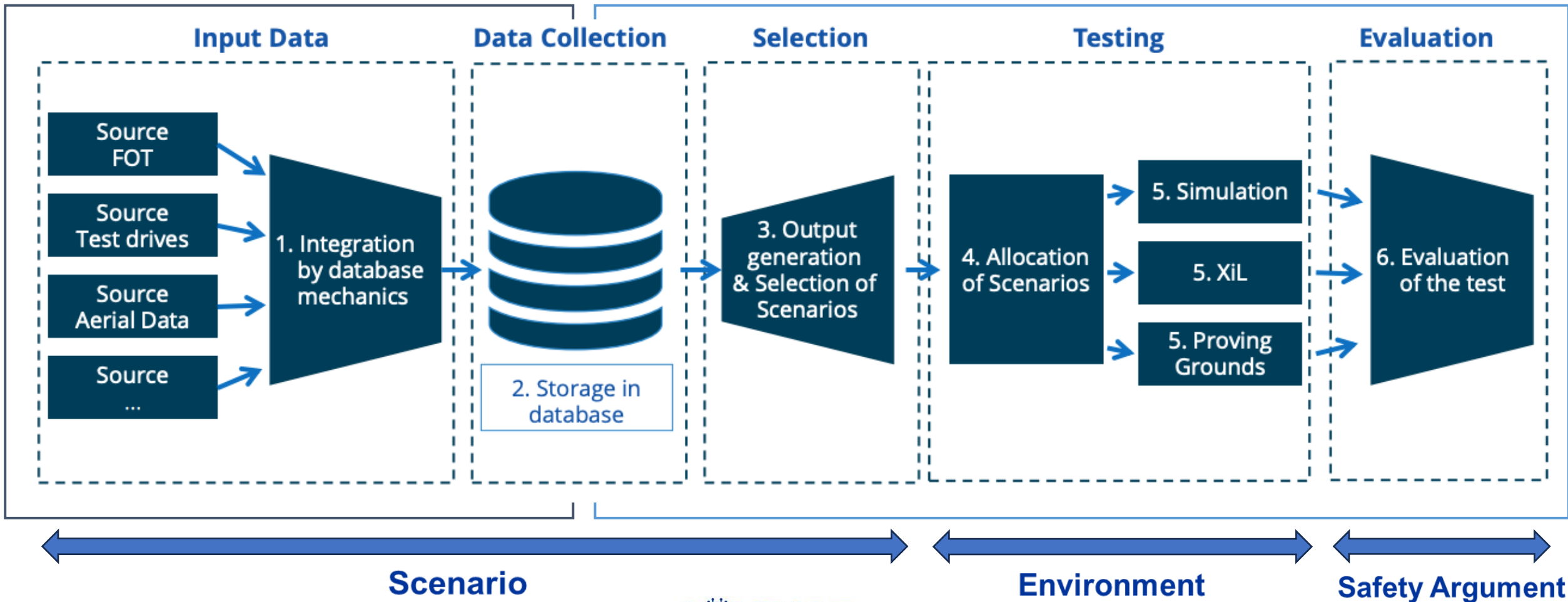
Research



SUNRISE Safety Assurance Framework



We need **a lot** of Scenarios!




Dataset X

Raw data

SYNERGIES PLATFORM


Query   *Scenarios & metadata*

Governance
tools

Scenario
identification,
extraction and
generation tools

Data
processing
tools

MARKETPLACE

SCENARIO DATASPACE

FEDERATION LAYER

Processed data
Scenarios
Policy use
Interoperable API

API

Usage
Policy



Database X

API

Usage
Policy



Database N

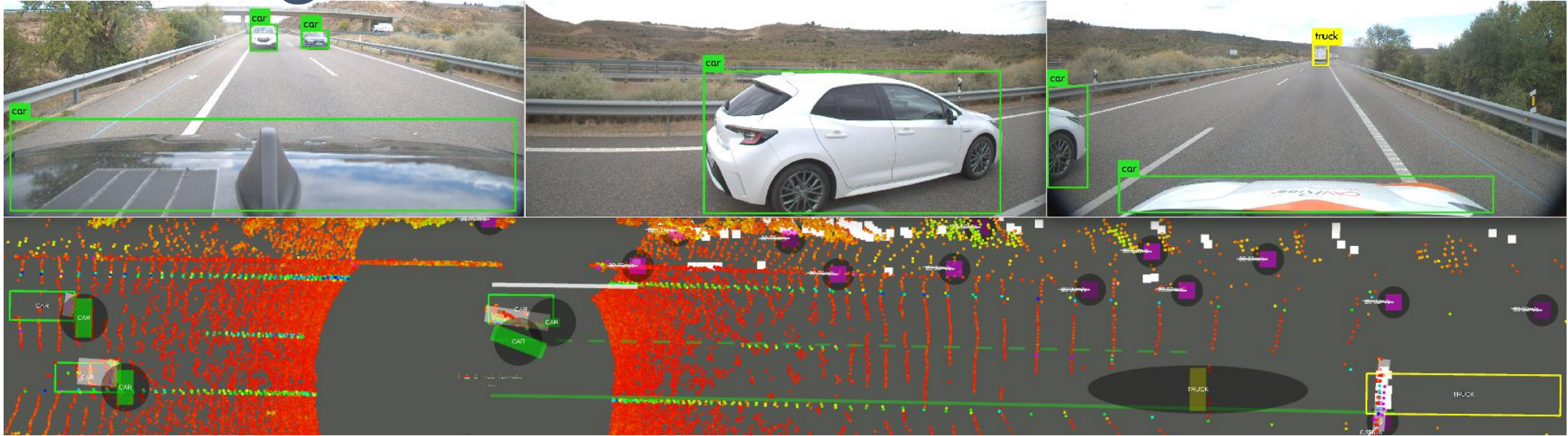
API

Usage
Policy



Database N+1

Scenario generation from raw data



Scenario
Source Data

ASAM OpenDRIVE®

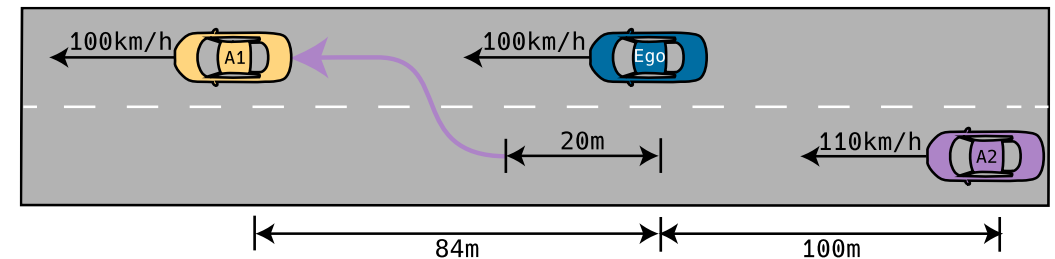


```

<road rule="RHT" length="100.0" id="1" junction="-1" >
  <link>
    <predecessor elementType="junction" elementId="2" />
    <successor elementType="road" elementId="3" />
  </link>

```

ASAM OpenSCENARIO®



Scenario Source Data



<https://github.com/ika-rwth-aachen/omega-prime>

Omega-Prime: Data Model, Data Format and Python Library for Handling Ground Truth Traffic Data

Data Model, Format and Python Library for ground truth data containing information on dynamic objects, map and environmental factors optimized for representing urban traffic. The repository contains:

Data Model and Specification

see [./docs/omega_prime_specification.md](#)








-  **Data Model:** What signals exist and how these are defined.
-  **Data Format Specification:** How to exchange and store those signals.

The data model and format utilize [ASAM OpenDRIVE](#) and [ASAM Open-Simulation-Interface GroundTruth messages](#). omega-prime sets requirements on presence and quality of ASAM OSI GroundTruth messages and ASAM OpenDRIVE files and defines a file format for the exchange and storage of these.

Scenario Source Data

<https://github.com/ika-rwth-aachen/omega-prime>

Python Library

-  **Create** omega-prime files from many sources (see [./tutorial.ipynb](#)):
 - ASAM OSI GroundTruth trace (e.g., output of esmini)
 - Table of moving object data (e.g., csv data)
 - ASAM OpenDRIVE map
 - [LevelXData datasets](#) through [lxd-io](#)
 - extend yourself by subclassing [DatasetConverter](#)
-  **Map Association:** Associate Object Location with Lanes from OpenDRIVE or OSI Maps (see [tutorial_locator.ipynb](#))
-  **Plotting** of data: interactive top view plots using [altair](#)
-  **Validation** of data: check if your data conforms to the omega-prime specification (e.g., correct yaw) using [pandera](#)
-  **Interpolation** of data: bring your data into a fixed frequency
-  **Metrics:** compute interaction metrics like PET, TTC, THW (see [tutorial_metrics.ipynb](#))
-  **Fast Processing** directly on DataFrames using [polars](#), [polars-st](#)

Check the website! <https://synergies-ccam.eu>

Public Deliverables

[D1.1 Project Management Plan](#)

[D1.2 Initial Data Management Plan](#)

[D1.5 Initial Exploitation Plan](#)

[D2.1 Stakeholder high-level requirements](#)

[D2.2 Storylines definition and technical and interoperability requirements](#)

[D8.1 Evaluation Framework methodology](#)

[D10.1 Dissemination and communication plan](#)

[D10.2 Project Website](#)

Webinars

Webinar 1: "Driving the Future Together – An Introduction to the SYNERGIES CCAM Project"

[YouTube](#)

Webinar 2: "Harmonisation & Scenario Integration"
will take place 24th of September at 14:00 CET online

Podcasts: The CAV Chronicles

The CAV Chronicles Episode #1 | Applus+ IDIADA presents SYNERGIES, a new era for automated mobility

[Spotify](#)

[YouTube](#)

The CAV Chronicles Episode #2 | Best Practices in Data Collection with the SYNERGIES Scenario Dataspace

[Spotify](#)

[YouTube](#)



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