

**Individual Title:** airsist – Inspection, made simple. – Product

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**Program:** M.Sc. in Management

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**Abstract:** Today, bridge Inspections are a complex process. This means they sometimes cannot be properly executed, which poses a danger to society at large. We are **airsist**, and in the context of the field lab we transform a scientific breakthrough to create value in economic and social terms.

The complete work outlines how this business can be created by addressing topics such as the reason for existence, the product, the market & customer, the business model, the roll-out, the financials and the outlook.

This individual submission presents the topic of defining and developing a product around a new technology, building the right partnerships, budgeting and designing its development and protecting the product through IP.

**Keywords:** UAV; drone; autonomy; infrastructure; entrepreneurship; science; budgeting; development roadmap; technology; IP; R&D; financial modelling

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# airsist.

Inspection, made simple

**NOVA**  
Field-Lab

Prof. Nuno Arantes-Oliveira

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46574 – Fabio Däke

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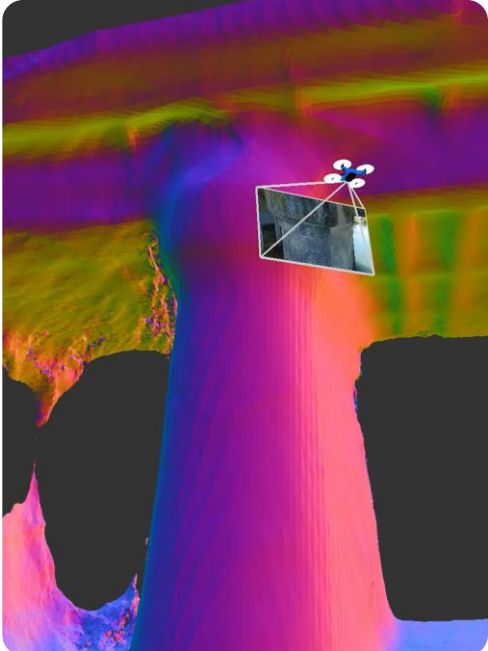
# Product

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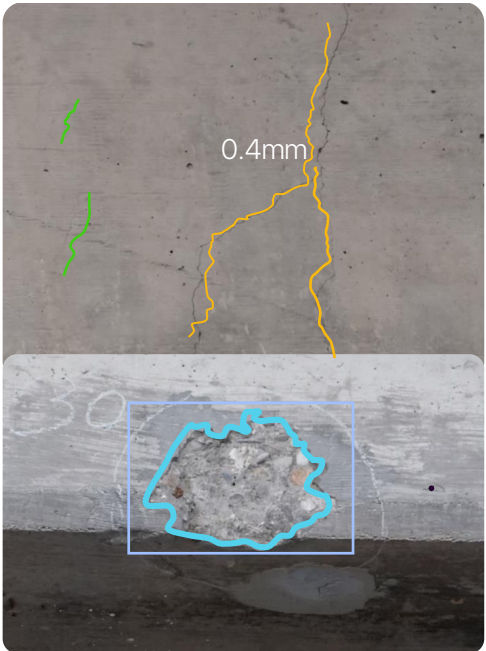
# airsist One-Tap Solution



Drone inspects  
Bridge



AI detects  
Damages



Digital  
Report created



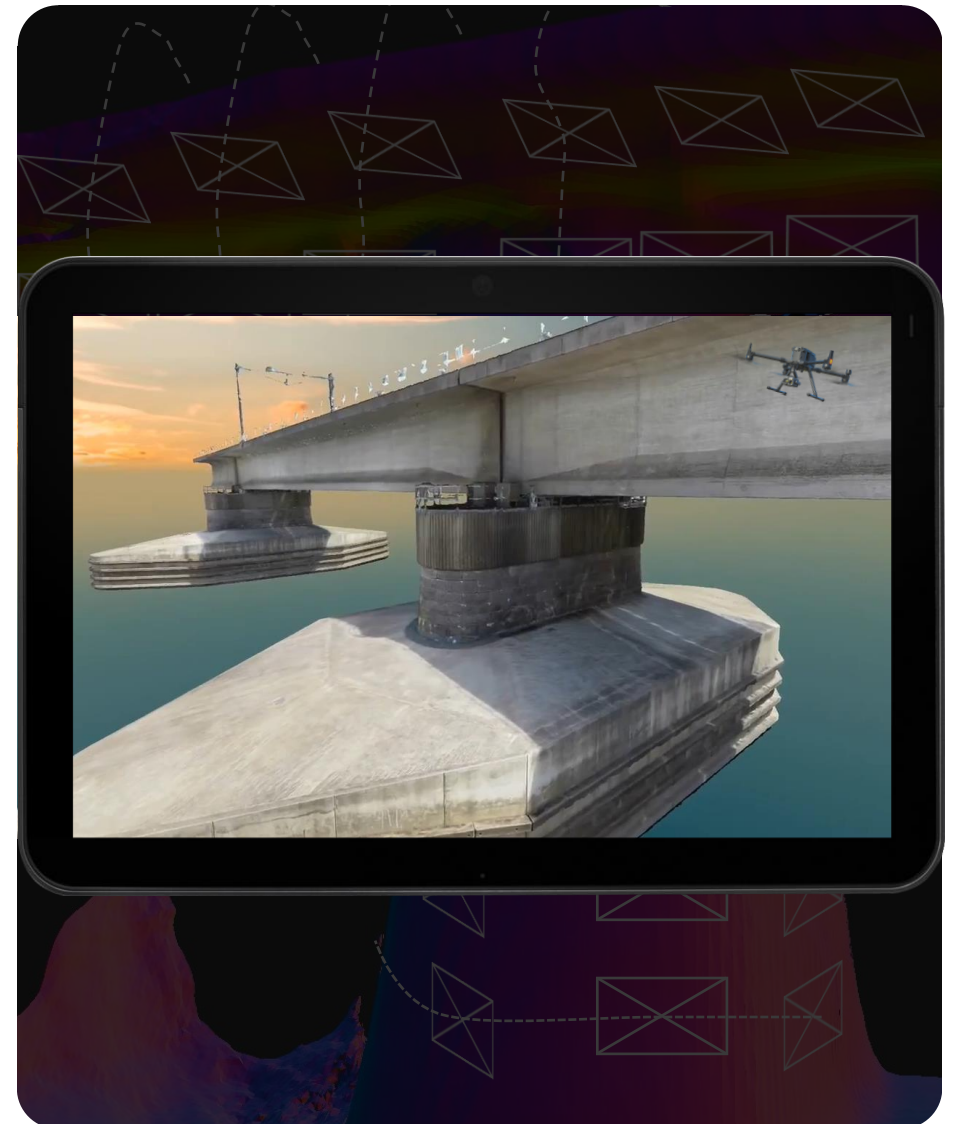
# Drone Inspection

Tell airsist what part of the bridge to capture...

Drone explores and builds a 3D map in real time...

airsist plans the shots & autonomously takes images...

airsist processes the images to create a 3D model.



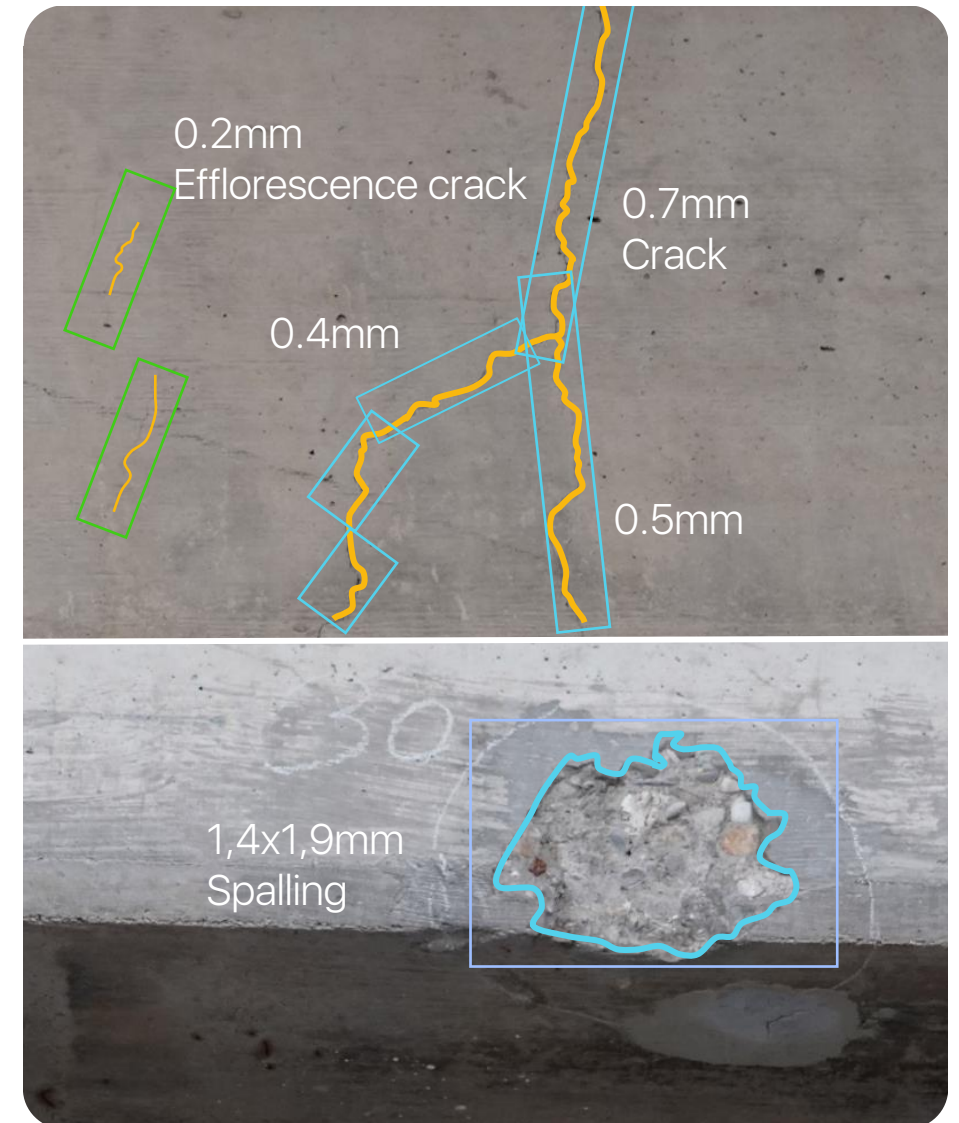
# AI-Damage Detection

Identifies damages\* on concrete surfaces...

Analyzes the nature, depth and severity of damages...

Locates damages on digital 3D model...

Creates digital inspection report, seen on our platform.



\*Fine cracks, efflorescence cracks, exposed rebars, corrosion, spalling



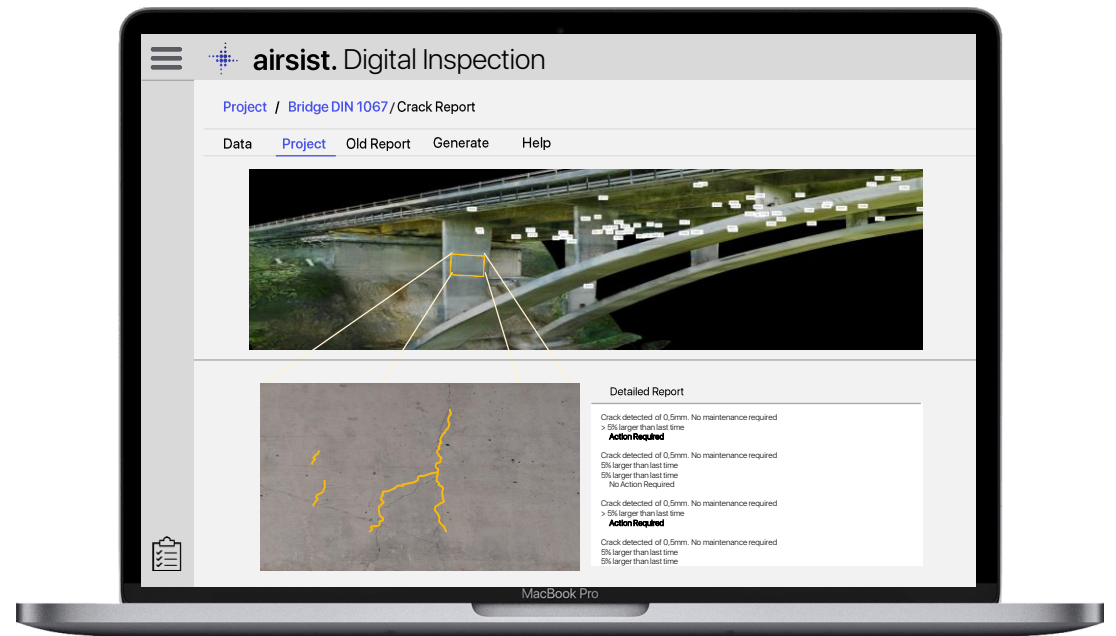
# Platform

Automatic Inspection Report

Dedicated Inspection Tools

Bridge Management Platform

Technical Support



# What Technology do we need?

Hardware



Software



Data Capture

Data Analysis



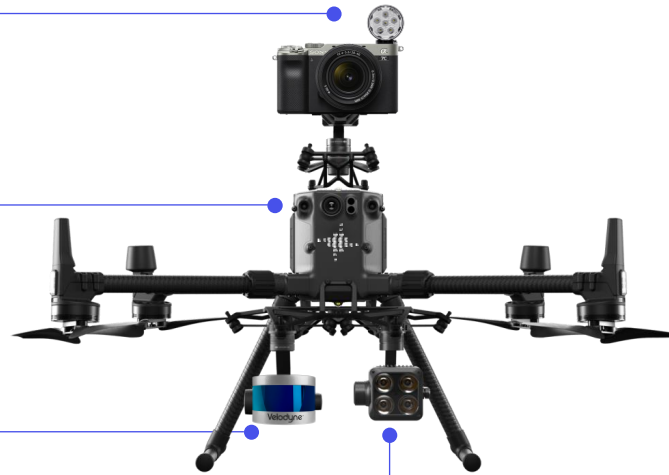
# Hardware

Camera

Obstacle Avoidance

LiDAR

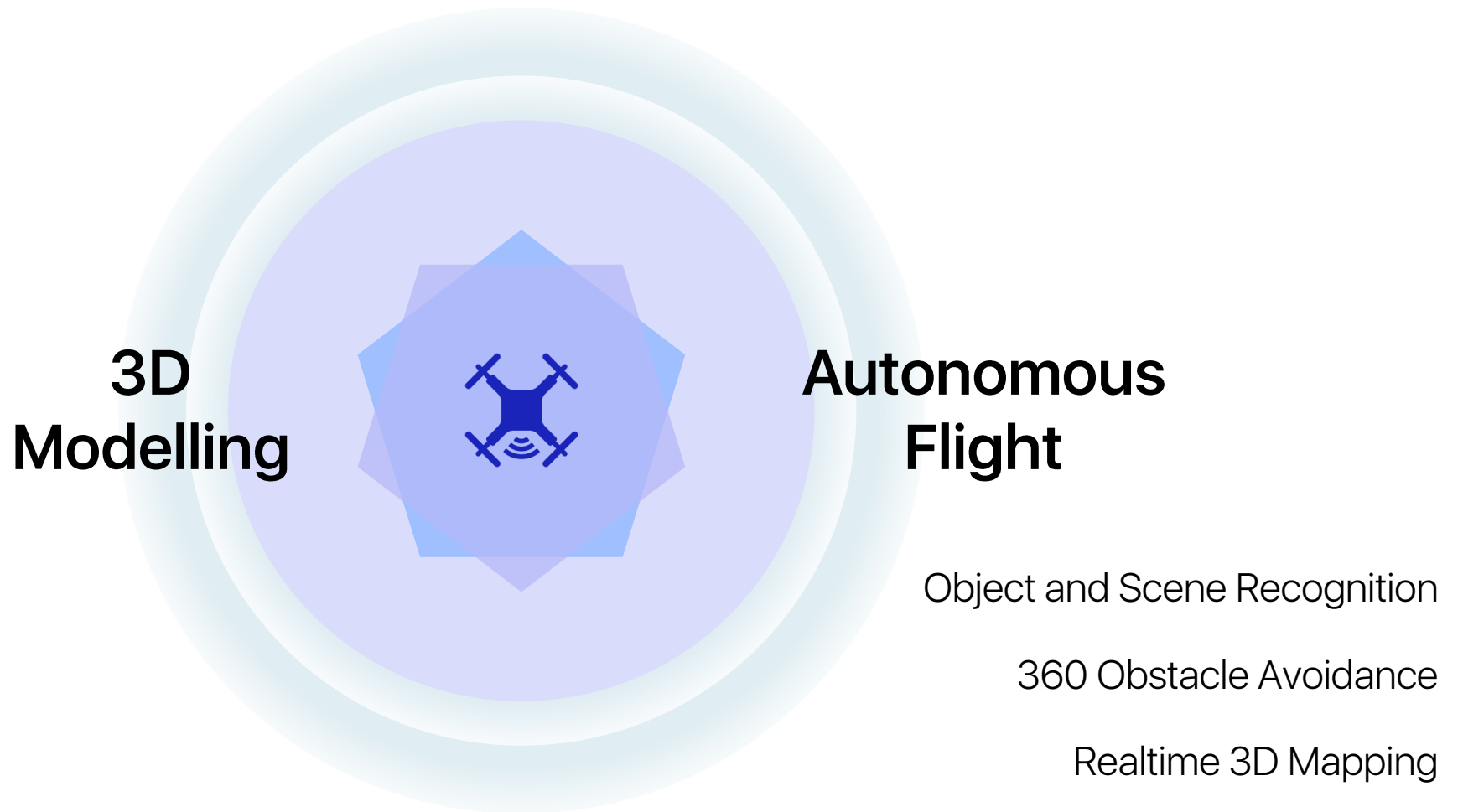
Thermal View



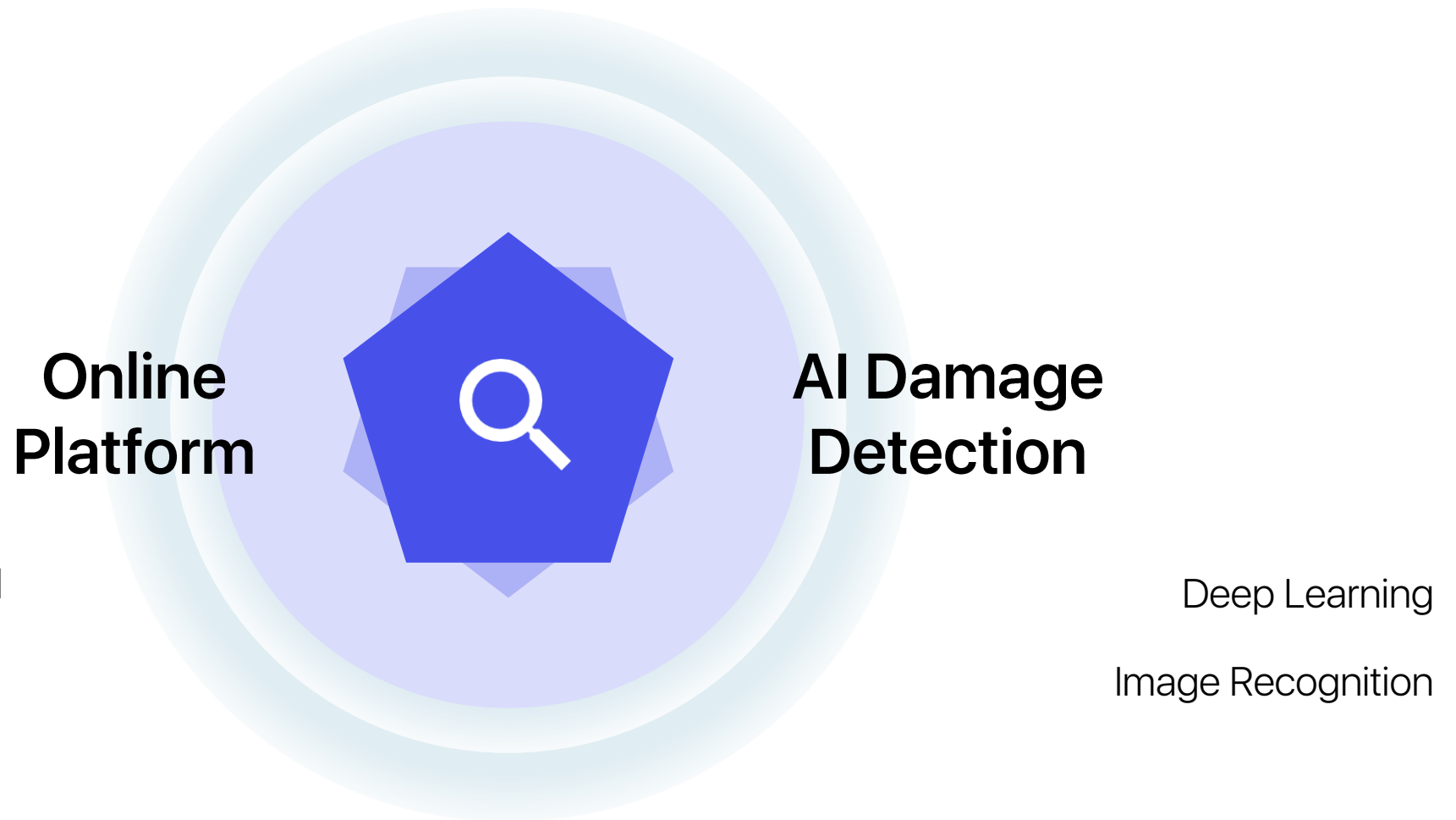
Drone specialized  
for bridge  
inspections



# Software Data Capture

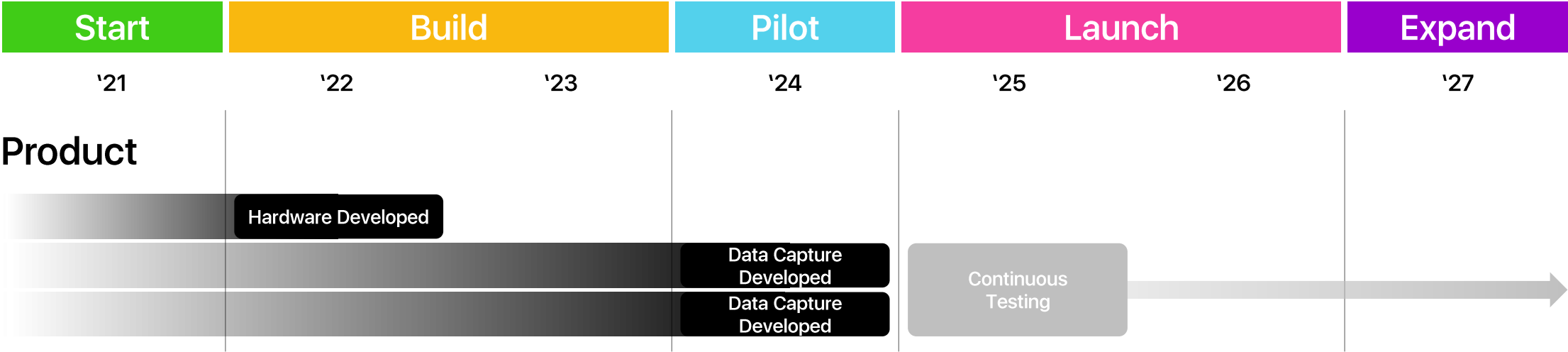


# Software Data Analysis

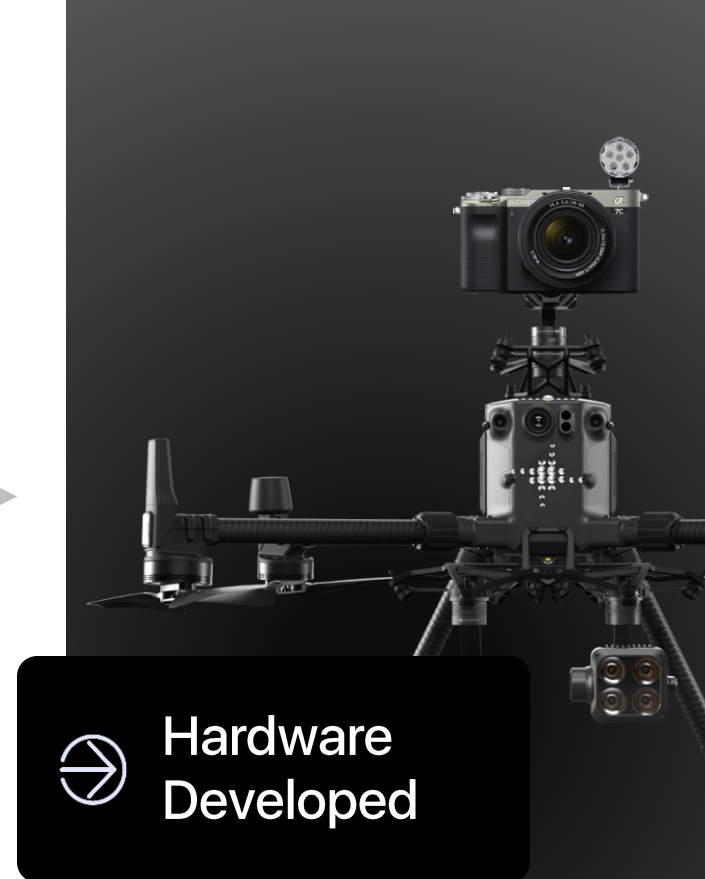
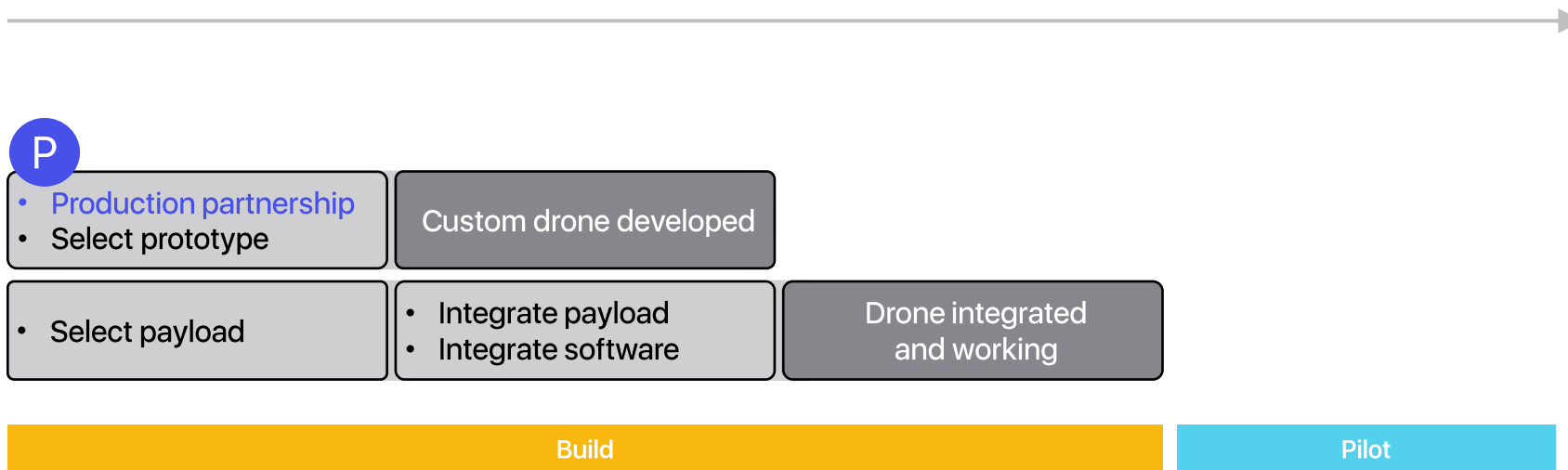


**We have a detailed  
R&D roadmap and the  
right partnerships.**





# Hardware



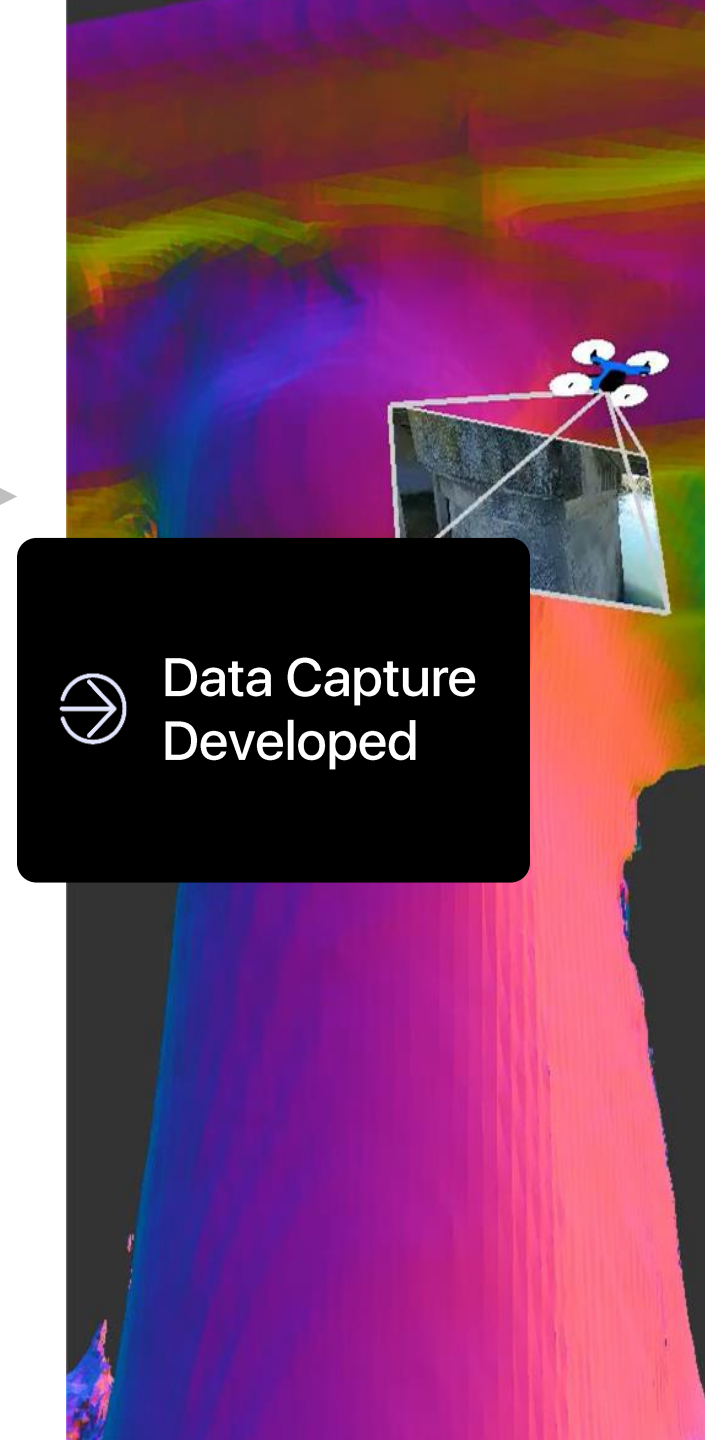
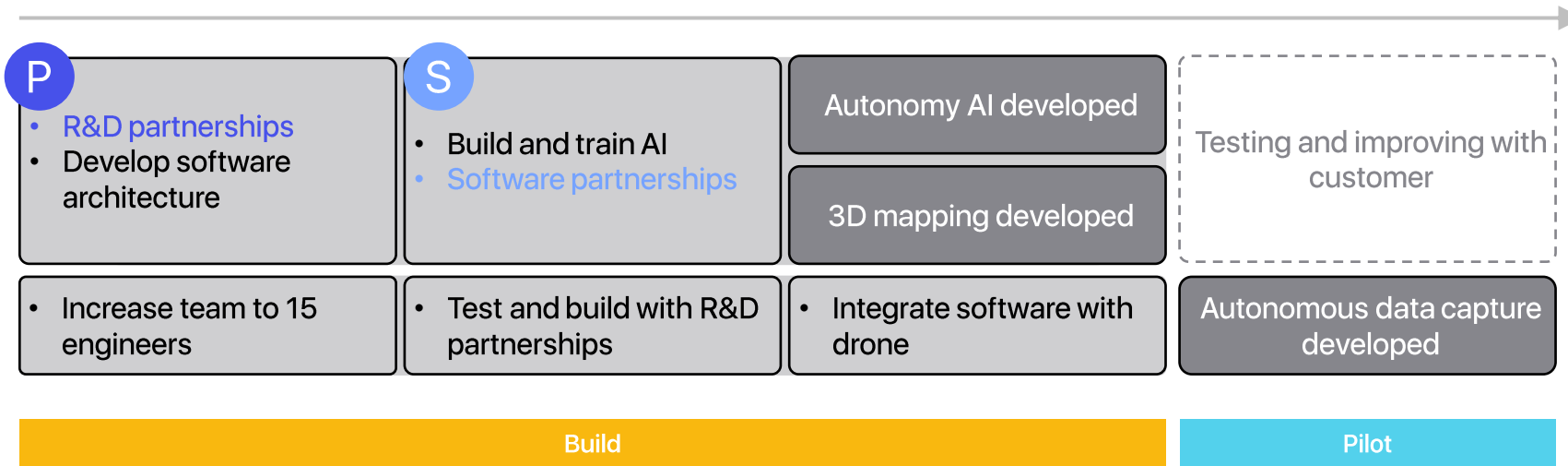
**P** **Production Partnership**



- Long-term production and innovation partnership
- Co-create proprietary drone with outstanding capabilities



# Data Capture



➔ Data Capture Developed



# Research Partnerships

P



## University of Potsdam

Expertise in deep learning and neuro-informatics.

Network of advisory board



## Robotics & Perception Group

Access to expertise in robotics and computer vision

Access to talent



## Real-life UAV laboratory

Testing and validating product

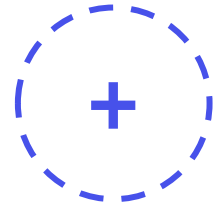
Access to Network



## TU Berlin

Research in machine learning and data analysis

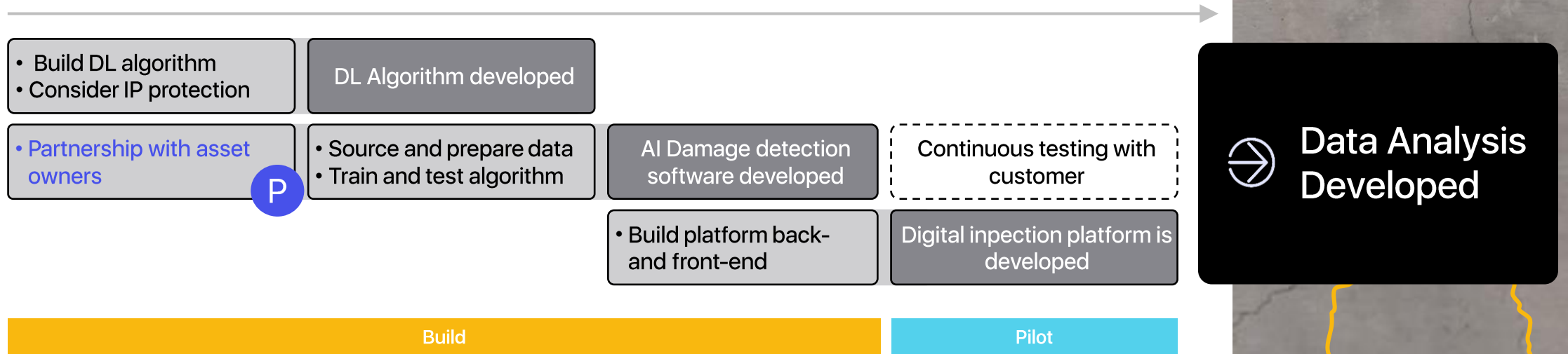
Network of advisory board



We foster long and close partnerships to solve our products biggest challenges



# Data Analysis



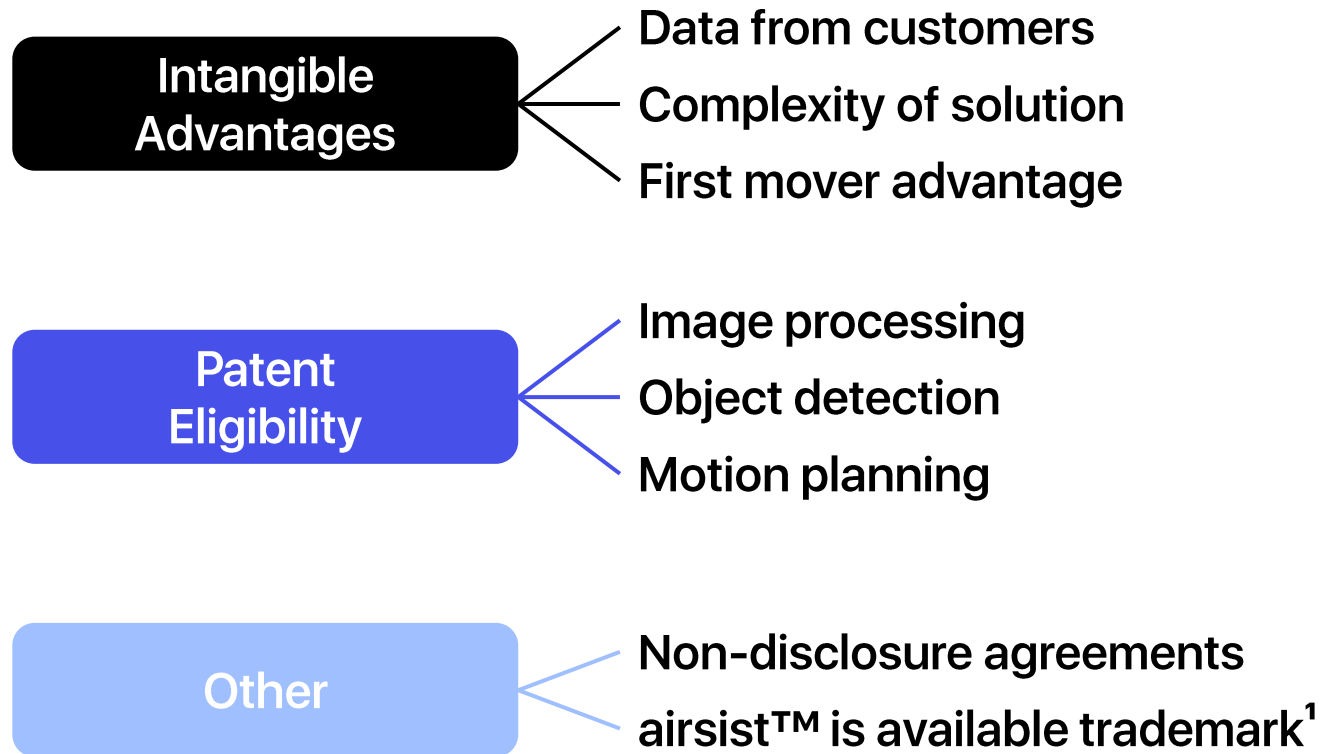
**P** Customer Partnerships



- Using inspection data from asset owners to train algorithm
- Testing and improving solution with asset owners



# Intellectual Property



Source: 1. Based public information on EUIPO (2021) and DPMA (2020).  
Note: Patent Eligibility is based on the WPI information on AI patents. Here algorithms that have a use case can be eligible for patents, which airsists technologies do.

