

# Optimising processes with Vision AI applications

CODE-3001

intel + Lenovo

D.  
Dansk Industri

TRIFORK.

# Your Colleagues Today



— **Nana Jensen**

SVP, Smart Enterprise, IoT & AI Solutions

Living in Aarhus, 3 kids

Enjoys soccer, family and travelling

+15 Years of experience in Digital & Technical business development with enterprise companies



— **Kenneth Erbs Borup**

Senior Machine Learning Scientist, IoT & AI Solutions

Living in Aarhus, 1 (soon 2) kids

Loves great coffee, and travelling

Ph.D. in machine learning and experience within machine learning implementations for large enterprises.



— **Jeppe Hesseldal Otten**

Director, Smart Enterprise, IoT & AI Solutions

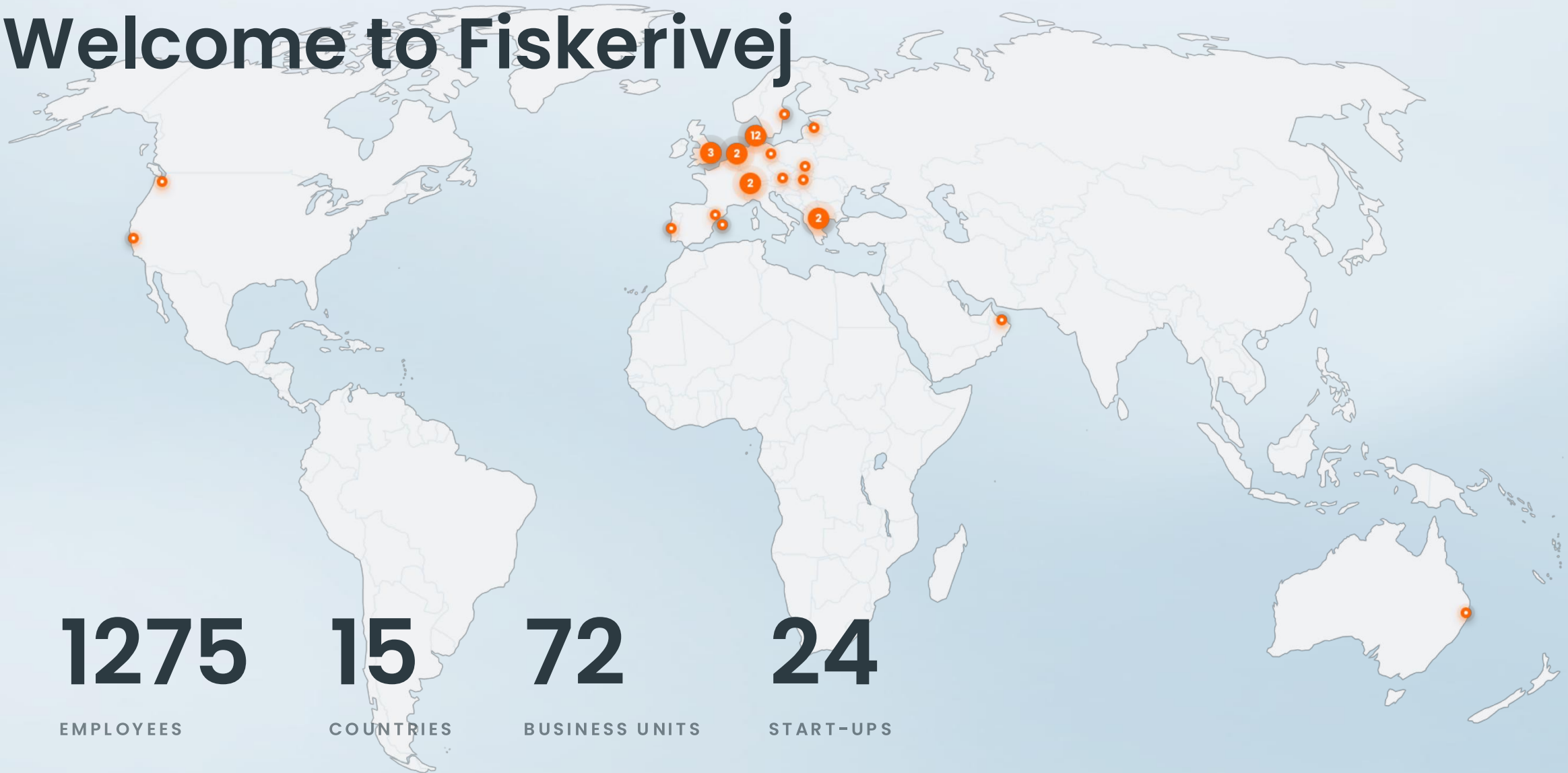
Living in Aarhus, 3 kids

Loves tennis, travel and crossfit.

+10 years experience within digital & technology engineering with industrial enterprises.

**TRIFORK.**

# Welcome to Fiskerivej



**1275**

EMPLOYEES

**15**

COUNTRIES

**72**

BUSINESS UNITS

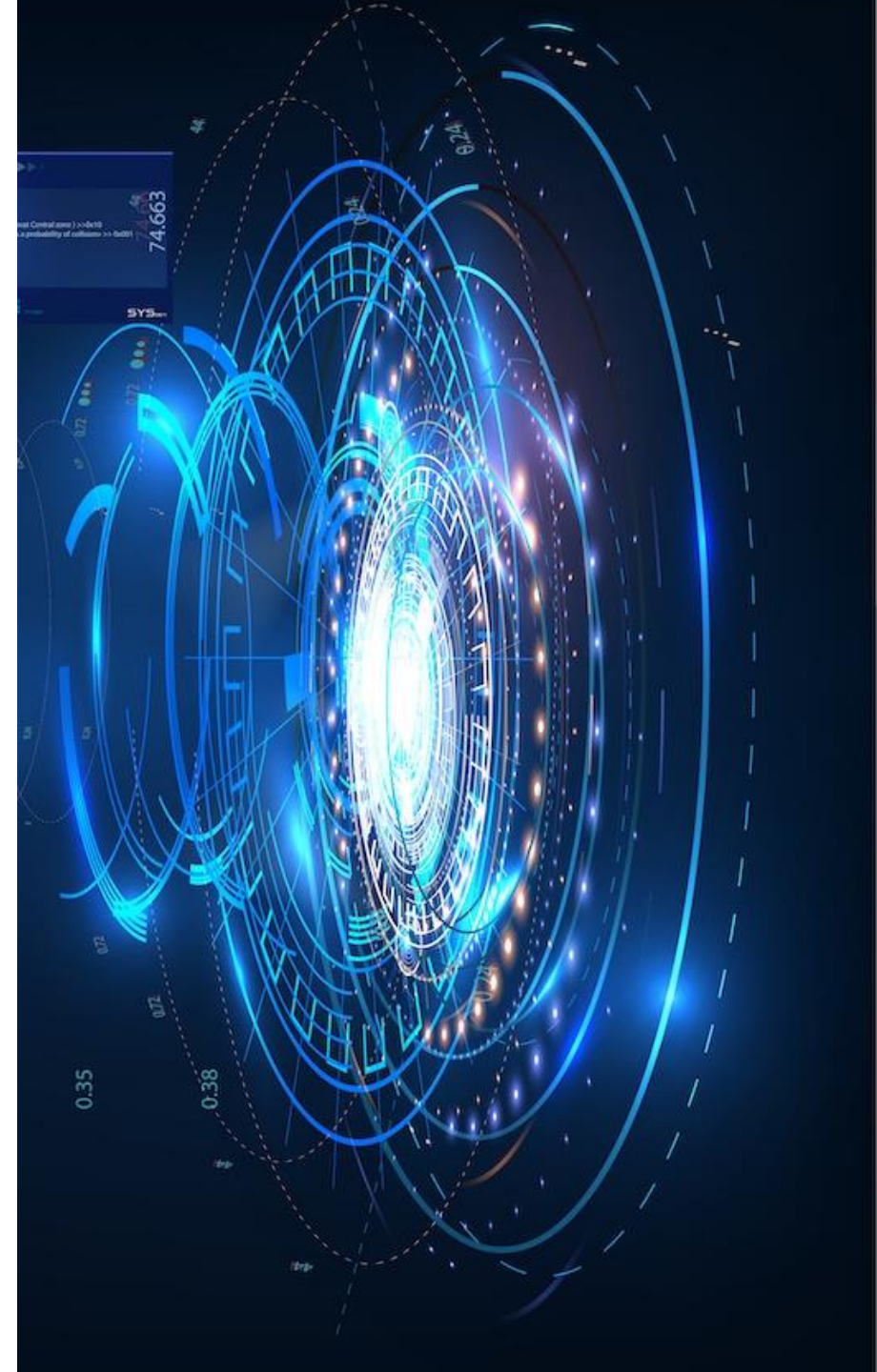
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START-UPS

# Why is Vision AI relevant now?

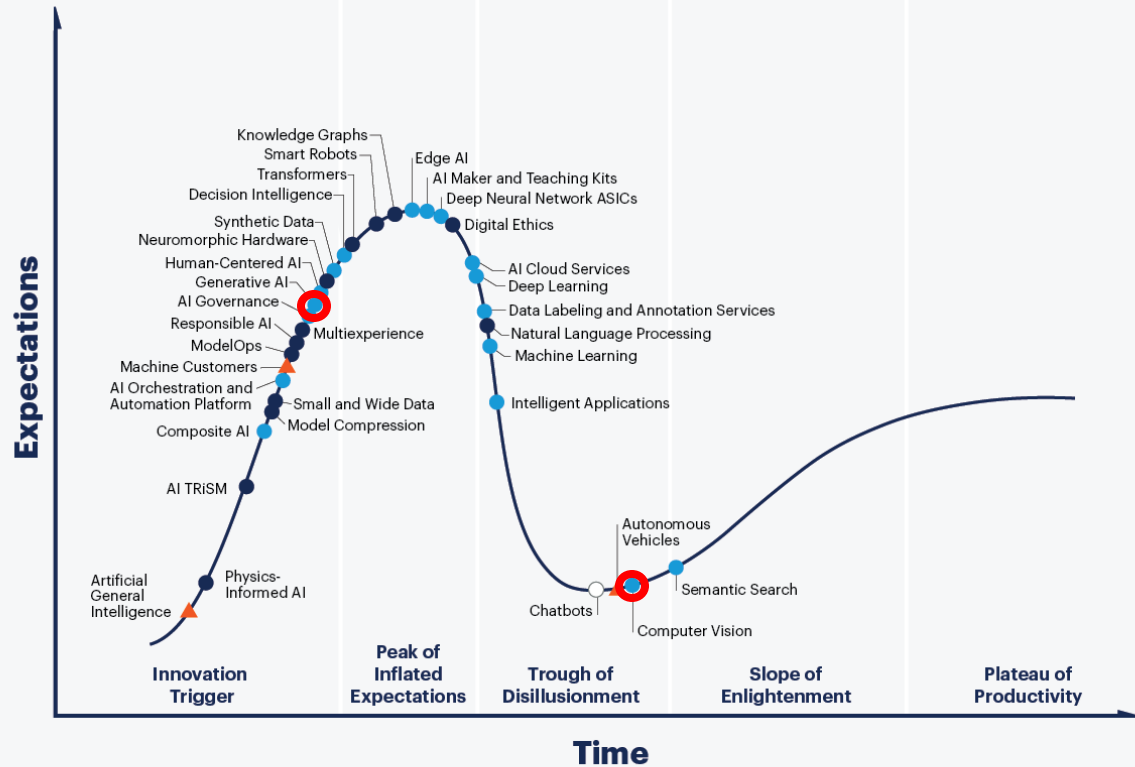
# Why is Vision AI relevant now?

- **Timing:** Vision AI is entering plateau of productivity.
- **Massive growth:** Vision AI is entering the mainstream due to advances in deep learning, computing power and availability of large data sets.
- **Applications:** Industries such as manufacturing, healthcare and safety systems are embracing Vision AI.



# Vision AI – Ready for Business Value

## Hype Cycle for Artificial Intelligence, 2021

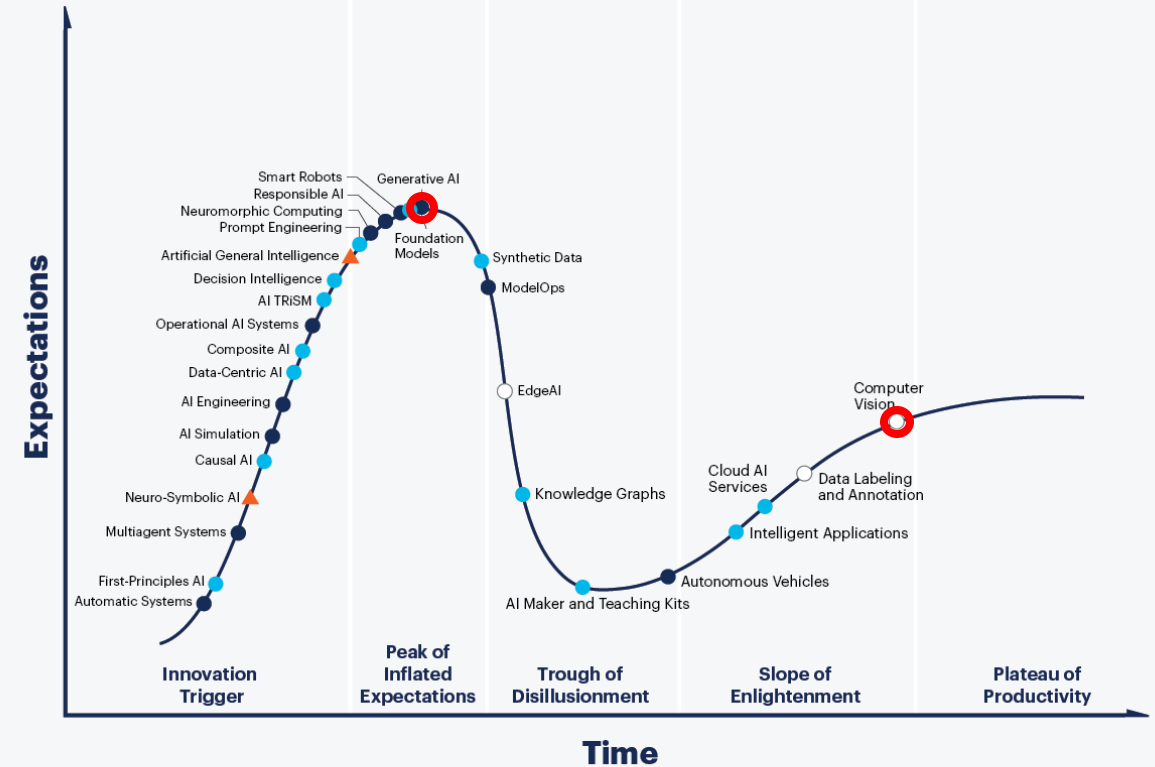


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## Hype Cycle for Artificial Intelligence, 2023

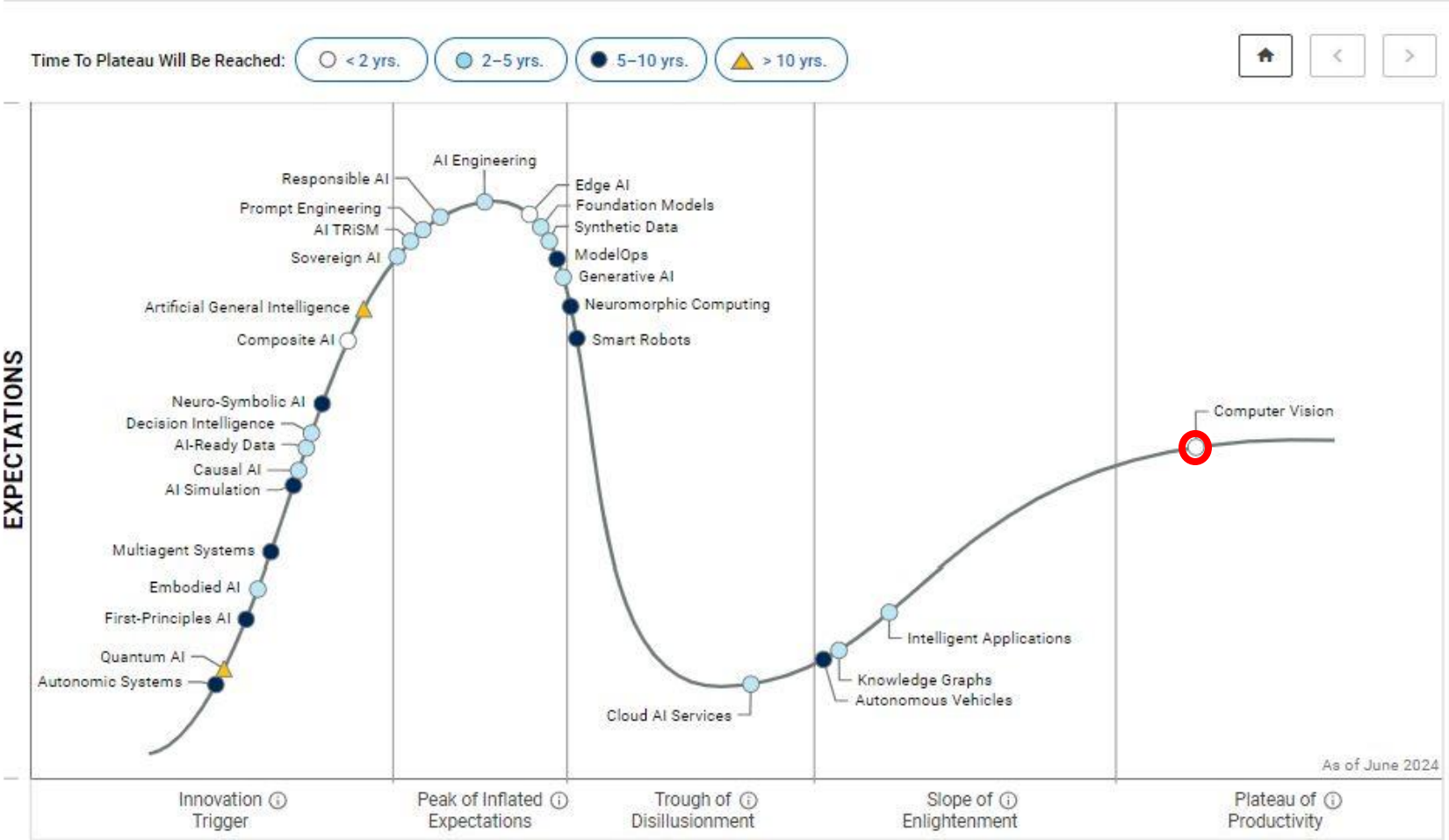


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# Vision AI – Ready for Business Value

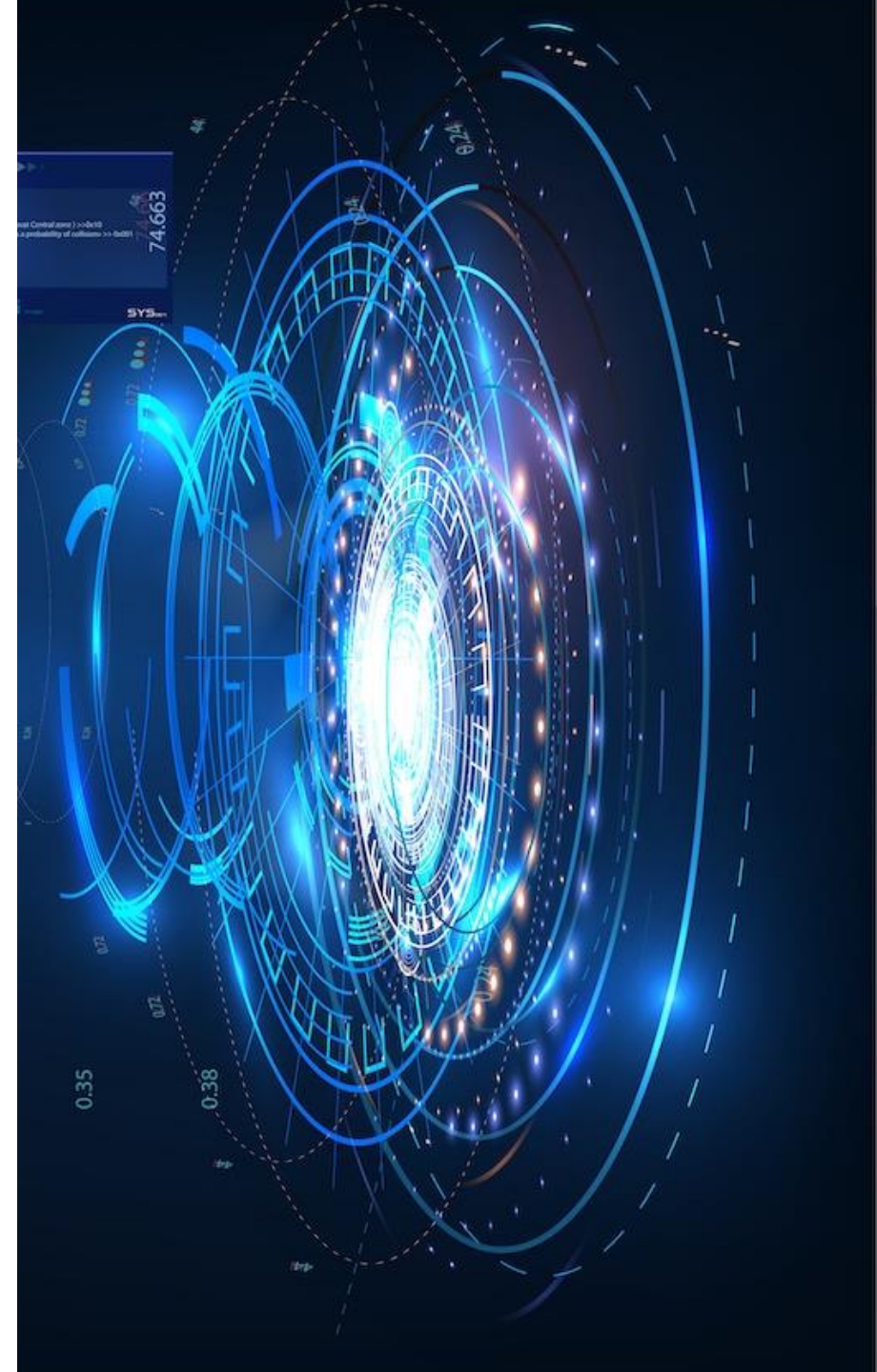


In **2024**, Gartner acknowledges that Vision AI is already at the “Plateau of Productivity”: the technology is mature, widely understood and has proven business benefits.

**Trifork** has been a pioneer in using **Vision AI** in the enterprise for long. Our experience in this technology makes us an ideal partner for building enterprise solutions supported by Vision AI. Solutions that have a high adoption rate, fulfil the business case and are scalable to fit the business needs of global firms.

# Key takeaways:

- Discover how Vision AI is creating value at leading companies.
- How to work with Vision AI projects.
- How to build in hardware in your production setup?
- Networking & dialogue.





# Program

- 09:00 – 09:10 **Welcome**, Jeppe Hesseldal Otten, Trifork
- 09:10 – 09:45 **State of the Union: AI in Danish Companies and What's Next**, Henrik Fabrin, Dansk Industri
- 09:45 – 10:15 **Creating Business Value with Industrial AI Applications**, Kenneth Borup, Trifork
- 10:15 – 10:45 **Networking Break**
- 10:45 – 11:15 **Empowering Companies with sustainable AI Edge Computing Solutions**, Christian Vinkel, Lenovo
- 11:15 – 11:45 **Vision AI at Danfoss**, Peter Hindsgaul Bjerre Jensen, Lead Data Scientist, PhD at Danfoss
- 11:45 – 12:30 **Networking lunch**
- 12:30 – 13:15 **Vision AI at Velux**, Sigurd Lazic Villumsen, Production Innovation Technology Manager, Velux
- 13:15 – **End of day**

# Creating Business Value

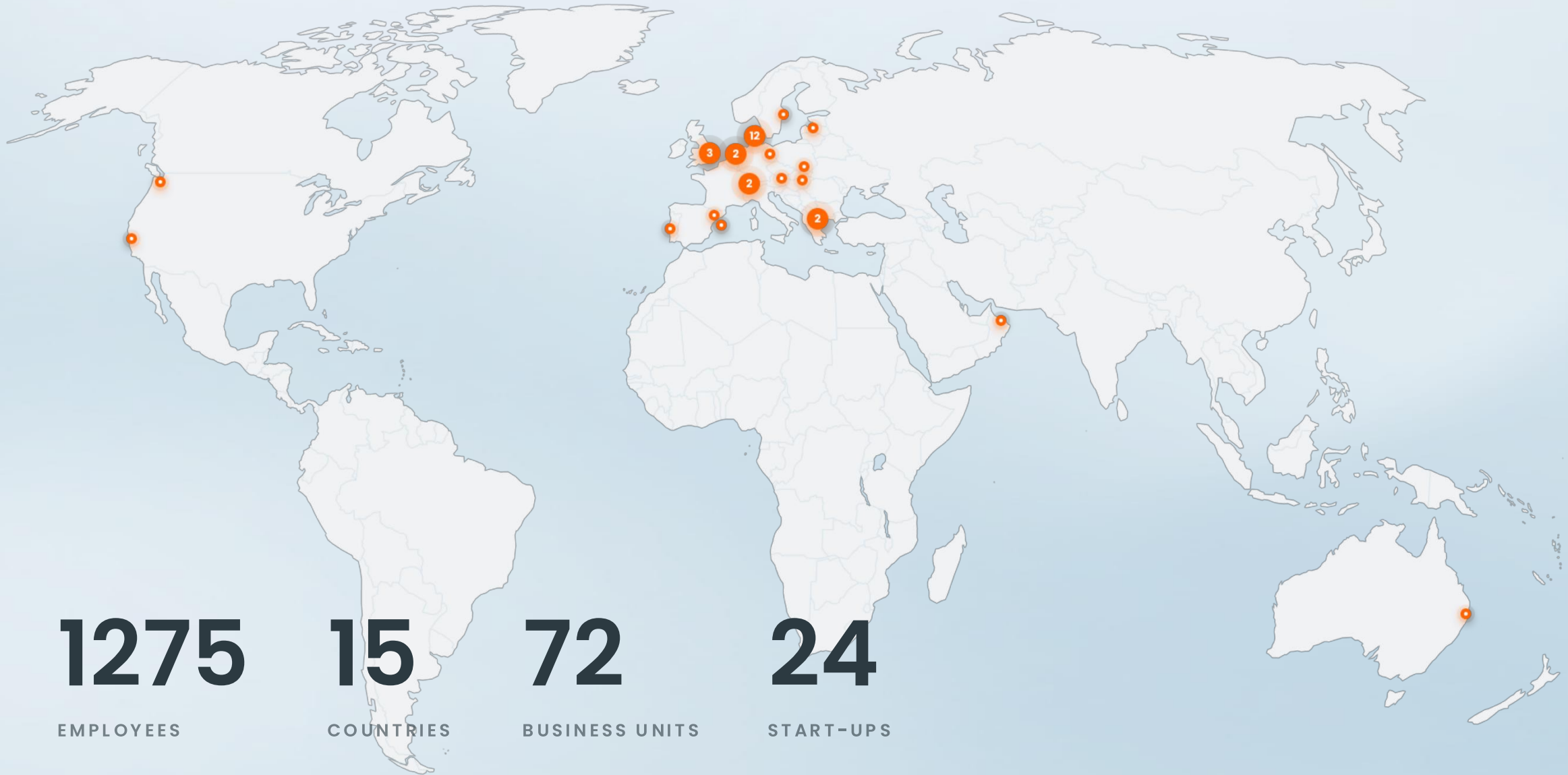
— with Industrial AI Applications

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START-UPS

# Trifork Group

## Trifork



FinTech



Digital Health



Smart Building



Smart Enterprise



Cyber Protection



Cloud Operations

## Trifork Labs

### Trifork's R&D

- Founding & financing of start-ups
- Minority investments
- Investment criteria:

New  
technology

Potential to  
become  
business drive

Potential to  
become  
strategic partner

# You know us already

and probably use some of our solutions...



# Partnerships



# AI Projects in Trifork

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# End to End AI Offerings

From Ideation to Innovation. From Innovation to Operations.



## Discovery

Help businesses realize potential use cases driven by AI or infused by AI technologies

- Exploratory workshop(s)
- Onsite Research
- Ride Alongs



## Development

Experience in development of end-to-end solutions, which use AI as a tool to achieve business outcomes.



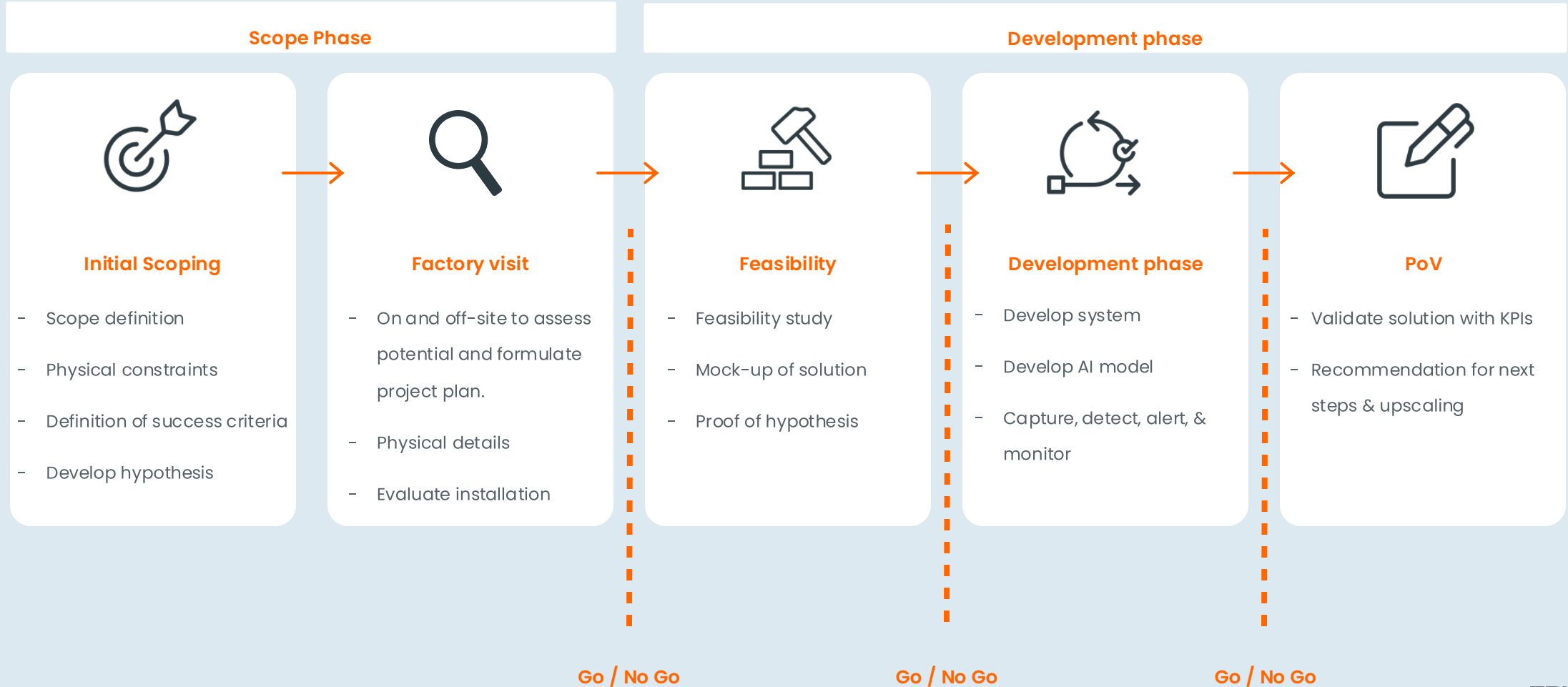
## Operations

Monitoring and DevOps for AI based solutions.

Support on scalability for edge computing solutions.



# Vision AI delivery model



# Why are AI projects different?

Classical hardware/software projects



AI projects



# Our approach



## Inspire

Customer needs are scoped and addressed in smaller pieces, to understand the objectives & metrics.



## Build

The development phase runs with sprints of 2 week duration ensuring high efficiency and agility with frequent testing and customer consultation.



## Run

The quick response comes from deploying, monitoring and improving the model.



Understanding Success

Feasibility Study

**Data curation**

- Find
- Capture
- Simulate

**Data Preparation**

- Clean
- Annotate
- Preprocess

**Model verification**

- Statistics
- Real world

**Model development**

- Experiment
- Tune
- Infrastructure

**Deploy**

- ci/CD
- Validation
- Hypercare

**Monitor**

- Operation
- Performance
- Success objectives

**Improve**

- Learn
- Optimize
- Innovate



# Selected Cases

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# Building custom AI/ML solutions

## Quality inspection

Fast and high performing quality inspection using computer vision to capture defects and measure geometric properties in production lines.

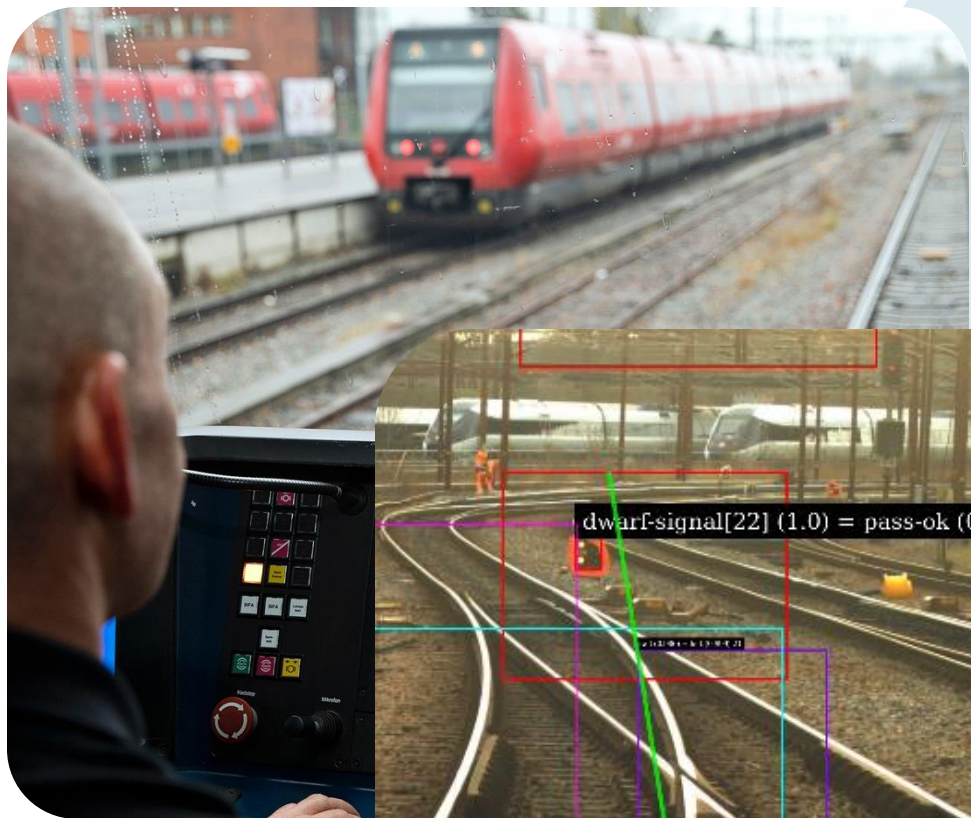
## Mobility safety and monitoring

Safety critical monitoring of transportation systems and biodiversity monitoring using computer vision.

## Smart support and reporting

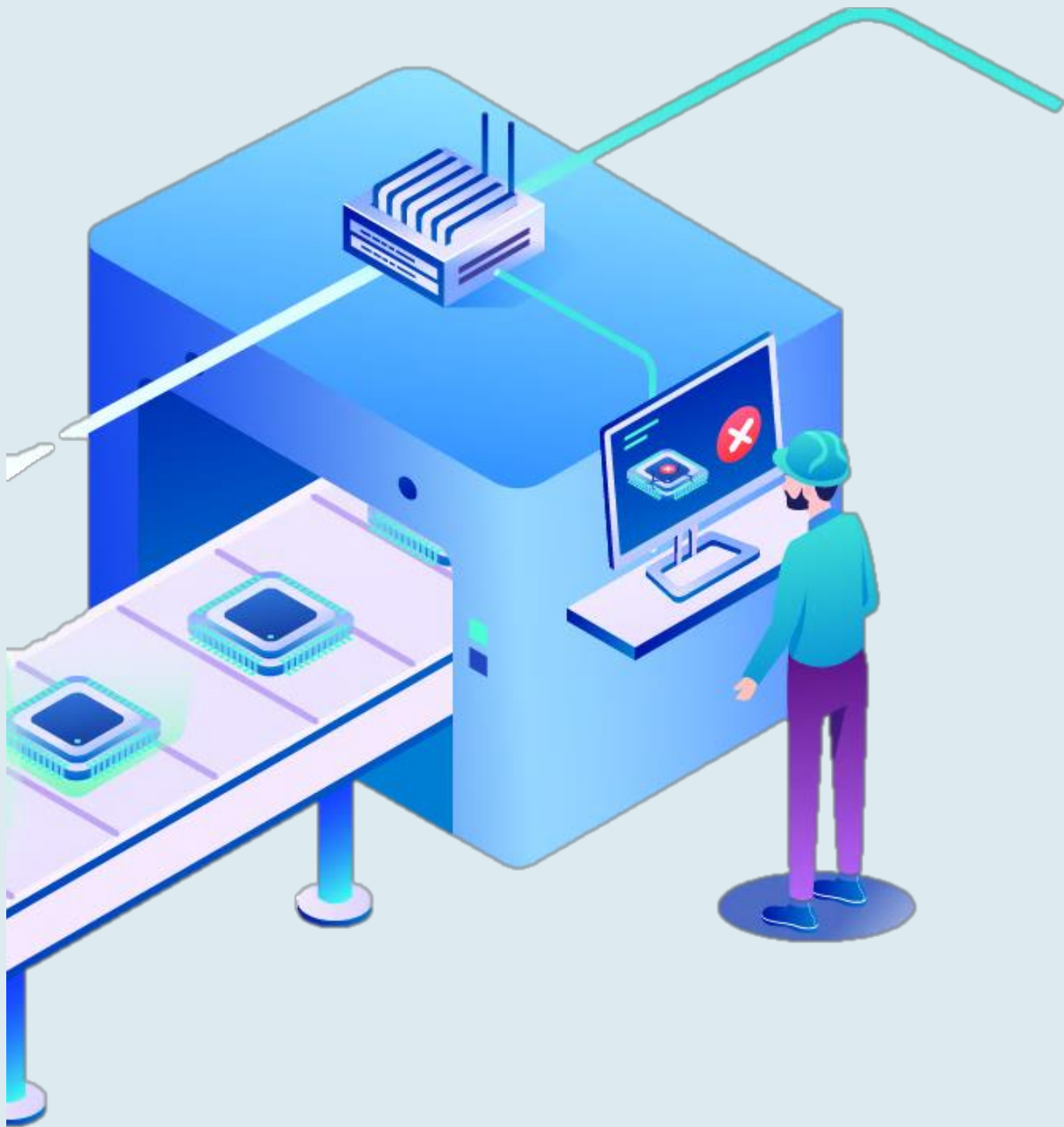
NLP, speech-to-text, and text-to-speech for (semi)-automated reporting and in-house customer support.





## DSB Signal Assistance

- Safety application for train operations
- Identifies signals to assist the train driver
- Reduces the risk of train collisions
- Using real-time video in daylight and low-light environments
- Edge processing for instant warnings



# Quality inspection in production

Identifying visual defects on different materials in production

- Achieving streamlined quality inspection with real-time sorting.
- Data Generation: Using Unity to create very large varied material datasets.
- Machine Learning training: Utilizing AWS SageMaker for sophisticated model training.
- Real-time sorting & classification: Implementing edge devices for immediate material categorization.
- 100 ms feedback for quick reaction and response
- 4-camera scanner

# AI asset management for corrosion detection

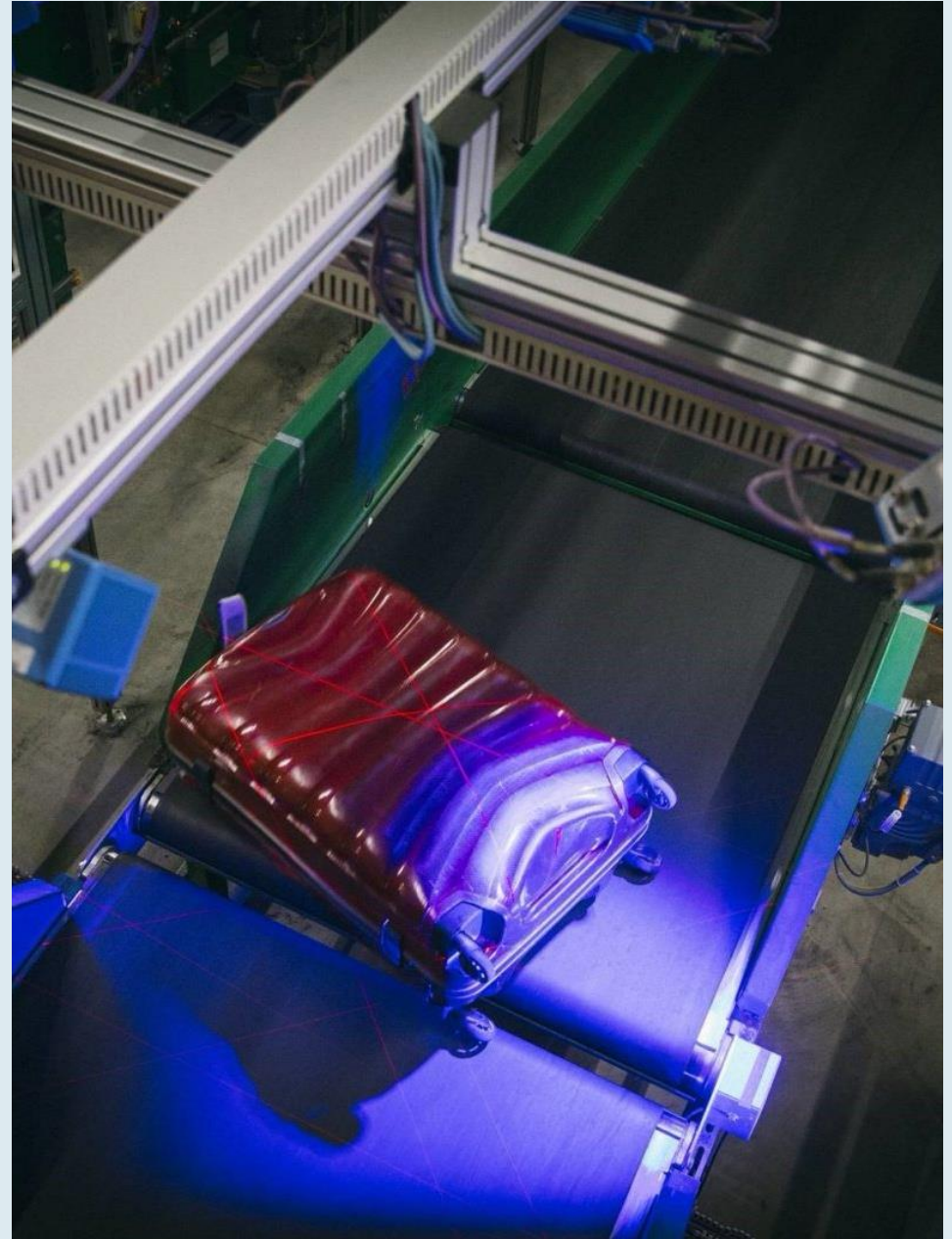
- Automatically generates a corrosion report
- Detects corrosion and visually marks areas in a 3D scan with exact coordinates
- Helps manage the corrosion – from inspection to repair & quality control
- Google Cloud ML service
- “Product Innovation of the Year 2020” at the German Renewable Awards.



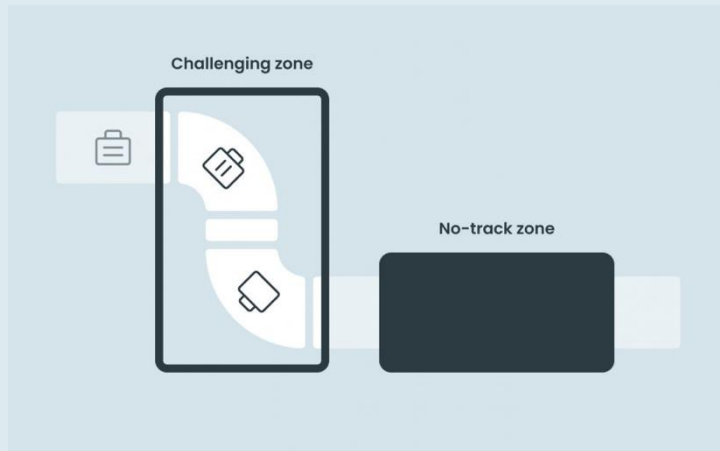


# Reducing baggage delays

- The main pain point for most flight passengers is arriving at their location...without their baggage.
- Baggage handling has to happen with high precision in order to avoid critical situations when passengers arrive at the final destination.

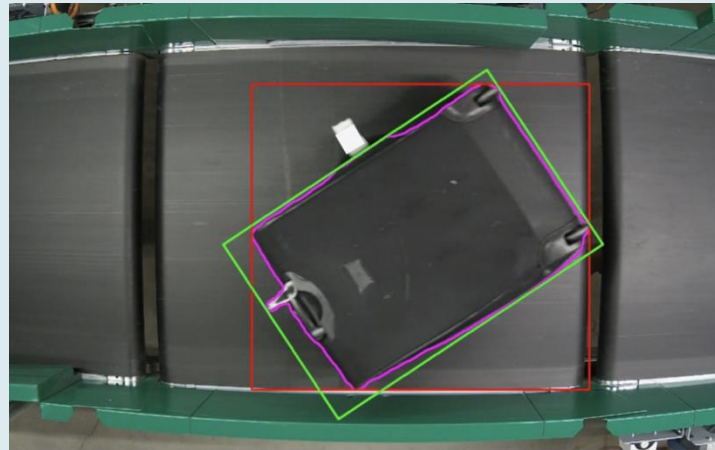


# Reducing baggage delays



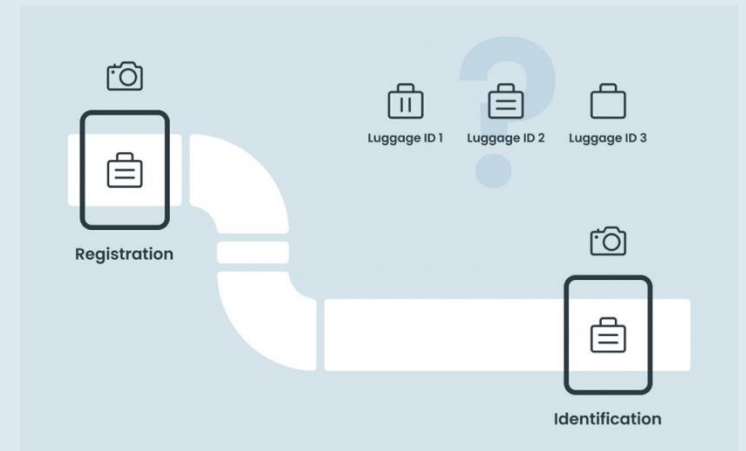
## Tracking in 'no-track' and challenging zones

Baggage gets "lost in tracking" due to various factors, and some areas of the baggage handling system just transport the baggage but do not track it.



## Tracking of bags between cameras

Bags are processed by 4 different ML models to provide sufficient features to track bags between cameras based only on visuals.



## Reidentification of bags using deep learning

Bags are reidentified at subsequent locations based on deep learning representations of the bags.

# Please reach out!

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