

A close-up photograph of a white industrial robotic arm with various joints and cables, set against a blurred blue background. The arm is positioned diagonally across the frame.

NL

**Holland
High Tech**

Global Challenges,
Smart Solutions

Let's talk about
**NEXT STEPS IN
COGNITIVE ROBOTICS**

NETWORKING EVENT 2026



TON PEIJNENBURG

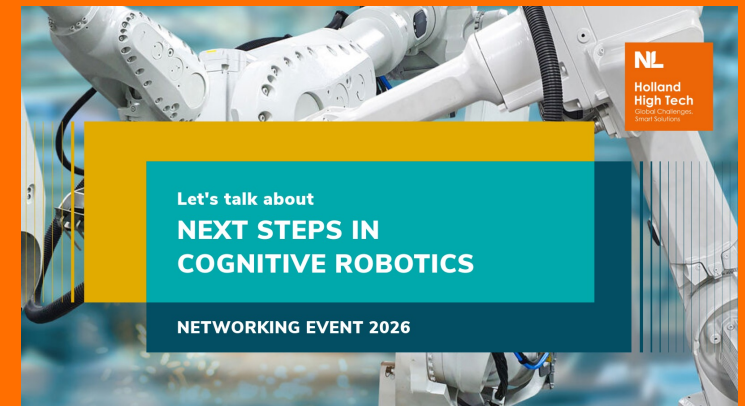
CTO | VDL ENABLING TECHNOLOGIES GROUP
PROGRAMME COUNCIL MEMBER | HOLLAND HIGH TECH

NL

Holland
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Global Challenges,
Smart Solutions

PROGRAMME

- **Cognitive Robotics** | Ton Peijnenburg, CTO, VDL Enabling Technologies Group & Programme Council member, Holland High Tech
- Albert Maas, CEO & Founder, Avular
- Erik Koehorst, Program Manager Public-Private Partnerships, Philips Drachten
- Gerard Ramaker, Business Development Manager, AWL
- **Q&A with the audience** – National Robotics Strategy moderated by Ronald van Es & Ton Peijnenburg
- **Round-up**





**Wij
stimuleren
innovatie**

NL

**Holland
High Tech**
Global Challenges.
Smart Solutions.

Holland High Tech

Holland High Tech is the Sector High Tech Systems and Materials (HTSM). We offer structural solutions to societal challenges and create economic growth. Teams of experts develop (key) enabling technologies focused on the National Technology Strategy. Our overall aim is to stimulate impact in international innovation via public-private partnerships.

INNOVATION DOMAINS

NL

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Smart Solutions



**CIRCULAR
ECONOMY**



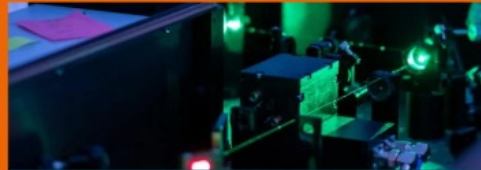
**ENERGY
MATERIALS**



**HIGHTECH
SECURITY**



**IMAGING
TECHNOLOGIES**



**MECHATRONICS
& OPTOMECHANICS**



**OPTICAL SYSTEMS
& INTEGRATED PHOTONICS**



**QUANTUM
TECHNOLOGIES**



**SEMICONDUCTOR
TECHNOLOGIES**



**SMART
INDUSTRY**



**SUSTAINABLE
MOBILITY**



**SYSTEMS
ENGINEERING**

Sense of urgency

- High cost
- Lagging automation
- Flexibility required
- Flexibility from cognitive robots



Rapport

Zonder Robotisering verdwijnt de Nederlandse Maakindustrie: Urgente actie is noodzakelijk

Auteurs

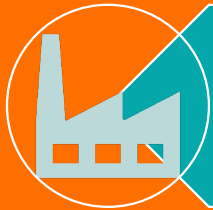
Tessa Bruijne, Corine Bonte & Claire Stolwijk

TNO 2026 R10389

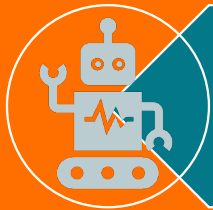
april 2026

TNOvector
Centre for Societal Innovation and Strategy

Create value with cognitive robots



Use robots



Build robots & components



Sell automation using robots

**Holland
High Tech**
Global Challenges,
Smart Solutions

Control points, any?



Sense

- Camera
- Lidar
- Audio
- Tactile

- Edge AI

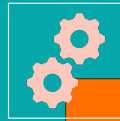


Think

- CPU
- GPU
- NPU
- Alt. compute

- AI training
- AI inference

- Training data



Act

- Motor
- Gear
- Controller

- Alt. motors

- Hands



Interact

- Intra-robot
- Inter-robot
- Serial bus
- Wireless
- NFC

- Safety



Power

- Batteries
- Energy management

- Structure

System integration

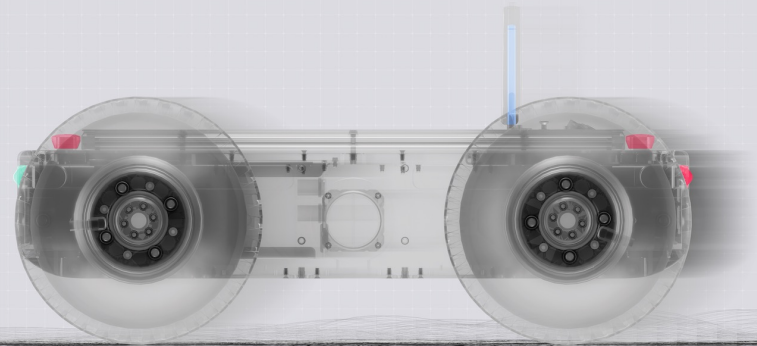
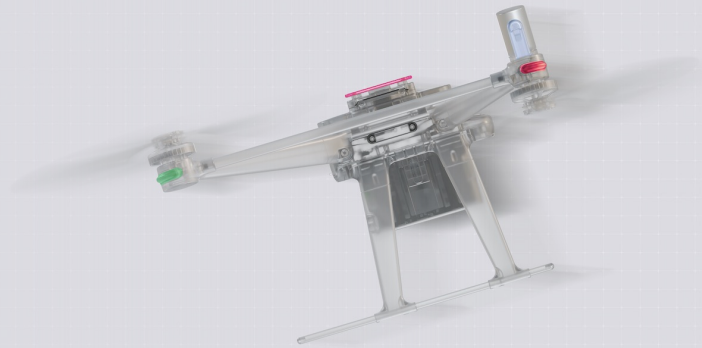
Data

Call for action

- Cognitive robots are highly multidisciplinary and interdisciplinary
- There are not many control points for NL and EU
- Robotics is moving fast and we must catch up
- We must act fast, decisively and collaboratively – our pitfall is fragmentation

“If you want to go fast, go alone. If you want to go far, go together.”

Building a European
leader in autonomous
mobile robotics



Physical Ai
12-05-2026

Avular has the aspiration to create a true fresh global OEM with everlasting brand from European soil

1

Our Mission:

Become one of the global leaders in mobile robotics

2

How:

With visually appealing, high-quality tech we create Avular robots that will shape our world's augmented workforce

3

Our Aspiration:

Become the world's most embraced brand in mobile robotics, with millions of Avular robots helping societies throughout the world



Welcome to Avular





Our philosophy, use cases, and strategy

Avular has built the foundations to serve this rapidly increasing market and become a leading global mobile robotics champion

Confidential

Key trends

Opportunity

Vertical
Integration

Fully
European

Labour shortages



geographical tensions



unreliable autonomy



Avular's philosophy:
Cerebra CyberMind
(Physical AI)



A European
sovereign
high quality
mobile robotic
company

Avular © 2026

A family of mobile robotic systems > With at the core our proprietary agentic AI and autonomy algorithms

Our autonomy hard- & (AI)
software blocks at the core >
Cerebra Cybermind

Integration of our autonomy core
(hard & software) in other
machines



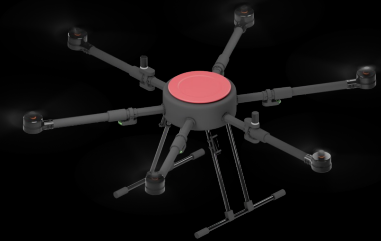
Our Origin, the foundation
for new driving applications



Our Vertex, a fully EU-owned
autonomous drone platform



Our Apex, the first step
towards our flying
family-of-systems





Our Gorgeous Tech > Avular's solutions for a safe and secure cross-vertical augmented workforce



Tailored Robots

Taylor-made mobile robotic solutions



Robots for Research

Modular robotic platforms



Drones for Our Security

A family of drone systems

Avular brings together unique capabilities to become a top global player in robotics

1

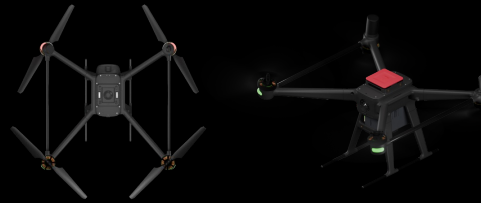
Leading autonomy



Cerebra CyberMind: World-class, unique knowledge base & Embodied AI stack that works on the robot and drone itself (on-the-edge)

2

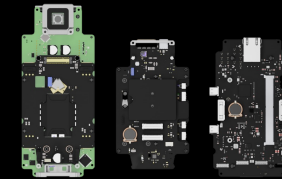
Flawless integration



A system that has been designed to be fully vertically integrated, with a strong focus on flawless UI / UX

3

Reusable components



Components that can be re-used in own products and custom solutions

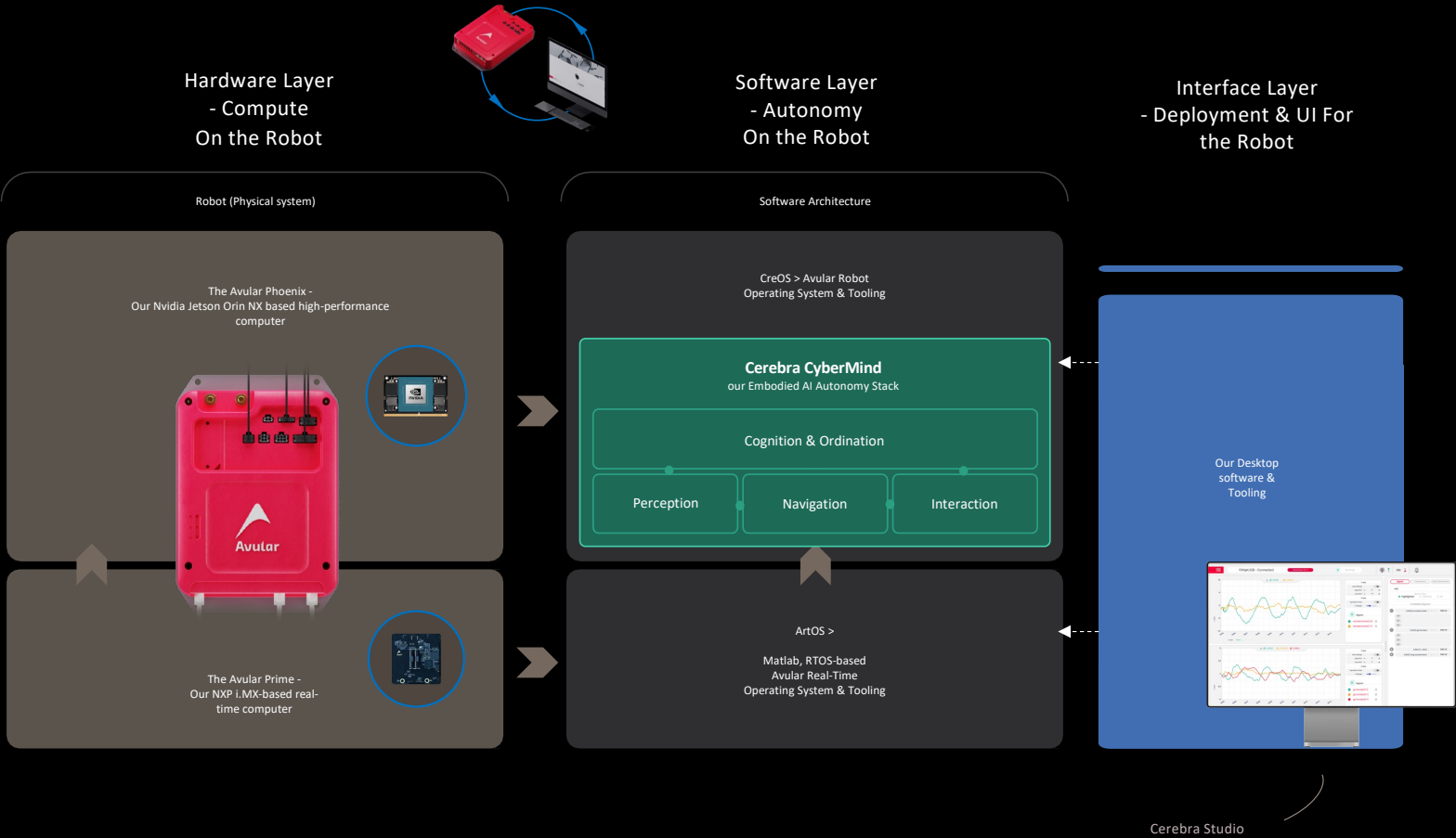


The Avular Autonomy Stack > New ways towards robust real-world autonomy

Confidential



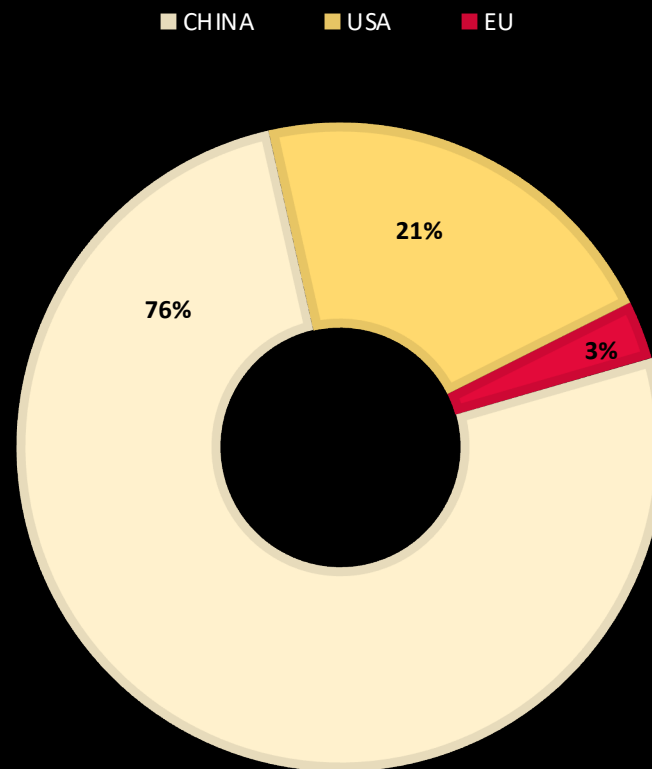
Avular © 2026





Challenges ahead





































































































EU > Investment into autonomous robotic systems in the past 5 Years



→ Sources

1. <https://www.startus-insights.com/innovators-guide/robotics-industry-report/>
2. <https://www.therobotreport.com/robotics-investments-top-3-7b-in-september-2024/>
3. <https://ifr.org/ifr-press-releases/news/robotics-research-government-programs-asia-europe-and-america-2025>

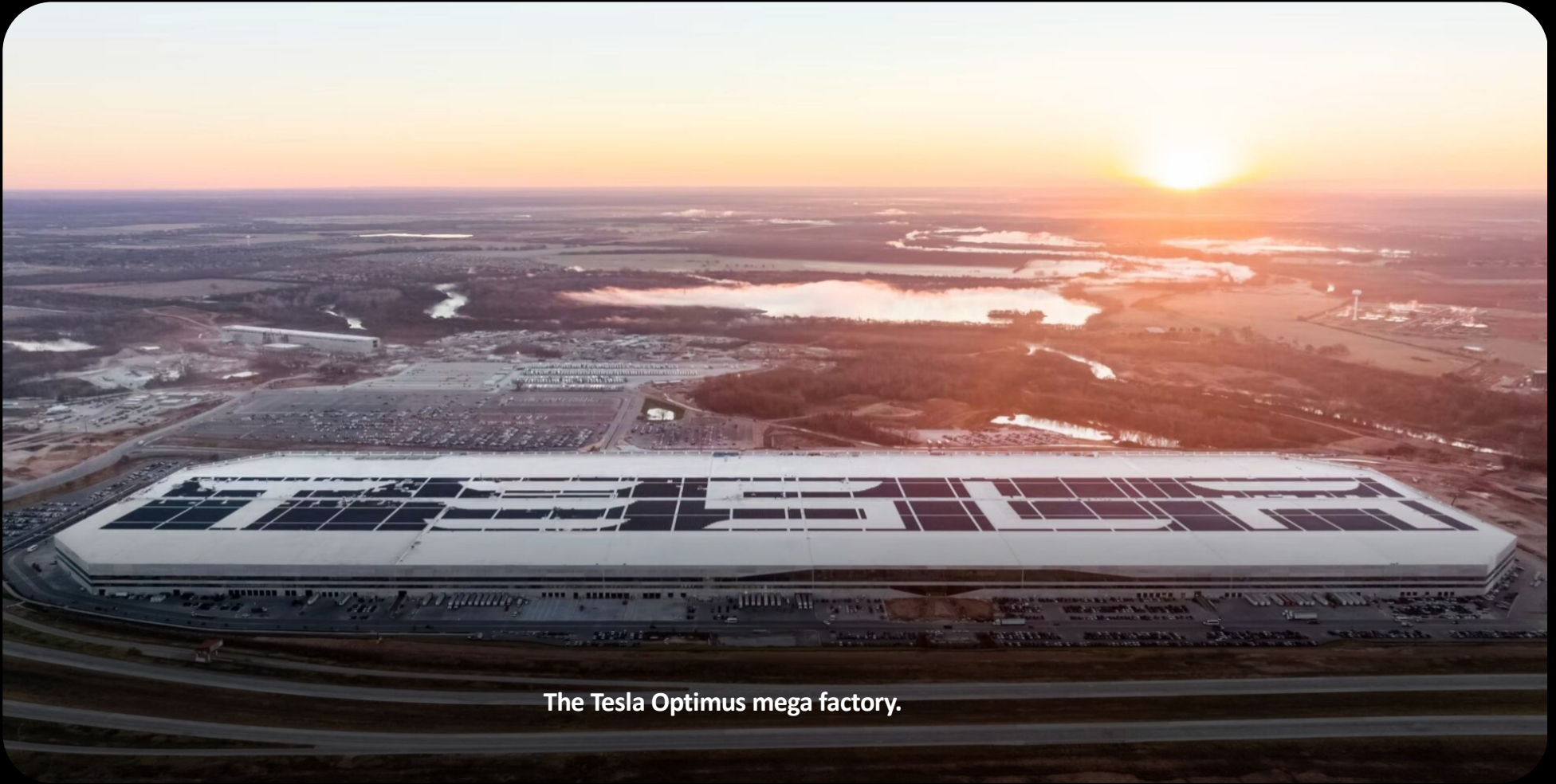
EU > Investment into autonomous robotic systems in the past 5 Years

| | | | | | | | | | | |
|---------------------|--|--|--|---|--|--|--|--|--|--|
| Beijing |   |   |   |   |   |   |   |   |   |   |
| Shanghai |   |   |   |   |   |   |   |   |   |   |
| Shenzhen |   |   |   |   |   |   |   |   |   |   |
| Hangzhou (Zhejiang) |   |   |   |   |   |   |   |   |   |   |
| Others |   |   |   |   |   |   |   |   |   |   |
| | Suzhou | Suzhou | Suzhou | Nanjing | Guangzhou | Guangzhou | Foshan | Hefei | Qingdao | Jinan |

Humanoid Robotics Companies in China

Robotuo.com

EU > Investment into autonomous robotic systems in the past 5 Years



The Tesla Optimus mega factory.

Size of the market:
€15–23 trillion annual
in physical labor costs

→ Sources

1. ourworldindata.org
2. www.conference-board.org
3. www.adpresearch.com
4. www.weforum.org



Everything in place to scale > Our talent, organization & facilities are ready

Our world-class team



Our A-class office



Our robotics testing lab



A-location in the smartest region of the world

The birth ground of Philips & ASML and up until now already 9 - time robotic world champion!

6500m2 of floorspace

Welcome to Avular

Largest indoor drone cage in Europe

Outdoor and indoor robot testing space



TU/e

DAE
Design Academy
Eindhoven

ASML

BRAINPORT
EINDHOVEN



Cognitive production lines

Erik Koehorst
Philips Drachten
June 17, 2026





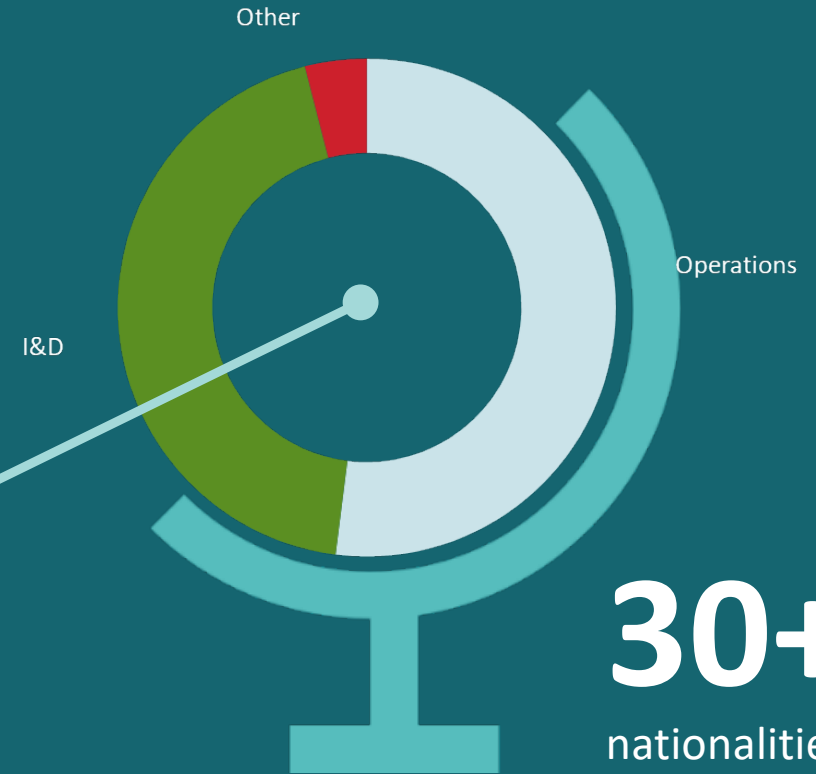
Philips Drachten

Since 1950

280.000m²



1500
employees



30+
nationalities



Drachten,
the Netherlands





PMC

Physics,
Materials &
Chemistry

Operations

Male Grooming
Oral Healthcare
Logistics Centre

R&D

Grooming &
Beauty
Oral Healthcare





Mass production is all about
Process Predictability



Output

Quality

Efficiency



Mass production is all about Process Predictability

Introduction of the conveyor belt

Standardisation of tasks

Optimization of material flow

Implementation of templates and tooling

Measurement of product properties

Modular products aimed at re-use

Line balancing and takt time optimisation



Mass production is all about
Process Predictability



The same applies for robots

Most people have indirect roles

Robots are used for the majority of the primary production tasks

- Production planning
- Replenishment of parts
- Troubleshooting
- Maintenance & repair
- Engineering
- People management

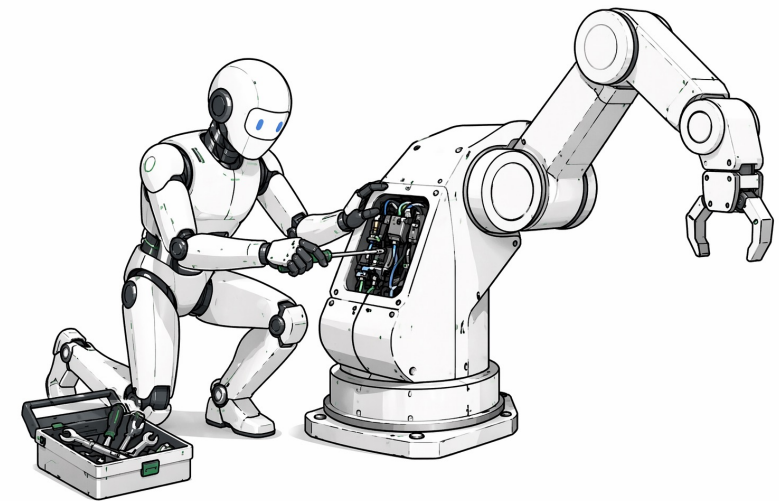
A woman with blonde hair tied back, wearing a dark blue t-shirt and a necklace, is focused on her work. She has extensive colorful tattoos on her left arm and is wearing a gold bracelet. She is working on a piece of machinery in a factory or industrial setting, illuminated by blue light. The background shows various mechanical components and cables.

Most people have indirect roles

These tasks are well described
but complex and require high
context awareness

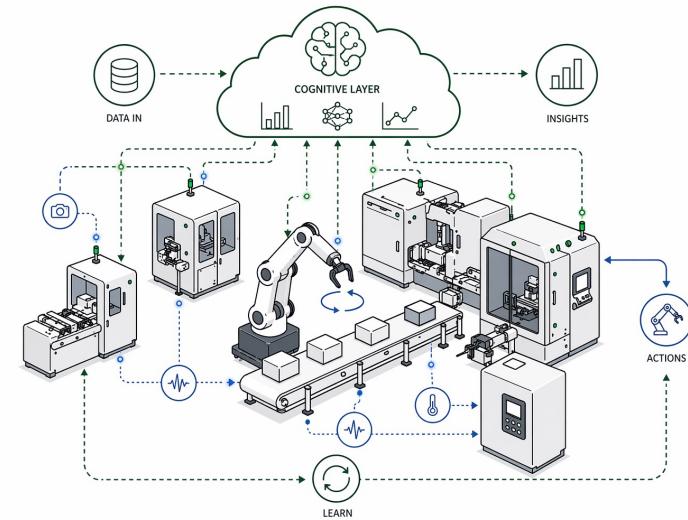
Some help is much appreciated!

What would the evolution look like?



Or different?

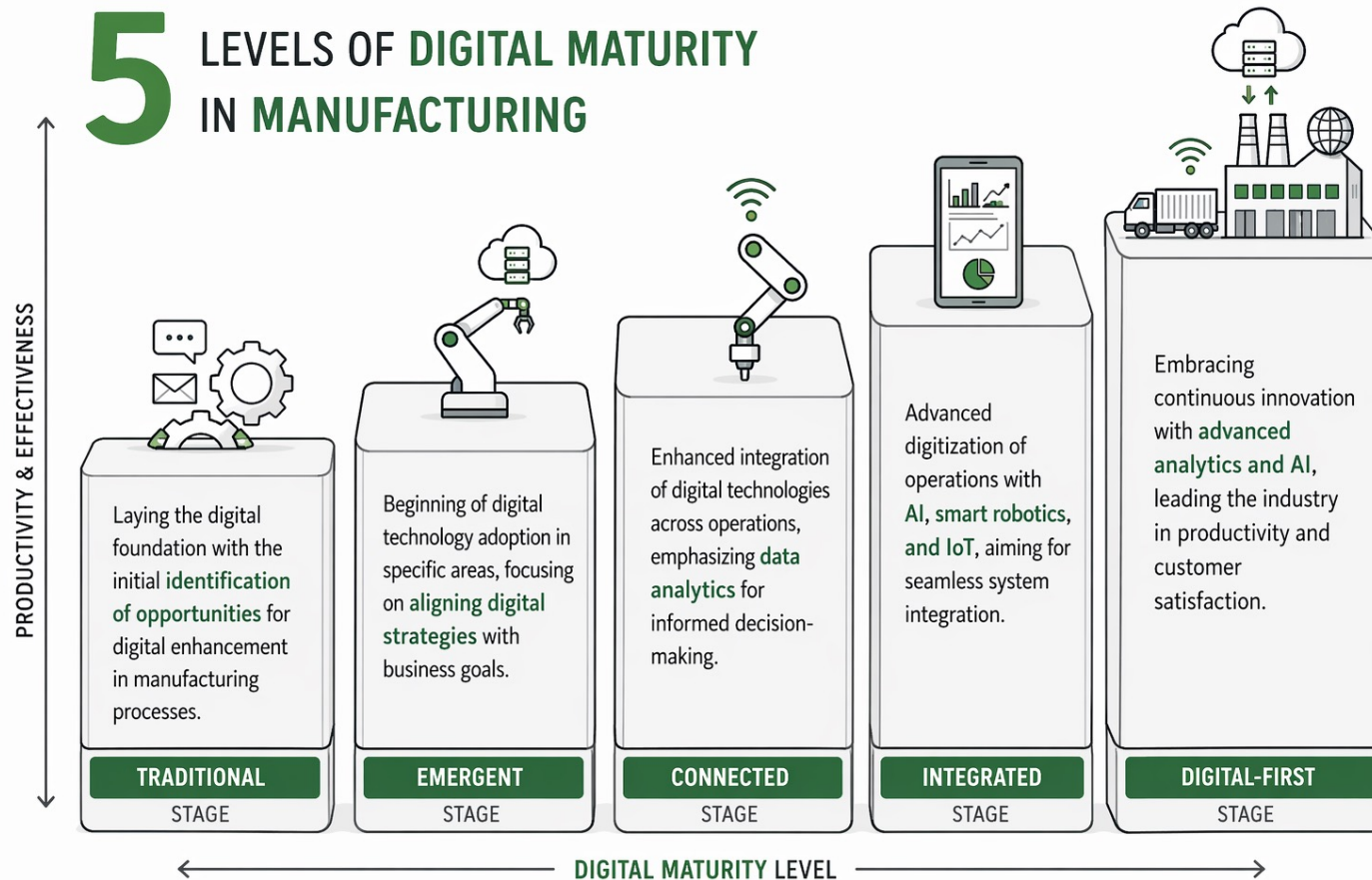
What would the evolution look like?





Digital Maturity of Philips Drachten

5 LEVELS OF DIGITAL MATURITY IN MANUFACTURING



Our journey started in the '80s with **connecting our machines** to our home-made MES

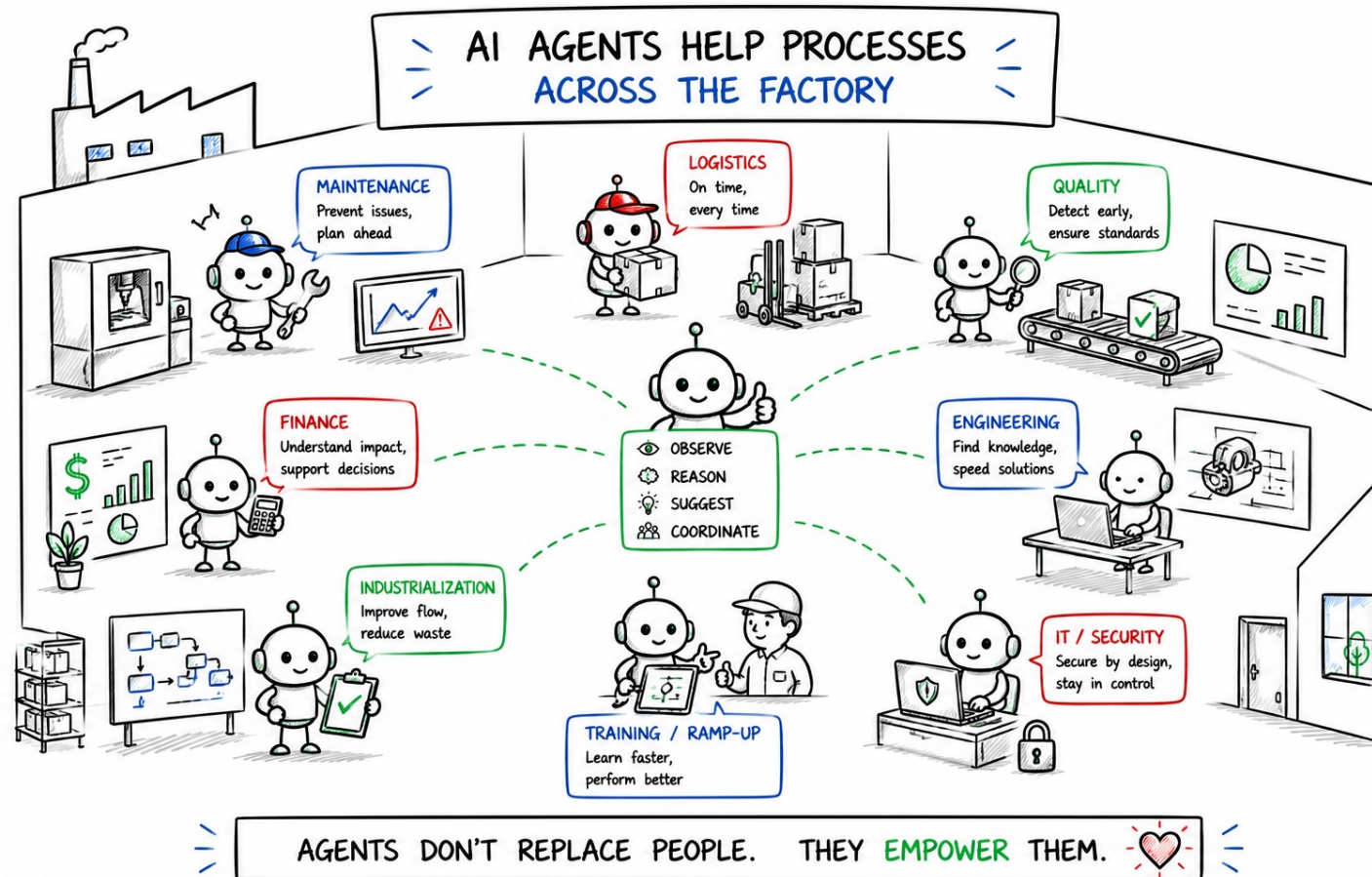
Focus on **data collection** has been there ever since

Numberous **analysis tools** exist to improve **product quality and line performance**

New data types are added to the equation which asks for new disclosure tools

This where AI is used to create **cognitive productionlines**

Currently we're working on:



AI/ML monitoring:

- Sensor readings to predict tool failure
- Process data to predict quality

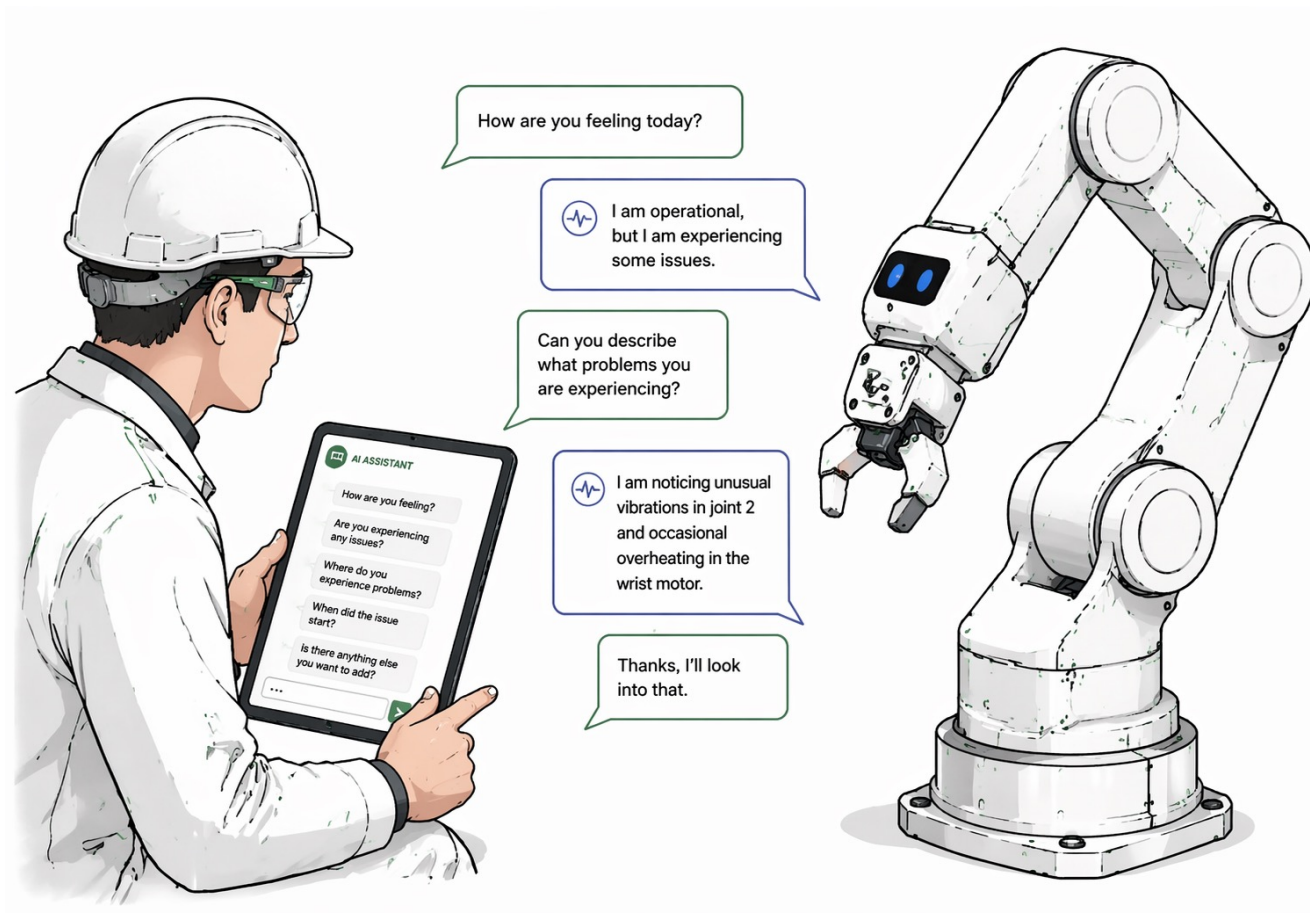
Adhoc and context aware operator instructions:

- Knowledge base able to give instructions in multiple languages

AI/ML architecture:

- Availability of the agents
- Quality of instructions
- Integration with IT/OT
- Governance, ownership and accountability
- Sensitive data and IP exposure

Thank you for your attention!





Gerard Ramaker

Business Development Manager

AWL Techniek B.V.

Harderwijk



AWL Group GLOBAL



200+

M€ of REVENUES

5

REGIONS

850+

EMPLOYEES

4000+

ROBOTS INSTALLED



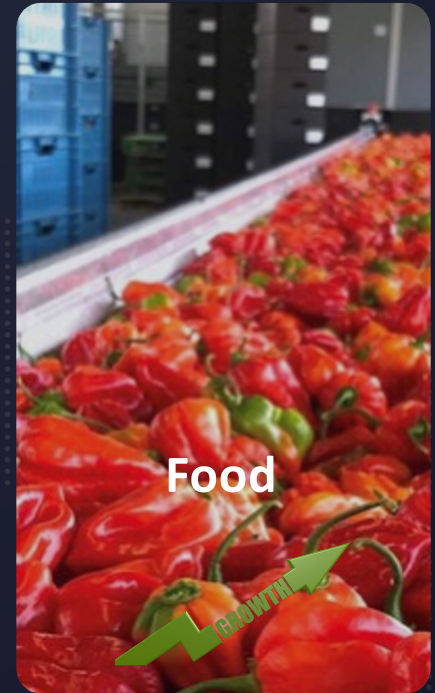
Automotive



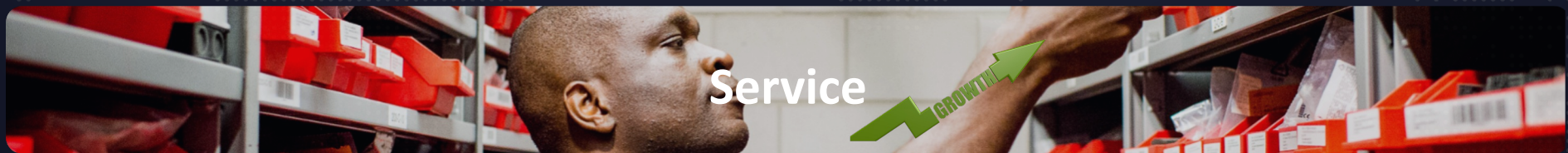
Intralogistics



General Industry



Food



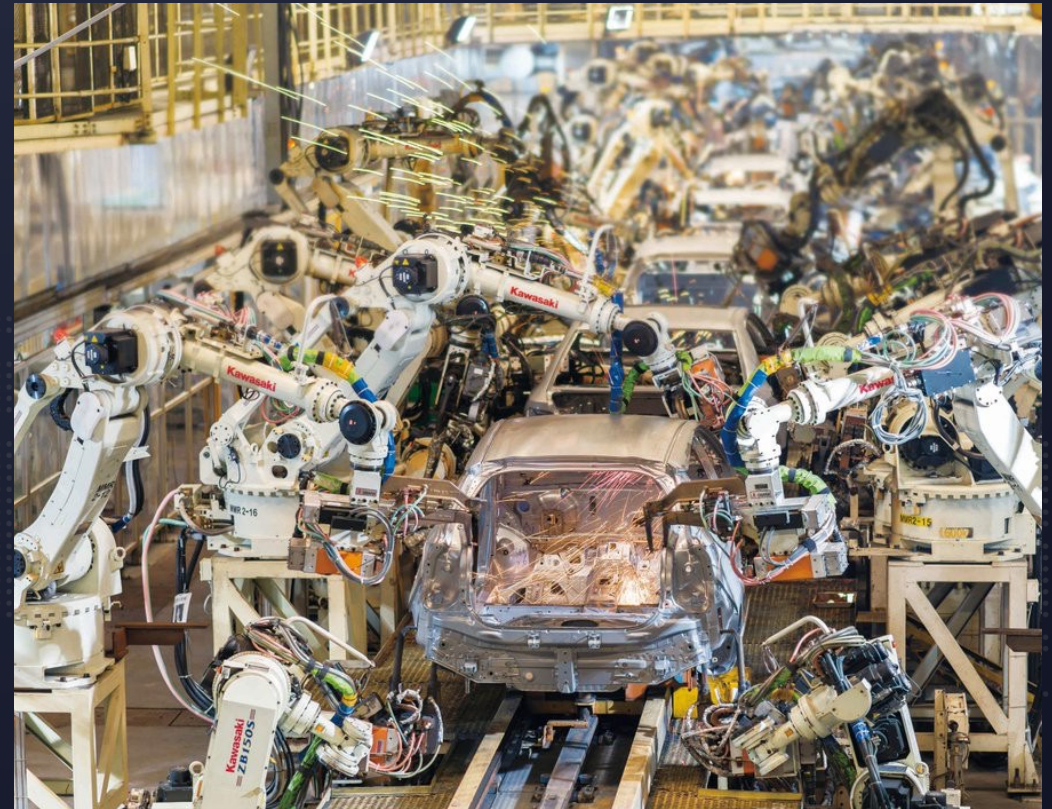
Service



Low mix, High volume



1908



2026

High mix, low volume

We are not automating repetition anymore.

We are automating variation

AWL.

The transition

Classic automation

Fixed programming

Structured input

Predictable

Cognitive robotics

Learning & adapting

Messy reality

Context-aware

But there is more....



AI just stepped out the screen

The headlines say "humanoids", but the real shift is underneath.

NEXT GENERATION OF AUTOMATION IS LEARNING FROM EXAMPLES



We are moving from **programmed automation** to **intelligent automation**

Harvesting the 'real world' dataset

Today, dozens data factories are creating millions of hours of training data



AWL.

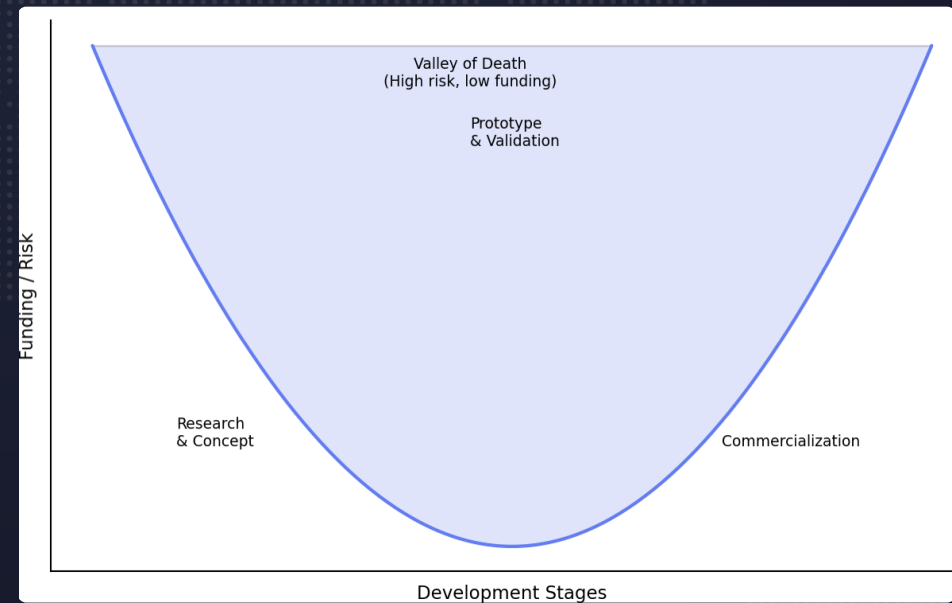
They said Agri & Food is f.e.
“too messy to automate”.
But that mess is exactly where
these systems are built for.



AWL.

The gap nobody talks about

“In the lab it works once. In industry it must work every second.”

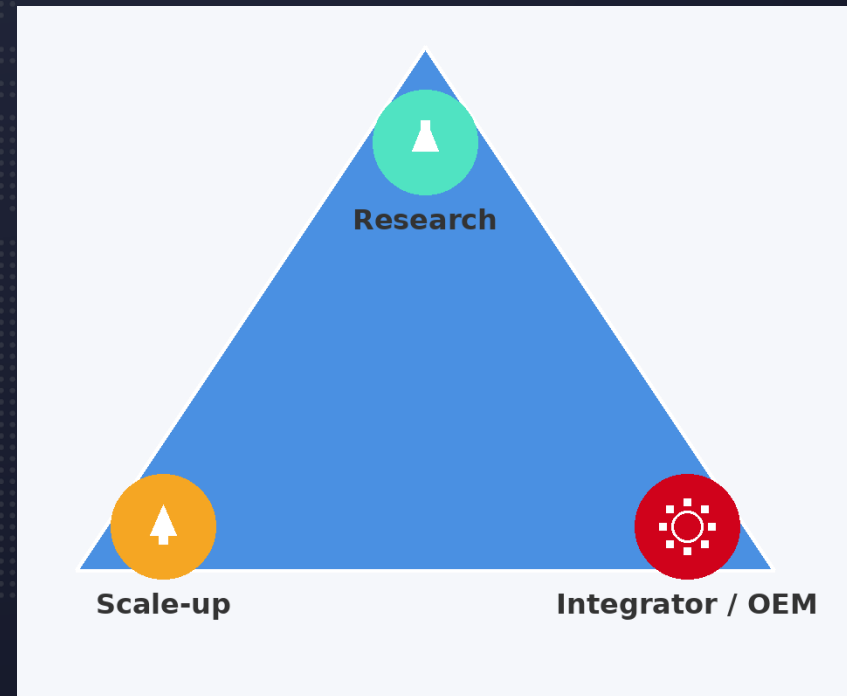


AWL.

Innovation ecosystem triangle

Research -> scale ups -> Integrators

No one can do this
alone

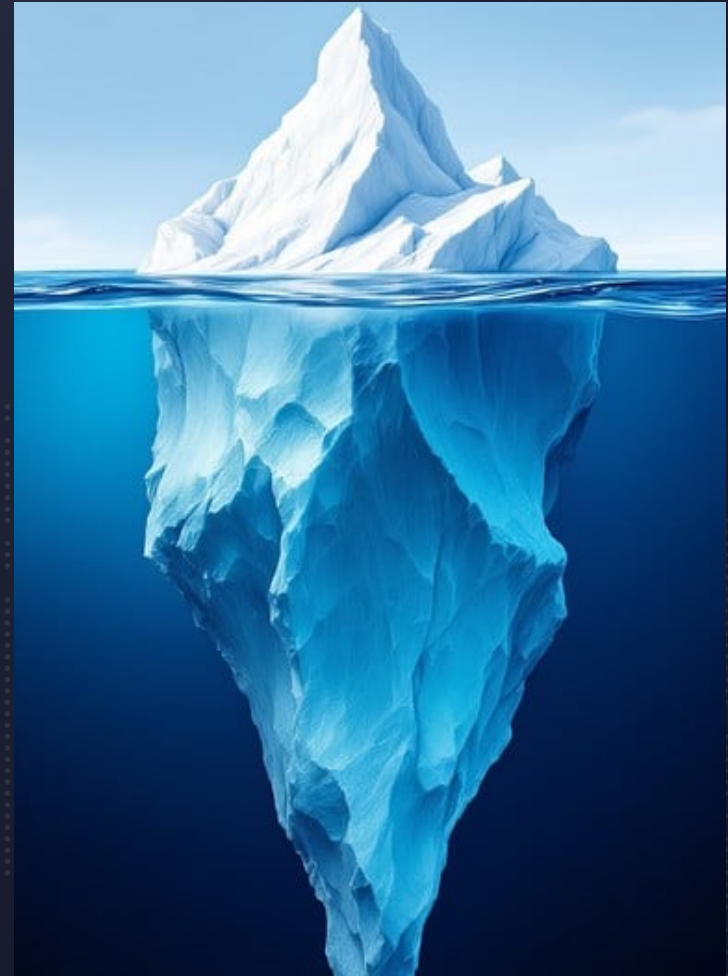


AWL.

It is not the AI

- Data quality
- Process understanding
- System Integration
- Change management

“The hardest part is not making robots smart it’s making systems reliable.”



The logo consists of the letters 'NL' in a bold, white, sans-serif font.

**Holland
High Tech**
Global Challenges,
Smart Solutions

The title 'IGNITE INNOVATION' is written in a large, bold, white, sans-serif font, centered within a yellow rectangular area. The background behind the text is a dark teal rectangle.

**ACCELERATING
DUTCH HIGH TECH**

NETWORKING EVENT 2026

**THANK
YOU**

NETWORKING EVENT 2026

NL

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Global Challenges,
Smart Solutions